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Little Dramas Everywhere

Using Ethnography to Anticipate the Future

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In this article, the chairs of EPIC2021 reflect on the idea of Anticipation, and what ethnography reveals to us that may not be readily apparent through other means. Looking backward at the year of planning a conference that was to be focused on the future, the authors describe various revelations that unfolded and revealed themselves over the course of time. They raise questions of method, of epistemological position, and ethical responsibility. The authors conclude that anticipation is very much an ethnographic activity, one in which we can ask difficult questions about power and practice.

A STORY IN 3 PARTS

We began planning the 2021 Ethnographic Praxis in Industry Conference way back in November 2020. This article emerged out of our own reflections during this most exceptional year of COVID-19 lockdowns, changes and uncertainty. Each of us, (English-Lueck, Ladner, and Sherman) examined our own journeys in this year of planning. We discovered threads that were related, yet unspoken. English-Lueck remembers how she came to understand evidence-based science fiction more deeply as part of her craft as an ethnographer. Ladner reflects on the thrill of anticipation, and Sherman considers her role in the development of a technology with unintended consequences. Together, our stories weave into a narrative: we watch little dramas everywhere as ethnographers.

PART I: AN ETHNOGRAPHER'S ANTICIPATION

Many of us speak languages whose grammars tempt us into thinking about time as a rather straightforward thing — we experience the present, remember the past, and dream about the future. Yet, we humans find it challenging to imagine the future in ways that allow us to make meaningful, effective changes in time to actually make a difference. As ethnographers, we employ time in our analyses constantly. Any phenomena that you can observe in the present moment possesses historical dimensions that reach into the past. At the same time, that present moment speaks to multiple possible futures. As practitioners who want our craft to have impacts on those futures, we need to cultivate a strong grasp of actions and their consequences, including elusive acts and unintended consequences. We need to appraise multiple futures. The future, however, is not yet here. We cannot study the future as we do the present. Or can we? Science fiction author and technology pundit William Gibson noted, "The future is already here. It's just not evenly distributed yet" (Gibson 1999). Gibson gives us a hint on how we could integrate evidence into our futures thinking. Maybe, through careful sampling and little imagination we can track those futures ethnographically, understanding that we only gain a partial glimpse and represent only one possible future of many. We can seek out the people, places, and activities that point to potential futures. We can't stare directly into the sun, but we can detect its corona.

I (English-Lueck) integrate *anticipatory anthropology* into my professional practice, a phrase elevated by Robert Textor (1989). Textor was inspired by Margaret Mead, who explored systems theory and social change in the mid-twentieth century, and introduced the nascent field of futures studies to anthropology (1978). Textor asserted that people are agents that shape futures emerging from our current cultural schema. We can document the beliefs, practices, and spaces people articulate and create to glimpse underlying schema about the future. Textor developed a methodology, the Ethnographic Futures Research technique (1980) designed to elicit hopes, fears, and expected mechanisms related to changes in a particular domain. Using this technique, we turn an "ethnography of future" into a projective test that reveals how people believe the world works, where they think failure will occur, and what constitutes success. As compelling as this exercise is in revealing cognitive schema, our community of practitioners wants to affect change, to make an impact on the world. Our anticipatory skills must include not only grounded, evidence-based foresight, but give us a blueprint for actions. We must base our practices not only on ethical reflections of the present, and retrospective considerations of the past, but on prospective visions of the future. In our practices, we must cultivate the ability to imagine consequences, and evaluate designs or plans that will shape peoples' future experiences. I used these techniques to elicit and parse the values of Chinese technologists and Silicon Valley's workers about the future of their work in my academic writing (English-Lueck 1997; 2017)

Anthropology has embraced thinking about the future in its theoretical corpus. Arjun Appadurai inspired a new generation of scholars to consider the future as a power-laden cultural construction (2013). People do not weigh all visions of the future as equal, but veer toward those versions that reinforce structures of power and wealth. Nostalgia and privilege are magnetic forces that distort the visions that make it into media for mass distribution. That fact should not deter anthropologists from finding those less visible versions of the future that come from the margins of power, but may yield more equitable futures. However, our EPIC community, although it has roots in academia, is a more practical one. We need to ask how we can use this future thinking in our work with governmental, non-profit, and for-profit organizations?

I integrated anticipatory anthropology into my work as a Distinguished Fellow with the Institute for the Future (English-Lueck and Avery 2014). That organization pioneered the practice of transforming insights based on ethnographic evidence into foresights that can help organizations mobilize actions (Johansen 2007). That sequence, insight-foresight-action, is the core of the practice of *ethnofutures*. This approach is highly compatible with design-thinking and other modes of practice. Ethnofutures requires rigorous evidence, active imagination, and an ethical toolkit to both serve the needs of clients and employers, and stay true to our anthropological and sociological heritages. My conference co-chairs (Ladner and Sherman) provide detailed insights about their theoretical perspectives and practical struggles.

PART TWO: "LITTLE DRAMAS EVERYWHERE"

Humans are rather maudlin as historians yet strangely optimistic about the future. Lamenting the past has at times been elevated to a zeitgeist at various moments in human history. Lamentation seems to be a pastime also for androids (at least in our human imaginations, it is). In the final moments of his android life, Rutger Hauer's character in

Blade Runner famously recounted the imagined events of a fictional future, that to him was a real past. He laments, "All those moments will be lost in time, like tears in rain."

There's something about looking backward that breeds lamentation. It is a satisfyingly dismal pastime to recall our past moments (is it any coincidence that Gibson chose GreatDismal as his Twitter handle?). When we try to remember those moments that passed us by in that unnoticeable way that quotidian life tends to do, it feels only natural to feel the sharpened dart of regret when we realize how little we really actually remember. Looking backward is sad.

But looking forward? Imagining the future? This is not sad. It is exciting and anxiety-producing, but certainly not sad. Thinking about the future is thrilling, scary, full of possibility, feral (Ramírez and Ravetz 2011)—like taking in the view from the edge of a precipice. Like the moment at the top of that first climb in a roller coaster. I (Ladner) recall my first roller coaster ride: the abject terror, the long slow climb, the thrill of feeling gravity in your stomach. We are about to embark on something. It is scary and exciting all at the same time.

Ethnography is a unique and powerful method to appreciate that view from the precipice. Disciplines like psychology and biology analyze that moment atop the roller coaster by focusing on the individual's cognitive or physical state. We may know the physiological response to fear, or perhaps the cognitive experience of excitement. Take for example, the famous series of experiments on the Capilano Suspension Bridge (Dutton and Aron 1974), where psychologists tested to see if men approached by a female confederate would call to participate in a fictional future study. They were approached either on the terrifying suspension bridge or on a decidedly less terrifying foot bridge. The psychologists hypothesized that the participants would misinterpret their terror for attraction for the (same) female confederate. And they were right.

But what about understanding the social and cultural context of that moment on the precipice? Ethnography offers a kaleidoscope of lenses to click through that frozen moment, to anticipate what is to come, and to make sense of the complexities that drive it. There is more to that moment than simply whether a person misinterprets exhilaration for attraction. Ethnographers look at the margins, not just at the main event. They see norms, rituals, behaviors of all actors, even not the stars of the show.

Consider what an ethnographer might notice in the very same context of Capilano Suspension Bridge Park. We may look at the people and objects in the park, the couples walking together, the families eating, and the tourists arriving by the busload. They may see the weak signals of change in all of those activities, in all of those groups, happening at the margins. We are not caught up in the big show of the excitement, but the little dramas happening all around, in plain sight but often passing unnoticed. It is within these little dramas that the seeds of change are growing—and the potential for insight lies.

It is with just such a lens that I (Ladner) explored applying this lens to reinvigorating business offerings. Aging products can be renewed and brought to market once again with a fresh sense of meaning for their customers if product designers attend to little dramas (Ladner 2012). But this is not typically how businesses anticipate change. Instead, they tend to rely on quantitative approaches such as using so-called Big Data or more recently, machine learning. These approaches focus on precise prediction and therefore miss the social and contextual nature of change. Ethnography, on the other hand, allows product designers to finely tune their offerings to match their customers' practices and norms. For

example, people experience time that does not comport with quantitative notions of time as a consistent passing of identical seconds and minutes. A real human timescape is made up of socially subtle dimensions, including when an activity starts, how quickly or intensely it ought to progress, and how it synchronizes activities and people. Products that are temporally out of step with their customers are tone deaf at best, and downright destructive at worst. Understanding how and where change will happen is primarily about understanding practices deeply and temporal practices, in particular.

The theme of EPIC this year is *Anticipation*. This year was full of what seemed wild, unpredictable changes. I say "seemed" because 2021 is a year of accelerated change, of herky jerky life, and the pile-up of unintended consequences greeting us each morning. Each day brings more excitement and anxiety. But none of these changes were hiding. They were the big show, right in the middle of everything. Those in this community use this ethnographic lens to notice, really notice, what is happening at the margins. What is happening over there, in that far corner of the company? What is happening over here, with these particular consumers of our product? What are the rituals, norms, and beliefs that make this current state what it is?

It is this lens that gives us a powerful tool to anticipate what is yet to be. How will these rituals, norms and beliefs collide with tomorrow's wild change? Psychological and biological science tells us how a single human may react at the top of a roller coaster, but it doesn't tell us much about how people will react. We know the mechanism of action of an mRNA vaccine (and thank goodness we do), but scientific culture almost prevented it from happening. A *Washington Post* profile of mRNA inventor Dr. Katalin Kariko shows us that she herself was underestimated, dismissed, or ignored by her many scientific colleagues. Nevertheless, she persisted, and pursued her grand scientific vision amidst a sea of scientific mediocrity (Johnson 2021). The vaccine itself became a cultural lightning rod, to the surprise of everyone except the ethnographers who saw the drama coming. Ethnographers like Arlie Hochschild (2016) warned us years ago that resistance to political and scientific institutions were fraying. It is of little surprise that that little drama on stage left has now become the main event.

Ethnography helps us anticipate the many possible futures that await us down the other side of that hill. In this conference, we will use that ethnographic lens to explore what fictional futures can be created with new beliefs. We will use that ethnographic lens to re-invigorate literature. We will see how old norms can bring new ways of negotiating ownership, and how new norms can break past injustices. This lens on old rituals gives us new ways of seeing future practices, and of practicing our future craft.

PART THREE: THE FUTURE IS MESSY AND WE MAKE IT

For EPIC2020, Anne McClard and I (Sherman) wrote a paper about research we had done that reframed how Intel thought about toxicity in gaming (Sherman and McClard 2020). Specifically, we advocated for a more nuanced understanding of how language works and further research into how players define what is "toxic" in voice chat. We never got to do the additional research we wanted, and both McClard and I largely stopped working on that project. But the team made some real design changes, based on the insights that we had shared. They went from thinking of "toxicity" as a single volume dial one could turn up or down to filter out offensive speech, to something that looked more like an equalizer with

multiple sliders enabling players to make choices about the kinds of "trash talk" they were and were not comfortable with. When they presented their solution at the Game Developer Conference, a mini-firestorm broke out on social media with some suggesting that Intel was enabling players to "opt into racism" while others argued back that—while a bit ham-fisted—the idea was a move in the right direction that recognized differences in language use across individuals and groups.

Honestly? I never liked those sliders. But I also didn't have a better idea at the time and it was no longer my project, so I said nothing. It is fair, then, to say that both my work and my silence contributed to those sliders and thus to the Twitter-storm, the accusations, and the debate.

In the context of anticipation, of thinking about futures, and the impact ethnography can have, what should we make of my little story and the many stories like it that I imagine any of us could tell? And what did we do, myself, Anne, and the project team? On the one hand, we presented a project that was received poorly, and exposed the company to some very nasty accusations. On the other hand, we sparked a public discussion about toxicity in gaming, and about race and language that would not have occurred quite the way it did were it not for our ethnography. So while I would hardly argue that we affected Change with a capital 'C,' our work certainly had consequences (small 'c') for the team, for the project, and ultimately perhaps, in some way to a future that will or will not unfold: for better or for worse.

For better or worse is of course the question at stake. Which was it: better? or worse? When we think about the roles we play—as researchers, as practitioners, as workers, and as influencers within our own spheres, which is it? In the projects we have contributed our insights to: what futures have we brought into the present? For better? or worse?.

Professionally, and personally, I habitually think of myself on the outside looking in - laboring to understand both my stakeholders and my domain, often feeling a bit powerless, sidelined, maybe a little abstract, at times overly complicated. But as Jan English-Lueck reminds us, in the opening to this statement, we should pop that comfortable self-delusion. We make the future and do so from a place of privilege in the multi-national corporations, agencies, and organizations many of us work for, whether as employees or surrogates. She calls our attention to the responsibility that entails, to consider not only the voices of people from other vantage points, but the consequences of futures imagined from our place of privilege on the places and people who have the least say. Sam Ladner, also above, reminds us of the particularly powerful lenses that ethnography brings to table, enabling us to see and notice both past and future differently.

But as I hope my story of toxicity sliders demonstrates, futures are not just unevenly distributed; they are messy, fragmented, and imperfectly executed. Sometimes we can't think of anything better, and sometimes things that seem like a great idea, don't work out the way we had envisioned. Better and worse can be contextual, positional, and ephemeral.

How are we to think about this complexity? How might we turn those ethnographic lenses on our own selves: our practices, our sense-making, and our worldviews? How, to mis-appropriate Lévi-Strauss (1991) abominably, might we use our own metaphors, contradictions and binaries, our "better"s and "worse"s to think with? My invitation to you, the call to adventure I issue, is to wade bravely into that messiness. Let us reckon individually and collectively with the peculiar balance of power and potential, the straddling

of inside and outside, the inevitable incompleteness, and the terrifying concreteness of the futures we envision, impact, and enact.

THE STORY IS YOURS

As ethnographers, our craft brings us into intimate contact with multiple communities. We see mismatches based on temporality and values. Power emboldens some stakeholders to claim the future, and push the futures they find most desirable. We need to remind ourselves constantly that those are only some of the futures that people make and experience. They may not be the best alternative. It is our ethical imperative to consider the impacts of such official, privileged futures on the rest of the planet, and find more inclusive futures that "are already here," but in unexpected places and with unheralded communities. We must critically examine our own work and contributions for unintended consequences and indirect ramifications. Within those little dramas everywhere are our critical ethnofutures.

Jan English Lueck is a Professor of Anthropology at San José State University and a Distinguished Fellow at the Institute for the Future. She is Past President of the Southwestern Anthropological Association and the Society for the Anthropology of Work. Jan is an advocate for ethnofutures, integrating ethnography and forecasting, and she writes ethnographies about societies who actively create new cultural futures, from China to Silicon Valley. Her books include *Cultures@SiliconValley*, now in its second edition; *Being and Well-being: Health and the Working Bodies of Silicon Valley*; and *Busier than Ever! Why American Families Can't Slow Down* (with Charles Darrah and James Freeman). Her forthcoming book is *Reengineering Nature in Silicon Valley*.

Sam Ladner is a sociologist and long-time member of the EPIC community. She is the author of *Practical Ethnography: A Guide to Doing Ethnography in the Private Sector* and *Mixed Methods: A Short Guide to Applied Mixed Methods Research*. She has worked on dozens of advanced software projects including Alexa, the Echo Look, Windows 10, Microsoft Office 2016, Cortana, and HoloLens. She currently works at Workday, an enterprise software company, as a Principal Researcher studying the future of work. She received her PhD in sociology from York University and lives in the Bay Area with her husband and cat. When Sam isn't co-chairing EPIC's annual conference, she teaches the EPIC Course [Ethnographic Research Design & Innovation](#).

Jamie Sherman is a cultural anthropologist and a senior product researcher at Facebook. Previously she was a senior research scientist at Intel. Her research background is in techniques and technologies of self-transformation, performance, and dynamics of race, gender, and play. Recently her work has focused on emergent technological practices, from quantified self to virtual reality and the future of entertainment. Her research has developed usages and driven strategies for video game play, media creation, and online toxicity. Jamie holds a PhD in anthropology from Princeton.

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Case Studies

Anticipating Civic Needs and Skills

COVID-19 was a catalyst for rethinking the future of workers and public service providers. Across countries and contexts, researchers needed to understand the changing landscape of labor. These case studies demonstrate how researchers have anticipated new worker realities.

Anticipating Needs

How Adopting Trauma-Informed Methodologies During COVID-19 Influenced Our Work Connecting Frontline Workers to Temporary Housing

MEREDITH HITCHCOCK, *Airbnb.org*
SADHIKA JOHNSON, *Independent (formerly Airbnb)*

This case study argues that all research should be trauma-informed research. It asserts that because researchers cannot anticipate everything about research participants' needs, histories, and context, taking an approach that assumes all participants are more likely than not to have experienced trauma should be the paradigm for researchers. Even before receiving formal training in trauma-informed research, incorporating methodologies from trauma-informed research can make all researchers more human-centered. From March–April 2020, researchers from Airbnb conducted research to help launch a program that provided free or discounted accommodations to COVID-19 frontline workers: Frontline Stays. The researchers needed to conduct research with both frontline workers and Airbnb hosts who were temporarily opening their homes to them. Some of the researchers had received formal training in trauma-informed research. Others did not have the training, but recognized that it was important to understand and apply some of the principles for the Frontline Stays work. For this research project, it was clear why the researchers should assume that research participants had a history of trauma or were currently experiencing trauma. But COVID-19 was also a catalyst for the researchers to rethink what their baseline approach to conducting research should be. The case study outlines the trauma-informed methodologies the researchers used and discusses how this impacted their research methods and approach with stakeholders.

INTRODUCTION

In March 2020, it was clear that COVID-19 was becoming a global pandemic. During these early months of the pandemic, many healthcare professionals and other COVID-19 responders needed to self-isolate. Others were traveling to hot spots and were at risk of being without shelter; many people were hesitant to rent or sublet to them. Responders who stayed in place worried about exposing their families and communities to the virus, especially due to the lack of Personal Protective Equipment (PPE). Responders also faced immense pressure as they provided for patients and worked longer and more frequent shifts.

THE RESEARCH NEED

Since 2012, Airbnb has partnered with Hosts, nonprofit organizations, emergency management agencies and governments to provide stays to people around the world in times of crisis. The program was formalized as Open Homes in 2017, and focuses on providing temporary housing to refugees and asylum seekers and people displaced by disasters or other crises around the world. (As of December 2020, the work sits under Airbnb.org, a nonprofit organization that connects people in crisis to safe, comfortable places to stay.)

When the severity of the COVID-19 pandemic became clear, multiple teams at Airbnb were keen to help. Teams saw an opportunity to adapt the existing program and technology

tools from Open Homes to help temporarily house frontline workers including healthcare professionals, firefighters, and others. As the teams were adapting and expanding the program and product to accommodate frontline workers, there were many open questions to answer: How long would responders need accommodations for? What specific needs did frontline responders have? How easy or difficult was it for them to find and book temporary housing through Open Homes? Airbnb Hosts were being asked to provide temporary housing at the onset of the pandemic: How many Airbnb hosts would be interested in temporarily housing responders? What information would they need to have in order to participate in the Frontline Stays program? Would hosts need additional support or resources to feel comfortable hosting responders?

Researchers worked closely with Product, Engineering, and Operations teams to help adapt the Open Homes program so it could provide free or discounted accommodations to frontline workers: Frontline Stays. The researchers needed to conduct research with both frontline responders and Airbnb Hosts. In the first weeks of Frontline Stays, the research goal was to understand how to make it as easy as possible for frontline workers to find and book temporary housing. As the Design and Product teams iterated on Frontline Stays, an ongoing research goal was to identify barriers to finding accommodations on an ongoing basis. On the host side, the early research goals were to understand any hesitations around hosting frontline responders and what information they would need to assuage these concerns. As the program matured, the host-side research goals were to understand challenges hosts were facing while hosting responders, and whether they were experiencing any usability issues.

Understanding user needs was the usual work of researchers at technology companies, but conducting research during this unprecedented time brought complications the researchers needed to address. The context of the COVID-19 pandemic had particular relevance for some of their research participants: There was already news coverage about the level of trauma that medical professionals were experiencing as they faced overwhelming numbers of patients in hospitals, inadequate PPE, and grueling hours. This was the group of people Frontline Stays was being set up to help. And trauma wasn't limited to responders: In early conversations, it was immediately clear that hosts were grappling with uncertainty about how to stay safe, worries about the future, and income loss. Many of these hosts were willing or even excited to give back, but they were also trying to make complex decisions during an overwhelming and difficult time.

Taking a trauma-informed research approach means researchers design their research approach and conduct interviews with research participants in a way that assumes a history of trauma. The need for trauma-informed methodologies was immediately clear given the individual trauma COVID-19 frontline workers were experiencing through their work and the mass trauma people across the world were experiencing as the pandemic disrupted their lives. Some researchers on the team had previously received training in trauma-informed care ("TIC") from institutions like the San Francisco Department of Public Health. Other researchers on the team hadn't been trained, but they needed to quickly learn and adopt some of the principles and methodologies to be able to conduct research for Frontline Stays.

They needed to adapt their approach while also working quickly to help meet the need for temporary housing. As the Frontline Stays teams tried to reach more frontline workers and onboard more people to provide temporary housing, they were seeking daily or weekly

insights on what changes to make. The researchers needed to both take special care to protect their participants' safety and ensure Product, Operations, and Design teams were receiving steady information about what changes they needed to make.

ADOPTING TRAUMA-INFORMED RESEARCH METHODOLOGIES TO CREATE A MORE HUMAN-CENTERED APPROACH

The researchers who had been trained in trauma-informed care worked with other Airbnb researchers, Design team, Product team, and Operations leaders to ensure all employees working on Frontline Stays were versed in the principles of trauma-informed care. They focused on socializing five of the trauma-informed principles from the Substance Abuse and Mental Health Services Administration (SAMHSA). SAMHSA is a branch of the U.S. Department of Health and Human Services, and runs the National Center for Trauma-Informed Care. The principles are outlined below, and how they impacted research methodologies is discussed afterward.

Table 1. Trauma-Informed Principles

Trauma-Informed Principle	Description
Safety	Prioritize and protect the psychological well-being of people in your care
Trustworthiness & Transparency	Provide full and accurate information about what's happening and what's happening next
Empowerment, Choice, and Voice	Give people agency and help them feel in control of what and how much information to share
Collaboration & Mutuality	Create partnerships with collaboration or shared decision-making
Cultural, Historical, and Gender Issues	Recognize that trauma disproportionately affects those who are already vulnerable

Adapted from the Substance Abuse and Mental Health Services Administration [1]

ADAPTING METHODS TO ANTICIPATE AND ACCOMMODATE THE UNKNOWN

A trauma-informed research approach means both adjusting research methods and getting buy-in from stakeholders about the approach. The following sections discusses how the research approach differed compared to a non-trauma informed approach and the impact of convincing stakeholders on other teams that this approach was important.

The Standard UX Research Study

When conducting research in a business context, the team optimizes for business impact. The process unfolds as follows:

1. **Getting buy-in:** Researchers align with stakeholders to ensure there is a research need and that stakeholders will be invested in acting on the research.

2. **Scoping**: Researchers work with stakeholders to understand the team's business goals and translate them into a rigorous research plan.
3. **Recruitment**: Identify and recruit a robust and representative sample.
4. **Fieldwork**: Conduct systematic fieldwork (e.g., interviews with a strict discussion guide to stay on track and minimize bias).
5. **Share-out and Impact:** Work with stakeholders to translate learnings into action.

The end-to-end process is typically weeks or months long. For Frontline Stays, the process had to span a few days because of the urgency to house frontline workers and the ever-shifting pandemic conditions that were changing hosts' and potential hosts' attitudes and behaviors. The whole timeline of the research process was severely condensed and occurring simultaneously with product development. The researchers also needed to diverge from their standard practice within each phase.

1. Getting Buy-in

Product teams were used to receiving direct feedback on designs and rigorous usability testing with a minimum number of participants. In order to protect the psychological wellbeing of participants under the Safety principle, the researchers were hesitant to recruit frontline workers and/or conduct prototype testing via video interviews. Requiring video and high-speed internet access for prototype testing would violate the principles of Choice, and Equity. The researchers knew their standard methods for remote interviews would need to be reconsidered. Although the need for adopting trauma-informed principles was abundantly clear to the researchers, some stakeholders had to get comfortable with the divergence from standard methods. Part of a trauma-informed approach is systems-level change, and the researchers needed to start that work.

Researchers and designers initially worked with stakeholders to get buy-in on the approach through an academic lens, sharing educational resources and literature to help them understand how trauma could be impacting the health of users (frontline responders as well as hosts). The researchers then supplemented the academic lens with a systems approach by working with Amelia Savage, Global Support Operations Manager for Open Homes (now Airbnb.org). Amelia's team – a specialized customer service team – regularly interacts with users who may be experiencing trauma, and had developed a training program for trauma-informed communication. Researchers worked with leadership to ensure the entire team underwent the training and was well-versed in the impact of trauma.

To reinforce the point that they were more likely to be experiencing trauma than not, one researcher turned to a relational approach by sharing anonymized first-person accounts from first responders. She combed through qualitative entries from the Frontline Stays submission form to surface "Daily Responder Stories" to help stakeholders understand and empathize with responders' experiences. Once stakeholders heard from the responders in their own words, they were able to understand the distress the responders were experiencing and the urgency of their booking requests. The need to change the team's way of working sank in. The combination of academic resources, training, and first-person stories made them realize that the team needed to revise the scope, constraints, and methods to avoid burdening or re-traumatizing our users.

2. Scoping

Normally, the researchers would have included in-depth interviews and usability testing as key parts of their research plan. One of the initial scoping constraints was finding data sources that didn't involve direct communication with frontline workers, who were likely in the middle of an ongoing traumatic experience. These passive sources of data were mined to build a foundational base of knowledge and zero in to identify where direct feedback was needed. This way researchers could derive insight and guide the product and design teams, while minimizing responders' time and energy. Although researchers are not typically responsible for detailed quantitative analysis of behavioral data, the team dove in and conducted a full anonymized analysis of the booking funnel, and identified areas where frontline responders were dropping off in the process of booking a home through Frontline Stays.
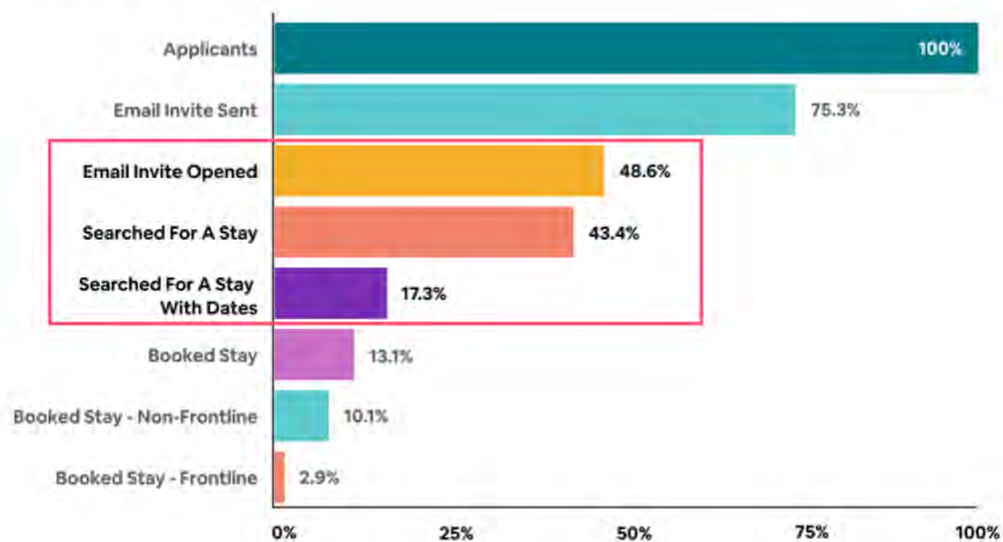
Figure 1. Funnel analysis chart for the Frontline Stays booking funnel. It shows that many responders searched for accommodations without adding dates.

The funnel analysis showed that many responders were searching for accommodations without adding dates, which meant many of the search results were not available during their desired dates. These responders never returned to the search process. Under normal circumstances, the researcher would have recruited participants from this segment for interviews to understand their reason for drop-off. However, in order to adhere to the principle of safety, the researcher was forced to exhaust all other methods prior to engaging frontline workers directly. She dug deeper into the behavioral data. Further anonymized analysis showed that many of these responders were new to Airbnb and potentially unfamiliar with the booking process.

Anticipating Needs — Hitchcock & Johnson

The booking flow at the time was designed to minimize steps between applying to the program and access to accommodations. However, in an effort to make the flow as quick as possible, the Design team had missed a crucial step: onboarding for new users. Additional interviews were not needed to determine the next steps: design an onboarding flow with education on how to use Airbnb. Looking at this from a trauma-informed lens meant the research team could discuss the potential magnitude of the issue: trauma impacts how easy it is to make decisions, which increased the importance of updating the user experience related to decision-making. Based on this analysis, the Design and Product teams revamped the flow to reduce cognitive load and make it more obvious that entering dates was part of the search process:
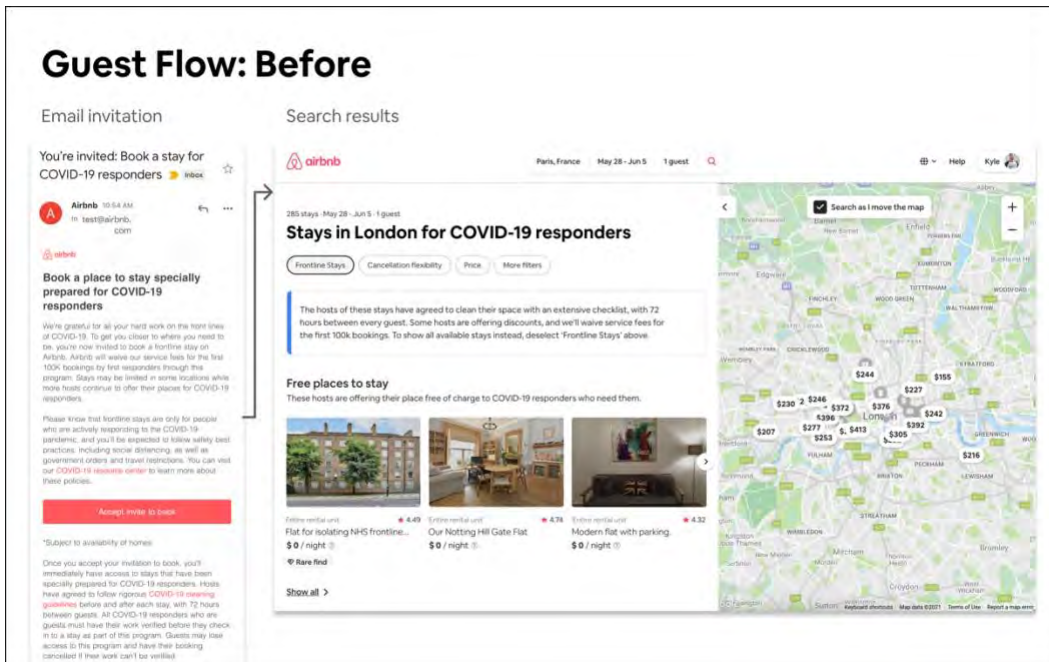
Figure 2. The original email invitation and search results page frontline workers saw through Frontline Stays. In this booking flow, many frontline workers missed adding dates to their search.
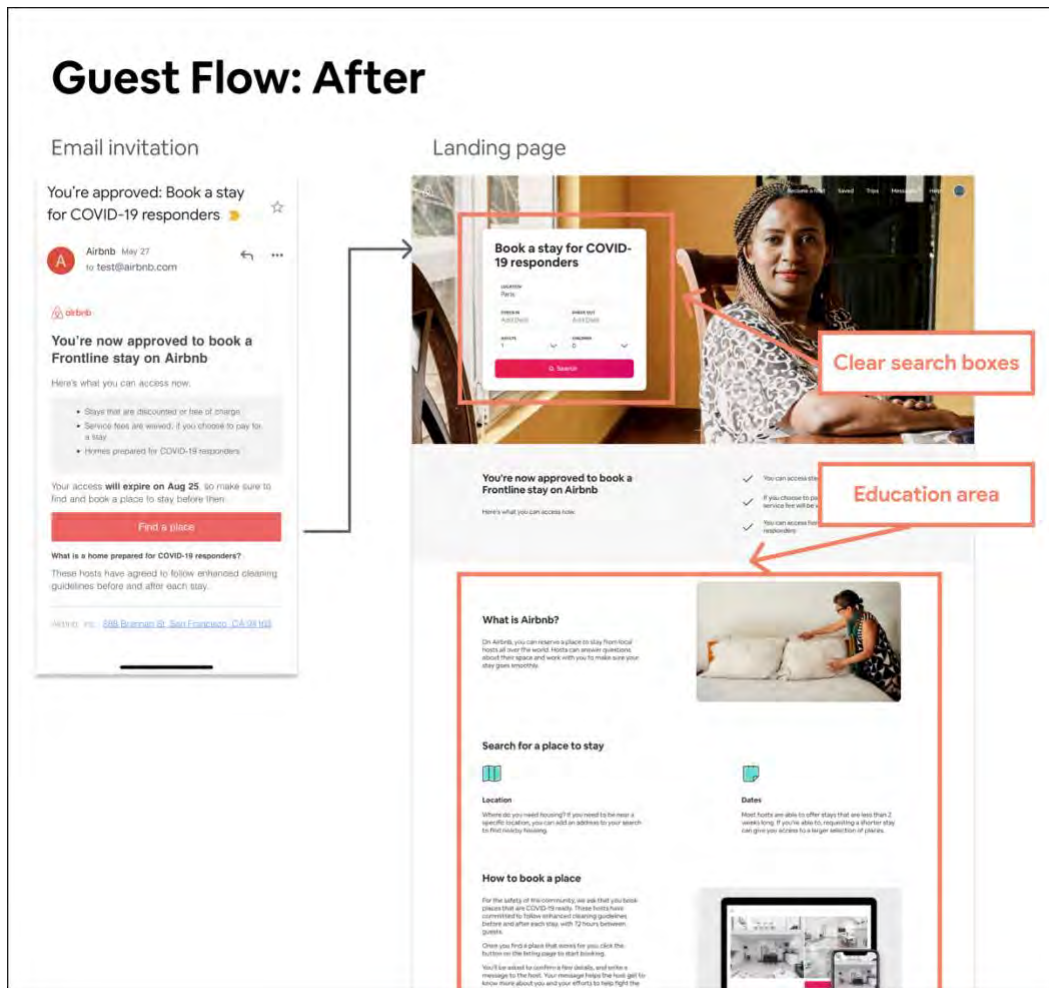
Figure 3. The updated email invitation and search results page. The revised booking flow included new user education and made it more clear how to enter dates when searching.

Adjusting the balance of research methods because of the trauma-informed lens forced the researcher to expand her methodological toolkit, and resulted in quicker and less resource-intensive insights.

3. Recruitment

The research team was used to having a large pool of hosts and guests to recruit from, with a robust recruitment process. However, when the COVID-19 pandemic struck, the research operations team paused all recruitment to avoid bombarding people with email during a time when they might be undergoing trauma.

The exception was for limited Frontline Stays research. For safety reasons, all interviews with potential Frontline Stays Hosts were conducted virtually. Normally, the research team's screener ensured remote interview participants had a long list of criteria: internet access that

Anticipating Needs — Hitchcock & Johnson

could support a 60-90 minute video call, willingness and ability to take the interview from a desktop or laptop computer (no tablets or phones), attestation that they could take the interview from a quiet and non-distracting space, and so on.

Limiting the pool of participants in this way already introduces bias: it is a privilege to have access to all of the criteria listed above. Potential research participants who meet all of these criteria and have time during the workday to participate in research are a nonrepresentative group. This was especially true at the beginning of the pandemic. People were newly working from home, trying to manage childcare and work at the same time, experiencing job losses, moving out of apartments, and more.

Recognizing this, the team adjusted their recruiting criteria to make sure they would reach potential Frontline Stays Hosts who represented a diverse array of attitudes, backgrounds, and current context. This decision aligned with the equity principle in a trauma-informed research approach, which requires trying to recognize historical trauma, move past biases, and create culturally responsive research and design. From a recruiting perspective, this means not inadvertently excluding groups of people from research just because they are more difficult to recruit. Groups who are more difficult to recruit are frequently part of groups already disproportionately affected by trauma. Leaving them out of research studies at technology companies means teams run the risk of inadvertently retraumatizing them or othering them when they use the product. But making the additional effort to recruit difficult-to-reach groups and get a diverse set of perspectives also makes for better research.

Updating the screener was one part of this effort for Frontline Stays. Another key component was offering a wide set of potential interview times to include participants who weren't available from 9am–5pm. The standard practice at technology companies is to conduct interviews between 8am and 6pm, unless the research primarily focuses on a group who is not available during that time. The researchers offered interview times outside of the typical window to ensure they could recruit participants who were unavailable during the day – people juggling at-home work and childcare, employees at fast food restaurants who only get 15-minute breaks, etc. To protect their mental health, the researchers temporarily shifted their working hours or ended future work days early after studies that included interviews conducted before or after normal working hours. The team combined this with their standard practice of using optional questions about gender, age, and race in the screener to recruit a diverse set of perspectives.

The researcher interviewed potential hosts who didn't own personal computers and did the video interview via smartphone, who had to pause the interviews to help their children with school, and who had to join via phone because their home's bandwidth could consistently only support one video call at a time. The varied interview settings drove home the extent to which many potential hosts were trying to make a big decision – whether to offer free or discounted temporary housing to people who might have been exposed to COVID-19 – while already dealing with a higher level of stress and uncertainty. Choosing to recruit participants who were more difficult to schedule and adjusting the recruiting criteria helped the researchers to paint a more accurate picture of the various potential host experiences, hesitations, attitudes. Being able to talk about how varied the hosts' contexts were also helped the researchers remind the Product and Design teams that hosts were not going through the sign-up flow in a vacuum. The Operations team continuously updated the Help Center to craft and rewrite the content they knew hosts needed based on the research,

such as information about the program policies designed to help keep Hosts safe. The Design and Product teams updated the host sign-up flows to improve the clarity of the in-product education in the sign-up flow and tools such as calendar management.

Using trauma-informed principles for recruiting meant balancing equity with rigor. The need for trauma-informed recruiting was clear, but the key tenet of trauma-informed research is that researchers should act assuming it's more likely than not a participant has a history of trauma: it's impossible to know every participant's full history. All research should be trauma-informed research, and all recruiting should consider equity.

4. Fieldwork

A. Trauma-informed interviews

For interviews, the researchers adopted practices from the FRAMES model of motivational interviewing. Work in the past decade has shown the applicability of motivational interviewing skills in a trauma-informed framework.[2]

Table 2. Trauma-Informed Interview Framework

"FRAMES"	Description
Feedback	Provide feedback about the context and reason you are requesting information
Responsibility	Encourage the person to take charge of their participation
Advice	Provide direction in a gentle, non-directive manner
Menu of options	Provide a range of options when possible
Empathy	Express empathy both verbally and non-verbally to make it clear that you care about the person's well-being
Self-efficacy	Provide positive reinforcement by highlighting their courage and willingness to participate in interviews and share information

Adapted from Hester and Miller, 1995.[3]

B. Breaking habits

The researchers also had to break habits. This included no longer using common questions and responses that come naturally when other people are sharing difficult stories or when one wants to express empathy. What seemed innocuous could potentially re-traumatize. The Research and Operations teammates who had received trauma-informed training put together a list of questions to avoid, as well as things to say instead. To name a few:

Table 3. Common Phrases to Avoid, And Suggested Replacements

Phrases To Avoid	Phrases To Use Instead
"How are you?" This common phrase to build rapport at the beginning of interviews has the potential to trigger people going through active trauma. For example, asking a doctor who's just lost a patient to COVID-19 how they're doing may remind them that they're not doing well, remind them how difficult it was to lose the patient. More generally, it might be the anniversary of a traumatic event.	**"Is this a good time?"** This started the conversation, and also gave participants choice in whether they still wanted to participate.
"I understand how you feel." First, the research team didn't. Second, it potentially minimized the research participant's experience. And finally, it could potentially close off an avenue of conversation. Participants who might have more to say might not share their next thought after being told, "I know how you feel." If the listener says they already understand, why explain further? In the same way researchers are trained to ask open-ended questions and indicate with body language that they are listening, the trauma-informed approach adds an extra layer of ways to avoid accidentally closing off the conversation.	**"Thank you for sharing that."** The phrase affirmed that the researcher was listening and acknowledged that the information might have been difficult to share. It also reinforces that their sharing the story was a choice. This aligns with the trauma-informed principle of "Empowerment, Choice, and Voice," ensuring participants know they have control over how much and what they share.
"I've heard a lot of people are experiencing…": In a time of commiseration and global fear of the unknown, it was particularly tempting for the researchers to use phrases that alluded to the larger world. This phrase and others had the potential to minimize the research participant's experience by suggesting it was	**"I'm sorry that happened."** **"That sounds really difficult."** Both phrases are relevant when the participant has shared something that was upsetting to them or emotional. Again, they avoid accidentally closing off part of the interview.

universal or unremarkable. The same is true for all research interviews. Again, trauma-informed research principles are applicable for all research precisely because the researcher cannot anticipate what trauma a given person might have experienced.	They affirm that the researcher is listening and empathetic while also centering the response on the participant and their experience.

A list of frequently-used questions and phrases to avoid as part of a trauma-informed research approach. The researchers had anyone who would be speaking to frontline workers or Hosts practice using the replacement phrases.

Researchers are already trained to avoid asking "Why?" since it can sound accusatory or like the participant has to justify their answer. Replacing these phrases is the next layer in more human-centered research because it also prevents accidentally closing the conversation or minimizing participants' experiences. To break their habits using these phrases, the teams used and practiced a line-by-line script for interviews with frontline workers.

C. Providing in-session support

While conducting UX research in a standard business context, one way that researchers strive to reduce bias is by systematizing fieldwork (e.g., hour-long interviews, using a strict discussion guide, prototypes, etc.). The guide ensures that each participant receives the same set of questions, and the researcher's choice of language or order of questions does not impact the responses. Most importantly, research sessions are strictly to gather information. Under no circumstances should the researcher solve user issues in-session, because that would bias the data collection. This ensures that the differences observed during the sessions are primarily due to participants' attitudes, and not due to the researcher's behavior. The guide also ensures that the researcher is able to stay on track to answer the most crucial business questions, and avoid topics that don't pertain to business objectives.

Two of the key principles in the framework the team adopted to be more human-centered were Mutuality and Safety, meaning communication with frontline responders could not be pure information-gathering for the team, it should first and foremost address responder needs and issues. This meant breaking methodological rules about staying neutral in interviews: the researchers provided in-session support rather than just conducting in-depth interviews. In some interviews, the researchers onboarded first responders who were new to the Frontline Says platform over the phone, walking them through the booking process, and often live-searching for accommodations with them. One of the key manifestations of trauma is cognitive: The ability to process thoughts and make decisions.[4] It was clear that trying to learn a new system, narrow down accommodation options, and submit a request to a host—already a potentially difficult process—was an order of magnitude more difficult while experiencing trauma. Trying to solve responders' issues while on the phone with them helped the researchers understand the urgency of the task at hand and empathize at a deeper level with how taxing the booking process was. As a result, the 15-minute interview format was formalized into a proactive outreach program to provide first responders live human support when booking accommodations.

Hi [First Responder name], my name is [employee name] and I am calling from Airbnb to follow up on your request for a place to stay while you are working as a COVID-19 responder. Is this a good time to talk?

We received feedback from some users that our invitation email ended up in their spam folder. We just wanted to follow up and see if you had any problems booking. We want to see if there is anything we can do to help.

REASONS FOR NOT BOOKING
Note- they may come forward with their reason for not booking at this time. If not, ask:

Were you able to complete a booking?

If yes, skip here. If not, continue below.

Is there anything I can do to help you make a booking? Can you tell me what issues you had?

Click reason for talking points
- *Too expensive*
- *Supply quality/quantity*

Figure 4. The beginning of the script for 15-minute interviews. Everyone calling frontline workers practiced avoiding questions such as, "How are you?"
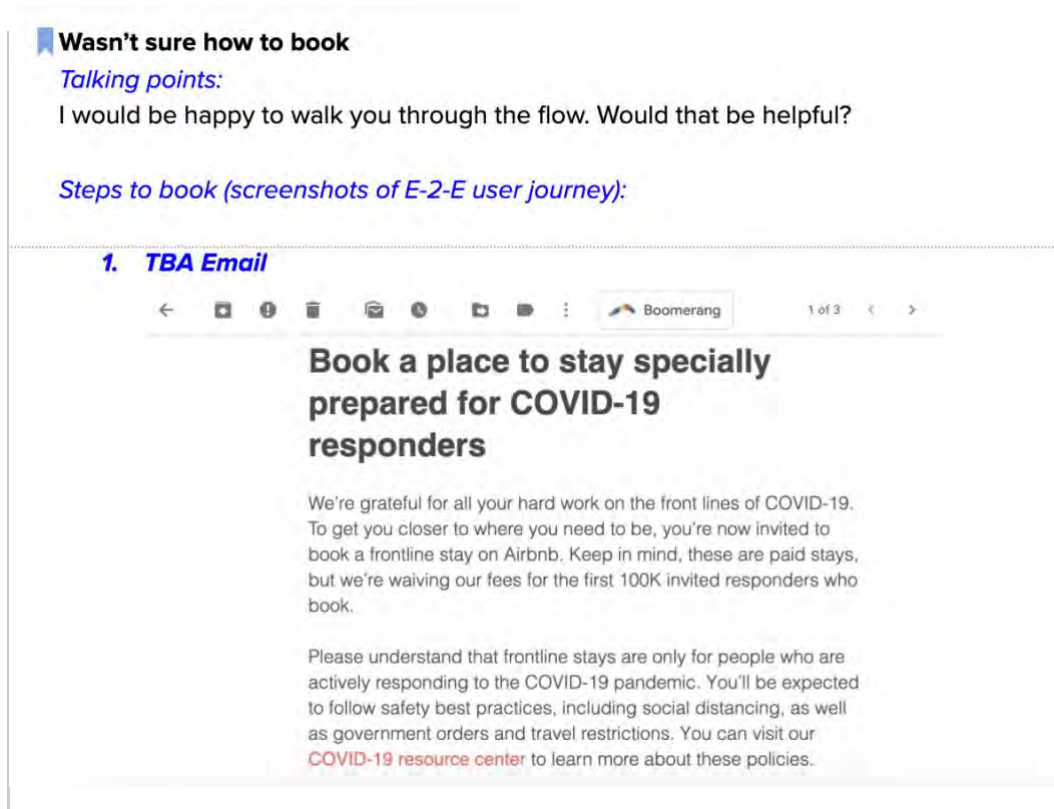
Figure 5. Outreach script. The 15-minute interviews evolved into a proactive outreach program for frontline workers, and callers sometimes helped frontline workers book accommodations while on the phone with them.

4. Share-out and Impact

As discussed earlier, one researcher offered "Daily Responder Stories" to help create systems-level buy-in for using trauma-informed methodologies. Under normal circumstances, the researcher would have waited until conducting multiple interviews and synthesizing results before conducting a formal share-out meeting with the core team. The team would have taken a few weeks to internalize the findings and take action. Instead, she gave Design, Product, and Operations leaders anonymized quotes from the submission form on a daily basis. The researcher had to balance engaging the teams and potentially having the group get anchored on early stories that might not be the most representative after deeper analysis. To try to mitigate this, she framed the daily updates as "stories" and thoroughly analyzed research as "insights" and "research findings." She also avoided sharing stories that seemed like potential outliers – if something new or unusual came up in a responder story, she waited to see if it was part of an emerging theme before deciding whether to share it.

The researcher's approach helped build buy-in for both trauma-informed methodologies such as leaning on funnel analysis for the exploratory research and later recommendations. Hearing directly from frontline workers allowed the team to feel more connected to the

mission of the program and the people they were helping. It created an urgency and motivated the team to move much quicker and escalate upon hitting any blockers.

LESSONS

After two months, the researchers walked away with four key learnings about the importance of immediately adopting trauma-informed methodologies:

Don't let the research brief become the enemy of finding answers. The phrase, "Plans are useless, planning is everything," resonated strongly at the end of the research projects. Government regulations, knowledge about COVID-19, and the global economy were shifting on a daily basis. It was impossible to anticipate what the researchers, their team, or the world might know the next day or week. In a context that defied prediction, the focus became anticipation: having a framework to be ready for all the ways that research participants might show up to sessions, being ready to jump in if a frontline responder urgently needed help finding temporary housing, and making an extra effort to recruit a diverse pool of participants to build products that are better for everyone. Adopting trauma-informed methodologies was a key way to approach the fluidity that the moment required. It is specifically designed for scenarios researchers can't predict: what any given research participant has gone through, what they're going through, and what they're bringing to a particular research session. This inability to predict is true of every research study – so all studies should have a trauma-informed lens.

Don't let methodological purism get in the way of making sure research helps identify needs and potential ways to solve them. In interviews, frontline workers were often joining the call in the middle of back-to-back tasks. The pacing was frenetic. Frequently, a way to build trust in interviews is to spend time building rapport with participants, such as asking warm-up questions to show interest. For frontline responders, the way of building rapport in interviews was to demonstrate an understanding that their time was valuable and short. The researchers built this rapport by jumping more quickly to the meat of the conversation or providing in-session support. If the researchers had stuck to the usual playbook, they would have potentially re-traumatized research participants and gotten less information from the sessions.

Bring the whole team into the trauma-informed framework. The researchers and designers spent time not just incorporating trauma-informed principles into their work but also making sure the team understood why they were approaching their work that way. It also included explaining how a trauma-informed approach can produce rich insights and improve product outcomes while also protecting participants.

Researchers need to care for themselves so they can show up the next day. The researchers frequently referenced the list of people who were potentially going through trauma, with the reminder it included themselves. This had two sources: emotional duress from interviews with frontline workers and Hosts and living through the COVID-19 pandemic. An important part of showing up to do research the next day was finding ways to find a sense of calm, decompress, and look inward to recognize and respond to cognitive, physical, spiritual, and social signs of trauma. (As discussed in Osofsky, Putnam & Lederman, 2008 and Adams, Boscarino & Figley, 1995.)[5][6]

CONCLUSION: ALL RESEARCH SHOULD BE TRAUMA-INFORMED RESEARCH

The pandemic was a source of trauma around the world, and sparked wider conversations and media coverage about the impact of trauma. It made the issue more visible. But obviously, it is far from the only source of trauma. Researchers cannot know what trauma or traumas participants have faced. There are certain types of research where a researcher could predict a higher likelihood that participants have experienced recent trauma. But the point of trauma-informed research is precisely that prediction is imperfect. What is better is anticipation: assuming that an individual is more likely than not to have a history of trauma, and conducting research accordingly. Research is inherently about uncovering the unknown. A trauma-informed research approach gives researchers a framework to uncover and tell a story about the unknown while keeping their participants safe.

Trauma-informed research requires training, practice, and buy-in from multiple teams within an organization. But adopting some of the methodologies, such as avoiding potentially triggering phrases, is something all researchers can do immediately. This is to protect participants' psychological safety, but it also means conducting better research. Adding the additional layer allows researchers to come closer to the goal of conducting truly human-centered research.

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Human Skills as Essential Skills

Preparing Job Seekers Who Were Skilled through Alternative Routes for Inclusion in the Future Economy

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INTRODUCTION

Pundits, policy-makers, and ordinary people alike have recognized that the landscape of industries and work has rapidly changed, and coming advancements in technology and automation will end many jobs and fundamentally change others (Lamb 2016). Since the 90s, The Government of Canada has been working to define the Essential Skills (ES) broadly necessary for people in the workplace to fulfill their personal and economic potential throughout their lives. In anticipation of these future skills, policy-makers must urgently address the question: how might we effectively deliver programs which upskill and re-train adults to be ready to take on new roles and careers?

Research suggests that having a place in the economy of the future will increasingly rely on people having and being able to learn "soft" skills such as communication and collaboration (Heckman et al, 2012; Berget et al, 2017; Conference Board of Canada, 2020). Soft skills are shown to be the most transferable skills across jobs and play a significant role for people to successfully keep jobs (Rudolph et al, 2017; OECD, 2020). In a world where machines and computing are increasingly sophisticated, an emphasis on the importance and relevance of social-emotional skills signals that participation in the labour market will increasingly rely on the skills which make us uniquely capable as humans.

In recognition of this, in 2019, The Government of Canada refreshed its Essential Skills framework, now named "Skills for Success," to include the social-emotional skills of communication, collaboration, creativity, and adaptability alongside the pre-existing hard skills of literacy, numeracy, and digital literacy (OLES, 2020).

Blueprint, a Toronto-based research organization that works with policy-makers to generate evidence on what services and programs work for Canadians, was awarded a contract to implement and evaluate a program to upskill jobseekers rooted in the new Essential Skills framework. Blueprint partnered with Douglas College, a specialist in Essential Skills curriculum, and the Province of British Columbia's Employment Services program, WorkBC. Douglas College developed a 6-week Essential Skills program called "Amplify," with the plan to deliver the program model over three years to ~1,500 people in the WorkBC system through 2023. The goal of the project was to demonstrate how a short-term Essential Skills program could affect the outcomes of jobseekers advancing into post-secondary training and job placements that lead to long-term, sustainable employment.

RESEARCH APPROACH

Innovation in the public sector often calls for iteration, but in reality, the nature of grant funds often requires programs to determine a delivery plan and budgets from the outset, define anticipated outcomes, and generate evidence on those pre-defined outcomes using quantitative measures of impact. Like most large-scale public sector demonstration projects,

the original research approach of the project was to focus purely on putting a model into the field and conducting an implementation and impact assessment of that model. However, although the gold standard for many publicly-funded projects, impact assessments such as Randomized Control Trials are expensive, are 'one and done' meaning their findings are taken at face-value by decision-makers, and they often have trouble pinpointing a nuanced 'why' behind the outcomes that are measured, making it challenging to know what to address in future delivery (Pearce et al., 2014, NESTA, 2018; OECD, 2017). As the field of evidence generation for public policy continues to evolve, there has been a recognition that "RCTs or quasi-experiments may work well when there is a simple intervention that can be tested. However, rarely do we have such simple interventions. In the complex world of social policy, it's unlikely that your programme is the necessary or sufficient condition for success. It's likely to be just one factor among many, part of a 'causal package'." (OECD, 2017).

In recognition of this, Blueprint worked with the funder early on to expand the project to incorporate testing and iterating the model after initial roll-out, to anticipate and mitigate potential challenges and increase the program's success. With this goal in mind, the Blueprint team incorporated a focus on understanding whether the design was working, for who, and in what contexts, before starting to assess impact. The team also built in a defined "refresh" period in the work-plan where design iterations could be made and tested and then a stabilized model would be re-deployed and measured for impact. Our ability to scope the project to include this more fulsome approach to evidence generation was a significant shift in how demonstration projects to inform policy choices are historically carried out. (Pearce et al. 2014, OECD, 2017).

The Amplify program that was studied serves a wide range of jobseekers with diverse backgrounds: adults who have worked in the service or hospitality industry for decades and were recently laid off due to the COVID-19 pandemic; single mothers, many survivors of violence, seeking to re-enter the workforce; immigrants to Canada with large gaps in their early educational history; individuals with chronic illnesses and disabilities that feel they finally have managed their condition enough to re-enter the workforce; and so many more. Participants in the program varied widely in their skill levels: some had used programs like Microsoft Excel daily in their former jobs, others were learning to use a computer for the very first time.

In order to answer the question of how the Amplify program could best set up these jobseekers for success, the design researchers built an approach to understand both the experience of participating in the program and how Amplify fit into the jobseekers' overall employment journey. The team agreed to expand the original project scope in two key ways. One, instead of collecting data from only Amplify jobseekers, the research team would also conduct research with WorkBC case managers and the Amplify instructors/delivery team. Two, instead of focusing on solely the in-program experience, the research would seek to understand jobseekers' lives, barriers, needs, and emotions, as well as case managers' overall roles and longer client histories.

With this broadened approach, the research team designed two phases of work to precede the impact assessment. Phase 1 followed Amplify's evolution over three cohorts at two delivery sites — a total of 6 classes. This phase culminated in a set of participatory co-design sessions with the implementation team, in which insights were shared back and redesign opportunity areas were identified. Phase 2 will begin after Amplify is iterated and re-deployed. In Phase 2, the design researchers will again interview jobseekers, case

managers, and implementers, following two cohorts at four delivery sites—a total of 8 classes—to understand if the iterations improved experience and outcomes. Once the Amplify model is stabilized, the design researchers will pass the torch for the quantitative impact assessment to begin.

Ethnographic In-Depth Interviews (IDIs) were conducted before and after each cohort of the program with 2-3 voluntary jobseekers, 2-3 case managers who referred their clients, and all Amplify facilitators. When a surplus of jobseekers volunteered, selection was based on ensuring diversity across gender, Essential Skill level, employment barriers, and newcomer status.

Phase 1 research was conducted from October 2020- May 2021 and resulted in 56 interviews. Phase 2 will begin in September 2021 and end in May 2023 and is anticipated to result in a further ~80 interviews. This case study details the findings and outcomes from Phase 1 of this project.

Two aspects of the research approach were key in helping to develop a rich body of evidence: longitudinal IDIs and early triangulation with real-time quantitative data.

Longitudinal IDIs

The longitudinal design of the research plan allowed us to understand the evolution of participants' experiences and outcomes.

For the interviews with jobseeker participants, the researchers used participatory activities. Specific examples include a social network map, and an activity entitled 'the work I do' to capture how participants met their needs such as housing, health-care, family responsibilities through a frame of agency and action rather than dependency and shame. Through these activities researchers captured jobseekers' motivations, how they balanced their responsibilities at home and outside of the program, their networks of social support, and their experiences with employment services thus far. The interviews with caseworkers and facilitators used semi-structured protocols which probed on their decision-making processes of who to refer to the program, their perceptions of the value of essential skills programming along a jobseeker's employment journey, and their definitions of success for their clients coming out of the program.

Several caseworkers made referrals for multiple cohorts, which allowed the team to follow how caseworkers refined their understanding of which clients would stand to benefit the most from the program and how they began to form relationships with Amplify facilitators to better strategize and serve their clients. Likewise, as facilitators delivered successive cohorts, the pre-and post-interviews conducted throughout allowed the research team to understand how facilitators changed delivery based on the needs, barriers, and social dynamics of the jobseekers, and to chart how they increasingly developed closer working relationships with caseworkers. We detail our insights in the following section.

Quantitative Data on Student Outcomes

The research team triangulated the ethnographic research findings with real-time quantitative data about jobseekers' outcomes. As part of the program's impact measurement plan, several hard and soft skills assessments are administered at the start and end of each cohort of Amplify to track change. Assessments measure jobseekers' reading skills, numeracy skills, and digital literacy skills. Additionally, multiple assessments measure

different soft skills such as collaboration and communication, including a group task through which instructors would observe and rate student behaviors and interactions.

The research team further felt it would be beneficial to collect demographic information on jobseekers enrolled in Amplify as a whole, and developed a survey to capture that information at the end of the program alongside jobseekers' opinions on their experience of the program. The survey allowed the research team to understand how demographic differences between the delivery sites shaped varying perspectives on the program. This helped us understand that one delivery site consistently had cohorts of jobseekers who were older, and more likely to be people for whom English is a second language, which was an important contextual factor when analyzing particular experiences shared about challenges in the classroom.

KEY FINDINGS AND TAKEAWAYS

The ethnographic research expanded the team's understanding of what it means to prepare someone for a new career in multiple ways. Firstly, while this program aimed to improve people's skills, participants felt the most meaningful gain from the experience was the changes they saw in themselves and their potential. Secondly, while this program was designed to be a standalone intervention that would prepare people for either post-secondary education or directly entering the job market, many participants left the program with remaining Essential Skills gaps or ambiguity about where to go next. Lastly, the desire for the program to be an efficient model that could flexibly serve a diverse group of jobseekers created tensions that were challenging to balance when delivering the curriculum to people with a range of needs and skill levels.

Developing Self-Confidence Matters

A key aspect of the program's definition of success at the outset was seeing measurable improvement of skills using a variety of assessments administered at the start and end of the program. However, early analysis of the quantitative data on assessment scores showed on average a modest improvement across all skills. Based on the assessments alone, jobseekers were generally making minimal progress by participating in the program - some even saw that post-test scores went down.

Yet, a common theme shared across participants was that they felt the assessment results did not reflect the amount of progress they made. There is extensive literature about the barriers to accurate assessment such as test anxiety and testing environments (Lu & Sireci, 2007; Cassady & Johnson, 2002), and some of those barriers were shared in situations that were recounted to the researchers. But more importantly to the jobseekers we interviewed, the assessments could not represent the full meaning of what they got out of the program and how it impacted their lives. What mattered was that the Amplify program changed how they saw themselves. Post-program jobseekers felt more confident in their ability to learn, do well in a structured school environment, and when thinking about their overall employment journey felt a groundbreaking sense of "I can do it." Completing Amplify helped jobseekers shift from feeling scared by or avoidant of their next steps to feeling energized and motivated. Even caseworkers who were interviewed noted that in follow-up conversations with their clients after the program, jobseekers seemed transformed: they spoke more assertively, described themselves and their capabilities in more hopeful and

positive ways, and were more diligent and proactive about moving towards steps for their action plan. For many caseworkers, these were significant changes they were seeing in clients who they had been working with for years. Stories as simple as, "My client has sent me an email for the first time," were shared as revelatory.

Participants, caseworkers, and facilitators viewed success as a set of visible indicators of progress that they would term as a dramatic increase in "self-confidence." Self-confidence was the word that was most often used to describe new behaviors, skills gains, and attitudes, and was held up as a critical ingredient in clients' ability to take on the challenge of further upskilling and managing the fear that comes with changing careers.

A Desire to Link the Program More Deeply into the Larger Employment Journey

Designed as a 6-week program, Amplify was intended to be a quick and intensive on-ramp for jobseekers to be able to increase their Essential Skills enough to enable them to move onto further training or into sustained employment. However, at the end of the program, many jobseekers shared that their next steps would be primarily to "continue to practice" the skills they were taught in the program. While they felt mentally and emotionally ready to move forward, they still needed to develop their skills over a longer time period than 6 weeks. For some, this program pushed them to learn how to use a computer for the first time. However, there are few other structured programs in the WorkBC system for clients to continue to improve their skills. Many job-seekers with low-levels of skills in particular shared that they felt in limbo after the Amplify program ended. Individuals typically only have the option of continuing their learning online in self-guided modules, or to find free public programs such as at a library. However, due to their low levels of skills, jobseekers often do not have the tools and capabilities to learn without structured guidance and support. As one jobseeker optimistically asked, "Is there an Amplify 2?"

The question of "what next?" after Amplify came up more often as the program evolved. Caseworkers increasingly shared how much they valued the facilitator's feedback on a clients' performance to help them plan and determine next steps. Caseworkers felt that facilitators were a key resource into deeper learning about their clients, as facilitators often spent more cumulative time with their clients, observing their skills and how they interact in training environments more than their caseworkers ever had. Completing Amplify was perceived by both jobseekers and caseworkers to increase clarity on jobseekers' future plans. Many jobseekers felt that gaining a greater sense of their skills and abilities should help to either validate a desired path forward or help course correct with more practical options. However, if they didn't already come into the program with a strong idea of where to go next, some expressed feeling frustrated and 'back at square one.' There was a shared desire by clients and caseworkers alike for the Amplify program to tie in more to the overall process of career navigation, and for more interventions to be waiting at the end of the program to support the interstitial space between 'getting started' and 'being ready to train or work'.

Systems-level Pressures Shape Who Is Referred

As the research team followed the experiences of facilitators who taught successive cohorts, it became clear that the composition of the cohort played a big role in what could

be taught and covered in each iteration of the program. One facilitator described that the experience of teaching each day felt like "surgery," constantly trying to cut and be precise about what parts to include. Many participants felt that the program's design was stretched to serve everyone, and there was not enough time for the learnings to be as deep as they needed it to be. Participants believed they could have gotten more out of a program that grouped them with more similar peers.

From the engagement with facilitators and caseworkers, the research team came to understand how and why this outcome was normalized. Because the Amplify program is delivered through the Province of British Columbia's employment services system ("WorkBC"), the program inherits the system's incentives and challenges. Currently, WorkBC operates in a pay-for-performance model where employment service centers receive funding from the government depending on the enrollment and completion of services. This creates a pressure to ensure they can serve enough clients per year and to fill cohorts of jobseekers at each delivery site in order to pay for staff wages, which facilitators shared discourages them from being choiceful on who to admit to the program.

Further, eligibility limitations for other programs within the employment system meant that some clients were referred to Amplify for a variety of reasons beyond just improving their skills. Most commonly, jobseekers who sought to access funding for further post-secondary education were referred to the program as a way for case managers to bolster their case for approval of a client's training package. Additionally, some jobseekers were not eligible for other programs within the employment services system (e.g. if they are an immigrant to Canada who has obtained Canadian citizenship, they are ineligible for free language training programs) and so were enrolled in the program despite that Amplify might not necessarily be the best fit for the skills they needed to focus on.

Finally, because past resources for Essential Skills programs in BC have been inconsistent, many caseworkers did not have a strong grasp of the function and role of Essential Skills programs. Thus many caseworkers perceive 'Essential Skills" to be fuzzy and felt they needed more clarity on the program's contents, support with explaining the program's benefits, and time to make appropriate referrals. As a result, each cohort of the Amplify program could reliably be seen as a "catch-all" for jobseekers with a very wide range of skills and very diverse needs from the program.

OUTCOMES

Co-design Session

The research team hosted a two-part virtual co-design session, which walked the implementation partners at Douglas College and the service delivery sites through the research insights, and solicited their input and ideas to validate the findings and address opportunity areas for program redesign.

It was important to immerse the implementation partners in the range of perspectives that were surfaced from the research in a short timeframe, and provide easy and efficient ways for them to digest the breadth of insights we gathered from jobseekers, caseworkers, and facilitators in order to enable balanced decision-making about the program. During the research team's presentation of the findings, audio clips from interviews were played to bring the findings to life, and quantitative data was weaved in to give the narrative-based insights a sense of scale. The human focus of the presentation created a visceral connection to what

otherwise would be words on a page, multiple choice boxes on a survey, and assessment scores in a database. It gave a very literal 'face' to the people that are showing up at the door of Amplify, allowing them to state their own needs, fears, and hopes. It also provided a safe space for facilitators to speak candidly, and for us to share their stories free from concern or judgement.

In order to help the implementation partners quickly interpret and action on the findings, the research team created two design research artifacts: personas and journey maps. They became the core anchors for the group to see the program's core users and understand more about them than their skill levels, follow the thread from our insights to the overall Amplify experience, and finally to arrive at a clear set of opportunity areas for iteration. The journey maps summarized the experiences of each of the three user groups, enabling the team to quickly reference which pain points were shared and where experiences diverged. Further, the journey maps helped guide a conversation about the wider role of the program by situating the in-program experience within WorkBC-level on-ramps and off-ramps to the program. Lastly, we developed a set of design principles and recommendations to provide the scaffolding to kick-start the co-design process and provide guard rails to focus dialogue. As one facilitator of the program said, "I have to say I really appreciated the tools and steps that the team used. So often certain solutions are just top of mind, while certain stakeholders and priorities are completely overlooked. This was a highly detailed and rich set of activities and the way things were put together made it easy to follow, stay engaged and make meaningful contributions."

Importantly, as our core partner was also a service delivery partner running two WorkBC centres with a longstanding history of designing and delivering Essential Skills programs, our ethnographic insights and recommendations came into dialogue with existing beliefs and a clear prioritization of minimizing the work associated with implementing changes. The team was lucky in that the partners were open to exploration and dialogue, and the co-design sessions were structured to provide the space for the implementation team to create a sandbox to focus on desirability and hear feedback. The experience generated some bold recommendations rooted in desirability, as well as some that were scaled down to respond to the limitations of the larger employment services system. The next section breaks down the changes to the program that were considered and ultimately chosen. The implementation team is currently in the process of implementing these changes to the program's model.

Serving the People at Our Door

One major potential program redesign proposed by the team involved expanding the program's duration, and stratifying cohorts based on skill levels so that jobseekers were more likely to be in a program with peers. The research findings pointed to these changes being strongly desirable, as the vast majority of participants shared they believed this would have enabled them to have learned more. However, it was challenging to address the anticipated challenges that would come with implementing a longer, stratified program.

In British Columbia, programs like Amplify are delivered by community-based service delivery partners who receive the funding that pays for staff salaries based on each client that enrolls and completes the program their site. This meant that typically service delivery sites operate against an extremely thin margin of available resources, and hiring multiple

facilitators to deliver multiple concurrent cohorts for different skill levels would be financially risky. Likewise, expanding the program's length and depth to meet the learning needs of more jobseekers would pose challenges for enough cohorts to be run each year in order to make running the program financially viable. To enable each delivery site of the Amplify program to offer longer, stratified cohorts was simply not possible. Team members have agreed to revisit offering a longer or stratified model at two WorkBC offices that have greater capacity to experiment, however the team decided to first evaluate the experience of delivering an in-person cohort in the fall of 2021 to see if that resolved the instructor's ability to provide more attention to individual jobseekers' learning needs within a classroom.

Embracing the Emotional and Behavioural Outcomes in the Program

As a result of the research findings, quantitatively measured skills progression will become not the only way that success is formally documented in the program. It was important to the implementation team to optimize the assessment results where possible, such as moving the dates of the assessment to when jobseekers were less stressed overall and improving certain sections of the curriculum. In tandem, our finding that the skills assessments alone are not a complete view of what participants gain through the program has led to the exploration of alternative approaches to capturing jobseekers' progress.

The largest shift is focusing the curriculum's delivery to bolster the psychological outcomes of learning that jobseekers experience. The implementation team is in process of re-framing the curriculum around 'milestones', which would make it easier for jobseekers in the program to more easily recognize the progress they have made simply due to participating in lessons. Moreover, the program is revising the structure for weekly one-on-one sessions with facilitators to encourage weekly goal planning: jobseekers set a goal for themselves that is slightly outside of their comfort zone, which would be reviewed weekly. The running list of weekly goals that are met create an artifact that celebrates what they can do.

Further, materials are being developed to help facilitators communicate to caseworkers the breadth of observed improvements that jobseekers made. Facilitators comment on attendance, participation, and a greater emphasis will be placed on qualitative changes in motivation, effort, and resilience. Some soft skills assessments already included components of qualitatively observed information, so these are being leveraged to provide a fuller picture of the importance of emotional and behavioral change. These changes are designed to intentionally recognize and expand the adjudication of participant's accomplishments that the assessments alone could not capture.

Plugging into the Larger Employment Journey

As a result of the research findings, the implementation team is working to help connect Amplify to the stages and stakeholders of a client's overall WorkBC experience as much as possible. The team chose not to lean too far into weaving in career navigation supports in order to not duplicate pre-existing WorkBC interventions, but chose to build in moments in Amplify that tied-in career goal setting, helped facilitators be aware of career navigation efforts that may have been completed before Amplify, and helped plan for and direct clients to additional programming around career navigation if needed.

Most significantly, design choices were made to the program's marketing and training materials to more clearly communicate the value of the program towards a clients' journey. This included a greater emphasis on what caseworkers could expect to see from clients as a result of their participation, as well as eligibility criteria that leveraged the personas developed in the research to help caseworkers understand which clients to refer. Additionally, it was suggested that some other available resources within the WorkBC offerings should be utilized before enrollment in the Amplify, such as participating in career navigation workshops, and counseling.

The program is also being revised to more systematically emphasize a warm hand-off back into the WorkBC system by introducing a mid-program touchpoint between caseworkers and facilitators, and focusing facilitator feedback for caseworkers at the end of the program to information that could help a caseworker determine whether an individual is ready for their planned next steps. For example, if an individual with a disability is working towards customized employment post Amplify, post-program feedback would focus on clearly outlining the client's strengths, capabilities, and potential to more easily fold into an infographic resume that is a known output of the customized employment pathway.

CONCLUSION

This project uncovered a nuanced view of the process of skills development for adults and illuminated the ways in which learning and preparing jobseekers with multiple barriers to participate in the economy of the future is a largely emotional and human process. The research team was able to introduce changes to the program's design and delivery that recognized the emotional dimensions of changing careers, and validate the importance of the incorporation of soft skills and the role of confidence. Ultimately, the largest impact of the research was to iterate the program to maximize skills gains in large part by focusing on the psychological process of preparing for change.

By deliberately engaging implementers and case managers, the research produced a deep appreciation of the complexity of the various design constraints within the Employment Services system. It was this last recognition that led to the group's decision to shift the central focus of the project to ongoing research and iteration versus solely generating impact data of a pilot model.

Importantly, this shift also meant a shift in understanding the value for the Government of Canada as the funder. What emerged from our process was a reframe from handing over a stand-alone impact assessment of one model, to the wider utility of developing a set of insights on what works and doesn't work for outcomes and implementation, and the need to more directly reckon with the constraints of current-state services.

Dismantling the barriers to Essential Skills progression and ultimately career navigation is not a straightforward task. Career services and their outcomes cannot be easily parsed out from the complex forces and systems that affect who is able to get what job: the economy, our education system, our immigration system, etc. However, career development interventions like Amplify that work to anticipate, and acknowledge and respond to this interconnectedness will likely have greater impacts, especially for people who face barriers within those broader systems. Greater involvement from the ethnographic and design research community to continue to move the policy ecosystem towards more fulsome evidence generation and testing and iteration as part of 'learning' in a space that is often

laser-focused on traditional quantitative evaluation as a funding requirement and locus of decision-making, will be critical to supporting our ability to anticipate and respond to the changing labour market.

NOTES

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Reconnecting with the Public

Participatory Research and Co-creations within and outside a Public Institution

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Despite constraints on face-to-face meetings and social distancing policies under COVID-19, with the help of online tools, Brandnographer successfully conducted a series of online activities to facilitate stakeholders from different age and background to immerse themselves in situated scenarios, then to design and visualize their ideal public services in the future. This paper discusses how a participatory approach and design thinking framework have helped the researchers and decision makers collect thick data from the service users, transform user insights into prototypes for reiteration and concrete design principles. On the other hand, how the blurred identities in between observers, participants and designers have stimulated discussions and design possibilities by supplying real-life scenarios and evaluation on solution feasibility.

INTRODUCTION

Anthropology and ethnography have long been used as a research tool to understand and capture past and present cultural experiences (Lueck and Avery 2020). Cultural foresights and intriguing queries for the future are not always channelized into future forecasts or suggestions that bring impactful changes, however,

> "As ethnographers, it is not enough to describe social reality, to end a project when the last transcripts and field notes have been analyzed and written up. We must find **new ways to engage and collaborate** with our subjects (both human and nonhuman). We need better ways of turning our descriptive, analytical accounts into those that are prescriptive, and which have greater import in society and policy. We may do this by inhabiting narratives, generating artifacts to think with and engaging more explicitly with the people formerly known as our "informants" as well as with the public at large." (Forlano 2013)

In this consultancy study, we were tasked to attain two goals for the public service provider: firstly, to employ a participatory design approach to engage with citizens in the project to help to government become more citizen-centric; secondly, based on our knowledge on the users, derive, anticipate future usage scenarios, and create prototypes that fully represent their needs and solve their daily problems correspondingly.

Through sharing our experiences and processes of designing our research methodology, this paper shall discuss how Brandnographer had helped public users, as well as our internal stakeholders visualize 'a possible, preferable future for the group' (Robert 1999, 2, as quoted in Strzelecka 2013), with the help of deploying the 4-stage double diamond design model and 5-step design thinking process. This paper also discusses how the participatory approach had broken static relationships in between observers and participants, added dynamics in

between informants, researchers and decision makers, and inspired a series of educational sessions through discussions, interactions and co-creation (Hemment 2007).

CONTEXT OF HONG KONG

This project carries significance in two dimensions: 1) innovative qualitative research methodology emerging under COVID-19, 2) shift in power under the evolution of urban governance style, and the research project being set in Hong Kong in such unstable times has added further prominence its implications and impacts.

Journey towards Digitalization

After over a year of home-officing and online shopping, digitalization and mobile-first experiences have inevitably become global trends steering the retail service and experience designs. Moreover, Hong Kong people in general have been more reluctant to converting to digital-only experiences when compared to other Asian regions. Unlike their Chinese counterparts, Hong Kong people tend to be slower in adopting to the use of digital tools in their everyday life. Even with Internet penetration rate as high as 89.4% and a smartphone penetration rate of 75%, up till 2021, Hong Kong has a relatively low e-commerce transaction rate – at only 36%, less than half of China – 76%, while India has 46% and Singapore is at 42.3% (J.P. Morgan 2021).

Under the Hong Kong Smart City Blueprint first released in 2017 (Hong Kong Smart City Blueprint 2020; 2017), as part of the city's Chief Executive Policy Address at the time, public services in Hong Kong are currently undergoing digital transformations, in aim of bringing more offline public services online, improving the city's efficiency, resilience, mobility and competitiveness. The public service provider is backed by the Smart City Blueprint to digitalize their infrastructure and services, streamline their work processes, and optimize users' digital experiences in a way that is inclusive and comprehensive for users from all ages and levels of technology savviness.

Newfound Devotedness in Local Issues

Besides prevailing trends and demands for digitalization, the project also takes place amidst strong sentiments and needs for democratization and bottom-up participation in policymaking and decisions regarding public services. In the past decade, localism had risen drastically along with series of protests expressing deep-rooted satisfaction towards the ruling party and government office, as a claim for Hong Kongers' rights to democracy and universal suffrage since 2012 anti-National Education protest and Umbrella Movement in 2014 (Veg 2017, 324-325). In the District Council election in 2019, over 70% of Hong Kongers had taken part in the vote in contrast with 47% in 2014 after Umbrella Movement (Bradsher, Ramzy and May, 2019), and as a result, 389 pro-democrats were elected, doubled of the 124 seats they occupied previously. The surge in public participation in politics and public affairs recently had led way to adoption of a citizen-centric approach towards public services and facilities redesigning.

Communication of citizens' views on public services was mostly one-way, like online/ offline questionnaires on existing services. Citizens were seldom consulted as well-informed

decision-makers, and values of their lived, first-hand user experiences were easily overlooked. Civic workshops being carried out at the planning stage of a government project, is thus a refreshing new, hands-on alternative that emphasizes citizens' knowledge, as well as their original ideas and designs, which also have become an empowering experience for the public to converse with policymakers or decision makers for public services.

In parallel with the rise of localism, a handful of creative community-based initiatives promoting civic participation and empowerment have emerged in the past 10 years among local communities, due to the dedications of social innovators, local creative design studios, urban planners, architects, and artists in Hong Kong. Their people-centric lens honor power and wisdom of the people, and have proved to bring impactful, practical, and socially inclusive solutions. The influences and inspirations their exemplary projects brought have not only promote social inclusion and cohesion in the city but had become bedrock for the government service provider to partner with Brandnographer, in translating knowledge from the people into their service and facility design strategies.

RESEARCH AND METHODOLOGY DESIGN

Design Thinking and Double Diamond Model

In the study, Brandnographer had employed a Design Thinking approach and The British Design Council's Double Diamond model (British Design Council, 2019) for the public service's system service and venue design. A design thinking methodology is a creative approach to disrupt the current ways of doing things, to make institutional changes that are desirable by users, viable in problem-solving, while feasible for the people who execute. It first 'diverges' – allows exploration of all possible choices under contexts and circumstances, then to compare similarities and differences - 'converge' and narrow down to the feasible, actionable solutions (IDEO, 2021). It was also through this process, members of the public played the role of policymakers for a couple of hours, had hands-on experiences brainstorming, discussing, and designing solutions for their beloved services.
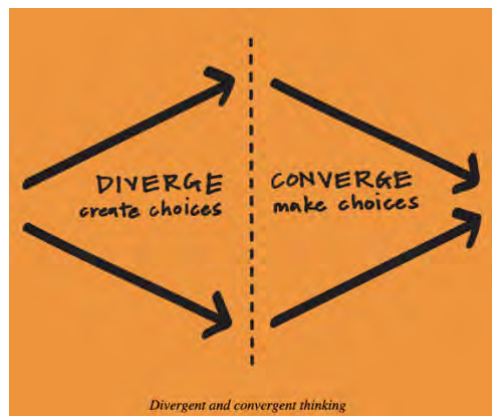
Figure 1. Converge, Diverge Design Thinking model by IDEO; Photograph ©2021 IDEO

Prior to the engaging workshops, in order to build deep understanding into users' needs, define questions precisely and accurately, for guided, and more focused discussions, Brandnographer followed the Double Diamond Model to ensure user insights and problems were repeatedly tested and iterated, before collaborating and co-creating new solutions in online and offline workshop sessions.
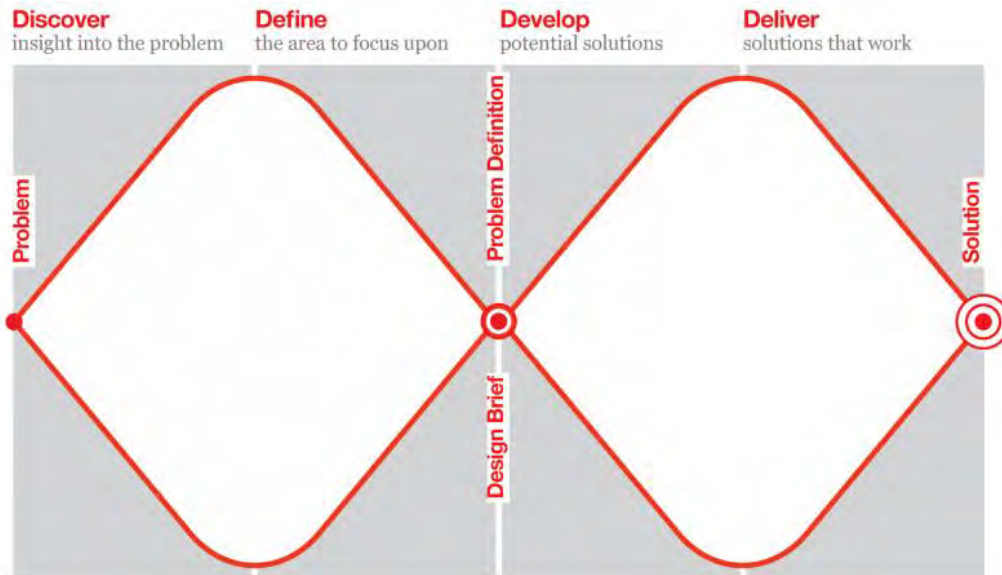
Figure 2. Double Diamond, Design Thinking model by British Design Council;
Photograph ©2019 British Design Council

Stage 1: Discovery

As the first stage of the project, Brandnographer team has planned for participant observation and a series of stakeholder interviews to collect and familiarize with as many variables affecting how users approach the current public service and infrastructure, as possible. Including the frontend and backend equipment in every one of their physical service centers, as well as the online system and mobile apps, where users access their databases via a search engine and make reservations for facilities.

To learn about the context of the services and their users, Brandnographer team observed and learned from their internal and external stakeholders. Internal stakeholders including the service provider's managerial and frontline staff, while their external stakeholders were citizens of Hong Kong, covering a wide range of people at different age, levels of familiarity towards technologies, frequencies of using the service, their pattern usage, goals and needs. For example, some users go there every day, but prefer to talk to the staff because they enjoy the personal contact and they do not need to experience 'trial and error' when interacting with the facilities. Whereas some users visit the center once or twice a week but are more comfortable with using self-service options.

However, with COVID-19 struck and disrupted the facilities' opening hours, on-site fieldwork was not possible at the beginning. During first stage in-depth interviews, online meeting tools' functions were leveraged for respondents to relive and demonstrate their daily routine, activities, and patterns on the current service systems. Nonetheless, comparing with face-to-face ethnographies, the lack of on-site observation had made understanding of user paths, user's epistemological experience on space, and interactions with facilities far less precise.

Stage 2: Define

Under social distancing restrictions, in order to visualize and pinpoint service users' pain points, day-to-day frustrations and bottlenecks encountered by users, the team made their first attempt using online collaborative tool in the first online co-creation workshops. When designing workshop tasks and activities, the team aimed at recreating co-creation with same levels of user involvement and engagement, like a face-to-face workshop. On the online whiteboard, each step of approaching a service was outlined in details as key touch points. Users' real-life scenarios, motivations and pain points were collected and mapped out based on the user journey map framework (see Figure 3) and moderators' guided discussions.

The online whiteboard allows users to communicate their ideas easily via words, drawing, and sharing of multimedia materials (see Figure 4), providing handy tools for participants to visualize their thoughts, follow other participants' sharing, build on each other's inputs simultaneously which is instrumental in drawing focuses on the reiterated pain points, conduct a more focused discussion. But the co-working performance was at the same time confined to participants' intuitions and access to stable Internet connection. To resolve such limitation and distractions, public participants' hands-on involvements on the whiteboard were kept to minimum and the outcomes became heavily relied on moderator's iterations and assistant moderator's abilities to capture the gist of discussions.

Having moved workshops from offline to online, one of the major concerns was that the indirect human contact behind computer screens and lack of direct connections among participants and moderators limit the level of participation and devotedness. While at the same time, such anonymity benefited our clients to take the front row in observing and joining the small group discussions, empathize with their service users.

Figure 3. User Journey Mapping Framework; ©2021 Brandnographer
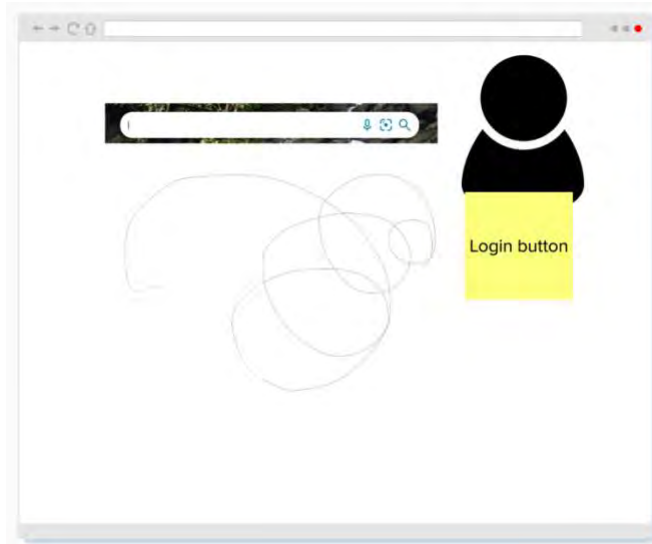
Figure 4. Online Collaborative Tool demo; Image ©2021 Brandnographer

Before the Workshops - Empathy Building

Participant Observation

COVID-19 struck and disrupted the opening hours, the public service was either closed entirely or the number of users was limited to an amount.

Stakeholder Interviews

We learnt about the daily operation and user experiences from insiders and outsiders' lens.

- Internal Stakeholders: Offline interviews with n=5 staff
- External Stakeholder: Online interviews with n=10 service users

First Online Workshops

We continue to learn from more users' perspectives.

- Demonstrate how to use the online system/ offline services and facilities
- Online User Journey Mapping. Collecting all touch points, pain points, thoughts and feelings

n=700 Survey

We conducted a survey with over 700 service users to understand the frequency and magnitude of pain points covered in previous engagement activities.

Figure 5. Stage 1-2 Empathize with users, define problems, and focus questions. ©2021 Brandnographer

Following the user knowledge collected in Stage 1, Brandnographer team also did a survey to understand the frequency and magnitude of user pain points, to concentrate on problems that more users resonate to and feel more deeply about. The rigorous inference in stage 1 analysis was crucial to define problems, set the scene, to brainstorm actionable solutions and help the team derive insights that ultimately be transformed into system and venue design recommendations.

Stage 3: Development

With the defined problems in Stage 2 in mind, the team proceeded to ideation and designing, developments of solutions via a second set of co-creation workshops, which again, engaging both internal and external stakeholders. The essence of employing the design thinking process is to build user-generated solutions based on their personal experiences, leveraging on users' knowledge and creativity, to explore approaches that are truly impactful and sustainable for the users. With our experience from the first set of workshops, we entered this stage with two big questions:

1. How to turn laypersons with different levels of tech savviness and experiences with the service into designers, to co-design prototypes for the system and the center's interior and physical distribution of facilities?

Participants' levels of interaction and participation heavily rely on the virtual tools, and thus, the choice of appropriate platforms and modes of participation for the design activities was key. Many participants had observed and collected flaws from the current services, but the challenge remained on how to channelize their pain points into positive creative energies is highly dependent on their abilities to experiment with concepts effortlessly. The team must design instruments and stimuli that balance easiness to use and a certain level of sophistication, enabling and motivating participants to communicate and test their ideas well, so that the end output could be eventually adopted in designs in real life.

2. How to guide participants to envision the future, when designing the prototypes?

One of the main goals of this project is to design for all service users, and design ahead for the future. Moreover, to understand what users need to enhance their service experience in the future systems, moderators must carefully bridge the pain points from the presence with future potential user scenarios and needs, to translate current user knowledge to future adaptation. The team carefully designed stimuli based on thorough understanding in the core of service functions, as extracted from Stage 1 ethnographic research.

Substantial amount of design stimuli was used to help participants to imagine the future, to reimagine the present services, it is particularly effective for preparing for anticipatory ethnography, and creation of future innovations. In order to produce such valuable results, the stimuli must be able to i) precisely and concisely grasp the key objectives of the service provision (see Figure 6), and ii) demonstrate and actualize future possibilities of the services, expand participants' imaginations (see Figure 7).
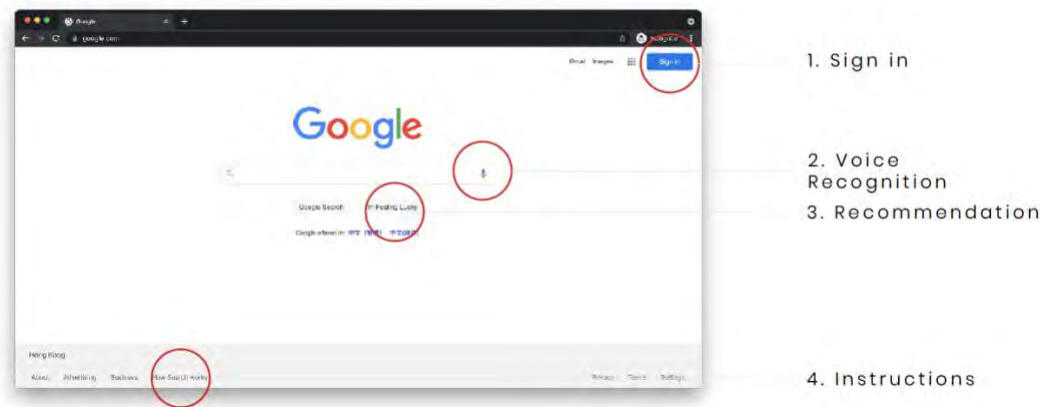
Figure 6. Deconstructing a system interface. What are the key objectives for this service? What are the key elements to be kept and enhanced? Search Engine and Landing Page ©2021 Google

In our workshop, we prepared our participants with design references from different angles, to ensure we collected their feedbacks from all key performance parameters for creating a smooth and comfortable user journey, they are namely, design style, key functions, steps and sequence. These stimuli inspired participants' sharing on current experiences and their projections of their ideal interactions with a hypothetical, ideal interface in the future at the same time. As they discussed the hierarchies of functions and compared the effectiveness of the stimuli's designs, a reiteration process travelling back and forth empathy building and solution ideation was resulted.

From the very beginning of this set of workshops, moderators strongly emphasized the goal to 'design for all, design for future', driving our participants towards a future orientation and vision beyond their personal benefits. Despite the lack of design foundation amongst our participants, the workshops were designed carefully surrounding the 2 major questions depicted above. The foolproof prototyping toolkits designed began from providing layperson participants with the accessible choices, selections of inspiration board and design elements that clearly projects future possibilities, a set of simplified and guided steps for a structured creation process, they were able to transform into system and interior designers for just one day, to complete an accelerated prototyping journey.

Figure 7. Which is a better design style for the search engine? Why? How would you approach No. 1? Anything missing from it? ©2021 Brandnographer. (top) Screenshot from Bing landing page, the search engine ©2021 Bing; (middle) Screenshot from Google landing page, the search engine ©2021 Google; (bottom) screenshot from Yahoo! UK landing page and search engine ©2021 Yahoo! UK

For example, in the system interface design, it was through discussions on each function's design, or its design style, where we moderators helped magnified every important touch point and together with other participants and observers, uncovered and learnt how users perceived, interpreted the details, approached, and interacted with these interface elements (see deconstruction sample in Figure 6 and comparison in Figure 7). Also, through their preferences and justifications on the provided options, we all learnt more about how different stakeholders would have imagined their ideal pathways and their rationales behind. The step-by-step guided discussions on the deconstructed features and functions had paved the way and steered participants towards clear focal points: What are the ultimate purposes of this service? Which function or feature is the most valuable to be optimized, to achieve such service objective? And secondly, how do my peers perceive and prioritize these elements, and thus, how may I design to fit their needs, habits, and intuitions?
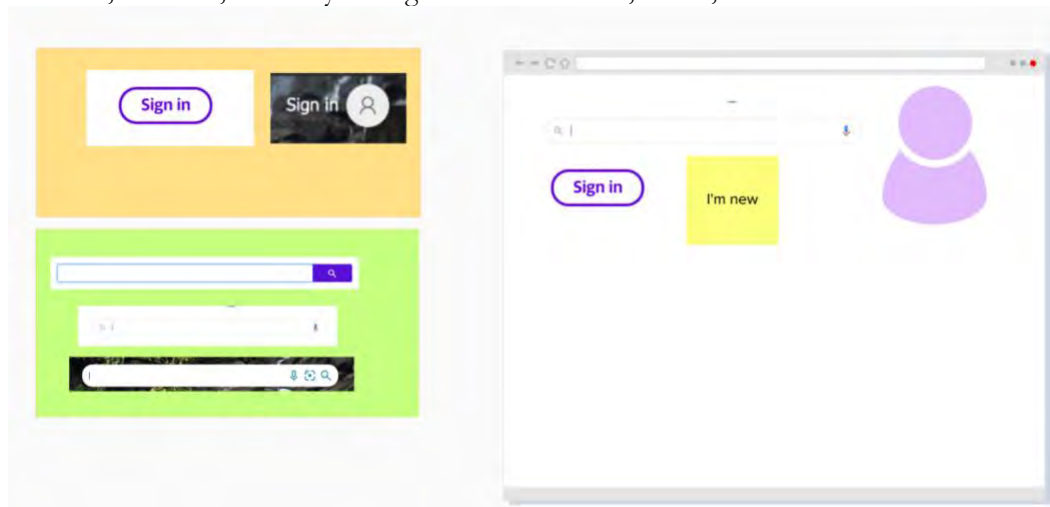
Figure 8. Let's build the prototype! Actualizing and experimenting ideas to find the optimal solutions, through discussing and stitching elements into one coherent interface.
Image ©2021 Brandnographer

After collecting the diverging ideas, sharing of personal experiences, mutual learning and empathizing, small groups of participants discussed and put together the different designed elements to explore varieties of solutions and test their feasibility. The combination of highly collaborative work and anticipation for future experiences came together as a preliminary prototype for the system and service center (see sample canvas on Figure 8). In the end, each group had designed a version of solution that is reflective of their habits and behavioral pattern, address their pain points, and is also meaningful and impactful to them.
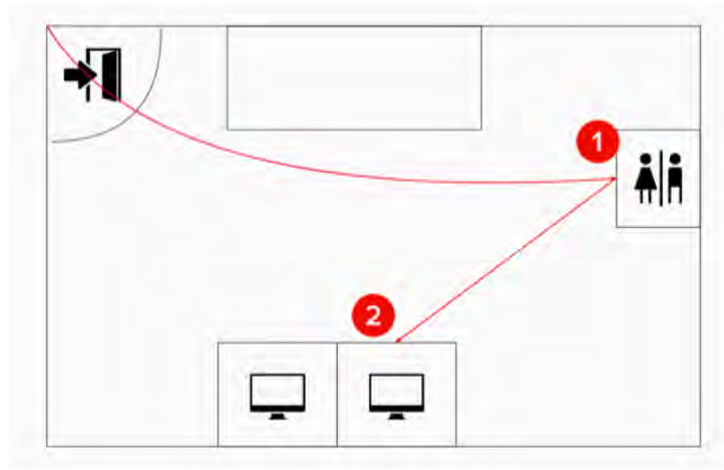
Figure 9. Interior and new facilities distribution design follows a similar pattern as system user experience design. First, learn different users' habits of using current service (red route). Illustration ©2021 Brandnographer
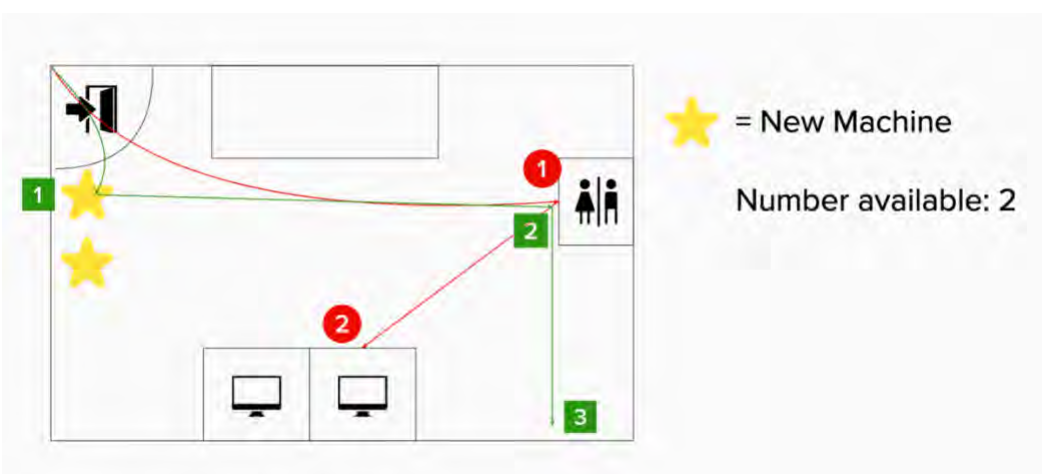
Figure 10 Introduce and explain new machines to be added to future services, then allow users to explore the best distribution solution (green route), test and discuss a common approach within the group; Illustration © 2021 Brandnographer

Stage 4: Delivery

Subsequently, the Brandnographer design team had derived key insights from the elaborated series of discussions, found the common converging points and created versions of interactive prototypes, especially for the system interfaces. As the social distancing policies relaxed in May 2021, the mock-up options were put up in offline mobile experiential booths for user to click, scroll, test, and compare. Over the course of 20-minutes' short interviews, the team was able to observe service users' interactions with the mock-ups, evaluate the value and validate effectiveness of these user-generated prototype solutions and

reiterated general user's core needs again. Over 90 responses were collected from across 5 outlets around Hong Kong.

The user scenarios and insights elicited were used to further refine prototype designs, help narrow down and investigate roots of problems in greater depths, and at the same time to enhance, and optimize design recommendations for the service provider's future service and venue designs.

EVALUATION, LEARNINGS AND OBSERVATION FROM THE NEW APPROACH

> "We highly appreciate the chance to listen to citizens' ideas and views."
> —Chairman to the project's Task Force

The open, highly interactive and conversational public engagement was refreshing and innovative for our client, as well as their public service users, not only because large part of it was held online, but the engaging interactions where the decision makers of the service were able to take part as an active audience, even to experience the designing process with them. Although the online format posed limitations, at the same time, this has injected new perspectives into innovative ways of designing and conducting online ethnographic work.

Aside from attempts on online collaborative platform, Brandnographer team also explored different methods to guarantee their level of interest and engagement, to avoid loss of attention, as a result to the restricted human touch. In this project, Brandnographer team attempted to reconnect participants with the actual outlets and facilities, especially after months of their closure, through virtual tours around panoramic shots of the center interior. Even though first-person spatial experience is irreplaceable, the extensive application of immersive experiential tools helped participants recall their routines and practice. In group discussions and sharing, being immersed in the ambience had taken them back to their memories at the centers almost immediately, even enabled them to pinpoint some spots and corners specifically and explain their interactions in greater details. Digital tools should not solely be perceived as more convenient and cost-effective alternatives to offline fieldwork, but there should be more potentials to their functions to be explored, to help enrich and better prepare us and our respondents in our research work.

After COVID-19, we can see that a higher conversion rate towards online platforms, and digital ethnography will continue to grow as part of our new normal. It is high time to investigate how digital instruments could help optimize aspects in our studies, like the how to materialize users' abstract ideas, or to utilize the handy online tools to disrupt the roles of respondents, researchers, social, service or product designers.

Actionability

In ethnographic research, it is often that studies focus on recording present experiences and the past or detecting interests and arising trends for the future. Users' needs were gauged but their wants and expectations may remain abstract. Given that a prototype model usually takes long time to prepare, not a lot of ideas could be actualized and put to test within a research study. Moreover, leveraging on online resources, like no-code platforms that simplifies complex coding and programming, or borrowing existing multimedia files and

snipping tools, systems and design ideas could be created within minutes' time, accelerating idea validation and reiteration process, proving their feasibility and impacts and refining them within shorter period.

In the second set of workshops, under a meticulously planned framework, low-fidelity wireframe prototypes emerged from an empty canvas within 1.5 hours, where concrete visualizations of ideas of ideal user paths, priorities of functions and message were created, as well examined, tested, and enhanced in the same space. As concepts were experimented and shared on a blank canvas, the contradicting or incoherent steps and elements would have already been detected, discussed and eliminated during the workshops, eventually, increasing the actionability and practicality of final outcomes.

In addition, riding on the era of user-generated content, younger participants' abilities to operate and express their ideas in word, media or other creative forms might also be more efficient. Prototypes created by citizens, is undoubtedly strongly representative of their benefits. Nonetheless, to facilitate a productive anticipatory ethnographic session requires solid bedrock, long line of preparation of stimulus for before and during the session, in order to immerse participants in the conversations and steer productive discussions towards the focused questions more quickly and efficiently.

Shift in Power between Policy Makers and Citizens

In engaging participatory design sessions, such as our second set of co-creation workshops, participants were provided were delegated the role of designers to control the creativity power, create solutions and outcomes that in turn, guide policy makers' planning. The step-by-step toolkits designed by Brandnographer team empowered participants to go beyond sharing of pain points, but to extend their problems to potential solutions, communicating their expectations to the decision makers directly in these engagement sessions, with concrete examples and suggestions in forms of wireframes. As mentioned, as Hong Kong is undergoing a roaring sense of localism and policy decision-making, a bottom-up, participatory model, or a model that highlights user/ citizens' voices, their angles and benefits has become crucial for citizens to feel more democratic, have stronger sense of control and grasp over their livelihoods.

On the other hand, roles in between researchers, participants, our observers were also reshuffled. Besides the Brandnographer team, the end client had formed a Task Force team to steer the project and participated in the engagement activities as observers. Especially when they joined the online activities, they were able to listen to full discussions, understand user sentiments first-hand, even to follow their train of thoughts to their creative outcomes. Having decision makers to empathize with users through participating in ethnographic observation was a crucial and powerful first step to initiate and sustain change management in long term, because the Task Force would go on to be the drivers of new system and facility design, putting these user insights into implementation. And it was evident that being able to participate in the conversations, even ask questions directly when in doubt, the high levels involvement had created deep impacts to these decision makers. Actual user quotes and realistic user scenarios were etched in their minds as they had heard the users' entire thought process and stories, they became more motivated to design around users' needs, motoring the public service's change management process from a psychological level.

Limitations of the Methodology

Regardless of various options of digital tools emerging in the market, respondents, participants' tech savviness and device ownership remain to be a barrier to access online research or collaborative platforms, which restricts the scale, the nature of research, and participants' levels of engagement. Close observation of participants' willingness and tech savviness is key to ensure their motivations to participate and, in the end, the quality of outcomes. Hong Kong citizens have high smartphone ownership rate, but forms of activities and content were too, limited to their screen sizes, and reluctance to use computers outside of working hours. This has made online collaboration and creative works more difficult. In the foreseeable future, online ethnographic tools will need to balance convenience and functionalities to better serve the arising digital fieldwork demands.

The series of workshops did not only open up a platform for understanding and co-creations, but also where the power and roles of decision makers, researchers, designers and informants were blurred, injecting new dynamics and outcomes in research activities. We believe that this successful case has proved public engagement activities could also deliver practical design strategies that proves to enhance user experience and highlight human centredness. It is hoped that this has opened up more opportunities for decision makers from public services to adopt a more open approach towards immersive and engaging public consultations in the future when anticipating needs and designs for future services, and to be able to truly initiate change from empathizing and understanding the users, in a bottom-up direction.

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Case Studies

Designing Emergent Products and Services

Ethnographers must use insights about the consumers of current products and services in order to anticipate future ones. In this session, researchers demonstrate how they do this such diverse contexts as immersive media, virtual primary care, and future vehicles.

Building for the Future, Together

A Model for Bringing Emerging Products to Market, Using Anticipatory Ethnography and Mixed Methods Research

STEFANIE HUTKA, PhD, *Adobe Inc.*

Applied ethnography practitioners are often charged with learning from existing or potential customers, for a product that is either familiar to them or close in nature to what they have used before. There are particular challenges for emerging technologies, where the market is much less defined. Applied ethnography has the potential to help with predicting future market scenarios, honing the value proposition and product definition. Done well, these contributions help align siloed teams, resulting in better products being delivered to the right customers, faster. This case study will outline the approaches used across all product development stages for new creative design tools in the emerging field of immersive media – specifically, 3D and Augmented Reality. A collaboration model and best practices are offered, to guide practitioners to address both overt challenges (e.g., identifying which audiences to focus on), and hidden challenges (e.g., creating a human-centered dialogue in an ambiguous, technology-centered space).

Keywords: emerging products, 3D, augmented reality, anticipatory ethnography

INTRODUCTION

Immersive Media: An Emerging Technology

A technology can be considered "emerging" when it causes a "radical change to business, industry, or society" (Halaweh 2003, 110). Because its primary impact occurs in the future, an emerging technology is marked by ambiguity (Rotolo Hicks and Martin 2015), as well as uncertainty around return on investment and penetration rate (Halaweh 2003). This technology does not need to be a new invention - it can also be a re-application of an existing technology in a new domain (Adner and Leventhal 2002). Companies that build emerging technology products face a unique challenge, namely that by definition, the market for these products is largely undefined.

Immersive media, defined here as being composed of 3D and augmented reality (AR), is one example of emerging technologies. 3D is defined as computer generated imagery (Figure 1), and AR is defined as virtual content overlaid upon a "real" environment (Milgram et al. 1994; see Figure 2). It's notable that 3D is not a new medium - it has existed for decades, especially within video gaming and visual effects industries. Historically, most software tools for creating 3D content have been associated with a steep learning curve, related to 3D tools' overwhelming user interfaces (Gustavsson 2014) and challenges manipulating and controlling 3D content on a 2D screen (Chen, Mountford, and Sellen 1988). Consequently, their use was often limited to users with in-depth 3D domain specialization.

Figure 1. A living room "render", composed entirely of computer-generated 3D content. The room includes, from left to right, a small plant, a gold lamp, a small wooden table, a blue sofa, a blue painting, two gold lamps hanging from the ceiling, and another tall lamp. This image demonstrates how 3D can be used in lieu of a photoshoot. Vadim Andrushchenko - stock.adobe.com.

3D is an emerging technology within the context of its recent growth into new domains - namely, markets such as e-commerce. For instance, in 2014, 75% of the IKEA store catalogue consisted of computer-generated 3D imagery (Wilson 2014). 3D content creation is highly versatile, with the ability to quickly be edited or deployed at scale, saving time and resources associated with traditional mediums like product photography. As such, many creators who previously avoided working with 3D software are breaking into the medium. Software companies are taking note of this shift, creating more accessible 3D tools. Blender, for instance, is an open-source, free 3D application, which underwent a major UI/UX update in 2018, making the tool more accessible (Blender 2018). In a 2020 survey of 4100 designers, UX Tools found that the broader design community is developing an interest in 3D tools, adopting 3D software including Blender (Bowman and Palmer 2020).

Figure 2. Using AR technology, a woman places new furniture on a digital tablet, overlaid onto an empty interior via the tablet's camera. In this way, AR could be used for designing an environment, or for a consumer use cases, examining how furniture looks before purchasing it. rh2010 – stock.adobe.com.

AR is a more recent medium as compared to 3D and can be consumed on a mobile device or in a headset. An AR experience often, but not exclusively, consists of 3D content. As of 2019, there were 334 active AR users across the world, with that number expected to grow to 1.076 billion by 2023 (Boland 2019). The nascent AR medium started to gain significant traction in 2017, when Apple and Google released their software development kits (SDKs) for AR Kit and AR Core, respectively, enabling developers to create AR experiences more easily for new iPhones and Android devices. However, working with an SDK requires coding experience. Individuals who could not write code, but were interested in creating AR experiences, would still face a barrier to entry. This barrier presented an opportunity for companies seeking to build AR creative design tools that do not require any coding experience.

One important characteristic of the immersive media products is that their design tends to be technology-driven, rather than user centered (Evans and Koepfler 2018). That is, product development in this space is often steered by the type of available technology, rather than the type of human experiences one seeks to create. The consequence of a technology-driven approach can include creating tools that no user wants or needs, or at worst, tools that lead to negative experiences for the user. For example, there is evidence that in a conversation between a person wearing an AR headset and a person not wearing such a headset, the latter person will report less social connection to their partner (Miller et al. 2019). In a more extreme example, Faccio and McConnell (2017) reported a disproportionate increase in vehicle crashes, and related damage, injuries, and fatalities within one United States county where users could play the AR game, Pokémon GO, while driving. The authors estimated the incremental county-wide cost of this AR game play while driving was between $5.2 to $25.5 million over the 148 days following the introduction of Pokémon GO. A goal of those creating immersive media must be the consideration of how we can create positive human experiences, both for the target end user and those who may inadvertently be included in immersive media technology experiences.

Business Context

Immersive media's rapid growth presents a significant business opportunity for companies developing creative software. One such company is Adobe Inc, a multinational software corporation that builds creative design tools. In 2017, Adobe launched the first version of Adobe Dimension, a 3D design application targeting 2D designers that emphasized ease of use. In the same year, Adobe began development on what would become Adobe Aero, the company's first AR design tool. In 2019, Adobe would go on to acquire two major leaders in 3D creation software, Allegorithmic and Medium. In 2021, Adobe announced its Adobe 3D Substance Collection, including five 3D applications to span an end-to-end 3D creative workflow.

Adobe's expansion into the immersive media space presented two challenges:

1. **Overt challenge:** identifying which audiences to focus on and defining how and why they might create immersive media experiences.
2. **Hidden challenge:** creating a human-centered dialogue in an ambiguous, technology-centered space. This was a hidden challenge for two reasons:
   a. First, many of the immersive media product teams had a culture rooted in solving difficult technical problems. Engineering innovation, rather than the user experience, was typically the focal point. Applying a human-centered, research-based approach to product development was new to many team members. This meant that it would be both challenging and vital to demonstrate the value of applied ethnography, in order to facilitate a more human-centered culture. This was not readily observable until collaborating with the teams, and therefore "hidden".
   b. Second, unlike conducting qualitative or quantitative studies, fostering team alignment by centering teams around customers is not always an obvious part of a research practitioner's role. It is therefore "hidden".

Applied ethnography was well-situated to address these challenges, because practitioners can identify non-obvious human goals, motivations, and unmet needs, which can be predictive of future behavior. In addition, bringing this human-centered focus to product development has the potential to form alignment around siloed teams, with customers becoming a common reference point. This case study will outline the framework used across all stages of product development for new creative design tools in the emerging field of immersive media. The applied ethnography practitioner for this case study was a design researcher (the author) embedded within product teams.

RESEARCH APPROACH

Addressing the overt challenge was a process that unfolded over two phases. Phase I included defining the target end users and use cases for Adobe Aero and applying anticipatory ethnography to validate user profiles and features. Phase II occurred following the acquisition of Allegorithmic and Medium, where Adobe sought to define a go-to-market strategy for its expanded presence in the 3D space.

Phase I

Phase I included generative research, using methods commonly associated with mixed-methods user experience research (Table 1). The business questions being addressed were, "Whom do we build for first?" and "What do we start building?"

Table 1. Mixed-methods approaches for identifying target end users and feature set for Adobe Aero.

Research Approach	Goal	Deliverable
Literature review	To identify dominant AR use cases and the problems AR is uniquely solving. Included internal and external market research, academic research, and internal stakeholder interviews.	Report with recommendations, including main use cases and problems solved by AR.
In-depth interviews	To identify goals, motivations, workflows, and pain points of current AR creators, as well as creatives with no AR background, who were interested in creating AR experiences.	Audience attribute ranges (e.g., 3D experience level) with Adobe opportunity areas mapped onto these ranges; workflow and collaboration models.
Survey	To measure how many customers were already engaging in use cases that AR could help solve, such as environment design.	Research report including the percentage of respondents currently engaged in environment design activities, and a breakdown of activity types. Recommendations for pursuing an environmental design audience (e.g., AR use cases for this audience) were also included in the report.

Data from these three approaches were combined to inform Adobe Aero's personas, with a focus on details relevant to product design, such as attributes, behaviors, and unmet needs (Harley 2015). These personas remain in-use by the product team as of the time of writing. The findings also revealed that to meet users where they were at, the team would need to support importing options for content types that were familiar to users (e.g., 2D Photoshop layers), and allow users to build interactive narratives without code.

The main recommendation that emerged from this mixed-methods approach is to begin primary research for emerging technologies by observing and interviewing "lead" users, namely those who are early adopters of a new technology. This "lead user strategy" is one application of an "extreme user strategy", in which people who are extreme in some way are studied, in order to reveal less obvious behaviors or needs that are present in more "typical" users (Goodman, Kuniavsky, and Moed 2012, 220; von Hippel 1986). Studying lead users often yields a wide range of new design opportunities, whereas the typical user strategy is well-suited to solving a specific problem, after the target audience has been specified (Goodman, Kuniavsky, and Moed 2012).

Collectively, this generative research was a springboard for the product team to start development on early software builds of Adobe Aero. At this stage of product development, the team faced a challenge - namely, how to understand what users would value in this emerging AR technology, given that they may have never experienced AR, or had any prior knowledge about the medium. At this point, the design researcher employed **anticipatory ethnography**, in which a **design fiction** was presented to potential customers, and they were observed interacting with that fiction (Lindley, Sharma, and Potts 2014).

Anticipatory ethnography is a practice that traces its roots to speculative design, which focuses on designing for how the world *could* be, asking questions, finding problems, and designing for the future (Dunne and Raby 2013). Speculative design can be contrasted with traditional design, which designs for how the world is at present, answering questions, solving problems, and designing for production (Dunne and Raby 2013). Design fiction is a speculative design approach, in which one designs with stories, or "within the world of a story" (Lindley, Sharma, and Potts 2014, 241). Science-fiction writer Bruce Sterling defined a design fiction as "the deliberate use of diagetic prototypes to suspend disbelief about change" (Bosch, 2012).

Lindley, Sharma, and Potts (2014) proposed thinking of a design fiction prototype as a painting, comprised of three parts. Each part corresponds to three approaches to anticipatory ethnography: the ethnography of the paint, brushes, and creating the painting (i.e., studying the design fiction creation process), ethnography of the actual painting (i.e., studying the design fiction content), and ethnography of the audience viewing the painting (i.e., "studying how an audience interacts with or perceives a design fiction", 246). This third part was applied in the current case study, in which potential customers interacted with a design fiction, participating in the fiction through a prompt provided by the researcher.

Inspired by human-centered emerging technology research methods outlined by Hyer, Herrmann, and Kelly (2017), the design researcher and the lead designer on Adobe Aero defined a research objective: identify how participants, who aligned with the Aero personas formed from earlier research, sought to augment their reality, and by extension, the value - if any - they saw in an AR creation app. The materials for this research included an acrylic sheet, three printed photos of scenes that one may typically encounter in day-to-day life (an empty apartment, a busy street, a room in a museum), and three markers of different colors. 13 participants were recruited for in-person research sessions with a moderator (the author) and an observer. Participants were all creative professionals, who aligned with the characteristics outlined in the Adobe Aero personas. Following an in-depth interview about their background and current creative practices, each participant was shown the three printed photos, one at a time. Presentation order of the photos was randomly counterbalanced, to prevent order effects (e.g., Elmes Kantowitz Roediger 1999). For each

photo, the participant was provided with the prompt, "How would you make this ordinary scene extraordinary?"

Two clear patterns emerged across the interviews. First, participants whose design practice focused on environment design depicted static objects and focused on precise layout and measurement of objects in an environment. Second, participants whose design practice focused on UI/UX design included numerous interactive elements. Figures 3 and 4 depict an example of what participants from each group drew.

Figure 3. This image depicts how a participant with environmental design experience made their "ordinary scene extraordinary", depicting their ideal space design layout in an otherwise empty apartment. The participant accomplished this by using three different colors of markers to draw furniture and fixtures on an acrylic sheet, placed on top of a printed image of an empty apartment.

Figure 4. This image depicts how a participant with a background in UI/UX design made the "ordinary scene extraordinary", depicting an outer space scene floating in the middle of the room, emitting sounds and including objects orbiting around one another. The participant accomplished this by using three different colors of markers to draw planets, a spaceship, and soundwaves on an acrylic sheet, placed on top of a printed image of an empty apartment.

This prompt helped transport the participants into an alternate reality where anything was possible, simultaneously revealing what they sought to create in an AR application, and if and how an AR app could bring them value. Notably, as participants drew on the acrylic sheet, they started to build a narrative around the scene, such as how they got there, and whom they would invite into this virtual world. Without this approach, it would have been difficult to gauge what participants would value in an emerging technology they were unfamiliar with, and for which no product prototype yet existed. These insights and recommendations from this study led to specific features being developed for the application, such as a system for building interactive experiences (e.g., being able to support audio files, and add content and have it orbit around a target - both of which would be necessary to actualize the outer space scene in Figure 4).

Though this primary research directly informed Adobe Aero's product development, such as prioritization of features for authoring interactive experiences without code, a challenge persisted. Given that AR was a nascent, emerging medium, it was commonplace for the team to question if and how target end users, and consequently, product development, would change as the medium evolved. This challenge presented an opportunity to more directly connect product team members with customers, beyond observing research sessions and attending research readout presentations. One option in this scenario might be to teach the product team to conduct primary research themselves. However, at this stage of product development, the team did not have the bandwidth in their product development cycles. The design researcher therefore sought new methods to

engage the product team in developing a human-centric lens, that could fit into their day-to-day activities.

The first example of such a method was the adaptation of coding open-ended survey responses (e.g., Sproull 1988) into a team activity. The design researcher assembled a **rubric to code 1730 open-ended responses to a beta program intake survey,** regarding why applicants were interested in gaining access to Aero. The rubric allowed responses to be classified into four core categories. These categories were accompanied by role and self-reported AR experience level. Stakeholders from across different functions (product, design, engineering) were invited to a data coding session over lunch, where they were provided instructions, orientation, and approximately 200 rows of randomly sampled open-ended responses per person. During the session, team members could ask clarifying questions in real-time, and discuss their learnings with the group. Following completion of the session, the practitioner rated a subset of the original responses without referencing the groups' coding and calculated inter-rater reliability (Hallgren 2012). The most frequently occurring use cases were then graphed and shared with the team. This exercise not only helped efficiently code a large number of open-ended responses - it also brought the product team into direct contact with customer responses, so that they could learn first-hand about the type of use cases participants were interested in building.

In a second example, the design researcher created an **observation framework** for the Aero product team bound for Adobe MAX, Adobe's annual conference. At MAX, about 15,000 attendees attend talks, workshops, and exhibits by Adobe product teams (Ellett 2019). The product team would be staffing an Adobe Aero booth, where they would have the opportunity to interact with thousands of customers over the course of several days, including observing and speaking with customers as they used Adobe Aero.

The observation framework prompts shared in advance with the product team included:

- "What surprised you [during a customer observation or interaction]?"
- "What is this person's role?"
- "What worked well for the customer?"
- "What challenges did the customer face?"
- "What use cases did you hear?"

These prompts were accompanied by humorous memes to help make them more memorable. At MAX, product team members had access to daily electronic forms, where each member could document their notes per prompt. Immediately following the conference, the design researcher moderated a group debrief session, where each team member could share and elaborate on their observations per prompt. The design researcher, documenting these observations, then engaged in affinity mapping with the team to discover common themes. This observation framework helped the team develop the ability to intentionally interact with customers, gaining an intuition about different user profiles and more generally, fostering a human-centered way of thinking about product development as part of their existing job responsibilities.

Phase II

Phase II takes place following Adobe's acquisition of Allegorithmic and Medium. Adobe was seeking to build its go-to-market strategy for what would become the Adobe 3D Substance Collection, launched on June 23, 2021. At the time of the acquisition, the design researcher had conducted 21 user research studies on current and potential immersive media users, both qualitative and quantitative. This meant that there was a wealth of research about immersive media user goals, motivations, unmet needs, workflows, and creative tooling technology adoption behavior. However, none of these studies were specifically aimed at defining the go-to-market strategy.

The market research and pricing team reached out to the design researcher, with the aim of informing this strategy. It is important to note that these teams did not usually collaborate with the user research function at Adobe, and had limited exposure to applied ethnography practices. However, given the newness of this space, these teams sought any prior internal research that was available on immersive media. They had become aware of this research through communications with product teams, who were already connected to this work. In addition to learning about this past research, the market research and pricing teams were also seeking to identify target segments, and how these segments would value the newly acquired 3D software tools.

Throughout this collaboration, the design researcher ran several new qualitative studies where marketing and pricing stakeholders were primary stakeholders, and as such, provided a direct window into user profiles by observing research sessions, participating in debriefs, and research readouts. These studies consisted of in-depth interviews focusing on participants' current background, goals, motivations, workflows, and technology adoption habits, as well as concept testing new 3D software capabilities. This research informed the go-to-market strategy for freelancers, small-to-medium-sized businesses, and enterprise customers for the Adobe 3D Substance Collection launch.

One culminating project from Phase II was the construction of a 3D and AR **user taxonomy** by the author. This taxonomy was built by synthesizing findings across multiple sources, such as internal primary research, internal stakeholder interviews to document institutional knowledge, secondary market research, and a workshop where cross-functional participants across product, design, engineering, marketing, and sales shared real-world examples of users, including their goals, motivations, and software use. Through affinity mapping information across the aforementioned sources, the design researcher identified a core set of user profiles that might interact with immersive media products. Subject matter experts, such as design and product leads, provided iterative feedback on the specifics of the taxonomy. The taxonomy was intentionally product agnostic. That is, there were no "Aero users" or "Dimension users" described. Instead, profiles of roles such as the "3D artist" and "interaction designer" emerged, including user goals, differentiators, key use cases, workflows, design deliverables, and descriptions of 3D and AR experience levels. These detailed user profiles were organized under a smaller set of umbrella groups. Grouping was based upon similarities between user groups' mental models, creative goals, and the types of design deliverables they created.

The benefit of making the taxonomy product agnostic was that it refocused teams on a *holistic* picture of customers, rather than only as a user of a specific software application. For example, a given application might be used by several different user profiles, so referring to a

customer only as 'a user of application x or y' would not capture nuances that could affect adoption of other immersive media applications. Relatedly, a certain user profile might be interested in expanding their skills to include certain types of immersive media (e.g., interaction designer learning to build interactive AR experiences), but not others (e.g., creating 3D textures from scratch). This holistic focus was particularly relevant because Adobe was positioning itself to offer an ecosystem of immersive media tools. By "zooming out" to this holistic level, it was easier to identify go-to-market opportunity areas across the ecosystem, and differentiators that would lay the groundwork for the marketing team's user segmentation.

Ultimately, this taxonomy served as common ground not only to product teams and marketing, but also to a less obvious stakeholder - Adobe Research. Adobe Research is Adobe's advanced technology lab, focused on innovation and research and development. Due to the focus on innovation and technology, a common challenge that arose was that research scientists were often siloed from product teams, disconnected from customer profiles and needs. Removing this silo could benefit research scientists and the company - if a new algorithm or prototype can address a user need, this increases the probability of a successful technology transfer to a product team.

To foster systematic connection between Adobe Research Scientists and user research, the design researcher started a casual **"Salon Series"**, in which a small group of research scientists working on immersive media workflow-related technology gathered monthly with the design researcher and an immersive media product designer. The meetings would focus on discussing upcoming and recently completed research studies on immersive media, and sharing work from the broader user research team, such as about how creative professionals currently collaborate. This Salon Series fostered greater connections between customers' unmet needs, and the technology being developed in Adobe Research. It also resulted in two subsequent collaborations between the user research function and Adobe Research, and one project being considered for tech transfer into a 3D product.

BUSINESS IMPACT

Through a mixed-methods approach, including anticipatory ethnography, the research from Phase I and II addressed the **overt challenge** of identifying which audiences to focus on, and defining how and why they might create immersive media experiences, as well as the **hidden challenge** of creating a human-centered dialogue in an ambiguous, technology-centered space.

Specifically, Phase I directly informed target end user definition for Adobe Aero (i.e., Aero personas), as well as features that remain in the application today. These features include the ability to import both 2D (e.g., Photoshop layers) and 3D content from other Adobe applications, and the ability to build interactivity between digital objects without requiring code. Though not discussed here, it is noteworthy that subsequent iterative Adobe Aero prototype testing also yielded user journey maps that informed analytics instrumentation.

The qualitative work in Phase II, culminating in the 3D and AR user taxonomy, helped the marketing team gain insights about user profiles and technology adoption habits. Feedback from go-to-market concept testing revealed what customers valued in immersive media tools, which helped the marketing and sales team communicate the new 3D offering

to customers. This was accomplished by using human-centered language, and focusing on concepts that were most relevant to customers. This research also informed subsequent audience segmentation survey instruments, including measurement of self-reported 3D experience levels, immersive media creative activities and outputs, and lists of competitor tools.

The impact of the engagement between user research and Adobe Research can be summarized as providing a human-centered lens to Adobe Researchers; revealing opportunity areas for Adobe Researchers by providing clear examples of customer profiles and needs, and increasing probability of tech transfer by pursuing projects that align with customer needs.

COLLABORATION MODEL AND BEST PRACTICES

The research approach outlined in this case study can be distilled into a collaboration model that is extensible to other organizations, and in particular, those seeking to bring emerging technology products to market (Figure 5).
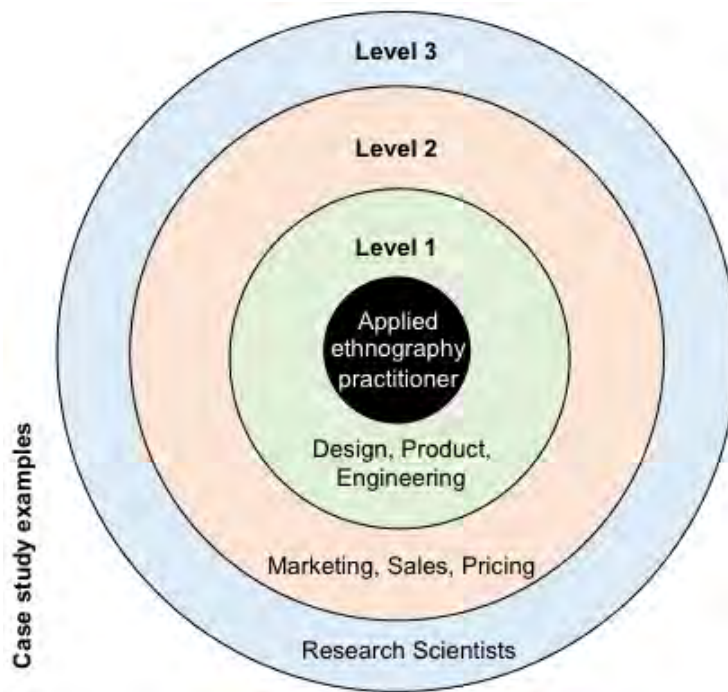
Figure 5. This image depicts a collaboration model for emerging technologies, centered around the applied ethnography practitioner. Three levels of stakeholders are then represented by concentric circles around the applied ethnography practitioner. Examples of each level, drawn from the current case study, are included in the lower half of the image. Level 1 includes design, product, and engineering. Level 2 includes marketing, sales, and pricing. Level 3 includes research scientists.

The applied ethnographic practitioner is situated at the center of the model. They can orchestrate collaboration across different partners, of various "distance" from the emerging technology product. In the present case study, level 1 consisted of designers, product managers, and engineers on product teams, such as the Adobe Aero team. Level 2 consisted of marketing, pricing, and sales teams, working to develop an immersive media go-to-market strategy. Level 3 includes less obvious partners. In the present case study, these partners were research scientists in advanced technology labs, often working siloed from product teams.

By increasing the number of "levels" of partners, the applied ethnography practitioner has the capability to align siloed teams around customers through research (i.e., a hidden challenge), in addition to addressing more conventional overt challenges. Foundational, product-agnostic artefacts can provide common ground for partners across all levels. In the present case study, this artefact was the 3D and AR user taxonomy.

Looking across Phase I and Phase II of the present case study, several **best practices** emerge for bringing emerging technology products to market:

1. **Start with "lead user" interviews:** Consider starting primary research on emerging technology products with qualitative approaches focused on "lead" participants (for example, early adopters who have experience working with an emerging technology), if they exist. This will allow the team to understand what early adopters value. From there, one can better understand if and how non-lead users may approach an emerging technology product. In the absence of lead users, one can look to analogous users or scenarios for inspiration (e.g., Doorley 2018). In the case of AR, this could involve observing and interviewing individuals who engage in designing spaces (e.g., architects, interior designers), to draw upon their goals, unmet needs, and workflows for AR product inspiration.

2. **Situate research participants in a future in which the emerging technology exists**, using prompts, prototypes, or other materials to understand what they value in that future (i.e., anticipatory ethnography; see Lindley, Sharma, and Potts, 2014 for the theoretical tenets behind this approach).

3. **To align teams, consider building product agnostic artefacts that can serve as common ground for multiple "levels" of partners.** Without product-specific personas, features, or UI/UX associated with user profiles, the applied ethnography practitioner can easily work across different teams. Each "level" of partner (see Figure 5) can apply a different lens. For example, a designer might be more interested in the mental models associated with each user profile, whereas a marketer might be more interested in how the user profiles map to market research segments. Additional research to meet the needs of each partner can then be pursued.

4. **Consider novel ways to actively engage teams in customer research, to foster a human-centered culture.** Emerging technology teams are faced with a great deal of ambiguity, which can lead to questioning target end users or even the core value proposition of the product. In addition to conducting primary research, an applied ethnography practitioner can extend their skills by adapting formal methods (e.g., qualitative coding of open-ended survey responses in this case study) to group activities that are accessible across the team. Another example of this approach was

creating an observation framework for team members, to be used when interacting with customers at an industry conference. This approach can help foster a human-centered culture across the team.

5. **Find allies in multiple "levels", who are interested in learning more about customers and their needs**. In the present case study, these allies included research scientists and marketing, pricing, and sales teams. Systematic engagement between the practitioner and these partners can be facilitated through means such as meeting series (e.g., the Salon Series in this case study), workshops, and observation of research sessions. By including multiple levels of stakeholders, the practitioner can break down silos by focusing partners on a common set of customer data.

CONCLUSION

This case study detailed a model of how anticipatory ethnography and mixed-methods design research can be applied across all phases of bringing emerging creative tools to market. The specific business impact of this model includes defining target audiences, use cases, product features, and go-to-market strategy. Equally important is the model's ability to align otherwise siloed teams around a human-centered approach, offering an alternative to the technology-first approach commonly associated with emerging technologies.

The following lessons are broadly applicable to the EPIC community:

- Examples of how applied ethnographic approaches (e.g., anticipatory ethnography) can be incorporated into a research program for bringing emerging tools to market.
- Examples of how human-centered research and activities were used to generate dialogue and bring together siloed teams.
- A collaboration model and collection of best practices for leading customer research for emerging technologies, both for formal research practice, as well as stakeholder alignment and customer engagement.

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Designing Virtual Primary Care

Desire or Dread? How Structural Forces Shape the Anticipation of Futures

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The COVID-19 pandemic changed many healthcare companies' priorities and dramatically accelerated the drive towards increasingly virtual health care. Grand Rounds Health*, a healthcare startup, decided the time is now to launch its virtual primary care offering. It was assumed that a rural, lower-socioeconomic population would be more eager for, and best served by, virtual primary care, given their greater geographic distance from clinicians and other assumed access deficits. However, ethnographic research revealed that it was the urban, higher-socioeconomic population who both reported far more favorable experiences with remote care and more eager anticipation of virtual primary care. This is partly due to different technological experiences and ecosystems, but more directly due to differing trust in and agency with institutionalized health care. Ultimately, this case study reminds researchers that our experiences are shaped and limited by our social positions, and that we cannot know if the framing of our inquiry is adequate.

Keywords: Ethnography, healthcare, social location, socioeconomic status

CONTEXT

Prior to merging with Doctor on Demand*, Grand Rounds Health (GRH) was an employer-based, virtual healthcare company dedicated to their mission of "raising the standard of healthcare for everyone, everywhere." Its primary offerings to members included expert second medical opinions, assistance with healthcare navigation, and facilitating virtual health visits with clinicians.

Creating a virtual primary care (VPC) experience was already on the long-term roadmap for GRH, but the COVID-19 pandemic—which necessitated an almost instantaneous, coordinated effort among clinicians and insurance companies to deliver virtual care of many kinds due to shelter-in-place—shifted many healthcare companies' priorities and dramatically accelerated the drive towards increasingly virtual health care.

GRH considered primary care to be a mainstay of overall health. Research amply demonstrates that those who have a dedicated, longitudinal relationship with a primary care physician (PCP) have better health outcomes (Ganguli). However, primary care utilization in the United States is low—and trending lower.

Before actively designing a VPC experience, the design and product teams wanted to conduct exploratory research to address the following, foundational questions:

- What keeps people from engaging in primary care?
- How might virtual primary care address the primary care gap?

RESEARCH PROJECT DESIGN, METHODS, AND PARTICIPANTS

The main hypothesis going into the research was that the (United States domestic) rural population would be best served by, and more eager for, VPC, given their greater distance

from clinicians and healthcare generally, and due to fewer options in rural areas for doctors who "are like/understand me," with regard to ethnoracial identity, sexual orientation, gender identity, and other sociological and demographic statuses and signifiers. This hypothesis existed in theoretical contrast to an inverse assumption about the urban population: that closer geographic proximity to clinicians, and a greater diversity of clinicians to choose from, would render VPC less necessary or desirable.

Additionally, the rural population was considered, and the participant population selected, to be a rough proxy for the sizable number of blue-collar, working-class employees which GRH served; for example, industrial farm, retail, and warehouse workers. The urban population was selected to align with the higher-wage, white-collar GRH member population, such as Silicon Valley tech workers and middle- and upper-management employees in Fortune 500 companies.

We conducted remote, deep-dive interviews with the rural population—that is, relatively lower socioeconomic status (SES) and, with a majority living in rural and small towns, those who are most likely to have to travel considerable distances to a primary care provider, and/or for whom financial and geographic access may be problematic.

Table 1. Research Design Overview

	Sampling	Homework	Interviews
Urban	Above/well above national median annual household income of $63,000 36 people across 16 states; a diverse population of suburban/urban educated professionals with employer-provided insurance and access to healthcare	Prior to the focus group discussions and interviews participants submitted individual answers to questions about social determinants of health, personal definitions of health and health practices, beliefs about primary care, and experience with virtual care.	Ten 1.5-hour focus groups with three or four participants in each group
Rural	At or below national median annual household income of $63,000 39 people across 23 states, all with employer-provided insurance, with a mix of demographic characteristics, varying levels of PCP use, and health status (excluding severe chronic conditions requiring in-person care)		Individual or pair interviews, 1.5 hours

We conducted focus groups with the "urban" population: possessing a bachelor's degree or higher (roughly half of the 36 focus group participants had graduate/advanced degrees), relatively higher SES, employer-provided health insurance, and urban/suburban residence. In short, for these participants, access to healthcare along multiple dimensions is not an issue.

Due to the logistical constraints of the pandemic we facilitated the focus groups and interviews online. This also enabled us to recruit nationally.

Across populations we discussed participants' personal definitions and practices of "health," their experiences with clinicians and institutionalized healthcare, and about their experiences with and hopes for virtual care.

A note on terminology: we define virtual primary care to be a combination of in-person services (labs, bloodwork, physical examination), and technology-based services (virtual/video-based consultations, messaging, scheduling, insurance navigation, health records, and provider identification). We refer to this set of services as VPC; it is important to note that participants were not given and did not use this definition so that their intuitive associations and mental model of virtual primary care could be uncovered.

FINDINGS

Not only were our original hypotheses debunked, they were found to be insufficient, in that they did not account for any kind of distrust of or skepticism in primary care. The urbanites far more enthusiastically anticipated the shift to a more, if not entirely, virtual care experience. Our rural participants were comparatively more skeptical, if not wary, of primary care, generally, and the potential for delivering it through virtual means.

Additionally, we found that socioeconomic status is the "meta" status that impacts other demographic signifiers and identities—specifically gender and ethnoracial identity—that in turn impact one's personal calculus of the factors that affect engagement with primary care.

Socioeconomic status, not geographic location, has the greater impact on definitions of health, engagement with healthcare, and anticipation of virtual primary care. Thus, our two populations are no longer referred to as "rural" and "urban," but "low SES" and "high SES."

The differences between the low-SES and high-SES populations primarily lie in deeply entrenched beliefs about, and prior experiences with, institutional health care—and to a lesser extent, technological milieu— with the low-SES population likely needing far more persuasion to engage in institutionalized healthcare, and with virtual primary care, in the first place. These participants often do not see institutionalized healthcare, much less primary care, as valuable or trustworthy. Reducing access barriers (distance, time, cost) will not in itself persuade them to engage with institutionalized health care. Their low levels of trust lead them to see virtual primary care as a diminished form of in-person care; thus, even though they recognize the convenience offered by virtual care, they are unable to imagine a desirable future involving it. In contrast, the high-SES population was much more optimistic, and the healthcare futures they anticipated did not, unlike those of the low-SES population, involve dread.

Chain of Causation: Individual Determinants of Health Shape Engagement with Primary Care Across the SES Spectrum

A literature review conducted as the research was being carried out showed that structural forces are operational in healthcare:

- SES, gender, and ethnoracial identity all shaped healthcare experiences. (Gage-Bouchard, Shim, Springer, Timmerman)
- Social determinants of health help make sense of health infrastructures and outcomes (Braveman and Gottlieb, Marmot and Wilkinson)

We used both lenses to make sense of individual primary care behaviors, enabling us to spot patterns in personal accounts that correspond to patterns and structural forces identified in the literature.

In addition to these forces pertinent to a person's social location and identity, our research revealed four individual determinants of health:

Trust – The degree of confidence that people have in doctors and the healthcare system
Theory of Health – How people define and manage their own health, and the role and value they assign to primary care
Access – Access members have to healthcare, and resources they have to spend on or engage with healthcare
Agency – The control (or lack thereof) people believe they have over their health

These individual determinants of health are the results of the social determinants inscribing themselves into individual psychologies and circumstances through encounters with the healthcare system and cultural narratives.

Taken together, these individual determinants of health explain primary care behaviors in both high- and low-SES populations. Though we observed clear patterns across the SES spectrum, it is important to note that ethnoracial identity, gender identity, and individual histories of socialization contributed to behavioral variation within each SES and identity cohort; SES and identity did not over-determine health outcomes and behaviors for our participants.

In summary, we propose this chain of causation:

SES, ethnoracial, and gender identities *shape* social determinants of health *that produce* individual determinants of health *which drive and inhibit* engagement with primary care.

Before we explore how high- and low-SES populations produce and experience the four individual determinants of health, we summarize how SES interacts with ethnoracial and gender identity in the context of healthcare:

Ethnoracial Identity

The impact of BIPOC identity on healthcare experiences maps pretty closely to that of SES. This is in large part due to historic and systemic discrimination against non-white Americans, leading to their over-representation in lower socioeconomic statuses.

Additionally, for the African American population, lack of trust in institutional health care also stems from historic abuses inflicted during notorious, unethical research experiments—and also from current, lived experiences.

Both our BIPOC population and many women, across the SES spectrum, voiced preference for a primary care clinician who shares their ethnoraical identity and/or gender orientation.

Gender Dynamics

High SES – Men are less likely to exhibit stereotypical, hegemonic masculine traits and beliefs, and are more inclined to define health comprehensively. They are far more likely to engage with therapists and discuss the matter without stigma.

Low SES – Men are far more likely to embody hegemonic masculine traits - particularly regarding their dedication to self-maintenance and individualism, which often translates into minimal use of, or disengagement entirely from, institutionalized health care (Springer and Mouzon). Women report, relative to our high-SES population, far more disrespectful treatment from healthcare professionals, such as not being taken seriously and having to endure far more unnecessary pain. Stories of dismissive, sexist behaviors from health care providers are more common as well.

HIGH SES: WELL-POSITIONED AMONG MULTIPLE DIMENSIONS TO EAGERLY ANTICIPATE VIRTUAL PRIMARY CARE

Among urban and suburban professionals with employer-provided health insurance, beliefs about virtual health care are changing quickly, and due to positive experiences with virtual care, overwhelmingly for the better. They experienced the evolution of virtual care in real time during the pandemic, over multiple appointments, with various doctors (dermatologists, pulmonologists, therapists, PCPs), and know that virtual care is in its infancy and will continue to improve. While the pandemic forced many to engage in virtual care for the first time, their experiences have resulted, in the main, in great success and satisfaction. Though there are a very few narrow, entrenched attitudinal and perceptual barriers to VPC—mainly the perceived inability to collect physical data (i.e., draw blood, take vital signs)—positive remote health experiences are paving the way for greater acceptance of VPC, and all agree that there is no turning back to exclusively in-person medical care.

Summary of High-SES Manifestation of Individual Determinants of Health

Trust – The high-SES population trusts institutionalized health care and western medicine generally, and has a positive history of successful institutional interactions to draw from and build on. They also typically trust individual clinicians' competence and diagnoses/assessments.

However, some doubt the ability of an overtaxed medical-industrial complex to deliver ideal health care. For example, participants often asked, rhetorically, "In a 15-minute meeting with a hard stop, and with all the patients my doctor sees, how can they really know me—or anyone?"

Theory of Health – The vast majority of high-SES participants have a multi-dimensional theory of health. That is, health is not merely a physical condition (be free from pain, eat healthy foods, exercise often), but includes mental, social, emotional, and sometimes spiritual health as well:

> "To me, being healthy means giving my body and mind everything they need to live and do the things that I need and want to do. Specifically, this includes exercising (I meet with a personal trainer twice a week and also like going for walks); eating a well-rounded diet (something I can struggle with); talking with my therapist; connecting with friends, family, and community (which is challenging during the pandemic); creating time for solitude (walks, baths, other quiet & low stimulation activities); and making time and space for creative expression (crafts, home improvement, etc.)"

Access – The high-SES population has fewer material barriers to successfully engage in institutional healthcare. They also live in and are more comfortable with a modern, expensive tech ecosystem, thus having the devices, broadband, and mastery necessary for a successful virtual care appointment. The almost-overnight and universal shift to remote work helped to make the transition to virtual care more of a small pivot than a giant leap. In the main they also have more flexible work schedules to accommodate health appointments that occur during the workday, more leverage/permission to take time off if needed, and are better able to secure and afford child care during medical visits.

Agency – This population has been socialized from a young age to be informed, empowered self-advocates who feel entitled to ask for clarification or suggest alternate medications or courses of treatment (Lareau). They have the interpersonal savvy and medical literacy to communicate effectively with clinicians and create positive outcomes. They are confident and competent when navigating institutional bureaucracies. They have experienced the system work for them (Gage-Bouchard, Shim).
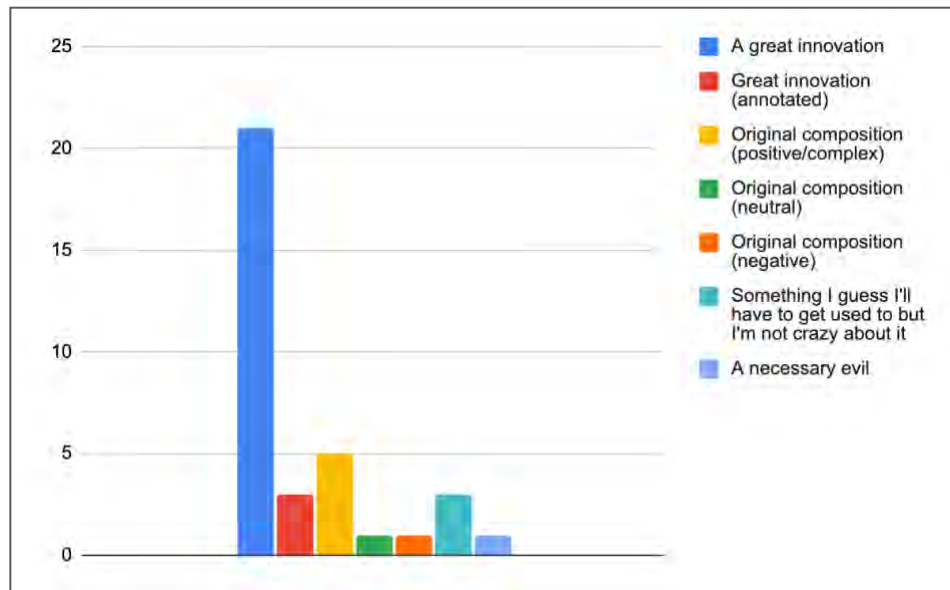
Figure 1. High-SES Perceptions of Virtual Health Care. As illustrated in the above table, the vast majority of high-SES participants feel that virtual health care is a great innovation; this played out in detail in the focus group conversations as well.

The main reasons for their effusive assessments include:

Convenience – Busy, white-collar professionals deeply appreciate frictionlessly popping in and out of a virtual care appointment, thus avoiding the hassle involved in taking time out of the workday to commute to and from the doctor's office, find parking, and possibly have to arrange for child/family care. And even if one has to wait a while for the doctor to appear and the appointment to formally begin—no worries, one can just keep working on their laptop until the moment it commences.

Physical and psychological safety – While most appreciated being free from the stress and potential health hazard of being in close quarters in a waiting room with other, possibly sick people, many also mentioned, in their individual activities and in the focus group discussions, that virtual visits are preferred since home is also a safer psychological space:

> "I currently see my psychotherapist weekly via video chat, and I've also met with my primary care doctor in the last year via video chat. Considering my primary care visit specifically, I would give it an A, I think. There wasn't anything that especially thrilled me about it, but it was really helpful to be able to schedule a conversation with minimal disruption to my workday and to see and talk to my doctor from the comfort of home. I didn't feel like the conversation was hindered at all by video, which is odd because I sometimes feel like other conversations are (work, friends and family). I guess I was perhaps more relaxed because I wasn't in an unfamiliar exam room."

LOW SES: VIRTUAL CARE HAS BOTH PROMISE AND PERIL

The low-SES population often does not see primary care as being helpful enough to be worth engaging with in the first place—much less virtual primary care. Even when access is not a problem, they may still not believe it is worth it to go to a PCP due to:

- Lacking trust (in the system, fundamentally; in the doctors to whom they have access)
- Not believing that PCPs are the people who can do something about ill-health
- Not believing that anything can be done to help them or that they have control over their health

Under these conditions, the low-SES population conceives of virtual primary care as having both promise and peril. Their interest in virtual primary care is measured and conditional.

Trust – People in the low-SES population expressed distrust of both doctors and institutional healthcare more often than the high-SES population. They believed the healthcare system prioritized profits over providing care for people, and that doctors—however well-meaning—were therefore subject to its pressures and unable to or uninterested in treating people well.

Many people we interviewed spoke vividly about being ignored, disrespected, and discriminated against. They described medical professionals ignoring their knowledge of their own bodies, not taking their pain seriously, assuming drug-seeking and other negative behaviors based on their (apparent) social class, speaking dismissively and rudely, and conducting procedures over their objections or counter to their preferences. Making all of this worse are doctors with very limited time to spend with patients—leading to oversights and bad diagnoses. Occasionally, this led to damage to their bodies or put them in debt.

As a result, low-SES people saw themselves as being at the mercy of powerful institutions, with no one on their side or watching out for them. Faced with seeking medical care, participants frequently said that they would rather put up with what they believed to be temporary pain and ill-health than risk financial catastrophe and the possibility of further damage to their health. Participants described inheriting these attitudes from their parents, suggesting that seeking primary care is a socialized behavior. Unless exposed to other perspectives through education or culture, younger generations might continue to model their care-avoidant behaviors after their parents.

Access – The researchers initially conceptualized access in terms of distance from primary care providers or healthcare facilities. In reality, low-SES people, both rural and urban, were comfortable driving considerable distances in order to reach the care they needed, being accustomed to long drives. Instead, the participants conceived of access barriers more in terms of other kinds of constraints on time and money, such as wait times and other demands on their finances.

Central to this is a terror of facing catastrophic costs they had no say in deciding whether to incur. According to many participants, many of their doctors and medical professionals often have no idea of the costs of the procedures or the impact it may have on them. Many even described being pressured into procedures whose costs they were not informed of beforehand.

Many of our low-SES participants saw healthcare as competing with other expenses. Having to decide whether to spend money on survival or health care, most choose survival. Parents having to decide whether to spend healthcare money on their children or themselves would usually decide to spend it on their children; whenever possible, they would avoid spending money on their own health in order to reduce the burden on the family. Given the precarity of their income, most low-SES parents were optimizing for cash flow and ongoing availability of money. In contrast, high-SES parents decided to make greater investments into their own health so that they "could be there for my children and grandchildren", a long-term positive vision that low-SES parents rarely expressed.

These kinds of choices appear to be deeply informed by cultural narratives: of rugged self-reliance, wanting to not ask for help, and valorizing self-sacrifice for one's kin. These were often deeply intertwined with narratives of masculinity; several participants talked about themselves or partners as "country men" who could "solve any problem with duct tape".

For those low-SES people working multiple jobs, healthcare services are often unavailable during their free hours. Many participants did not have sufficient discretionary time off for healthcare visits, and had to negotiate time off with their managers, colleagues, and corporate bureaucracy. Coordinating time off with provider availability was often difficult enough that participants simply put off care visits or ignored issues entirely. Thus, they strongly appreciated how virtual care could allow them to see a doctor "at 11pm, after I've put my kids to bed". In contrast with a narrative often espoused by high-SES people, these participants did not talk in terms of their time being valuable, but as being limited. While they clearly expressed a desire for it, there was no corresponding sense of entitlement to efficient and convenient visits.

Theory of Health – Low lifetime exposure to institutionalized healthcare due to lack of access and low trust leads to low-SES populations having a theory of health much more centered around the management of pain, as compared to the high-SES population's conception of health as holistic and expansive. Pain management itself was influenced by narratives of agency: participants often described waiting it out until it got bad enough that they couldn't keep going about their day anymore, justifying it with "it's good for my body to tough it out", or "taking medication weakens the body".

Healthcare providers appeared to be doing little in the way of educating their patients; participants described how most of their interactions with doctors were rushed, with the doctors only giving them cursory attention. This meant that low-SES people received little, if any, actionable advice during annual checkups, being only told that their health was good or poor without any direction on how to maintain or remedy it. This contributed to a reduced interest in seeking primary care, because, as one of our participants put it, "I know I should be eating better and doing exercise. Why would I spend money on a doctor for them to tell me what I already know?".

Given this situation, alternative providers of healthcare or healthcare information — chiropractors, people in the media, medical professionals in the family — become trusted sources that inform their theory of health.

Agency – Low-SES people often had a history of being not given agency in institutional care settings. Trust-sapping experiences of being disrespected or ignored meant that, for

these people, engaging with healthcare often leads to poor outcomes, leading to a belief that primary care is ineffective, and even that their health-seeking actions have no effect. Some participants internalized these experiences to mean that they were beyond help, and that they were destined to struggle and suffer by themselves. As one African-American participant concluded after having been prescribed blood pressure medication that was known to have dangerous side effects for AA men: "I really don't think there's a doctor out there that can help me, but that's just my mindset." Few participants possessed the ability to push back against a healthcare professional's advice, ask questions, or request adjustments, in contrast with high-SES people who assumed asking questions to be both normal and essential to achieving good outcomes.

This perceived inability of low-SES people to positively affect their health is also informed by a pain-centered theory of health, which gives no structure to health-making activities or habits. Many participants took this to mean their health was essentially out of their control, and that it was no use consulting a primary care provider. When they did take action, it was often informed by alternative sources of health information and personal experimentation – not solely by their primary care provider.

Low-SES People Have a Comparatively Lesser Degree of Anticipation for Virtual Primary Care

> "Well, I know I did a lot of teleconferencing with my doctor after I had my surgery. And I guess what made it impersonal was it was kind of weird because I was cut from, basically from my belly button down midway of my vagina and I had to stand up in front of him. So he could see the incisions and I'm like, how do I not know he has someone on the right side of the camera that I can't see or someone on the left? And then he's like looking around and not, I don't know. It felt like he wasn't actually paying attention to me. I don't know. So when they did offer, when they said, do you want to make the drive and come see us in the office? I always took that opportunity."

Given their history of poor experiences with institutional health care, mental models that de-center primary care, and scarce resources, low-SES people have only a measured interest in virtual care.

The main reasons for this are:

Poor first impressions – Low-SES people's experiences with virtual appointments has been far more mixed/less positive than the high-SES population. Many participants first used virtual care during the pandemic, and they experienced what they considered to be a more limited or degraded form of care. As medical practice adapted quickly to cope with the constraints placed by the pandemic, the doctors our participants consulted were stressed and unable to offer more than cursory support. It is also possible that the low-SES population was then not yet acclimated to Zoom and similar platforms, and considered it to be a sub-par interaction.

Psychological unsafety and impersonal interactions – Low-SES people we spoke with felt strongly that virtual interactions were more impersonal and less emotionally resonant than in-person interactions. Many feared that talking through a screen meant that

the doctor would be free to pay even less attention to them than they already did, and that biases would be exacerbated. Being present in-person, for them, was seen as a way to be taken seriously, and gauge both the quality of the interaction and the character of the healthcare provider accurately.

Lower quality of care Low-SES participants—even those who had some limited VPC experiences—were concerned that consultations through video would be lower quality. Though this concern is partly about the quality of the cameras on their devices and bandwidth restrictions, it is more about the small viewing window limiting the doctor's ability to really observe their bodies closely and as a whole and note symptoms accurately. Video consultations were seen as potentially shifting the reporting burden further on the participants. Current primary care models have established that a consultation necessarily involves gathering vitals and other bodily data; participants instinctively decided that VPC, lacking these sorts of physical interactions, must necessarily be less effective than in-person care. Unlike our high-SES participants, these people did not express an interest in smart watches, health apps, and other medical technologies as part of their desires for improving primary care. Technology was rarely seen as an opportunity for better care.

Loss of agency – Thus, seeing virtual care as "less than" in-person care, many low-SES participants expressed a fear of being trapped in systems that further limit their care options. They were concerned that virtual care offerings were just another way for healthcare providers to cut costs, and to take away forms of care that felt trustworthy.

At the same time, they were also appreciative of its potential benefits:

Convenience – Free hours for many low-SES people often don't align with provider availability. Many low-SES people we spoke with identified the potential for VPC services to be available during their non-working hours. Many also thought that they would not have to choose between childcare and seeking primary care for themselves, and also that VPC would make it a lot easier to have a consultation regarding their children without having to set aside the time and effort to drive them to the doctor's office. Also appreciated was the uncoupling of gathering blood and vitals from the doctor's consultation—some participants suggested that the doctor's limited time for review could be supplemented by more time with a medical professional who could explain the recommendations and answer questions in more detail.

Psychological safety – Low-SES participants talked about a virtual primary care visit being easier to leave if they found it unpleasant or not serving their needs. As one person said, "If I don't like it, I can just shut the laptop". Walking out of an appointment is seen as the primary form of agency they do have in healthcare settings; VPC makes that easy. Participants noted that a virtual consultation or provider would require a lesser investment in time and travel, thus making it easier for them to change their minds and seek another provider. In addition, spouses and caregivers also appreciated how VPC makes it easier for them to participate in the care process for their loved ones, primarily by accompanying them on visits or consultations.

In summary, our low-SES population did see some benefits of virtual care, but their anticipation was tempered by their mistrust of institutional healthcare. In addition, in comparison to high-SES people, these participants conceived of virtual care as comprising a more narrow set of experiences centered around a visit to the doctor.

Summary of Key Differences Between the Low- and High-SES Populations

Personal Theory of Health/PCP role

High SES – Personal health is multidimensional: physical, mental, social, perhaps spiritual. One's PCP is assumed to be a partner in and vehicle for furthering personal health, which is in theory a proactive endeavor—though people admit to falling short of the proactive ideal.

Low SES – Often there is no coherent theory of health, but when there is, it is frequently limited to exercise and diet. People may or may not have a PCP. Indeed, they may not be engaged with the institutionalized healthcare system at all: PCPs are not assumed, easily accessed allies in pursuit of health. In the main, people engage in institutionalized healthcare far more reactively.

Prior History/Experience with Health Care

High SES – There is very likely a lifelong, positive history of institutionalized health care experiences, with multiple specialists, to draw from. If one is dissatisfied with the quality of healthcare one is receiving, one feels empowered to advocate for oneself or to seek alternatives. If one has a negative experience with an individual doctor, dissatisfaction/blame lies squarely with that specific practitioner: disengagement from institutionalized health care is rarely considered.

Low SES – Far more negative health care experiences were discussed, particularly regarding pain being taken seriously, pain medication being prescribed (or not), and participants feeling fully heard and respected. Participants are comparatively more wary of institutionalized health care, and are more likely to have been disengaged from institutionalized health care entirely for extended time periods.

Assessment of experience with virtual care

High SES – Virtual care experiences have been overwhelmingly positive, mainly due to convenience, physical safety, and psychological comfort. Just as important, but more invisible, are the devices and infrastructure enabling the technically smooth experience. The main barrier to greater acceptance of a VPC experience is belief that insufficient bodily data can be obtained through remote appointments, though most report being comfortable with new and emergent technologies to bridge this gap. An in-person appointment is still desired for circumstances when human engagement is seen as required (a medical emergency, a broken leg, blood being drawn).

Low SES – Assessment of virtual care experiences is far more mixed, due to trust issues (the doctor is looking away/at another screen; is someone else in the room with the doctor as I show my scar?), belief that insufficient bodily data can be obtained through remote appointments, less value placed on "convenience" per high-SES metrics, and entrenched willingness to drive, even long distances, to a local, in-person doctor. Lack of broadband access, old and hand-me-down devices, and relatively less familiarity with Zoom and similar platforms exacerbate the poor experience.

Qualities desired in PCP

High SES – The "most important" qualities PCPs should embody include taking the time to really listen, empathy, charismatic bedside manner, the willingness and connectedness to send one to a specialist when needed, and restraint from over-prescribing medications—and, conversely, from prescribing medication as a default.

Low SES – There are differences between the two populations regarding the experience of "being heard." Most low-SES participants mentioned the desire to be heard/that doctors need to listen. However, high-SES participants predominantly stated that being "listened to" means not being rushed, or being granted sufficient time to fully discuss their questions and concerns. For low-SES participants, being "listened to" far more often meant being "respected," in addition to not being rushed.

Attitudes towards mental health

High SES – Engaging in talk therapy is seen as normalized, proactive personal maintenance and self care. Little if any stigma around discussing mental health maintenance was perceived.

Low SES Mental health care is far more stigmatized—and often not sought until people are confronting a crisis or at a breaking point. Religious institutions are more likely to be seen as the best source of mental health care.

DESIGN IMPLICATIONS

At the time of this writing we are working with the GRH+DOD product and marketing teams to craft an effective VPC experience and to compose attendant, compelling messaging. The initial hypotheses about to whom VPC would appeal, and why, have been debunked, and we are moving forward with greater clarity and confidence. Our research is informing the design of our VPC experience—and more.

Personas – The primary deliverable resulting from this research is the Virtual Primary Care Personas, which are being used throughout GRH+DOD, and more expansively than for just VPC design. The personas are

- facilitating understanding about GRH's member population to Legacy Doctor on Demand and Included Health teams as our companies and cultures merge*
- informing the value propositions for marketing positioning statements

- being leveraged to design conversations for the digital assistant
- being used to represent the customer/patient population when designing digital tools for our clinical and care teams

In addition to considering the needs, motivations, and beliefs of the personas, GRH+DOD must also consider these implications and principles for design:

Address all four individual determinants of health – It is clear that simply creating a usable and accessible VPC service only serves the most well off and technically proficient people, and risks alienating those who will most benefit from increased engagement with primary care. To succeed, GRH+DOD must address all four factors when designing their VPC service:

- Earn trust (and evaluate interactions knowing a deficit of trust may be present).
- Speak to the user's current theory of health, help enrich their understanding of their health, and help evolve it to be more holistic (especially expanding it to include behavioral and mental health).
- Empower people to act, knowing that mistrust, hegemonic masculinity, a lack of socialization into health practices, and cultural background will make this more difficult for some.
- Make the service available to people working a range of hours during the day or week, ensuring that people face no surprises and that they have agency over every interaction with the doctor and all prescribed courses of treatment.

Design for the medium – Understanding that video interactions read differently depending on users' socialization with technology and the trust or mistrust they may have, GRH+DOD needs to train its clinical care providers to adapt their behavior for video-based interactions. Care will need to be taken to signal empathy, respect, and attentiveness, or patients might infer that the provider does not care and/or is not competent. Secondly, the service must be usable with low-quality cameras, older devices, slower bandwidth, and limited skill with technology.

Meet people where they are in their journey – People will be in various degrees of readiness and ability to engage with both primary care and VPC. GRH+DOD will need to identify factors that have shaped a person's past experience with healthcare, understand their present needs and abilities (including those related to technology use), and compassionately empower them to change in positive ways. This also means that different sub-populations will have different success metrics, and they will progress towards ideal primary care and health behaviors at differing rates.

Design with relationships in mind – Though our research focused on personal health-making behaviors, it was very clear that the majority of people at both high- and low-SES have personal relationships that inform their primary care behaviors—in the household, the family, and at the workplace. Thus, it will be important to not only design for the individual personas but also make it easy for people they trust to be involved in or

accompany them in primary care experiences. Doing so will ameliorate trust deficits, create psychological safety, and increase the likelihood of outreach and marketing efforts succeeding.

PROVOCATIONS

Who creates/anticipates the future? For whom is the future designed?

Our two populations have strikingly different anticipations of future technology and experiences—one optimistic, one filled with dread—each strongly determined by their position in society, and the structural forces acting on them.

Why was the dread invisible to the experience designers?

The GRH+DOD team is of the high-SES cohort, whose life experiences reinforced narratives that suggest optimism. Many, if not most, have never faced the challenges and barriers the low-SES population does, so they could only anticipate the benefits of the healthcare future they are creating. They assumed that primary care was universally desirable, and did not expect that people would question its fundamental value. When this assumption was shown to be false, it changed not only the marketing, outreach, intake, and design goals, but also affected estimates of adoption rates for a VPC product, and for which populations.

We submit that this case study demonstrates how operating ethnographically is valuable. By explicitly investigating and being open to aspects of experience that are beyond the immediate concerns of our product teams, by helping us see what we have been blind to, we are able to identify significant risks and avoid strategic errors...but only if we are able to acknowledge that our gaze is limited when we begin. In this project, if we had only investigated virtual primary care, or had only investigated current members, or had not tried to probe to a level where we could see structural forces operating over time, we would not have uncovered how deep of a trust deficit exists. An inquiry limited to understanding needs around virtual primary care would not have uncovered these underlying beliefs that would limit the use of even the most well-designed and usable VPC products.

This case study is also a reminder that our experiences are pervasively being shaped by our social position, and that we cannot know if the framing of our inquiry is adequate. In other words, representation matters, and black/POC/trans/disabled activists are right that systemic forces render their experiences invisible to people with power. This is often cited as a reason to have a diversity of people on the team. However, people from underprivileged backgrounds often face pervasive biases and other barriers, and team culture may prevent them from being able to speak to their experience, or challenge assumptions (see Luckie, and Wachter-Boettcher). Countering this invisibility requires a commitment to including their perspectives when framing the research, including them in the research sample, and shaping the inquiry with awareness of structural and systemic forces that shape human experience.

Finally, we should assume that futures may not be anticipated the same way across our stakeholder population, and therefore should explicitly inquire into both desire and dread. Asking not only about who might benefit from a technology and how, but also who might lose — perhaps using frameworks like McLuhan's tetrad of media effects (McLuhan and McLuhan) — can help expand our gaze as practitioners, and help make sense of the societal impact that technology is likely to have.

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NOTE

This research project was launched in December 2020, prior to Grand Rounds Health merging with Doctor on Demand in early 2021 to form what is presently and temporarily named "GRH+DOD". The study was designed with Grand Round Health's member population, business model, and goals in mind. Therefore, this Case Study will refer to Grand Rounds Health, rather than GRH+DOD, unless explicitly noted. Additionally, GRH+DOD acquired Included Health in May, 2021.

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Anticipating the Arrival of a Clean-Sensitive Driving Future

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A leading automaker needed to safely study the impact of the COVID-19 pandemic upon driver and passenger experience to effectively prioritize future in-vehicle features related to cleanliness. In this case study, we'll share our approach and retrospective learnings on how to understand, contextualize, and anticipate the impact of major societal shifts as they happen.

How will we know when our anticipated future has finally arrived? The coronavirus pandemic suspended many aspects of life, society, and business in 2020. Hunkered down in our homes or apartments and working by Zoom, much mental energy was spent on anticipation. Initially, our anticipation focused on when we'd be back at the office. A week? Maybe a month? Slowly, anticipation shifted towards the long-term. What would our lives look like after COVID-19? How could our lives return to normal after so much had changed – and indeed, *should* we aim for a return to a reality that was so inequitable for so many?

Businesses followed a similar trajectory of anticipation. Questions about the immediate impact of the pandemic upon supply chains and manufacturing facilities gave way to questions about long-term shifts in consumer expectations and behaviors. As bellwethers of the US economy, automotive manufacturers were forced to reckon with the pandemic's impact on nearly every aspect of their businesses: operations, manufacturing, sales, design, and marketing. Automakers needed to make important decisions that would have real ramifications for employee and customer safety, as well as business performance. The trouble, of course, was that the pandemic's time horizon was (and continues to be) a moving target. When was the right moment to shift from anticipation to action?

THE PROBLEM STATEMENT: STUDYING EVOLVING BEHAVIORS AND EXPERIENCES SAFELY

In the spring of 2020, as COVID-19 spread across the United States, General Motors knew that many advanced features within its long-term research and development pipeline were about to take on heightened relevance to American consumers. These features, long in development, were being designed to address the growing desire for improved air filtration and cleaner surfaces within vehicles. Some had already been introduced in the Chinese market, where air pollution has long been a concern (Zhang et al. 2012).

We believed that American consumers would be increasingly interested in these features as well. Phrases like community spread and airborne transmission were becoming part of the

national lexicon. Americans were newly sensitized (and sanitized) to the potential health risks of sharing enclosed spaces, including cars, airplanes, and other forms of transportation. This sensitivity created a chance to learn from consumers who were suddenly interested in once-niche topics like antimicrobial surfaces and AQI (Air Quality Index), providing potentially valuable input to research and development teams, as well as design teams. But how were we to study the experiences of drivers and passengers at a moment when having a researcher in the backseat was considered a potential health risk, and as the pandemic continued to evolve in unexpected and unanticipated ways?

THE APPROACH: A REMOTE STUDY FIELDED AT A CRITICAL MOMENT

Several questions needed to be answered to prioritize in-development cleanliness features, and effectively communicate those features' benefits to consumers. How were consumer behaviors and attitudes towards car travel evolving during the pandemic? Was there variation by a demographic, agency (passenger vs. driver), or profession (for example, rideshare drivers and fleet drivers)? How long could we anticipate these new attitudes and behaviors to endure? Which features and corresponding claims could be relevant to consumers today and into the future? And ultimately, how should we proceed with regard to feature insertion (the introduction of new technology to the vehicle), UX / UI design, and marketing strategy?

Our belief was that ethnography would be a powerful way to observe emergent behaviors and attitudes during this time of sustained uncertainty at a national and global level. A small-sample (primarily) qualitative approach that was flexible, agile, and allowed participants to show and articulate their experiences in near-real time would be more fruitful than an alternative large-scale quantitative method that could capture more datapoints but would lack depth and context. Our chosen approach also gave us the ability to hypothesize and explore the longer-term implications of the pandemic. For example, at each study touchpoint we asked a set of quantitative questions designed to gauge customer sensitivity to COVID-19 overall, and the level of concern each participant had about exposure to germs and viruses while traveling in personal or professionally driven vehicles. By observing these shifts, as well as level of interest in specific cleanliness-related features, we were able to make conclusions about where consumer interest in future features might be headed and why. We will provide commentary and recommendations for measuring change over time within this study format at the conclusion of this article.

General Motors has extensive and highly sophisticated Research and Development capabilities in-house, and a strong appetite for evidence-based decision-making. In this case, partnering with an external agency offered benefits of speed and efficiency, as well as methodological diversity. As noted by Brigitte Jordan, Christina Wasson, and Heather S. Roth-Lobo in 2015, automotive manufacturers, who have access to highly specialized engineering, research and development, and testing data, may find that ethnographic or design research methods can shine new light on known subjects by highlighting the underlying emotions and experiences of participants' "driving lives" (Jordan et al. 2015). In this case, it was clear that an ethnographic approach would be the best way to uncover how those "driving lives" and experiences of customers were shifting during the pandemic,

offering us flexibility, interactivity, rich qualitative data, and the ability to address a wide range of topics with participants.

Customer experience agency Rightpoint and GM partnered to design a study to address key questions about in-vehicle cleanliness in a safe, time-efficient way. Rightpoint also partners with GM on in-vehicle customer experience design, giving the Rightpoint team extra insight into both the business and the future-state customer experience that GM is developing for its customers. Given the safety concerns around in-person research during the pandemic, a remote diary study was established as the most feasible and effective methodology to identify, understand, and track how the vehicle experience was evolving during the second half of 2020. Selecting a representative group of participants was a major methodological focus. During the 2020 fiscal year, GM sold around 2.5 million vehicles in the United States (GM 2020 Sales Far Outperform the U.S. Industry in Fourth Quarter and Calendar Year, 2021). Consequently, designing for a diverse group of Americans and capturing diverse perspectives through the study was particularly important to the team. Participants were screened for demographics, driving frequency, whether they were in the market for a new vehicle, and travel mode (driver, passenger, professional driver). The team also screened for health conditions that would make the participant more sensitive to both COVID-19 and issues of cleanliness in the vehicle, including allergies, asthma, and heart conditions. Ultimately, the team selected a diverse group of 42 individuals that cut across demographic, psychographic, and health-based characteristics.

Table 1. Participant Characteristics

Urban Density	Suburban or Rural	Urban
	61%	38%
Car Ownership Status	Non-Owners	Owners
	12%	88%
Electric Vehicle Ownership Status	Non-EV Owners	EV Owners
	80%	20%
In-Market Status	Not Planning a Car Purchase	Planning a Car Purchase in the Next 6 Months
	43%	57%
Parental Status	Non-Parents	Parents
	57%	43%
Employment	Non-Professional Drivers	Professional Driver (Fleet, Rideshare)
	88%	12%
Rideshare Activity During the Pandemic	Non-Active Passengers	Active Rideshare Passengers
	71.5%	28.5%
Respiratory Disease	Non-Sufferers	Sufferers
	81%	19%

Allergies	Non-Sufferers	Sufferers
	55%	45%
Cardiovascular Disease	Non-Sufferers	Sufferers
	95%	5%
Personally Impacted by 2020 Wildfire Season	No	Yes
	61%	38%
Region	Northwest:12%, West/Southwest:26%, Midwest:17%, Northeast: 24%, Southeast: 21%.	
"COVID-19 has impacted me…"	Moderately: 17%, A Lot:33%, A Great Deal: 50%	
Age	Under 40: 48%, 40-60: 33%, 60+: 19%	
Gender	Male: 52%, Female: 45%: Not Specified: 3%	

Five touchpoints were fielded during the study timeframe (late August through October 2020), with each touchpoint focusing on a slightly different subject and research question. Participants were asked to respond to around 20 questions within each touchpoint; some qualitative questions required a video response (an example prompt was, "show us your cleaning routine in the car"). Other questions were quantitative, measuring interest in new vehicle features with in-market shoppers, or asking participants to select specific cleanliness claims that felt most understandable and desirable to them. These longitudinal touchpoints allowed us to touch on a variety of topics with participants without exhausting them; it also created a view of how American attitudes related to cleanliness, safety, and travel were evolving during the summer and fall of 2020.

THE PANDEMIC HAS CHANGED THE EXPERIENCE OF TRAVELING BY CAR FOR BOTH DRIVERS AND PASSENGERS.

The study was fielded from late August 2020 through early October 2020. In hindsight, this was a critical phase of the pandemic in the United States. Confirmed cases had just peaked in July, at least partially due to some states reopening prematurely during the summer months. By the conclusion of the study, the CDC had finally acknowledged that the novel coronavirus could be transmitted through airborne means, especially in enclosed spaces with ventilation (Science Brief: SARS-CoV-2, 2020) – a belated admission. The rise and fall of circumstances in the United States during these months was mirrored in the feedback we received from participants throughout the study. As one Wisconsinite told us in the study during September, "Over the last few months, it's been a rollercoaster ride."
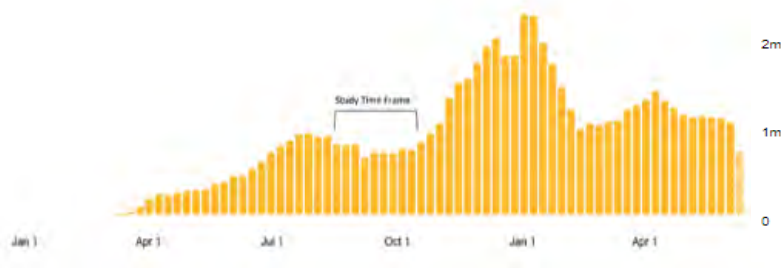
Figure 1. Image via World Health Organization Coronavirus (COVID-19) Dashboard, Confirmed COVID-19 Cases per Week, January 1, 2020 – June 15, 2021 Americas Only.

Participant concern about exposure to germs, bacteria, and viruses (as well as concern about the cleanliness of the vehicles in which they traveled) was high throughout the study. What surprised us was the divergent views participants had about their car as (quite literally) a vehicle for both risk and safety during COVID-19. Some were much more comfortable with car travel during the pandemic, others much less. An important factor was the participant's sense of individual agency within the car. People who were primarily passengers, rideshare users, or professional drivers felt much less comfortable in vehicles than did drivers. People who owned their own vehicle and had few passengers felt much more in control.

Demographics were also important in determining how concerned a participant might be about exposure. Not surprisingly, people with certain health conditions like asthma were much more anxious about exposure in the car. People who worked in high-exposure industries like healthcare or retail were also less comfortable. This heightened sensitivity to risk amongst certain segments of the population is reflected by other studies. As documented in Monthly Labor Review in June 2020, industries that are most prone to high COVID-19 exposure are disproportionately composed of workers who are younger, unmarried, and have less education, and are more likely to belong to single-parent families (Day et al. 2020). People who are working in these industries face risks from multiple angles when it comes to COVID-19. Another study of Turkish adults found that women had a significantly higher vulnerability to, perceived risk, and fear of the new coronavirus compared to men (Yıldırım et al. 2020).

Another dynamic was the participant's perception of themselves as a source of risk. When participants were asked to demonstrate their typical cleaning routines in a brief video, only 14% of participants described themselves as a source of potential contagion in the vehicle, regardless of whether they were drivers or passengers. Instead, most described *others* (family, friends, or strangers) as the source of risk. Specific driving contexts and tasks were also cited as anxiety-provoking specifically because of the exposure to people who the participant had no control over (visiting grocery stores, using a gas pump, or being a passenger in someone else's car). This desire for control was also reflected in a significant shift from public transportation to private transportation and non-motorized modes during the pandemic (Abdullah, 2020).
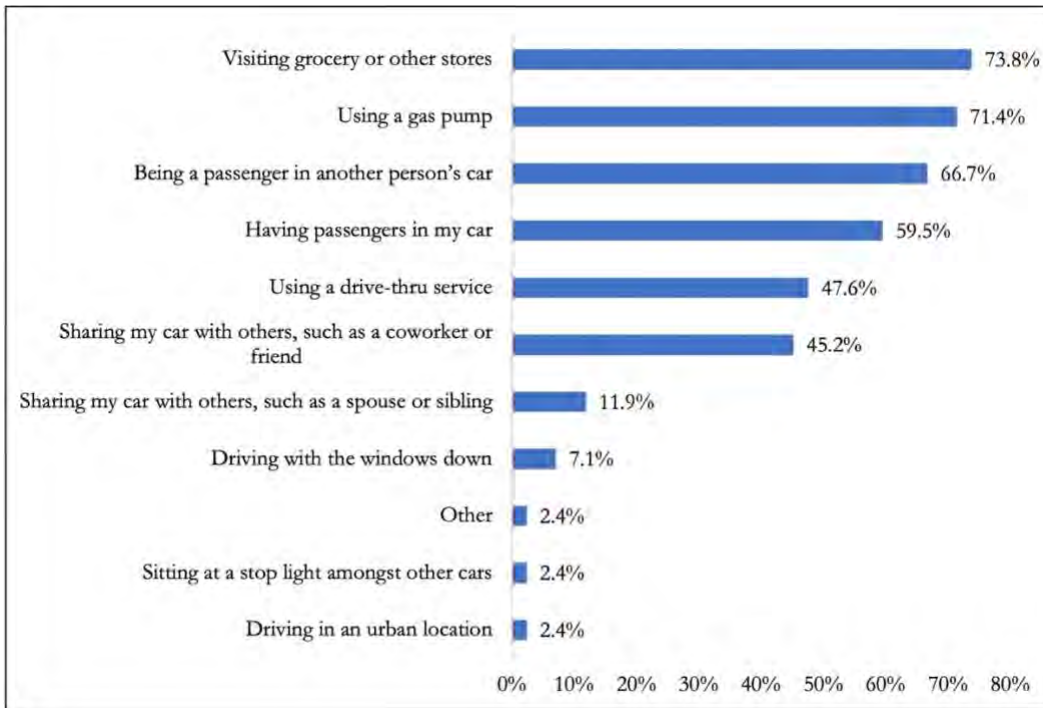
Figure 2. Participant Response to Study Question "Which aspects of the driving experience make you most concerned about exposure to COVID-19? Select all that apply."

The dynamic between control, agency, travel mode, and demographics was clearly complicated. Many have documented the tendency of Americans to perceive the car as a private space (Squires 2010). But the car is fast becoming a networked space and one that is often shared. How were we to think about designing for (and communicating with) a diversity of experiences and mindsets – not just the driver or owner? More importantly, how could we make these dynamics tangible and relevant to a company that needed to quickly understand how to empathize with both drivers and passengers? Observing the routines, behaviors, and verbal explanations from our participants, we began to see three common mental models emerge:

1. **Car as safe space:** The first is a cohort who viewed their vehicle as a safe space. These participants explained that they have been sensitive to vehicle cleanliness before COVID-19 and have long-established routines to keep their vehicle clean. As a result of these preexisting habits, they felt secure and unconcerned about either internal or external risks. As one participant told us, "I have always taken pride in having a clean vehicle. Even when my kids were babies, I taught them to throw away trash."
2. **Car as controllable space:** Our second cohort was a group who viewed their vehicle as a controllable space. This group, which included individuals working in high-risk industries like healthcare, saw the risk as external, often taking extra precautions to remove the risk from their vehicle when they enter it. Once their

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routine was complete, their vehicle was considered a safe space. As one participant said, "I work in a medical office and I see about 10 to 20 patients today so I'm very conscious of what germs I may be in contact with and the ones I bring home. I use hand sanitizer and wipe down surfaces that I touch very often in the car like the door handles and such just to minimize that."

3. **Car as risk:** The third cohort was a group that was nervous about risks from both inside and outside the vehicle. Many were responsible for family vehicles with frequent passengers, like kids or elderly family members. It also included rideshare drivers and passengers. As one caretaker told us, "It feels like a recipe for disaster and the only way I can feel in control is by obsessively cleaning my surroundings which centers often in my car."

All three of these mental models prompted participants to take cleaning seriously, but their personal experiences and demographics shaped how and why they perceived the risk of exposure.

FIGHTING AN INVISIBLE VIRUS IS A CHALLENGE WHEN WE ARE HARDWIRED TO FOCUS ON THINGS WE CAN SEE AND TOUCH.

With a clearer understanding of emerging behavioral and attitudinal shifts around in-car cleanliness, we next wanted to explore appetite for potential solutions. Generating feedback to future features and functionality would help to prioritize development efforts and craft messaging that would resonate with potential customers. We focused on two primary areas of in-vehicle features: HVAC (heating, ventilation, and air conditioning systems, including in-vehicle filtration and environmental controls) and clean surfaces (for both interior and exterior surfaces of the vehicle). Along with the actual design and functionality of the features themselves, we also set out to explore the way a user would interact with and control these features via digital interfaces or physical interactions.

Initially, participants reported a much stronger interest in sterilized interior surfaces than features relating to HVAC systems and air quality. This was reinforced by video evidence showing a majority of participants using wipes, sprays, and sanitizers on high-touch interior surfaces: steering wheel, gearshift, ignition, door handles, and seatbelts. Only 11.4% of participants showed us actions they were taking to improve in-vehicle air quality through usage of their car's existing air filters or climate control features. Most cleaning techniques and routines focused on physical areas that the participants could see and touch – despite the airborne nature of the coronavirus.
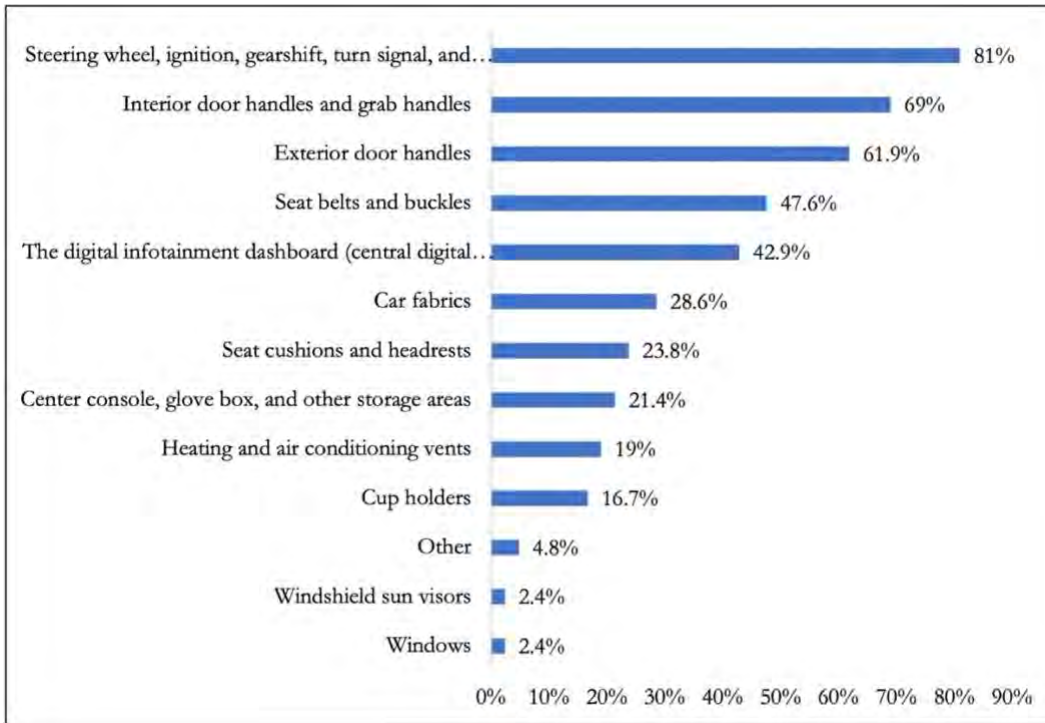
Figure 3. Participant Response to Study Question "Generally, which areas of the car are you most concerned about possibly being contaminated with germs and viruses? Select the five areas you are most concerned about."

The team utilized a working list of features that were being considered for future vehicle designs, and the messaging claims associated with each feature. Our goal was to test these features and messages with participants to understand their interests and preferences for future vehicle features. We found that the most preferred features were those related to surface cleanliness at the beginning of the study, and those largely maintained their popularity. Features related to physical storage of items like hand sanitizer and masks were initially popular but fell as the study progressed. We often found that participant preference for future features evolved in response to the information currently available about the virus itself. As our nation got smarter about COVID-19, the tools and techniques desired to keep us safe evolved with that understanding, decreasing interest in mask hangers and increasing interest in air filtration.

But before testing specific claims or features, we asked participants to show us their ideas of what a clean car of the future would look like. The handmade drawings we received revealed a widespread desire for visual indicators of cleanliness.

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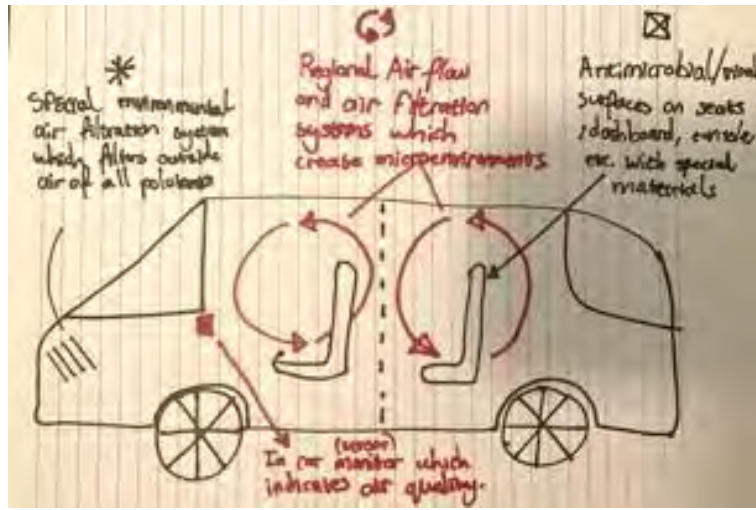
Figure 4. A drawing by a study participant describing their ideal clean vehicle, including "Regional airflow and air filtration systems which create microenvironments."

What we frequently saw reflected in these drawings (and in other data points from the study) was a desire to see the effectiveness or status of cleanliness features, along with the ability to enable notifications or communications regarding the status. Participants were eager to protect themselves from in-car threats through tactile cleaning routines during the worst of the pandemic, but also envisioned a more proactive in-car experience in the future. Many told us that they'd want some visual indication of status or operating state of cleanliness features to build trust that the feature was working as desired, underscoring the adage – to see is to believe.

CHANGE WILL ENDURE – BUT NOT FOR THE REASONS WE THOUGHT.

By October 2020, our participants were more aware of and interested in vehicle features related to intangible, invisible aspects of cleanliness: air quality and filtration. Designed to improve air quality through advanced anti-allergen or anti-microbial filters and enhanced climate control functionality, these features were some of the least desirable with participants initially, but they steadily increased in consideration and popularity throughout the study.

Why the increase in interest? As mentioned, the narrative of COVID-19 transmission had shifted from surface to airborne over the summer and fall months of 2020. The CDC's confirmation of airborne transmission was another exclamation point on the risk associated with sharing enclosed spaces without sufficient air filtration or ventilation. We believe shifting knowledge of how transmission occurs contributed to increased interest in air filtration features. It was also a reminder of the difficulty in drawing definite conclusions about shifts in consumer behavior in 2020. Were we observing a so-called static new normal, or were we observing yet another peak in the behavioral rollercoaster of the pandemic?

But, as participants told us, airborne transmission was not the entire story behind their newfound interest in air quality and filtration. A second narrative was playing out across the United States during this exact timeframe: the worst fire season on record for many states in

the western half of the country. The season was a continuation of a "long-term trend towards more frequent, more devastating fires in the West that shows no sign of slowing down (Record Wildfires on the West Coast, 2020)." Participants from Oregon, California, and Washington reported adopting new routines and behaviors in response. As one Californian participant said, "The recent fires have further put a spotlight on the importance of air quality. I now monitor AQI on a daily basis, whereas three weeks ago I barely knew what it was. Within my home, I've purchased an air purifier and replaced my air conditioning filter to further fortify my defenses in light of these new (horrible) developments. If I could do the same in terms of fortifying my car, I would definitely be interested."

The combined sum of COVID-19 and the 2020 fire season opened consumers' eyes to safety and cleanliness threats surrounding the driving experience. This finding has significant bearing upon one of our key research questions: how long can we expect these new in-car cleanliness behaviors to endure? Participants felt that while they may become laxer in cleaning surfaces and sharing vehicle spaces after the pandemic, many added a caveat: pandemic or no, we are entering into an era where air quality, disease transmission, and other public health concerns will be topics that pervade many aspects of their lives, including their experiences as drivers or passengers.

OUTCOMES AND IMPLICATIONS

At the conclusion of the study, Rightpoint summarized key learnings and takeaways for GM stakeholders. The final report included information relevant to marketing, design, and product development initiatives, and was attended by a diverse group of researchers, engineers, and decision-makers. The inclusion of videos from participants was particularly effective in communicating potential outcomes to the group. The team responsible for interior surfaces, for example, expressed surprise (and a little bit of horror) while watching one participant apply hand sanitizer liberally to the highly engineered fabrics of their car's interior.

With a long legacy of innovation and product development, GM devotes significant investment in understanding and anticipating the needs of its customers and developing products in response. While this 7-week study was a small drop in the ocean of research conducted each year, it is possible to connect these findings to some longer-term implications for the business. First is related to the usage of mobile applications while in the vehicle. There is a broader desire from both drivers and passengers for information that will help them regain a sense of control and comfort within the car. This includes in-car notifications that contain cleanliness information that is specific, easily understood, provides a clear next step, and comes from reputable sources. This suggests that a mobile app or rear-seat digital display screen could be a solution to a core pain point of passengers today – a lack of control and information about the cleanliness of the vehicle in which they're traveling. For example, those who view their car as a controllable space could benefit from a mobile app that provides updates on a vehicle's surface sterilization status while the driver is away, providing a sense of security once they return to their vehicle. A rear-seat display could benefit those who view their vehicle as a risk (like shared ride platforms passengers), providing the ability to view air quality and surface cleanliness indicators and control advanced HVAC functions from their position in the back seat.

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The second implication was related to technology insertion. Consumers were most compelled by product claims that were relevant to a range of environmental or health issues beyond just viruses. This finding indicated to us that sensitivity to and awareness of germs, bacteria, pollutants, and allergens had grown, and that consumers will have heightened interest in surfaces and features that eradicate a wide spectrum of risks, not just viruses. And as our participants demonstrated, cleaning is a visual experience – indicating that future features like vanishing fingerprint surfaces may play well with customers who want a visual indicator of cleanliness.

Finally, our participants also showed us that regardless of the pandemic's timeline, the effects of climate change and climate disasters will have a permanent impact on the experience of traveling by car. As temperatures rise, wildfires generate clouds of smoke that cross state lines, and pollution plagues high-traffic areas, the importance of creating a safe, clean space inside the vehicle also increases. Tracking AQI, switching air filters regularly, and enhanced HVAC and climate controls are all features that will gain relevance with customers in the coming years. This is a reality that we have long anticipated and prepared for, as discourse about the environmental impact of climate change and mobility technology continues to rapidly evolve. In 2021, GM announced that it would substantially increase its investment in new mobility technologies to $35 billion through 2025. This represents a 75% increase from its investment levels announced before the pandemic. GM sees this investment as a critical shift in response to new consumer, environmental, and policy demand. As GM Chair and CEO Mary Barra said, "There is a strong and growing conviction among our employees, customers, dealers, suppliers, unions and investors, as well as policymakers, that electric vehicles and self-driving technology are the keys to a cleaner, safer world for all. (GM will boost EV and AV investments, 2021)."

This study helped us understand the evolving mindsets and needs of consumers in the United States at a moment when in-person research was not possible, providing feedback from consumer to influence feature priorities and user interface designs. It also shed light on the longer-term implications of COVID-19 on how we work, socialize, and travel. This study is a reminder of how powerful ethnography can be in tracking and anticipating the future as it unfolds – especially when we're not certain when (and why) the future might arrive. As we learned, the macro drivers of consumer interest and attention can shift quickly and in ways we may not expect.

APPLICABLE LEARNINGS FOR THE EPIC COMMUNITY

What lessons can we offer other teams conducting remote research on an evolving topic? An attempt to study the potential for long-term preferences in a short-term period presents challenges for any researcher. In our case, the fast-moving dynamic of COVID-19 was at odds with the long lead times necessitated by the automotive industry. For an automotive company, technology and design decisions must often be made years before a given feature becomes available in the market, due to manufacturing, production, and safety requirements. We were constrained on both ends by a crisis with no end in sight and a narrow window in which we could meaningfully affect change in the product. Should this research be conducted? If so, when would we need results? How could we make this work as relevant to the business as possible?

Design for Flexibility and Iteration

The clear benefit of a diary study was the ability to evolve each of our five touchpoints with participants as conditions changed over time. A combination of fixed qualitative and quantitative questions were asked across all parts to measure reactions and sentiment across the study consistently, but we also planned for a series of variable research questions that would evolve as we concluded each study part. For example, we first heard emerging air quality concerns in touchpoint #3 and were able to adjust the following touchpoints to focus on this specific topic. We used this pattern throughout the study to ensure we were getting relevant and contextual answers from our participants as the COVID-19 situation evolved.

Make it a Party

The involvement of multiple stakeholders and teams helped to address these challenges. The research had potential applicability to the Vehicle Systems Research Lab, User Interface Design, Global Interiors and Cabin Comfort as well as Marketing teams. Stakeholders from these teams were involved in shaping the learning agenda and research approach at the beginning of the project. Giving stakeholders the opportunity to provide input helped us to design the study to align with their unique goals and questions, and increased the likelihood that the end output would have relevance to teams operating on longer time horizons (such as Research & Development or Feature Insertion), as well as teams searching for more immediate implications (such as Marketing and Communications).

Look for Opportunities to Pair Qual with Quant (where Possible)

Our approach generated a significant amount of video content that required close analysis of both the language used by participants, as well as the cleaning behaviors they demonstrated in the vehicle. We created a quantitative tagging framework to structure the coding and analysis of qualitative data (including video, open text, and photo responses). This tagging framework ensured that the data was being coded against a consistent set of values, regardless of the researcher doing the tagging. It also allowed us to quantify behaviors and mindsets of participants.

Quantifiable results are an expected outcome of most research for automotive manufacturers, who (as mentioned) are voracious and sophisticated generators and consumers of big data. Our study focused on a small sample compared to the sample sizes that General Motors typically relies upon to make major decisions. Taking an ethnographic approach with a relatively small group of participants allowed us to go deep on emerging emotions, needs, and experiences in the vehicle, but our findings would need to be validated through large-scale market and engineering research efforts in order to validate at the scale required by the organization. In an effort to mine the study's dataset for additional quantitative insights, we partnered with the General Motors Research & Development Lab Group during the synthesis phase of the project. The team conducted an exploratory statistical analysis of the data generated by the study. While a number of interesting preliminary trends were observed, few were considered statistically significant by the Research & Development Lab Group, who typically work with much larger sample sizes. In the future, we would recommend adding a quantitative component as a fast follow to validate qualitative themes and patterns at scale.

Additional partnership with a client's market, media, or voice of customer research teams may also hold potential for contextualizing ethnographic findings at scale. For example, do findings from the client's ongoing brand tracking studies align (or conflict) with what participants are saying? Identifying those opportunities to cross-pollinate isn't always easy, but it holds real potential to increase buy-in from stakeholders on ethnographic insights.

Controlling for Bias in Remote Studies

Qualitative data was a vital part of this study, particularly in the form of participant-made videos (PMV). As Susan Faulker and Alexandra Zafiroglu have eloquently observed, PMVs create unique opportunities to observe intimate moments in our participants' lives, but "the heightened intimacy and engagement our stakeholders' experience with these videos poses new challenges for how we, as ethnographers, consistently and assertively guard the integrity of these research materials and our relationships with our research participants (Faulker and Zafiroglu 2010)."

Working with the same core group of participants over the study timeframe gave us the ability to understand personality traits, beliefs, and lifestyle factors that might influence their opinions and approaches to cleanliness. The repeated use of PMVs and other user-generated content allowed us to build relationships with our participants over time. A drawback of this approach is the potential for participants to become overly familiar with the subject matter, potentially leading to responses that participants may suspect we, as researchers, want to hear (Paulhus 1991). As an example, the stimuli used to communicate with participants did not mention GM at any point. Participants would often guess who was behind the research, and many believed that we (the researchers) were working for Uber. We noticed that this led to some social desirability bias, as a few participants began to lean more heavily into pro-cleanliness and enthusiasm for features that seemed slightly out of character over time. To better understand these deviations, we spoke to many of these participants in 1:1 interview settings to delve deeper into their responses and understand how much social desirability bias (or a response to increase knowledge of the subject matter as a result of the study) might be at play. Having developed a relationship throughout the study, we felt we were able to at least acknowledge what seemed out of character for our participants.

From Participant to Partner through Co-Creation

Another way to control for bias was to frequently change up the focus and stimuli used in each study touchpoint. The initial phases of the study relied heavily on quantitative, open text, and video responses, which created a detailed view of current in-car behaviors and attitudes without the risk of a change in behavior or routine due to the presence of a moderator. In later parts, we began to engage directly in co-creation and discussion with participants, asking them to draw their clean car of the future for us, and even sharing initial concept designs through in-depth interviews with a subset of participants. The concept of co-creation originated from Scandinavian trade unions during the 1970s cooperative design movement which aimed to empower employees by encouraging collective decision-making around workplace technologies, working conditions, and policies (Lee et al. 2018). The practice has permeated corporate America over the past decade. Co-creation methods are now frequently used to bring customers along to help inform UX design and product

innovation (Gioia 2015). As we found, these techniques are still valuable when executed in remote settings. Breaking down the barrier between the researcher and the participant created open dialogue about the participant's perception of the future in a more natural context than a participant-made video. Most participants had nuanced, thoughtful feedback for us on the conceptual designs, as well – perhaps because they had already "designed" their own clean car of the future earlier in the study. This approach created an educated, highly engaged group of participants who were just as interested in anticipating the future as we were. That may be one of the most interesting aspects of studying major cultural or behavioral shifts as they happen: participants and researchers are united in their curiosity about the future in a way they may not have been during more certain times.

Conclusion

In the summer of 2020, Rightpoint and General Motors set out to study the experiences of drivers and passengers during a time of sustained societal change and intense anticipation of the future. The evolving nature of the COVID-19 pandemic presented both a research opportunity and challenge. An ethnographic approach would be the perfect methodology for surfacing new behaviors and attitudes as they emerge, but getting into the proverbial car with participants wasn't an option for us.

The team designed a remote, longitudinal diary study to identify, understand, and track the evolution of cleanliness behaviors and attitudes amongst drivers from August to October of 2020. Five touchpoints were fielded to a diverse group of participants, including a mix of quantitative questions and qualitative media responses.

As we learned, COVID-19 has changed sensitivity to in-vehicle cleanliness, perhaps permanently. The experience of sharing a vehicle with others was often stressful for both drivers and passengers. Many expressed a desire for more control of their experience, and those specific needs and preferences informed the prioritization of certain technology and design features by General Motors in future vehicles.

The use of an ethnographic approach uncovered connection points that other methodologies may have missed by creating the space to ask our participants open-ended questions and to record detailed responses. An example of this was the increase in interest in air filtration-related features during the study. Depending on study design, a survey or other quantitative methodology may have attributed that rise in interest to concern over disease transmission during the pandemic. But in video or text response, participants can explain their needs in a much deeper or more revealing way. While COVID-19 had raised participants' awareness of in-car air filtration, they anticipated that climate change would be the longer-term driver of their interest in enhanced climate control features for their vehicle. We hope that this case study can provide a reference guide for teams looking to study similar topics remotely, and as an example of using ethnography to continually anticipate and envision the future in collaboration with participants – even under the most unique circumstances.

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Case Studies

Wellbeing in the Future

Retooling ethnographic inquiry during the pandemic, researchers worked with corporate, governmental, and community stakeholders to anticipate the future of hygiene and shape sensitive governmental crisis-response strategies.

The Future of Hygiene

Constructive Expansive Futures

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There has been significant interest in Futuring as a discipline after COVID-19, as multiple industries are beginning to interrogate their post-Covid future. Quantum Consumer Solutions and Unilever came together to interrogate the post-COVID future of hygiene in Europe, to inform brand and product strategy for Unilever. This project took a culture-first approach to futures, with a diverse and inter-disciplinary team working together using an Agile approach. Using a mixed-methods approach, the team used a combination of digital ethnography, speculative design and an Opportunity Spaces framework to distill the future of hygiene into ten Opportunity Spaces for Unilever. Readers can expect to learn more about why a culture-first approach to futures is recommended, how speculative design could represent an 'ethnography of the future' and how a simultaneously analytical and creative approach to futuring could be translated into tangible business outcomes.

BACKGROUND

The Human Capacity for Adaptation

After a London transport strike in February 2014, commuters had to try new routes for their commute – an estimated 5% of commuters never went back to their original routes. This simple story speaks to the human capacity for adaptation, and when watershed events like COVID-19 take place, they have the power to interrupt the regular pace of change and alter human behavior suddenly and permanently.

The impact of COVID on wider culture has been far-reaching and has deeply impacted the future trajectories for multiple industries that ethnographers need to map and that businesses need to design for.

As a human insight and design strategy company, Quantum partnered Unilever to explore the forces shaping the world during COVID-19 and help Unilever design a response to a post-COVID future through their products and brands.

In doing this work, our central hypothesis was that when societies experience long-drawn existential threats, these experiences have the power to reconfigure our mental models and redraw our priorities. As an example, it only took a few weeks of a national lockdown in Italy for the country to shift to remote work – a behavior that Italians considered inconceivable until then.

The Future of Hygiene

In this project, Quantum and Unilever partnered to explore the Future of Hygiene in Europe. The hygiene category was going through an unprecedented growth, but it was also clear that category drivers, consumers needs and preferences and the innovation landscape would be unrecognizable on the other side of the pandemic. For instance, Hygiene had suddenly become the most exciting space for innovations – all the way from FMCG companies to tech organizations. In this reality, exploring the Future of Hygiene would help

Unilever build the most competitive brands in the future and develop cutting-edge innovations for a new normal.

It was evident from the very beginning that numerical forecasts and data-driven projections are likely to get it wrong, and a culture-first approach was required. Experts in the human sciences have often studied hygiene and how it relates to culture, human psychology, and the very fabric of society. A lot has been said about hygiene and how it relates to social class, othering, disgust, and a range of other human experiences. Whether it is Mary Douglas' famous phrase 'Dirt is matter out of place' or the correlations made between physical disgust and social disgust, it was clear that deeper human and cultural forces were at play. The stage was set for some of these narratives to re-emerge and take canter-stage and this was bound to have implications on our priorities and our behaviors.

APPROACH

A Culture-First Approach

A challenge and opportunity in studying a topic such as hygiene during COVID is the abundance of material to review. There was scientific evidence, market data, sales numbers, advertising analytics, trend reports – the list goes on. For this project, a unifying lens was culture – whether we looked at market data or read an op-ed, the guiding question was: what does this tell us about the shift in people's values, priorities and mental models.

For instance, Sweden's unique approach within Europe was not because they were following a different science, but a different set of cultural values. The political concept of 'folkhemmet' meant that the COVID response had to be a shared responsibility across citizens, rather than a heavy-handed approach. Further, the cultural notion of 'lagom' meant that Swedish citizens expected a measured response – just enough, but not too much. Contrast this to Italy, where there was music in the streets playing from people's balconies as the collective spirit of Italian culture was on full display.

A culture-first approach was beneficial because it allowed us to look at the emerging future more holistically and ground ourselves in how people are most likely to experience it. In contrast, examining the future through a technical or business lens might have been myopic. For instance, modelling scenarios based on COVID case numbers would have led to incorrect projections, because future variants would not have been accounted for. A business approach of growing sub-categories (e.g. the growth in anti-bacterial wipes) may or may not have had validity in the long-term. In contrast, a culture-first approach ensured that the future we are anticipating is likely to play out, and gave us tangible ways to act in response to that future.

A Diverse and Inter-disciplinary Team

Uncovering deeply held cultural notions, translating these into future scenarios and guiding business actions required more than one expertise. The collaborative Unilever and Quantum teams represented expertise in research, social media listening, marketing, speculative design and strategy. Further, this team was made up of people from different European countries to represent cultural diversity.

The research and social media listening expertise was key to uncovering the human and cultural experience – how COVID-19 is being perceived, how people are responding to it,

etc. The marketing expertise was key for taking a product and brand lens – how consumer-facing brands are responding to COVID and what are the unmet / under-met consumer needs. The speculative design lens was key to bring in non-linear thinking – not just assuming that there is a straight line from the past to the future but allowing for non-linear trajectories. And finally, the strategy skill set was key to translate all of these learnings into actionable business outcomes.

Collaboration across diverse groups requires a combination of structure and flexibility – we enabled this by following an Agile approach and organizing the project into targeted sprints. For each sprint, we would have the entire team working together, bringing all of this diverse expertise into every step of the work. By doing so, we allowed for all aspects of the work to be grounded in research, imaginative and strategic, rather than see these as linear steps in a journey.

A Multi-method Approach

Towards this project, we used a combination of three methodologies: (1) Digital Ethnography, (2) Speculative Design, (3) Opportunity Spaces framework at the intersection of needs and mental models.

Digital Ethnography was deployed because the human and cultural response to COVID-19, both in broader societal trends and in hygiene behavior was well documented online and it allowed us an opportunity to access these learnings at scale.

Speculative Design was critical because any disruptive event such as COVID can fundamentally change future trajectories. It was important to build in this non-linearity in our approach.

The Opportunity Spaces framework was key because we need an expansive frame – not just react to new needs via incremental product development, or respond to new mental models with communication messages, but a higher-level reframe of the Opportunities available within hygiene in the future.

Digital Ethnography

Digital ethnography helped us follow the consumer's online footprint by analyzing their search results, social media activity, purchases and behavioral patterns. This was powered by Unilever's internal People Data Center capabilities that follow best-in-class practices on digital ethics and privacy. Specifically, we looked at:
1. The ways in which the Hygiene conversation was showing up in culture. As an example, when EU leaders decide to greet each other with the 'elbow bump', what does that mean?
2. Consumer responses to mainstream brand advertising and the elements that were most discussed on social media
3. Online chatter around hygiene innovations at the cutting-edge to examine the bets being made on the future and how these were being received
4. Search data that outlined what people were looking for – whether specific products or brands, or specific needs. For example, search queries around how to keep door handles clean revealed a new space of anxiety

Speculative Design

It was important to break out of linear futures and towards this, we adopted a speculative design approach.

Traditional trend-forecasting techniques rely on the observation of present phenomena and our assessment of how these are going to evolve and then impact the future. This technique is more effective in investigating short-term and more predictable futures where there is enough information and precedents to assume that certain conditions might evolve in a linear direction. However, the spectrum of possibility is much wider than what we can predict. The sheer number of variables we need to consider, and the presence of invisible forces might lead to "black swan" events such as COVID-19 and this show us the limits of an approach solely based on forecasting.

Think of it as an 'ethnography of the future', where a group of futurists were given a series of 'What If' questions and were asked to write a story, construct a scene, or develop a prototype in response to this question. Our futurists included an architect, an urban planner, a fashion and experience expert, a gallerist, and an artist. We prepared a different brief for each of them and gave them a week to work on a medium of their preference. Some of them preferred to illustrate some concepts with sketches, some others preferred to write a series of fictional short stories. We encouraged creativity and radical views, without interfering in the creative process. The fictional cultures, behaviors and societies that they imagined and created became a mirror with which to better understand the present.

"Yes, sure. Let's go out for a beer. Oh wait, this week is still for residents only, too bad! Maybe they let you in if you have your MED I.D. with you. You have been screened recently right?"

In order to statistically prevent outbreaks during the unfavourable seasons, in cities bars and restaurants are limited to residents only. Limitations last from 2 to 6 weeks and are scattered. This algorithmic solution reduced even common colds effects.

Figure 1. A scene set in the future imagined by a futurist, illustrating how vaccine passports might become mandatory for any out-of-home social activity. This fictional scene was created well before such a mechanism was being seriously considered by policymakers. Credit: Valerio Massaro

As an example, one of our futurists imagined a polarization of society into pro-germ 'Gaians' and pro-tech 'Trans-humans'. While this precise scenario might not play out, it

raised important questions that needed to be asked and answered in het future of hygiene. Further, when this imagination of a fragmented society was taken to mainstream consumers, their response told us a lot about the groupism that COVID might create in society: between the vaccinated and anti-vaxxers, mask wearers vs. not, and so on. Importantly, it revealed that hygiene was soon to become a conversation about identity and 'tribal' association, not just a simple behavior.

In this way, Speculative Design helped us simultaneously get a perspective on the future and on the present moment, both expanding and grounding our thinking.

Opportunity Spaces Framework: Needs and Mental Models

All of these diverse data points and perspectives were pulled together with two key lenses:

1. Needs: what are the key consumer needs from hygiene, now and in the future? How do these map to the most mainstream needs that we can see today vs. the most super-emergent needs that are likely to play out in a few years?
2. Mental Models: what are the emerging consumer mental models in response to COVID? Some of these might be carried forward from historical and culturally coded mental models, and others might have emerged solely as a result of the pandemic.

In defining needs, we were mindful of considering both functional and emotional needs. In doing so, we were trying to avoid two common pitfalls. Firstly, there is sometimes a tendency to over-emphasize functional needs because they are more visible and easily understandable. Secondly, it is often tempting to classify need statements as being exclusively functional or emotional when in reality, each need might carry both a functional and an emotional element.

In identifying Mental Models, it was important to first define these and build shared understanding among the team. We defined these as being a composite of values and behaviors that influence the many mindsets that people might view the world from. In this process, we were mindful of our own political leanings and potential biases that might creep in from these. Our aim was to define these mental models in ways that were as apolitical as possible, without any value judgment and we continuously interrogated and corrected for this.

OUTCOMES

Ten Opportunity Spaces

These learnings and perspectives on the future were translated into 10 Opportunity Spaces that would help business leaders and key decision makers engage with the future. Each Opportunity Space was crafted at the intersection of multiple needs and mental models, creating a 2x2 Opportunity Map that pulled together the entire project in a single visual, driving stakeholder engagement.

Because these Opportunity Spaces were built from both mainstream and emergent needs and mental models, the Spaces also represented an expansive imagination of the Future of Hygiene – not only limited to a chemical 'kill all germs' approach, but a broader landscape that considers our changing emotional and cultural relationship with hygiene. One

of the most evident examples is that with COVID-19, hygiene was no longer a private conversation, but had to be 'demonstrated' in public spaces through clear signals of compliance to the rules and best practices, such as wearing a mask in public, and sanitizing our hands before entering a public space.

Each Opportunity Space was further crafted and brought alive, by illustrating its driving factors, the ways in which it shows up, corresponding needs and mental models, emerging innovations that speak to this and specific design challenges emerging from each space.

Consumer Jobs-to-Be-Done

We further deconstructed each Opportunity Space into jobs-to-be-done, bringing in specificity in terms of the consumer's situational context, their motivation and the outcomes they were working towards. This specificity ensured that we were not talking about the future with abstraction but doing so in real terms. It also helped nuance the Opportunity Space into specific initiatives and actions that Unilever teams could take forward.

As an example, the process of nuancing an Opportunity Space that related to inclusivity ensured that the team built an appreciation for the challenges faced by several under-represented groups and how the specific response required for these groups might be different in terms of product innovation, ingredients and formulation, packaging and even communication.

Defining Areas of Play

Each Opportunity Space was mapped against Unilever's wide portfolio of brands and innovations, to identify gaps and areas of strength. This provided business leaders with clear areas of action and helped them identify the future opportunities that they are best placed to leverage vs. those that might need most investment to access.

This also meant that the output was actionable across multiple levels – brand teams looking at global brand opportunities, innovation teams considering product development, country leadership teams looking at wider portfolios, etc.

IMPACT

Reframing Future Direction

These Opportunity Spaces are now at the heart of the future of hygiene conversation at Unilever and informing a number of initiatives across marketing and innovation for some of the world's biggest hygiene brands. Importantly, the culture-first and non- linear approaches have meant that these initiatives are not just predictable and safe bets, but also projects that are anticipating a number of different future scenarios, and building an expansive Future of Hygiene. Our approach has provided a number of different possibilities to a number of different brands, that are now equipped to select the most brand-aligned opportunities and respond with a combination of product innovation, marketing messaging and overall brand strategy.

This work has been cascaded widely and a number of leadership teams have engaged with these futures. This has sparked conversations beyond the initial scope of the project and continues to inspire new initiatives within the organization. For instance, while the initial scope was limited to Europe, these Needs and Mental Models are being 'pressure-tested'

outside of Europe to understand if and how they apply, and how these might need tot be adapted.

Recognition for the Approach

This approach and its various facets (Agile, collaborative team, culture-first futures, speculative design) have been widely recognized as research innovation and best-in-class futuring at Unilever. Aspects of this are being replicated across the organization, both with Quantum and with other partner organizations.

The Agile approach is being replicated both in futures projects and for other project types – the success of a collaborative model has created greater confidence within the organization that such an approach can be used for big strategic questions.

The tech tools used to facilitate the Agile approach (e.g. Miro whiteboard) have been adopted more widely after this project and have become mainstream, both at Quantum and at Unilever.

Speculative design, which was previously seen as a good-to-have has now got greater recognition and senior leaders acknowledge that it could uncover new insight that would otherwise be missed.

KEY TAKEAWAYS

A Changing Paradigm of Hygiene in Europe

In the old paradigm, hygiene in Europe was taken for granted. Hygiene receded into the background and was not on consumer's minds. As an example, eating bread directly off a restaurant table was normal. Germs and dirt were considered to be an essential part of life.

In the new paradigm, hygiene in Europe is taking center-stage: handwashing and face masks have become key symbols of responsible behavior. In addition, hygiene is no longer personal and private, but about public commitment and social responsibility. A step further, hygiene is getting politicized and starting to polarize societies.

Specific Lessons for Wider Applicability in the EPIC Community

- An expansive act of anticipation requires that we ground the future in human and cultural truths: while futuring based on technical data can provide more predictability and control, it could also narrow the frame of investigation too quickly. A human and cultural approach might be more effective in keeping the frame expansive.
- We need to play an active role in shaping the future, not just accept it as a given: from a strategy perspective, this helps to identify the ways in which the organization could influence and shape these futures
- We need to recognize the multiplicity of futures, rather than place all bets on one vision: it is valuable to have the humility to accept that as the future unfolds, most futuring exercises will miss the mark to some extent. Creating multiple futures allows futurists to approach the problem with this humility and steer stakeholders through multiple possibilities

- Digital Ethnography can step in effectively when in-person ethnography is challenging: while this is well documented in the context of COVID-19, this project continues to reinforce that digital approaches can be highly effective
- Speculative Design helps explore non-linear futures and can represent an 'ethnography of the future': as ethnographers, we are intensely focused on the details of the present and placing these in a broader context. By imagining a society of the future, Speculative Design creates a rich future world for ethnographer to examine and decode.

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NOTES

The views and opinions expressed in this article are solely the author's and do not reflect the opinions and beliefs of their employers.

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Anticipating the Unanticipated

Ethnography and Crisis Response in the Public Sector

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This case-study emphasizes the importance of ethnographic research in the public sector, specifically regarding emergency preparedness and crisis-response. In the summer of 2020, Surrey County Council in England commissioned a mixed-method Community Impact Assessment to better assist and serve their residents during the Covid-19 pandemic. Stripe Partners conducted the place-based ethnographic work, helping discover insights that led directly to strategy change. The ethnographic and quantitative research went hand-in-hand and led to rich and meaningful insights that were able to confidently convince decision makers to create change. Our ethnographic work validated many of the quantitative findings, while simultaneously providing the depth that allowed them to accurately and most usefully allocate resources for change. We researched how local communities had been affected by Covid, conducting on-the-ground interviews in seven different towns in the region. We listened to their stories, and translated them into actionable opportunities for change, many of which we have been able to see come to fruition.

Keywords: public health, public-sector, government, crisis-management, emergency, case study, Covid

CONTEXT

In early 2020 the world changed. England entered a lockdown on March 26th, 2020, forcing all residents to stay at home and only leave for necessities or outdoor exercise once a day. Furlough schemes were enacted, allowing companies to effectively lay-off workers while still providing them with a partial salary and thus protecting their employment. Even with other support schemes such as rent freezes and mortgage holidays, many people struggled with finances and their physical and mental health.

Surrey County Council (SCC), located just southwest of London, identified the crisis their residents were facing and moved into action. Beginning in June 2020, they launched a Community Impact Assessment (CIA) combining qualitative and quantitative research to better support the struggles many of their residents were now facing. Despite being one of the wealthiest counties in the UK (second only to Greater London), Surrey County does have pockets of significant deprivation.

We conducted this research at a crucial moment in the timeline of the pandemic. In late summer of 2020, Surrey County Council conducted several quantitative assessments followed by the ethnographic work done by Stripe Partners during September. At this point, furlough was scheduled to end in October, and restrictions were supposed to be lifting. However, during our fieldwork, new restrictions were put in place, furlough was extended, and it became clear a second wave of cases and another lockdown was pending. We were lucky enough to complete our fieldwork safely and respectfully during this moment in time and our findings, along with the quantitative work, helped Surrey County Council better serve their residents during the second lockdown and beyond.

ACADEMIC PERSPECTIVES ON EMERGENCY RESPONSE PREPAREDNESS AND THE PUBLIC SECTOR

You can measure preparedness through the "combination of structural and non-structural measures designed to reduce known risks but also to ensure effective responses to a range of threats" (O'Brien 2006). When it comes to crisis-response, a lack of integration of the public's views into emergency preparedness policy is often the status quo, but data increasingly shows the necessity of resident involvement in such planning to ensure the most effective measures are taken (Turoff et al. 2013). In their publication on "Public health emergency preparedness," Khan et al. emphasizes the importance of both 'community engagement' and 'collaborative networks' in creating 'resilient policies' (2018). We know, however, that this is not always easy as shown in Saunders, Stormon-Trinh, and Buckland's previous EPIC paper on "Changing the Perspective of Government" in New Zealand (2017). Public-private partnerships are also common in disaster management but are less tenable in a global pandemic than a regional event (Busch et al. 2013). Surrey sought to build resilience at a governmental level, to not only address the issue at hand but to better prepare for future emergencies.

Academic practitioners have shown that while incorporating residents' experiences into an emergency preparedness system is important, it typically does not happen. Surrey County Council as proponents of research and champion of their residents' voices, recognized the need for an experience-based approach by developing a rigorous research plan that engaged residents as well as quantitative insights.

COMMUNITY IMPACT ASSESSMENT

Stripe Partners' research sat within the wider scope of the Community Impact Assessment that Surrey County Council commissioned. The Community Impact Assessment contained 3 main pieces of work: ten rapid needs assessments of vulnerable groups, a household temperature check survey, and place-based research (of which the ethnography was a part). They were completed in parallel and combined for the final report. While only part of the project was ethnographic, all three parts symbiotically worked together, so it is important to briefly explain each.

1. Rapid Needs Assessments (RNAs): Rapid Needs Assessments are a tool utilized by agencies in emergency situations to obtain a snapshot of where resources are most required. A series of RNAs were carried out between June and September 2020. The RNAs focused on ten populations defined as vulnerable due to their higher risk of mortality from Covid-19, underlying health conditions, economic and social marginalization, and/or groups disproportionately affected by Covid-19. A mixed methods approach was utilized which incorporated quantitative data, prevalence mapping and qualitative data. Each RNA involved interviewing community members, service users, focus groups, stakeholders across the system, including service commissioners, managers, and frontline workers, to explore communities' experiences during Covid-19 and priorities for the future.

2. Temperature Check Survey: The Temperature Check Survey was an 11-page quantitative survey that was in field between the tenth of August and seventh of September. The survey was sent by post to residents to self-complete. They

deliberately chose a postal survey to minimize digital exclusion, but the invitation letter also included a link to complete the survey online for those that preferred to do so. The analysis used a method called 'weighting' to ensure that the findings accurately reflected the demographic profile of the County. Weighting is a scientifically proven technique which maintains accuracy of results while ensuring those results are representative of all the different groups in a population.

3. Place-Based: To understand the impact that Covid-19 has had on local areas and places across Surrey they first analyzed three different types of impact from Covid-19. These were grouped into: health impacts, economic impacts and population group impacts. For each dimension, they collected data at the Middle Layer Super Output Area (MSOA) level and constructed a Surrey wide index which combined several indicators to produce an overall dimension score. They then looked at how these impacts varied across Surrey and how they related to each other. This work led to the ethnographic research.

METHODOLOGY

Sample

The main purpose of the ethnographic work was to discover the "why" behind the quantitative findings. Surrey County Council had discovered various patterns but needed more context and texture to better understand and implement appropriate services. To do so they commissioned Stripe Partners to undergo place-based ethnographic research that the SCC research team had identified as unique areas of interest due to the fact that they had been more heavily affected by Covid. They sought to use these locations as proxies for the county as a whole and thus searched for places that had discrete struggles. Additionally, we visited an area that was shown to have been less affected by Covid to serve as a control case. We spoke to three people in each location for a total of 21 participants.

Each of the locations was selected because of a specific characteristic revealed by the quantitative findings. The four characteristics we looked at were:

1. High increase in unemployment
2. Lower socioeconomic area
3. Commuter town
4. Rural area with high economic impact.

We selected two areas on opposite sides of the county for both 'high increase in unemployment' and 'rural area with high economic impact.' In total we visited seven different areas that were affected by Covid and one 'control' town.

Within these seven areas, we recruited for further specific characteristics informed by the data the mapping quantitative work provided.

The quantitative work showed that these groups were disproportionately affected by Covid-19 and it was Stripe Partner's job to understand why.

Table 1. Recruitment Criteria

Characteristic	Recruited for
High increase in unemployment due to Covid-19	Those who lost their job for Covid-19-related reasons, those working in affected sectors
Lower socioeconomic / deprived area	Oversampling of Black, Asian, and minority ethnic, lower socio-economic status, low-paid, zero-hour contract jobs in retail, hospitality, manufacturing, etc.
Commuter town	Oversample of people who are self-employed and ineligible for government self-employment scheme, people who commute into London
Rural area with high economic impact	Those who live rurally, those cut off from public transport, over 65s
Area with lower economic impact (as a comparison)	Those who have not been severely financially impacted

Ethnographic Method

We combined both remote and in-person ethnographic techniques and had to maintain a level of flexibility to adhere to Covid guidelines and ensure all participants were comfortable. The research methodology consisted of three parts: 1) 1-hour virtual interview, 2) 30-minute diary task, 3) 90-minute face-to-face interview. In the first interview, we got to know the participant and began to understand the challenges they faced due to the pandemic. Based on the conversations we had during this time, we assigned a bespoke diary task to the participants that would provide artifacts and texture to their experience. Some examples of data collected include: photos of how birthdays were celebrated, a schedule of their typical day, and Strava results from family bike rides. These helped us paint a thorough picture of our participants' lives.

The third stage provided us with the most insight. We visited the participants' homes or met in a public place. We conducted a 90-minute interview where we went in depth about exactly how the pandemic had impacted their lives, for both the better and worse. Members of Surrey County Council attended these interviews, along with community organizers from the area. The local organizations sought to better understand what was going on in their region and begin implementing immediate changes. A few of the interviews were conducted virtually due to Covid concerns.

KEY FINDINGS

From our ethnographic work, we found three discrete areas of impact: Economic, Social Cohesion, and Place-Based. It is important to note that some of our participants thrived with little negative effects. The survey findings supported this and found that residents referenced

an average of five positive changes for their household to come out of lockdown. The most common (and consistent across all demographic groups) were:

- Less traffic congestion (72%)
- Spending less money (66%)
- Reduced travel (63%)
- Better air quality (56%)
- Spending more time outdoors (47%)

This being noted, most of our participants did experience a severe impact and some were struggling to get by.

Economic Impacts

The most overwhelming effect we saw among our participants was an economic one. This was also the primary focus of the ethnographic work as health effects were covered in the Health RNA. One of the biggest gaps in support we found was around furloughed residents. In response to Covid, the UK government introduced a nation-wide furlough scheme. Instead of laying off workers, companies could opt to furlough them. This meant that the UK would pay for 70% of the employee's regular salary while they were not able to work due to closures. The hope was that this would prevent widespread unemployment while giving companies financial relief. While this scheme was appreciated, many furloughed residents of Surrey felt that their future was in flux and were unsure how to move forward. Some furloughed respondents saw this time as an opportunity to make a career change but did not know how to go about it. We found that there is little information, networking, and awareness of opportunities for lifetime professionals who have not found themselves unemployed before. People tried to innovate but not all had the resources to be successful. For example, one furloughed flight attendant lamented that in her mid-forties she did not know how to type. She also struggled to know how to transfer her skills to another industry after spending over 20 years in aviation. Furthermore, many participants believed that others need job resources more than they do so they tried to fend for themselves, oftentimes unsuccessfully.

We found an overall lack of awareness of local opportunities and no understanding of what could be offered. Respondents had a hard time imagining what kind of assistance they needed as they have never been in this situation before.

Consistently, we heard respondents using platitudes as an excuse for not receiving assistance. For example, almost everyone we spoke to stated, "At least I have my health" and/ or "there are others worse-off." Participants discussed returning food parcels and their hesitancy to accept government assistance because they felt that others needed it more. Many of these residents never missed a mortgage payment and had rarely struggled financially. Meanwhile, they were maxing out their credit cards and struggling to pay their mortgage. With the end of furlough on the horizon, and with it the potential loss of a job, respondents were beginning to get desperate for help but did not understand what they were eligible for.

One participant had recently re-done his entire kitchen, costing around £40,000 and using most of his family's savings. With a steady and substantial income for most of his career, he thought it would not be an issue. Then Covid hit; he lost all his commission but

was technically still employed so he was ineligible for any government support schemes. His wife, 3-months post-partum, had to take a weekend shift at a grocery store and they ate cheap meals such as 'beans on toast' several times a week to pinch pennies. From the outside, it appeared like he had a beautiful home and family, but they were on the brink of bankruptcy. He too, was grateful for the roof over his head and his health and felt that there were others that deserved assistance more, even though he could barely afford food.

The positivity our respondents displayed was remarkable. The sick were grateful for their home, the financially-constrained grateful for their family, the lonely grateful for their health, ad infinitum. While a survival mechanism, this sense of positivity prevented respondents from getting help until they absolutely were desperate for it. This then impacted both their mental and physical health, especially among younger populations. This decline in mental health was also supported by the quantitative findings.

Social Cohesion

In addition to the severe economic impact, we discovered that the way residents interacted with one another changed too. The biggest change we found was that the micro-local increased in relevance. Neighborly-spirit, rather than a community-spirit, became very heightened during this period. Almost everyone we spoke to mentioned helping out an at-risk neighbor, be it by picking up prescriptions or mowing a lawn, but few mentioned community-wide initiatives. As social circles contracted, a sense of governmental distrust and 'otherness' grew. The apparent lack of government presence enforcing rules or offering clarity exacerbated negative feelings. This finding also helped to explain why the uptake in government and local council assistance was not as high as desired.

We found that residents "helped out" rather than "volunteered." Most assistance given did not go beyond their immediate neighbors, but almost everyone we spoke to helped someone. This "helping out" gave people a sense of purpose and strengthened neighborhood ties. However, voluntary and community organizations were central to some but unknown to many. The most impactful volunteer efforts appeared to be individual led. Many respondents mentioned local WhatsApp groups, individuals pushing flyers through mail slots offering assistance, or neighborhood initiatives. Country-wide initiatives were also well received. The Thursday-night NHS (National Health Service) Clap, VE Day celebrations, and once a day exercise were frequently mentioned as neighborhood bonding activities and they were seen as acts of solidarity. However, as restrictions eased, enthusiasm for these activities decreased.

These findings, in tandem with those in the rest of the Community Impact Assessment, allowed Surrey County Council insight into how best to communicate support programs and instill change within these communities in anticipation for the next wave of Covid.

Place-Based Insights

The third area of insights were 'place-based' as we broke down findings for each specific area. For example, in one area we found a particularly high hesitancy to accept benefits and in another we found a heavy reliance on green space to maintain mental health. These findings helped local community organizers understand what was happening in their areas. Overall, we found that respondents' economic and social situations sat at the forefront of the respondent's minds with their areas serving as a backdrop. Perceptions of their areas of

residence varied, with the only clear pattern existing between those who lived rurally versus those who lived in suburban areas.

We did, however, find notable differences in the experience of those living in an urban/suburban area versus those living in a rural one. Those in urban/suburban areas became more "neighborly" with those close in proximity to them and there was less awareness of community initiatives during lockdown. There was also a concern of the demise of high-street but a lack of interest in going back out to the 'busy areas.' Rural residents felt more of a transport-related strain during lockdown and were more community focused (rather than just neighborhood-focused) and aware of local events and initiatives. Villages on the border between two counties experienced confusion when it came to responsibility and assistance during Covid-19.

These findings were also supported by the quantitative work and were taken into consideration when implementing action plans. For example, our work verified the fact that those in areas near airports were heavily affected by unemployment and therefore needed additional support. Our work uncovered what types of support were most needed, such as training on how to apply skills to other industries or re-skilling altogether.

IMPACT

The impact of the Community Impact Assessment was far reaching and powerful. For this case-study I will focus on the impact that the ethnographic work led or supported, but I want to clarify once again that the ethnographic research was only one part of a larger project. All the ethnographic findings were supported by the quantitative data but gave texture and stories to the numbers.

Accessing information and government trust are both weaknesses flagged in the Community Impact Assessment. As a result, Surrey Heartlands are working on this from a health perspective. With regards to vaccine uptake, a weekly task and finish group has been set up to connect with leads of Districts & Boroughs and Integrated Care Partnership (ICP) leads to discuss and tackle any Covid hotspots – it is recognized that local leads are best placed to target engagement.

In terms of our findings on Social Cohesion and a heightened interest in the micro-local, Surrey County Council has used this information to ensure vaccine uptake. There have been targeted approaches to increase vaccine uptake utilizing key community figures to dispel myths around the vaccine and Covid testing. A campaign was also run on Instagram using young people to encourage others to regularly take Covid tests.

The Community Partnerships team has done some mapping into community boundaries and where the community feels they lie. They have then introduced Engagement Link Officers across Surrey who will be a go-to person in each community – whilst this doesn't answer how they can translate the community culture found in rural to urban/suburban areas, it puts in place the necessary fact-finding infrastructure in each community.

Some of the biggest impacts can be seen around mental health. The Community Impact Assessment reported that young people were suffering from isolation and their mental health was declining. It also found that access to green space was a savior for many residents during the pandemic.

A mental health summit was held last year partly in response to the CIA to bring people with data together with experts from outside of Surrey/the UK as well as patient and

practitioner voices to discuss the issues of mental health services in Surrey. A mental health peer review was carried out by a national expert from the NHS and a country review consultant which led to a long list of recommendations. A shortened version of this list is beginning to be tackled by Surrey Heartlands in conjunction with SCC, businesses, and charities.

With regards to young people, the CIA identified a lack of data sharing between the NHS and SCC particularly about children's mental health. This has led to a 9-month legal review of the information governance in place between the two organizations, to hopefully improve data sharing and therefore improve mental health services provision for children.

A Green Social Prescribing Test and Learn Site is being introduced by Surrey Heartlands in conjunction with the Council (and over 90 other partners, e.g., Districts and Boroughs, Environmental Organizations, Charities). The aim of this pilot project is to address the barriers to green social prescribing identified by partners and improve the health and wellbeing of Surrey's residents, as well as inform local and national learning. Barriers hoping to be addressed include resources, awareness and engagement, physical access barriers.

These are just some of the many impacts the Community Impact Assessment has had. Overall, this project, in which ethnography played a contributing role, was able to influence and shape policy at a local government level.

DISCUSSION: LEARNINGS FOR THE EPIC COMMUNITY

This case study provides a great example of how both quantitative and qualitative research can work together and how the ethnographic method has a role in government. We were lucky that Surrey County Council is a proponent of research, and hope that other local governments can use this piece of work as an argument for it.

Without the ethnographic piece, the data would have left gaps in our knowledge that would have been hard to fill. Interviewing community members supplanted the information deficit left by surveys, as comprehensive as they were. However, the ethnographic work would not have been nearly as effective without the quantitative work guiding it.

Recruiting in areas that quantitative data pinpointed as both insightful and representative served to assess the needs of an entire county quickly and accurately. While it was not comprehensive, it did provide a represented sample of the needs of the county that supported the quantitative work. This place and scenario-based research process can be replicated in large counties with a move to remote research. Now that we are not confined to meeting participants in person, we should think more creatively about the ways we can recruit to get a diverse and representative sample. However, remote research does lose much of the texture provided by in-home visits, and it would have to be designed carefully and considerately to successfully emulate the richness of in-person interviews.

When it comes to emergency anticipation and preparedness, hearing directly from residents about their needs is necessary. This research showed that just because help or support is offered, does not mean that it will be accepted. Governments must actively reach out to residents and listen to their needs, a tenant of the ethnographic method.

CONCLUSION

The goal of this research was to understand the needs of Surrey County residents during a time of unprecedented crisis to both provide immediate relief and to better anticipate

future emergencies. Surrey acted quickly and efficiently, creating a 3-part multi-method project with the aim of ensuring that everyone was being seen and assisted.

Our ethnographic work uncovered why some areas were inexplicably continuing to suffer even though help was being offered. It also supported survey findings about youth struggling with mental health, the financial and mental toll furlough was taking on residents. Lastly, it flagged the distrust that residents had for the government and confusion over the accessibility of services.

Surrey County Council, in partnership with other Surrey initiatives, took the recommendations from the Community Impact Assessment and created both immediate and long-term change. This is a great example of using research at a government level to better understand and anticipate the needs of residents.

NOTES

1. Surrey Heartlands is an Integrated Care System which brings together NHS organizations, local authorities, and other partners to take joint responsibility for improving the health of Surrey's local population.

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Papers

Methods of the Future

This session examines how we leverage the natively digital spaces where our participants live, work, and play. The authors look at these systems with a critical, informed eye on the context, and on ourselves, to offer methodological innovations that maintain ethnographic integrity.

Building Target Worlds

Connecting Research, Futures Exploration and Worldbuilding

MARKUS ROTHMÜLLER, BRIDGEMAKER GMBH

> "The future" cannot be "predicted," but "preferred futures" can and should be envisioned, invented, implemented, continuously evaluated, revised, and re-envisioned. - Jim Dator, Hawaii, 1995

This paper introduces a framework called Target Worlds, with which I hope to offer an alternative to putting users, personas or target groups at the center of innovation. Instead I want to promote a more prudent approach that balances social, environmental, technological and financial sustainability in innovation. Target Worlds thereby tries to overcome issues of focus, scalability and responsibility in innovation by tackling the core of the problem: the targets of innovation work. The framework merges concepts of investigating 'worlds' today, identifying desirable futures for tomorrow and worldbuilding as a hands-on approach resulting in target worlds as new point of departure for innovation teams. This paper serves as a recipe for building target worlds offering a step-by-step guide for innovators and anthropologists to follow.

INTRODUCTION

This paper is a reaction to our current era which pushes for a more responsible and considerate way of dealing with resources, data and each other. It aims to recognise that we all share one planet while also having our own districts to move through, several groups of society we belong with, and different life phases to find ourselves in. We are all part of multiple intersubjective worlds that overlap and interact with those of others. This means then, that centering innovation around THE user, THE target group, THE future, or THE world is naturally a limited point of view, representing nothing but a simplified imagination of something that never exists in an as straightforward manner as it is presented. With *Target Worlds* I try to address and hope to overcome such limitations in, both, scope and depth. Instead of the classic problem-solution gap, I suggest an analytical approach paired with a worldbuilding narrative to innovation as starting point and as continuous reference before narrowing down in scope and hone in on a specific idea, solution or user (hero's) journey.

What is the starting point of good innovation?

the technology the problem the human a genius mind

the user the job-to-be-done a desire

Figure 1. What is the starting point of good innovation?

In a way the paper leads back to the roots of anthropology while also pushing it towards the core of new futures. Anthropology has always been one of the key disciplines to discover, understand and describe the everyday worlds of people. I argue that we can leverage anthropology to help innovators immerse themselves in future worlds too. Similar to grand authors and worldbuilders like J.R.R Tolkien (Lord of the Rings), J.K.Rowling (Harry Potter), or George Lucas (Star Wars), who deeply immerse their audiences in their books and movies, might we also be able to draw innovation teams into desired future worlds that we ground in the local lifeworlds of people today and use this as a starting point?

Figure 2. Symbols of great worldbuilders

Certainly, there are many ways to materialize futures other than books and movies. These forms of materialization, though, will not be the focus of this paper. Rather it is the investigation and identification of what is desirable in the first place, not from an individual point of view, but from the intersubjective collective perspective of a local single- or multi-sited and multidimensional world.

As the title suggests, this paper tries to present something similar to a process or guide rather than a single call to action. *Target Worlds* is meant as a starting point and continuous guiding star for innovation teams to look up to, yet offering something more concrete than a vision, more grounded than a speculative future, more holistic and inclusive than a persona or target group, more than a problem but not yet a solution. With this paper I hope to provide a recipe of how to cook up a target world, which leaves some flexibility and freedom for the innovator to substitute or add single ingredients as long as the key elements remain. In that sense this paper partly functions as a step-by-step guide - knowing that many innovators would love to have yet another one to trust in - but the outcome, the target world, will only function as a compass showing the direction, not the exact path of how to get there. This paper is a recipe for constructing target worlds but the cooking process (the innovation process) is entirely up to you.

Similar to the fictional worlds of Star Wars, Lord of the Rings, Harry Potter, or an open-world game, which can grow indefinitely in scope and detail, target worlds are always expanding, get adapted along the innovator's journey and can always gain in scope and richness. In that sense, it is not a static vision statement that gets formulated at the beginning of a project. Rather it is the future version of the world that you constantly discover and reimagine to live in, the world version to which your company or team wants to contribute to. With every research study you conduct and every product iteration you run, you uncover a new region of your world's map that was hidden to you before, revealing new opportunity spaces to act on, but also reshaping your game strategy to play by.

As a final note to the reader, my thoughts in this paper are fresh and need continuous shaping. In that sense, this paper - sort of being my own target world - is not definite, never-ending, and (re-)starts at the moment you (re-)engage with it. I hope it sparks interest, inspires new thinking, gets experimented with, criticized and improved, and gets more beautiful as it ages.

PROBLEMS IN INNOVATION WORK

Innovation is messy, non-linear and fuzzy. Teams have to deal with a lot of uncertainty - not only in the early stages of a project but also in later stages when building the first prototype, MVP or next version product.

The Why

Aligning on a common vision is difficult too. People agree on vision statements after half-day workshops going through the Golden Circle and other tools, where they frame and reformulate the Why over and over again. While the team might remember the statement word by word, it often lacks the imagination of what the vision could actually look like and how it might integrate into future worlds. Having witnessed this myself, innovation teams often end up juggling with words, eventually finding themselves with the fanciest, shortest, yet most abstract statements which are no more than empty phrases and catchwords.

Innovation teams reflect too little on how their preferred future world will facilitate some of the people's desires, aspirations and values that will inhabit it. What is the richer picture of world-famous *Why* examples like the one of Apple stating: "We believe in challenging the status quo, and doing things differently." (Sinek, 2009) So what? What does

this say about anything? What world does this statement allow us to imagine? How does this contribute to any kind of human values, aspirations or cultural histories and identities being embodied by people living in targeted future worlds?
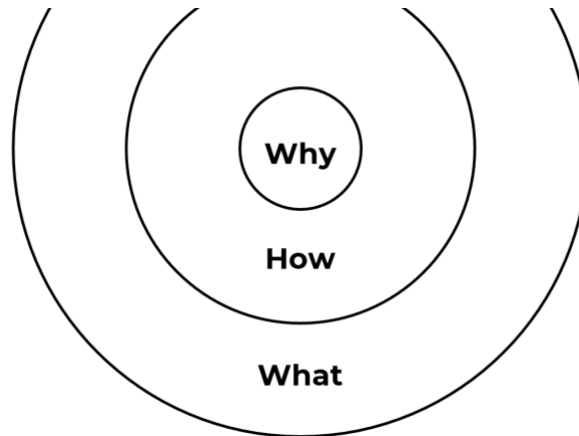
Figure 3. Simon Sinek's Golden Circle (Sinek 2011)

What Simon Sinek (being an anthropologist himself) tries to point out in his best-selling book and TED-talk was not the actual why-statement but the shared belief people connect to as the starting point for a commercial relationship. The shared belief, cause or purpose is what connects people and is the basis for a strong relationship and for loyalty. The exploration of these shared beliefs, though, must go beyond brainstorming and the manifestation beyond a single statement, post-it or slide.

Assumptions & Adoption

The reason why so many innovators struggle with the Golden Circle, in my opinion, is the same reason why many fail to ever produce truly meaningful innovation. At the heart of this lies the missing understanding of people and the missing awareness of how wrong our assumptions about people often are. We (innovators) fail to see the relations between people and the socio-technical networks they are part of as well as their interpretation of their everyday lives, their aspirations and their desired futures. Too often, we (innovators) simply project our own assumptions onto the lives of others. As a result, our idea and how an innovation could potentially overcome a problem we thought we found fails - not because of execution but because we have taken the wrong direction from the very beginning. The innovators' assumptions and intentions rarely - if ever - equal user adoption.

Figure 3. User adoption (Source: westbrook.co.uk)

The point is that the innovator's understanding of a problem evolves through-out the innovation process and that an innovator never gets to a complete representation of the problem. This is what has been described as the problem-solution-paradox:

> We cannot think about solutions until we understand the problem, and we cannot understand the problem until we think about solutions. (Wendt 2015)

What Wendt and others before him (e.g. Heidegger, Merleau-Ponty, Ihde, Verbeek etc.) have built up sophisticated philosophical thoughts and frameworks over decades, seem to be in line with what entrepreneurs and innovators experience in daily business. Despite well-established frameworks like Lean Startup and Riskiest Assumption Testing leading to numerous pivots, innovators fight an unforeseeable ocean of user adoption possibilities.

A chair e.g. can be used as a piece of furniture to sit on, a ladder to step on, or as a weapon to attack someone. Similarly, Facebook helps to connect people and brings them closer together (as intended in Facebook's vision statement) but also allows for and even enables political misinformation and polarization. Often having some sort of underlying wicked problem, solutions provide a stage for new problems to arise. Thus, it is the innovator's moral obligation to weigh whether everyone is better off with the new problems at hand. For example, will autonomous vehicles really improve city traffic overall? Who is to decide - the rider watching TV in the future or the cyclist getting run over today? Do e-scooters support our mobility goals to reduce carbon emissions, free up parking lots in cities, etc. or have they created more problems than positive impact, considering the high number of often quite severe accidents and scooters lying around at every side-walk, thus blocking city space and posing a risk for others? Serving one target group, hurting another group that was forgotten or ignored in the innovation process.
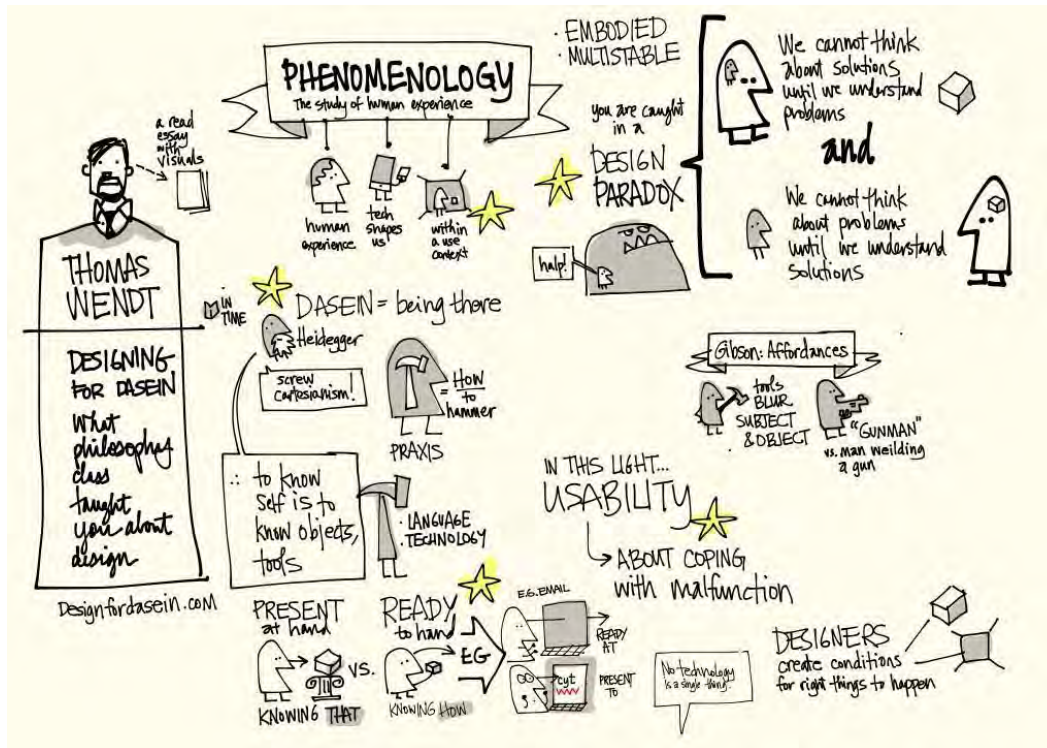
Figure 4. Visual illustration of Thomas Wendt's Designing for Dasein (Fiasova 2018)

Emerging Technologies

Even though methods like forecasting and scenario building and newer approaches including speculative design, design fiction and experiential futures have emerged as alternative points of departure for innovation practice, they seldomly investigate what would be desirable local worlds for the collective, as the basis to identify artefacts and activities as a form of contribution to these worlds. Most futures-oriented practices either analyse trends and signals, study the effect and adoption of emerging technologies (English-Lueck and Avery 2020, Pink 2019) and artefacts in the making (Auger 2013), frame visions, hypotheses, *how might we* … questions, and future user journeys (see e.g. design thinking or lean-startup) or study "future as an alterity of the present" (Pink 2017).

James Auger has separated formerly mentioned approaches into two categories: First, speculative futures, extrapolations of the contemporary, being used to "test potential products and services (...) before they exist" (Auger 2013). The second category is alternative presents, which ask "what if" artefacts were applied by different ideologies and speculating about how the present was different (ibid.). In both categories, the technological artefact stands at the center, is the point of departure and of continuous reference. Within the anthropological community, related work has been referred to as Ethnographic Futures Research (Textor 1980), Ethnographic Experiential Futures (Candy and Kornet 2019), Speculative Ethnography, Anticipatory Ethnography/Anthropology (English-Lueck and Avery 2020), Futures Anthropology (Salazar et. al. 2017), Anthropology of the Future

(Bryant and Knight 2019), amongst others. These have surfaced more regularly throughout the last two decades but started to shape already from the 1960s onwards (English-Lueck and Avery 2020). Aside from a few outliers, though, much of the futures-oriented practices overlap or interact with design and user experience, as they mostly look into "unintended consequences of technological use on social life" to eventually "imagine the future use of a service, product, architectural form, or land space" (ibid.). In my opinion and experience, most effort in innovation work is spent on figuring out how new technologies can lead to new tools, gadgets, experiences in the future. Too often emerging technologies are the starting point. Too little do we invest in exploring, understanding and inventing future worlds which we collectively would enjoy to live in.

Scope & Inclusivity

Ideally, I argue, the effects of any innovation would always be measured against the desired worlds we actually want to live in. Focusing innovation efforts on solving problems, pain points, needs, and jobs-to-be-done of isolated and often rather fictive user personas proved efficient as innovators had structures at hand to guide them through the process in a few days or weeks. Yet, they have turned out to be shortsighted, often treating symptoms without understanding the underlying complexity, nor steering towards better futures from a collective point of view. Innovation needs to be more inclusive from a broader perspective. The following funnel shows the development of centeredness in innovation.
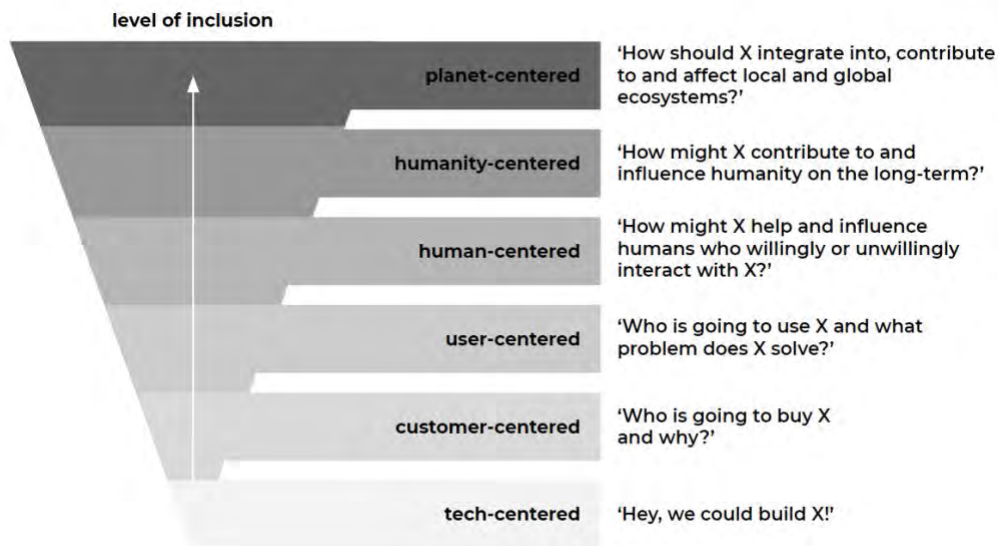
Figure 5. Centeredness in innovation

Critically, while many forerunners argue for the advancement of centeredness: to be user- or human-centered, and to start with a problem or need instead of the solution, many companies still struggle to even understand their existing customers. Although more and more leaders realize the value of human insights for their businesses, many fight the often brutal reality of changing markets, growing competitors and unexpected disruption, which

leaves little space to think about sustainability or social inclusivity. This means, what we need, now more than ever, are new frameworks that allow for holistically sustainable innovation that balances not only social and environmental but also economic aspects.

This follows the arguments and discussions others referred to as 'complex adaptive systems design' (Slavin 2016), 'humanity-centered' (Donelli 2016, Wren 2018, Kikin-Gil 2018, Palaveeva 2018), 'planet-centered' (Frick and Luebkeman 2017, Kwame 2018, Impossible 2018, Schubert 2019, Jackson 2020, Patel 2020), 'the design responsibility revolution' (Grillo 2020), 'post-human-centered' (Payne 2020) and other terms (Fry and Nocek 2020). Thus, solving a simplified problem is not good enough anymore (ibid.). The point is that our scope, scale and focus in innovation work is experiencing several shifts towards more complex systems involving a multitude of not only human actors, which we need to involve and reflect on before developing the next product or company.

We have to be more inclusive and more holistic in the values and goals that we set out for our innovation efforts. The UN's 17 Sustainable Development Goals provide a great start for this on a macro level, but I believe there is a larger opportunity for us to go beyond, and draw richer pictures for the micro and meso level, which I will argue for throughout this paper.

Figure 6. The United Nations Sustainable Development Goals (Source: unoosa.org)

Depth & Interdependency

Next to the problem of holism and the need to broaden our scope for inclusion, there is also a problem with depth and contextual richness. Case (2011), Slavin (2016), Haines (2017), Glabau (2018), and Payne (2020) argue for more awareness about the increasing complexity of human-technology entanglements and for studying these systems with a multitude of approaches. When innovating then, we need to consider not just the meta-persona including gender, job, income, interests and apps, but the nodes of the system within which a person develops and represents a large number of different identities playing certain roles in the context of the system. Not only do we have intersubjective lifeworlds in

the physical world, but also in virtual ones - which Case (2011) calls "second selves". Haines (2017) pointed out that in our era of machine-learned and algorithm-trained solutions, these machine representations of multiple individual identities start to live on in their own ways, infusing a sort of technological representation of human selves into algorithms, and thereby mixing a priori values from the designers and developers of the solution with those ones of its users.

In a sense, we train algorithms and algorithms train us through the broad network of technological touchpoints in our everyday life. Thus, when we innovate, we have to develop literacy for how we shape this system and how it shapes our worlds in turn. It is this highly complex phenomenon that we need to reflect on when envisioning futures, for which aspirations and desired identities are pathing the way. I think - or maybe I fear - that this kind of reflection on the effects humans have on technology and vice versa from a micro-level upwards has little room in typical innovation frameworks - often not going much beyond the subjective feeling of the innovator. Thus, when building products and services that should contribute to better futures, we have to understand these human-technology relations, interdependencies and alternating influences, into which our innovations will ultimately get embedded.

Responsibility

With great power comes great responsibility, and clearly it is the innovator's responsibility and power to decide on who to involve and who to exclude in the process of innovation. Modern theories and frameworks such as actor-network-theory, phenomenology and postphenomenology argue (even if in slightly different ways) that we are the result of our surroundings; that we make decisions as the consequence of the socio-technical networks we are part of; and that we think and act in certain ways based on past experiences which we embody in our everyday life. Decisions in innovation are, therefore, the result of the production and translation of knowledge by networks of human and non-human actors (Latour 1987 & 2005). Knowledge in ANT is nothing more than the result of a "lot of hard work in which (...) bits and pieces (...) are juxtaposed into a patterned network" (Law 1992), which the innovator influences in every step. Consequently, innovation too is only a "process of translating (forcing, bending, seducing, organizing) a multitude of elements into the hands of a few powerful representatives" (Blok and Elgaard Jensen 2011). Every innovator, thus, is only the result of personal past experiences and personal networks of actors he or she is integrated into (Andersen et al. 2015).

With the privilege to be one of the powerful representatives, the modern innovator is often more of an innovation facilitator, staging a temporary space for creation, as Clausen and Gunn have argued earlier in their piece called *From the Social Shaping of Technology to the Staging of Temporary Spaces of Innovation – A Case of Participatory Innovation* (Clausen and Gunn 2015).

It is the collection, transformation and translation of cross-disciplinary insights into knowledge objects, actions and prototypes that participatory innovation strives for (ibid., Pedersen 2020, Clausen et al 2020). This means that we (innovators) only provide a temporary stage for the networks we involve throughout the process, and that it is our responsibility and role to collect and negotiate the concerns, desires, and future images of the broader collective, which inhabits the worlds we innovate for (Pedersen 2020).

To build more inclusive and sustainable representations of desired future worlds, thus, innovators must move beyond their personal networks and assumptions, involve the corresponding experts and actors and facilitate knowledge exchange and the translation into characteristics for target worlds in the making. The former shown funnel of inclusion, now depicts a small selection of possible actors that could be involved in such processes.
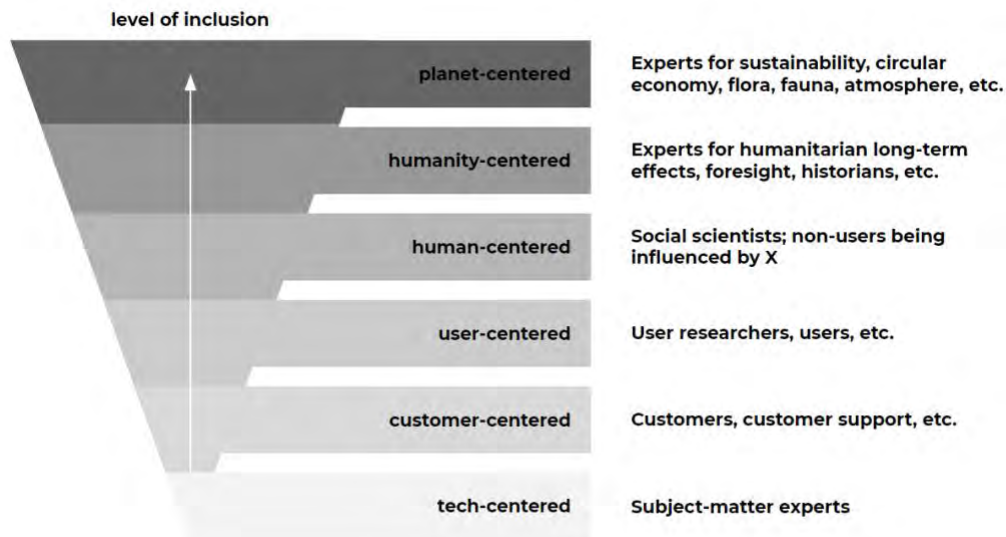
Figure 7. Inclusion in innovation

To summarize, I believe there is a need for a richer, more realistic and more grounded representation of the investigated world today and the desired future worlds as the very basis for good innovation. Instead of starting with the problem, the technology or the human, I think we should much rather start with the worlds we want to live in, the kind of rules and values that should guide activities and technologies in these desired worlds, and then invent products and services as a means to contribute to building such worlds.

TARGET WORLDS AS A NEW STARTING POINT

As a reaction to the aforementioned problems, I propose a new innovation framework called *Target Worlds* - as a humble attempt to deal with formerly described problems in innovation. *Target Worlds,* as a framework, recognizes the importance of balancing problem focus with the imagination of better worlds (the imagination in *Target*) based on contextual circumstances (the multiplicity in *Worlds*) and holistic sustainability (the holism in *World*). It urges the innovator to choose a different starting point. Instead of centering around the emerging technology, the human or the user, *Target Worlds* asks the innovator to go beyond and involve greater good futures as a set of rules for the future worlds in the making and, hence, also for the innovation process to come. It grounds innovation work in present human-technology interactions while investigating the images of desired futures in an inclusive and participatory manner.

While contributing to more holistic sustainable innovation, I am also convinced that *Target Worlds* will help companies develop competitive advantages. By understanding the worlds for which companies build products & services, they understand how those might integrate into socio-technical networks in the future. This will enable companies to create lock-in effects for their products & services, which in turn might secure the company's market position in the long-run. By understanding the connections and interdependencies for the bigger picture, partnerships and network effects will be easier to achieve.

Worldbuilding

One of the disciplines that has mastered the inclusion of experts in the process of creating futures is worldbuilding. It is the approach that any good fiction or science-fiction author and filmmaker uses to set the parameters within which the plot can evolve. Think about the Star Wars underwater world, *Otoh Gunga* (Jar Jar Binks' home world). As George Lucas pointed out, when building such a world, you have to think things through:

> The whole culture has to be designed. What do they believe in? How do they operate? What are the economics of the culture? (...) you have to have thought it through, otherwise, there's - something always rings very untrue or phony about what it is that's going on.
> (George Lucas about Otoh Gunga, in an interview with Bill Moyers 1999)

Figure 8. The underwater world 'Otoh Gunga' (Source: starwars.com)

Figure 9. Otoh Gunga concept art by Doug Chiang (Source: reddit.com)

Building future worlds has to be a collaborative and interdisciplinary exercise in which "you want to conceive of how things work as a system as opposed to a linear way" (Karlin 2014). When done right, worldbuilding "asks questions that speak honestly to the issues facing our own world, trains us to ask what-if's well, allows us to picture outwards, and sparks us into action." (Hollon 2018). This is when "worldbuilding transcends from imaginative entertainment to applied imagination" (ibid.) and that is why worldbuilding has become a truly powerful tool for innovation. Big corporations like Intel, Nike or Boeing, and more have attended science fiction conferences to participate in worldbuilding workshops due to the very fact that it "encourages non-linear thinking, interdisciplinary collaboration" and system-thinking (Karlin 2014). Several real-life innovations have sprung from imagined future worlds, such as Minority Report, which resulted in about 100 patents (McDowell 2021) or Star Trek or the envisioned space colonization scenarios by NASA, which resulted in several everyday life products.

Figure 10. Star Trek (Source: startrek.com); Figure 11. Minority Report (Source: arstechnica.com)

Worldbuilding has expanded its influence over the years and moved from media (books, movies, etc.) to education (games, labs, etc.) and finally arrived at innovation to help imagine and experience future worlds. In the following, I hope to point out how anthropology can contribute to this process.

Building Target Worlds — Rothmüller

BUILDING TARGET WORLDS

The following sections will outline the process of building target worlds in four steps:

1. Understand your reference world
2. Explore desired futures & enchant your target world
3. Build your target world
4. Build for your target world

Scoping Target Worlds

Building target worlds is not about passively experiencing what's coming, or trying to anticipate what might be, but about taking up an active role in defining a desirable future world version. The obvious elephant in the room is "desirable for who?" With that it becomes entirely clear that building target worlds is not about building the future world for the entire planet, or even for your entire country.

Target Worlds is about more local worlds, which might be as large as a part of the city, an entire district, a village, a co-living building or just a coffee place. A target world always entails several dimensions (e.g. internal, embodied, external and your digital world - see Haines 2017) and can be multisited (so different physical and virtual spaces - see Marcus 1995). Most certainly it will share brother and sister worlds with very similar traits, which your target world might also work for. Key is that you start with some sort of limited scope, which you can later continuously build onto, compare with similar worlds, and eventually expand.

Figure 12: Multidimensionality and multisitedness of worlds

As the visualization above shows, worlds can be anywhere, on mars, in the rocket to get there, on earth, in a building, on a drone landing spot on the roof, in a family home, on the streets, in your phone on Instagram, in a computer game, in virtual reality or between multiple devices like your notebook, phone and smartwatch. It is really up to you where you draw the line to start with. Most certainly you will realize throughout the process that your scope has to be expanded on. Contrary to limiting scope, *Target Worlds* is all about identifying the right scope over time. Start small with understanding your local world first and expand later.

1. Understand Your Reference World

Already back in 1939, in his essay 'On Fairy-Stories', J.R.R Tolkien differentiated between *primary* and *secondary worlds* (Tolkien 1947). The primary world is the real world, while the secondary world is the one existing in the mind of the fairy tale's author. Some worldbuilders start with a blank sheet of paper and try to imagine the secondary world from scratch (e.g. J.R.R Tolkien with Lord of the Rings). Others try to connect the real world to the imagined one (e.g. C.S. Lewis with The Chronicles of Narnia).

Since we want to contribute to a more sustainable and inclusive future world version, we need to start with our current one as a reference. One of the keys to succeed in worldbuilding, thus, is to ground your future assumptions in the real world that exists out there. When it comes to the matter of figuring out what kind of world would be desirable for all actors involved there is simply no way around this step. A simple survey asking what they wish for will not cut it. You have to get out there, feel the different situations, feel how they are in the world, how they embody it, how they collectively connect to it and why they feel a sense of belonging. You need to be out there in the world.

One of the recent projects of the USC School for Cinematic Art was Dry City, which played with the imagination that water could be "privatized, commodified and transformed into a new currency" as the result of a global economic disaster (Hollon 2018). To achieve more realistic images of the future, "student architects, interactive media designers, musicians, engineers, urban planners, animators, filmmakers and artists (...) collaboratively envisioned multiple interlocking and holistic aspects of the future world, [based on] deeply grounded research into real present-day Lagos" (ibid.). They conducted literature research, video analysis and interviews with locals and experts from various fields (ibid.) as the very basis for their entire concept. This is where anthropology can be of immense value.

To understand your target's primary world, we have to dive into some of the basic social theories about socio-technical worlds. The spaces we live in, the communities we belong to, the rituals and transformations we go through - altogether define the individual and constantly shaping worlds we experience, with a multitude of entanglements and actors. The following three theoretical thoughts I would like to offer as a sort of a basis for innovators to engage with. Certainly anthropology, and other disciplines provide much more to dive into, which cannot be covered in a single page.

Phenomenology and Life-Worlds

Phenomenology is the study and description of experiences (phenomena) and how they shape our everyday life and our understanding of the worlds we find ourselves in. According

to phenomenology, our worlds include social, perceptual, and practical experiences, which we interpret and thereby contribute to our so-called life-worlds.

The life-world is basically our personal world version. It is a little bit like the bubble each of us naturally lives in, which we construct - willingly or not - around us. Unavoidingly, our 'bubble' constantly interacts, overlaps and collides with the 'bubbles' of others. These lifeworlds are what innovators need to research, provoke and challenge, especially when trying to inform a future world version. By studying the life-worlds of people, meaning their interpretation and construction of reality today combined with their desires, aspirations and images for tomorrow, innovators will learn much about potential values, rules and expectations for new innovation (without necessarily focusing on the problem - right away or at all). Relevant authors of related thinking include e.g.: Edmund Husserl, Martin Heidegger, Alfred Kraus, Maurice Merleau-Ponty, and Hubert Dreyfuß.

Actor-Network-Theory

As the name suggests, actor-networks are central to this theoretical thought. Basically, it understands the world as a system of different human and non-human actors that are connected in a multitude of ever shifting networks which in turn translate into various forms and outcomes. Consequently any thing, any technology, any community or world (if you will) is simply the sum of all human and non-human actors involved, which often remain hidden to the viewer at first. An often referred example for this is a blackbox, which is by definition not possible to understand unless opened up. For the understanding of your primary world, this means that you should map the actors in your world, sketch their relations and interactions, and thereby try to uncover insights that remained invisible to you before. Relevant authors of related thinking include e.g.: Bruno Latour, Michel Collon, Madeleine Akriech, and John Law.

Post-phenomenology & Human-Technology-World Relations

According to postphenomenology, we can distinguish between several different human-technology-world relations which innovators can use to understand socio-technical interdependencies. These relations build on the concept of technological mediation, which e.g. Merleau-Ponty has demonstrated in his blind person's cane example. This he argued, the blind person embodies as an extension of the arm to feel, see and interact with the environment - thus the cane mediates the experience of the world around (Merleau-Ponty 1962). Something similar happens with a bike that we use to enhance our motor skills but also to feel the ground beneath us; or a smartphone speaker that translates electricity into a magnetic field and into movements compressing air, which we sense as sounds; or sensors of the semi-autonomous car (e.g. radars, lidars, ultrasonic sound sensors, etc.) helping us perceive our environment beyond our own human capabilities, yet not fully disengaging us from interacting with our surroundings, nor disabling our own senses from feeling the ride as a whole-body experience (Rasmussen et. al. 2016). Thus, technology enhances human capabilities but also engages humans in new ways of experiencing our worlds. By studying and envisioning these mediations, the anthropological innovator develops a micro-level understanding of socio-technical interplays, which will very much guide the outcome of innovation projects and might help to expect certain forms of user adoptions.

Post-phenomenology has introduced seven human-technology-world relations including: the embodiment relation; the hermeneutic relation; the altery relation; the background relation; the cyborg relation; the immersion relation; and augmentation; all of which can be used to understand how humans, technologies and the world surrounding both are connected and influence each other. Relevant authors of related thinking include e.g.: Maurice Merleau-Ponty, Don Ihde, and Peter Paul Verbeek.

The above described theoretical concepts are just a few of many which anthropologists use or think about in their everyday work. Others worth looking into include concepts of belonging, meaning, value, rituals, society, institutions, and many more. Subdisciplines include business anthropology, design-anthropology, digital anthropology, with several valuable methodologies that have been developed and practiced over decades precisely to understand known and unknown worlds.

To make all of this more digestible, with *Target Worlds* I created a first version guide that hopes to help innovators in understanding their targeted world as a reference for the future.

Building Target Worlds #1

UNDERSTAND

Map your world

Understand your role in the world

Set the sails and rediscover your world
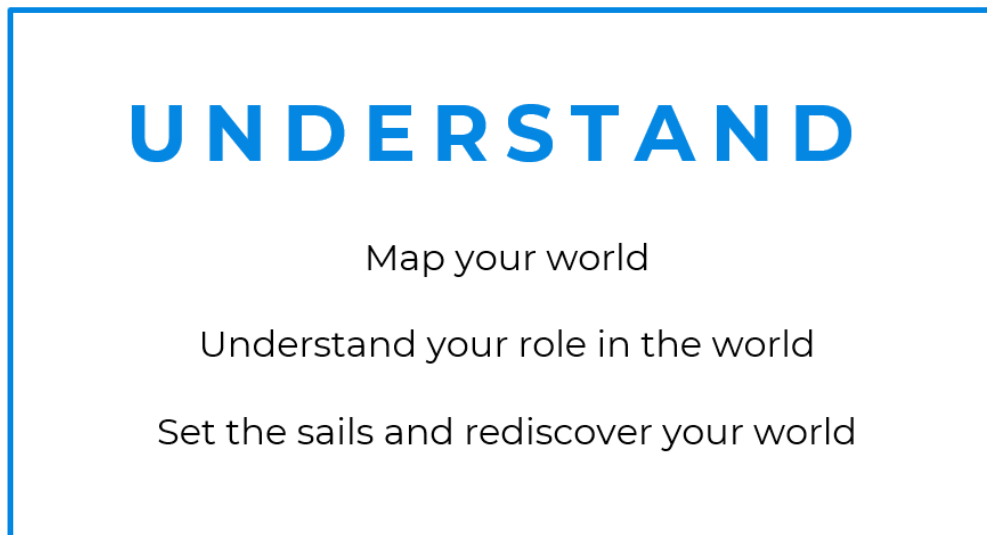
Figure 13: Building target worlds - Step 1

1.1 - Map Your World

Mapping the ecosystem, including all actors is the first step to get an overview. What ecosystems do you belong to? Map the people that live in your world, how they relate to each other, what roles they play, what tools they use, how and where they spend their time and why. Map the technologies that exist in the world and how they relate to the actors. You can use actor-network theory for mapping, human-technology-relations from post-phenomenology, mediation theory and embodiment to understand how all actors might relate to each other and what kind of effects they might have on another.

1.2 - Understand Your Role in The World

Who are you and what are your key touchpoints with the world you are part of? How do your key touchpoints relate to the rest of the world? How do you contribute to the world, how might you oppress, influence, manipulate, support and develop elements of your world? Who are the people that you serve, interact with, and what does their world look like beyond your touchpoints? Who do they interact with? What physical and virtual spaces do they engage in?

1.3 - Set the Sails And Go Rediscover Your World

To truly understand your world plan for a little bit of fieldwork. Of course interviews are better than nothing, but the really interesting things happen only once you move into the world you mapped out; once you engage with it, feel it, embody it, and observe how your map looks in reality. It is indeed a reality check. Before going out into the field, though, prepare a little bit for the future already because once in the field you can study your reference world and desires futures in one go.

2. Explore Desired Futures & Enchant Your Target World

Michael Saler (2012) expresses the act of worldbuilding as "re-enchanting" today's reality with detailed desires and images of alternative fictional worlds or futures. Thus, when engaging with your primary world today, make sure to study desired futures of people as well to understand how you want to re-enchant it to become your target world. It is not about scenarios, signals of what is probable or plausible, it is about one's imagination of better versions of future worlds. Do not focus on what is possible just yet, but also keep it realistic to some extent. Exploring your world's desires means to engage with the current first, which you already achieve in step one.

ENCHANT

Engage in your world's desires

Map the underlying aspirations

Connect them to a more holistic system
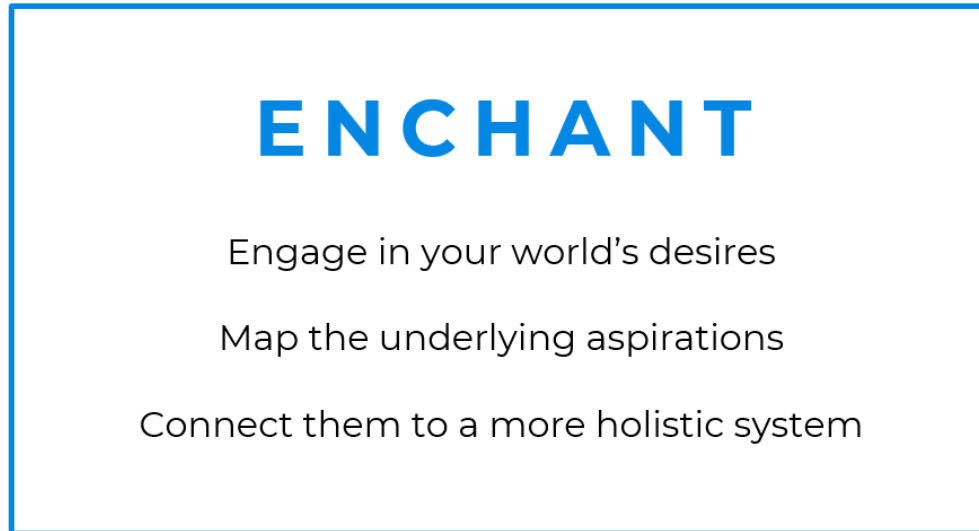
Figure 14: Building target worlds - Step 2

2.1 - Engage in Your World's Desires

Similarly to mapping your current world, take a clean sheet of paper, and start sketching from scratch again - only now you are not alone. In step 1.3 you set your sails for field work. By now, the ship has left the harbor, and you are arriving at the island you were aiming for. With your world's map from step 1.1 in your hand, and the "regions" you want or need to understand in more detail, you are directly heading for the future. Observe, engage in these spaces. Engage in the moments others have in your world, and try to really make sense of the way people around you feel and belong to this world. All sorts of different ethnographic tool sets can help you to achieve this. Observe, talk to the people, ask them how they experience the moment, a certain tool, a particular service, try to live through those kinds of moments with them together. Build a relationship. Every now and then look back at your map from step 1.1. and check whether your map still represents the many realities you experience whilst being part of this world. And then, when you have this relationship, take them by the hand and try to imagine the best future version they could think of - no matter whether this is 2 years from now or 20, no matter whether it involves technologies that do not exist yet, or not. This is all about dreaming the dream. Invite them for a good coffee, tea or drink, take out your map or a fresh sheet of paper and run through the three levels of futures with them. What kind of macro futures do they dream of, what kind of meso futures do they picture, and what kind of micro futures seem most relevant for them? Document their futures and dreams and bring them back home.
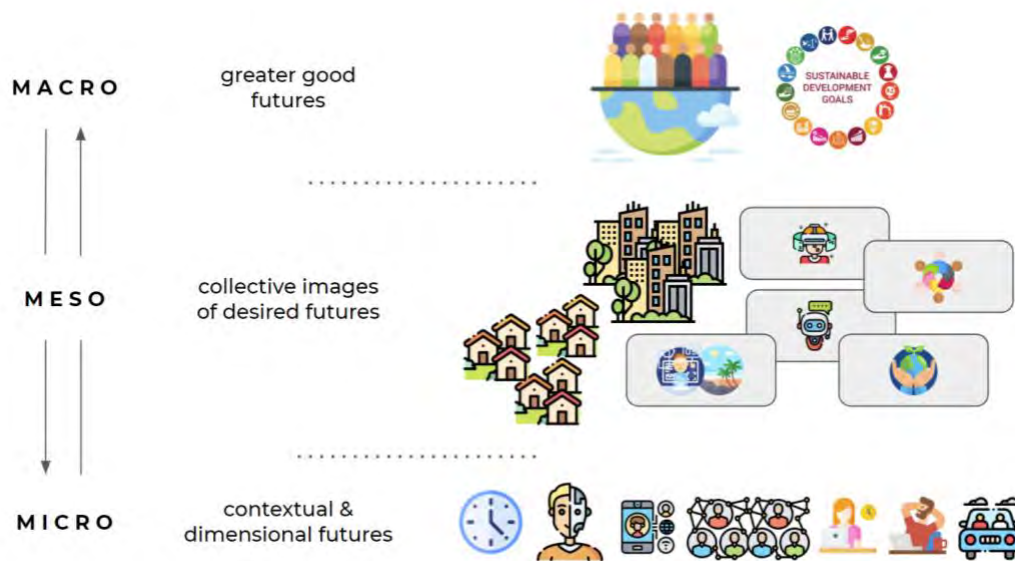
Figure 15: Three levels of desired futures

Make sure that you include at least three people from each relevant group of actors. The amount of people you need to include is entirely up to the scope of the world you focus on.

2.2. Collectively Revise Your Reference World

After your field trip to understand your reference world and to explore desired future worlds, it is time to revise your map from step 1.1. Involve your entire research team, or even external experts, or maybe even the people you engaged with in the field. Remember the section from earlier called Responsibility. It is your power and responsibility to make sure that you involve the right actors in your innovation network.

First, double check whether your map actually still represents the world you experienced, or whether you realize that you got something slightly wrong before. Does your map represent only your perspective of the many subworlds out there or does it already look like a good representation of the many different lifeworlds you got to know in your field trip earlier? Does it miss something? Did you miss something? Discuss in a group or in break outs what you learned from your field trip and how your map of your reference world has changed. Beware of confirmation bias.

In the same group, put all your notes, pictures, videos, and maps on the table and reposition them so you form clusters of shared desirable futures and those that might contradict each other. Analyse and map out the big clusters of desired futures that you collected on your fieldtrip. Try to make sense of what this means: what kind of values, aspirations, big change requests, concerns and fears can you read out of it? What does it tell you about the collective images of desired futures your reference world entails? Try to prioritize and list desired futures clusters in a way that seems most important for you and the participants of your group.

3. Build Your Target World

In the same group as the one from step 2.2 and 2.3, start building your target world now. It might be that parts of your team see different target worlds, or that you do see different elements which fit together and form one target world only. Start by preparing some basics.

Building Target Worlds #3

BUILD

Prepare for building

Define and map your target world

Connect them to a more holistic system

Enact your target world
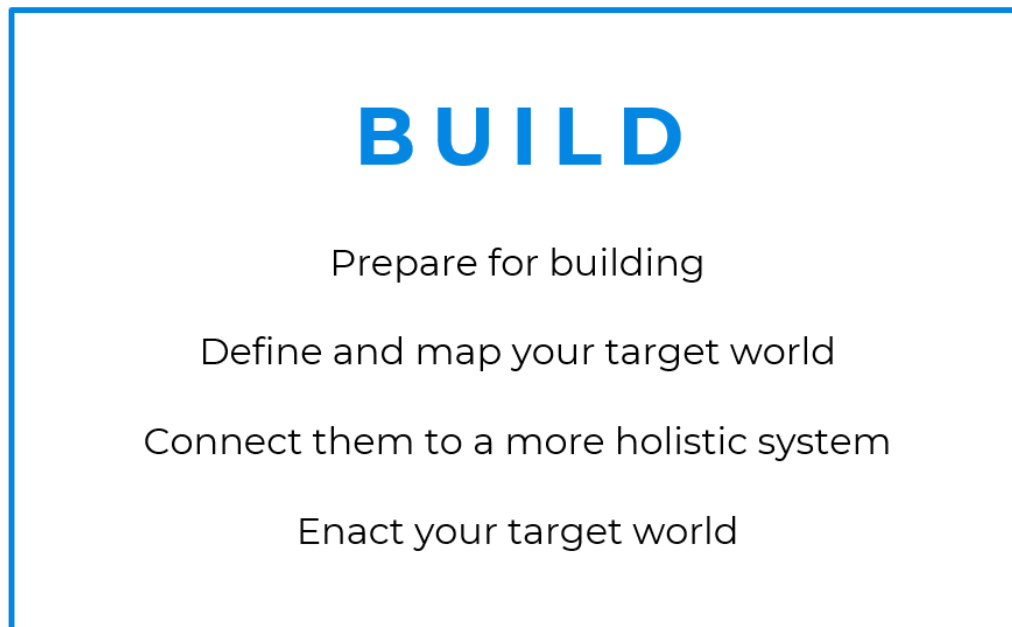
Figure 16: Building target worlds - Step 3

3.1 - Prepare for Building

First, you must agree on the tool you eventually want to use to represent your target world. Will it be a one-pager description, a short-story, a comic book with pictures, Lego Serious Play, a short movie or documentary, an architectural model or built in Sims or another computer game. It is entirely up to you. The only thing it should not end up being is a simple vision statement.

Next, agree on and prepare a process to track your decisions. Will it be a team member taking notes, will you have a dedicated worldbuilder knowing the tool you want to represent your target world in?

Agree on some limits now. How many years from now will your target world exist? Where will it exist? What kind of people will be there (remember to stay close to your insights from step 1 and 2). Set some limits and agree on a bit of scope so your group does not astray too much through the process.

3.2 - Define and Map Your Target World

Now it is time to start the building process. In your group, start by sketching the landscape of your target world. Is it a village, a coffee place, an entire city, a virtual world? Draw some borders to define your new map you want to fill. Next to your new map, look at your results from step 1 and 2 and create some of the characters and main actors (human and non-human) that will play main roles in your target world.

List the macro drivers, rules and goals of your world, the meso level with relations between humans and technologies, what they value and what relations mean to them, as well as the micro interactions, feelings and emotions your target world should be filled with.

3.3 - Materialize Your Target World

As said before, it is up to you and your innovation network but now it is time you start materializing your target world. How you do this depends on your choice. The following provides a short list of examples for how you might materialize your target world:

- Short story written descriptions
- Pen & paper sketches, paintings
- Lego etc.
- Handcrafted models
- Board games
- Software
- Computer games
- Virtual reality
- A screenplay
- Short video clips
- Movies

The students from Dry City, for example, combined a "wide range of media and platforms, including app prototypes, physical artefacts, photography, and web-based graphic design, fictional blogs, a film festival and experimental social media storytelling" (Hollon, 2018). Some of these are shown below.

Figure 17: Dry City representation 1.1 as a comic (Source: Long 2016)

Figure 18: Dry City representation 1.2 as a comic (Source: Long 2016)
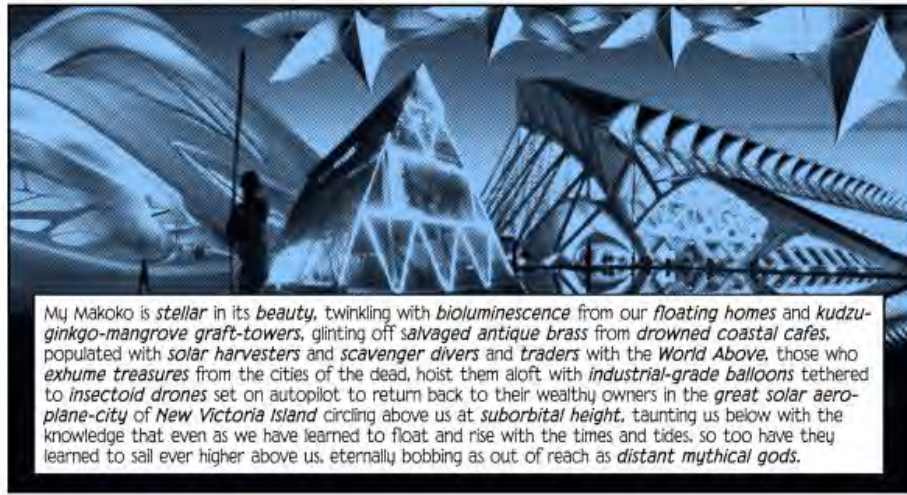
Figure 19: Dry City representation 1.3 as a comic (Source: Long 2016)
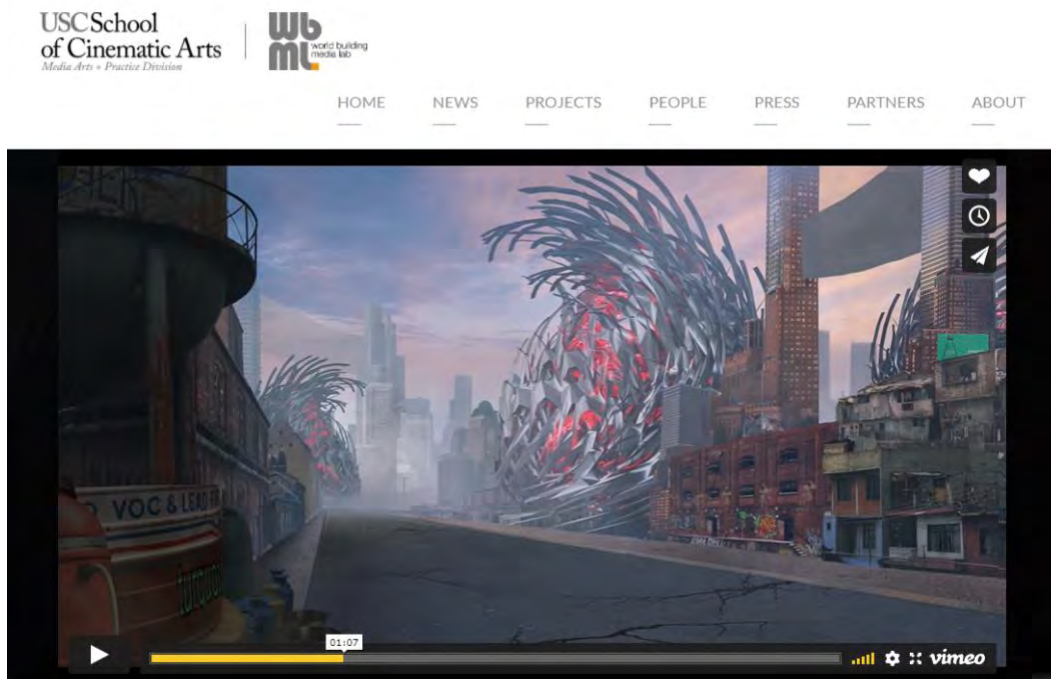
Figure 20: Dry City representation 2 as a short video (Source: Dawson 2016)
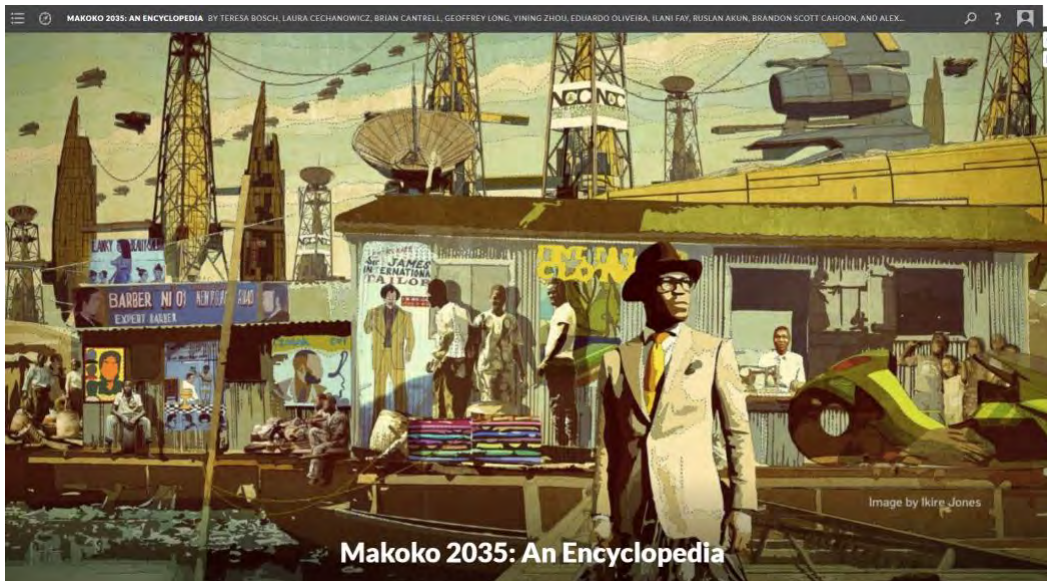
Figure 21: Dry City representation 3 as an encyclopedia (Source: Bosch et. al. 2021)

3.4 - Enact Your Target World

As a last step in the process of building your target world, enact it: try to find out how it would feel to experience this target world. Use your outcome from step 3.3 and really try to get immersed in your target world. At Dry City, "each student developed a character and then envisioned a day in their character's life, imagining everything from the contents of a character's purse to their daily routine from hour to hour" (Hollon, 2013). This helped them to develop a form of empathy for how it might feel to live in this world in the future. Other forms of enacting your target world might include role playing. virtual reality scenarios, story reading, dialogues and whatever helps to feel immersed in a day of your target world.

4. Build for Your Target World

You made it. After running through all steps so far, you should have ended up with your own target world. With your target world at hand you have a more contextual, rich and detailed environment, which your new innovation should contribute to and get embedded into. The next and final step is how you prepare for building your product or service for your target world. Look at your results from step 1 and 2 and at your target world and try to define a way how your innovation will eventually facilitate the realization of your target world. Freely choose your preferred innovation approach. Due to my own current professional situation, I am close to corporate venture building which includes several steps that I find applicable for this purpose too.

Figure 22: Building target worlds - Step 4

4.1 - What Assets Can You Contribute?

In corporate venture building, we usually consider the existing assets a corporation brings to the table, which we might want to use for a new product or service which will become the core element of a potential new company. In *Target Worlds* your outcome could be a product, service, a company, a building, or anything else. Essentially, though, you will have to ask yourself the same question. What assets can you utilize that will enable you to achieve your vision? What partners, supporters might you need to achieve it? How do they fit into your target world? How might they contribute to it themselves, or what might they find appealing about it so they might partner with it? This brings us back to Simon Sinek's Golden Circle. Do those partners share the same target world, thus, purpose and vision? If not, maybe it is not the right partner.

4.2 - Use Your Target World as a Reality Check

As with any other product building process, plan a rough roadmap for building your product or service. Start with prototypes, test a lot, expect several changes along the way. Always come back to your target world representation, immerse yourself again and again, and try to check whether your current prototype, MVP or product version will actually contribute to your target world. If not, it is either not the right product to build or you have to revise your target world. Remember, though, that your target world is the future version of the world that you constantly discover and reimagine to live in, the world version to which your company or team wants to contribute to. With every research study you conduct and every product iteration you run, you uncover a new region of your world's map that was hidden to you before, revealing new opportunity spaces to act on, but also reshaping your game

strategy to play by. In this case, your target world serves you as a continuous quality control and eyeopener, which is what your target world should eventually turn into.

CONCLUSION

In my imagination – if done well – the result will look like a very famous architectural masterpiece in the center of Vienna, called 'Hundertwasserhaus'.

Figure 23: Hundertwasserhaus as a great example (Source: Hundertwasser.com)

This house – named after its architect – is anything but perfect from a symmetrical perspective, but it is close to perfect from a sustainability point of view.

Socially it connects people: its playful design inside the building with small playgrounds in and outside on terraces, encourages children to play, to run around in the house, visiting flats with open doors from the friends. *Environmentally* it offers multiple balconies solely for the planting of trees all around the building, which reduces noise pollution, breaks winds and cools the building during summer. *Technologically* it was built on solid bricks and due to its use of fired tiles, the facade is extra resistant to damage. *Economically* it was a state-financed project, which committed to lower rental prices for average citizens to be able to pay for it. I think it is a great example of an already existing target world for future housing projects, and in my opinion this is what innovation should aim to contribute to.

To conclude this paper, I hope that I have: (1) provoked the reader about some of the problems we regularly face in innovation; (2) pointed out the responsibility and power innovators have and need to utilize better; (3) explained the need for *Target Worlds* and how worldbuilding can help; and (4) sketched a first step by step guide of how to build your own target world as a new starting point for innovation that goes beyond target groups, problems, technology-focus and limited centeredness. I very much hope that this was a provocative nudge for you as a reader, and look forward to receiving any feedback, thoughts and ideas on how to develop this concept further.

Markus Rothmüller is a Techno-Anthropologist by training and applies anthropology in business, design and product development. He has worked in the fields of future studies, user research, corporate innovation and venture building with a special focus and passion for emerging technologies such as autonomous vehicles, smart home, digital health and wellbeing. He looks at concepts like socio-technical worlds, networks, rituals, mediation, transformation and belonging, as an add-on to the otherwise mainstream innovation frameworks.

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Anticipating Connectivity in (UX) Design Practices

Reframing Challenges by Introducing Theory Cards

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This paper presents a design anthropological study with User Experience design departments from five large companies in Denmark, ranging from manufacturers of medical equipment through toys to control systems for industrial infrastructures We explore the challenges they face as products, services, and user research are increasingly connected. Our research shows that current methods, development processes, and organizational structures do not sufficiently support User Experience design teams in dealing with emerging design and organizational challenges that follow from increased digitalization. As a result, UX designers are struggling to anticipate the future of product interaction, user data, and their organizational role. In this paper, we explore how playing with theoretical concepts and introducing a new vocabulary may facilitate fundamental shifts in perspective necessary to instigate change. We deploy 'theory cards' in an experiment with one of the companies to see if theories might serve as instruments for seeing field material and design problems in ways more supportive for future design endeavours.

INTRODUCTION

In this paper, we propose a pragmatic and playful approach to theory in the field of user experience (UX) design. Through an experiment with theory cards, we illustrate how theoretical concepts and perspectives (like product ecologies, fluid assemblages, and intra-action) can help re-frame challenges in anticipating connectivity in UX design practices.

This direction emerged from our collaborations with design teams from large-scale manufacturing companies, who were all struggling to adapt their products and practices to increasing digitalization. They approached us asking for new methods to support them in dealing with issues of connectivity when designing physical products. Initially we were puzzled by this request as they all seemed to be familiar with most of the user-research methods we found relevant and that we would teach to our students. This sparked our curiosity: Were the current methods available insufficient for the job? Was there really a need for design researchers like us to develop new methods? What would these look like?
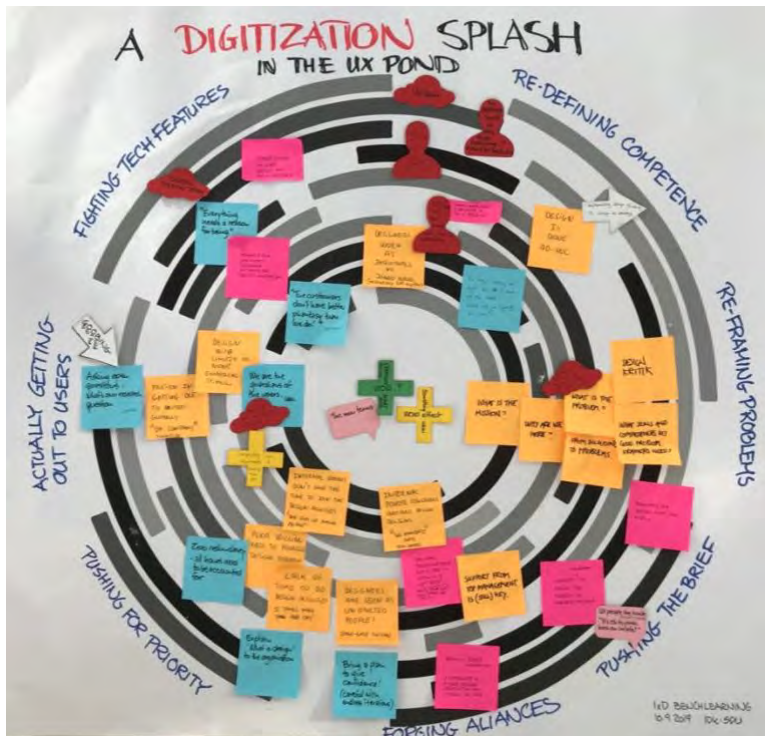
Figure 1: Poster from the first participatory research workshop, which describes digitalization as a 'splash in the pond' that expands the complexity of UX design challenges. Photograph © Jacob Buur.

We organized an initial participatory workshop with the UX practitioners, where we invited participants to describe, visualize, and materialize their current UX practices and challenges (Kjærsgaard et al. 2021). From the workshop emerged the idea of digitalization as a splash in the UX pond (depicted in Figure 1), with challenges that ripple into many aspects of UX design practice. Many of these challenges went deeper than the surface of user involvement, and spread beyond the UX practitioner's current purview, and thus might not be remedied by simply introducing new methods.

Our analysis of the workshop showed that current methods, development processes, and organizational structures do not sufficiently support these UX design teams in dealing with emerging design and organizational challenges. While their product-centered organizational structures, linear development processes, and popular UX tools (such as the 'user journey') are helpful when dealing with goal-directed, sequential activities, and stand-alone products or systems, they seem to fall short when products, relations, and technologies become more interconnected and embedded.

The way these companies create products and anticipate use is shaped by a particular taken-for-granted vocabulary which is deeply embedded within the practices, methods, processes, and structures of these organizations. Hence, to be able to imagine other futures, products and practices it is not only the methods that are in need of changing, but the concepts and vocabulary through which they are formed and used.

Connectivity in Product Design

To better understand exactly what these UX design teams were struggling with, and how we might collaborate to find new ways of meeting their needs, we undertook design anthropological fieldwork with five large manufacturing companies whose products range from medical equipment, to toys, to control systems for industrial infrastructures. While none of the companies produces IT products in the common sense, they were all trying to embrace connectivity, while struggling to integrate the digital into their physical product experience.

Our company collaborators included specialists in interaction design, UX design, design research, and managers of such functions (in short, *UX practitioners*). Working from a design anthropological approach (Kjærsgaard & Otto 2012; Otto & Smith 2013), we combined classical ethnographic methods such as interviews and field studies with design interventionist approaches (Halse 2013; Halse & Boffi 2016) in our attempts to understand our collaborators' current challenges and future possibilities.

We collected empirical data consisting of transcripts from interviews and multi-modal material from workshops with the UX practitioners and their managers. The analysis was a collaborative endeavor within the research team, where we systematically went through the transcripts to identify recurrent themes and patterns across the different companies, that we later corroborated with the industry participants during subsequent workshops. As part of our analysis, we identified a number of shared challenges that were directly or indirectly linked to product *connectivity* and *digitalization*.

1. **The interface challenge (connected products)**: Anticipating *interactions* when expanding from designing single user-interfaces to designing interaction across products, which, due to connectivity, were neither separate entities nor integrated in a common system, yet engaged with systems, practices, and contexts beyond their control.
2. **The data challenge (connected data)**: Anticipating the future of *data* when shifting from qualitative data collected in the field by the designers themselves, to combinations of those data with quantitative data acquired by other departments through the company's products, which were increasingly *connected* and able to report back from 'the field'.
3. **The organizational challenge (connected problems)**: Anticipating design solutions when 'UX problems' and their solutions increasingly cut across and beyond organizational structures.

In the following, we describe and analyze these challenges as well as the practices and perspectives that shape them.

THE INTERFACE CHALLENGE – CONNECTED PRODUCTS

A central challenge the UX practitioners in our study face is dealing with issues of 'connectivity' as products become increasingly interconnected. They are moving from designing the physical product itself, to also developing the digital stuff *around* the product, such as apps and services. As one of the design managers in our study explained:

> "Many different project teams are making digital products and services… We are moving away from the product to the stuff around the product… We are struggling to do it in a synchronized way. Each product is shining on its own, but right now, we are not thinking about them in a connected way."

A designer from another company added:

> "Every unit is developing their own products, but nobody is monitoring whether these are connected and how to increase the user experience across."

A particular vocabulary recurs when they refer to the challenges involved in addressing 'connectivity'. They talk about the challenge of identifying "*touchpoints*" between physical and digital products, and between products and the larger systems these products become part of when in use. As a consequence, the overarching design problem is described as one of achieving "*seamless touch across products and systems*."

Methods and Paradigms

A similar vocabulary is found in the 'user journey', a method widely used in the companies when attempting to understand and articulate user experience across user interfaces, apps, and services. During our field studies we saw examples of different ways of using this method. One UX team used what they called the "customer journey" as a framework for describing the (potential) touchpoints that customers may have with company products. They intended the overview as a design checklist for product development teams to ensure they have taken the customer's perspective into account. Another UX team used the customer journey as a tapestry for marketing and sales representatives to share their experiences of actual touchpoints they had encountered – typically problematic ones.

Figure 2: Customer Journey as design standard or conversation tool? Photograph © Jacob Buur.

In both cases, user journeys (or customer journeys, as they were often called) were used as a central tool to identify touchpoints between users and products as well as between one product and another in the attempt to secure 'seamless touch' across physical and digital artefacts. Moreover, in both cases, they found that user journeys did not quite do the job. As products became increasingly connected, the numbers of touchpoints and possible user journeys through these points proliferated, and they became increasingly difficult to identify, map, and navigate.

On closer inspection, we might see 'the user journey' as a method based on particular ideas of users, products, and their mutual relations embedded within the tool and the vocabulary it relies on. This approach implies a rather mechanistic understanding of the nature of 'things' and people, depicting them as separate entities with clearly identifiable boundaries and touchpoints. Furthermore, the user journey relies on an understanding of products, tasks, and relations as stable over time and across contexts. Focusing on single users attempting to accomplish predefined tasks through sequential engagements at separate touchpoints, this approach pays little attention to the way technologies and people are situated, entangled, and shaped by various socio-material contexts over time. The vocabulary introduced by the user journey, as well as the perspective it implies, seems therefore insufficient for describing and addressing the challenge of 'connectivity' faced by the companies in our study. In the paper "Changing the Hammer," Gardien et al. suggest that: "If a company continues to use processes, methods, tools and competencies from an older paradigm, it can only come to solutions that fit that older paradigm" (2014, 119).

Inspired by Gardien et al. (2014), we wonder if the challenges the UX practitioners experience could be the result of using methods, concepts, and vocabulary emerging from one paradigm (for example, an experience economy paradigm) to solve matters characteristic of another (for example, a transformation economy paradigm). If so, what these UX practitioners originally described as a methodological challenge might not be solved by solely introducing new methods, but would, in fact, require a fundamental shift in the mindset and vocabulary of the organization. As Gardien et al. point out:

> According to Kuhn, it is not possible to understand one paradigm through the conceptual framework and terminology of a rival paradigm. It requires a fundamental shift in mindset and vocabulary, and this is what makes moving to a new paradigm so difficult. (2014, 119-20)

To be able to imagine other futures, products, and practices, it is not only the methods that require changing, but also the concepts and vocabulary through which they were formed and used.

From Entities to Assemblages

Exploring alternative conceptual frameworks, we became interested in *product ecologies* (Forlizzi 2013; Sung et al. 2010) and *fluid assemblages* (Redström & Wiltse 2018; Suchman 2007), as they provide a vocabulary for describing and addressing 'the connectivity problem' in other and possibly more interesting ways. Forlizzi (2013) and Sung et al. (2010) introduce the concept of *product ecology* as an alternative to thinking about products in terms of separate entities and systems. Whereas systems are usually understood as solid static entities consisting of separate parts that work according to a machine logic where each part

contributes to the whole in a mechanistic way (Morgan 1980), ecologies hold a more dynamic and organic quality. Here, people, objects, practices, and environments are inter-related and mutually constituted over time. Forlizzi emphasizes that we need to remain attentive to how people, practices, and 'things' are entangled in a dynamic relationship that evolves over time, rather than merely focusing on the product interaction in user experience. This focus on product ecologies alerts us to the fact that products and people do not exist in isolation but are continuously shaping and shaped by the socio-cultural and material conditions they become part of.

That products are interconnected, and that designing for user experience requires looking beyond single units, are not new insights. CSCW and design ethnography (Blomberg and Karasti 2012; 2013) are examples of research fields that have been particularly attentive to the fact that products cannot be understood separately from the socio-material context that they become part of. What is interesting in our study is the extent to which this still challenges UX practitioners working within the industry and how increasing digitalization makes it harder to ignore.

One of the UX practitioners expressed that they also need to improve their products after launching them, and thereby remain attentive to the subsequent process of contextual use –mainly because digital products can be continuously subjected to updates and do not need a development process as long as that of physical products. Another company highlighted that their organization was not originally set up for the type of work that needs coordination across physical and digital solutions. Therefore, understanding products in context does not appear to be enough here; we might also need to understand the products themselves and their constellations in a different light.

Building on Deleuze and Guattari's (2013/1980) concept of 'assemblages', Redström and Wiltse (2018) suggest *fluid assemblages* as a way of understanding objects in a digitalized world. The authors describe fluid assemblages as constellations of 'things' (actors and materials) that do not quite 'fit' together. Assemblages might be understood as situated somewhere between a collection of 'things' and a seamless totality, more like open-ended collectives than solid blocks. Redström and Wiltse use the smartphone as an example of an assemblage of hardware, apps, and networks, which are not a seamlessly integrated totality, yet have capabilities beyond the sum of its parts. What characterizes fluid assemblages is that properties are not inscribed and embedded 'within' them but *emerge* in their composition. As such, the notion of fluid assemblages challenges the idea of the product as a separate unit with fixed boundaries, and instead introduces the idea of such assemblages as unstable, dynamic, and continuously changing and developing in use.

Thus, the concept of fluid assemblages – like product ecologies – challenges understandings of 'things' as static entities, often implied by our case companies' approaches to product development. With increased digitalization, it no longer seems meaningful to look at products separate from each other or separate from the context in which they are located, adapted, and appropriated. Thus, thinking in terms of fluid assemblages, relations, tasks, and environments rather than 'entities' might help us develop new approaches and reframe current aspirations towards designing for seamless touch across physical and digital products.

THE DATA CHALLENGE – CONNECTED DATA

The second challenge UX practitioners face concerns user data. Across the five companies, the increased interest in connected products comes with an increased interest in built-in data collection. UX practitioners are under pressure to add digital data collection to product design, without understanding the purpose of the data collection, as though the data has inherent value. As a designer said:

> "Just adding connectivity for someone (…) without understanding what they'll use the data for --or what even we will use the data for-- then, we've just made something with a chip in it."

Big Data Needs Thick Data

The data users generate through interactions with digital products is generally perceived as a critical asset for companies, yet it is experienced more like a "*data tsunami*" by the UX practitioners. They struggle to access and make sense of vast amounts of decontextualized user data produced in ways that do not appear transparent to them. As one of the practitioners explained:

> "I find it difficult... I have no clue how we got the data. Personally, I was not there, but I need to trust it. We are not in a transparent phase... someone is digging out some data, but we are not making it visible or transparent where it came from... if I really want to use it effectively, I need to know who said it and why they said it. What is the context? But we are just not there right now."

That we need 'Thick Data' (detailed, qualitative understandings of people) to realize what 'Big Data' means has been argued by the design ethnographic research community for quite some time (Wang 2013; Boellstorff 2013). However, design ethnographers are still struggling to come to terms with Big Data on an equal footing with ethnographic data (Curran 2013), as are the UX practitioners in our study. In trying to combine 'big' and 'thick' data (and the professionals that work with them), we are confronted with different ideas of what data is, how it is obtained, how we can make sense of it, as well as what it is useful for. As one of the UX practitioners explained:

> "One challenge is how we understand and visualize data and how we can work with it…how do we actually create an interface into that data. The department that is in control of that, they do not have the same eyes on research and data as we have".

One of the problems with digital data is that analysis methods are dependent on how people 'out there' themselves make sense of digital data, or as Nafus puts it; " 'digital data as method' and 'digital data as thing in the world' are becoming increasingly intertwined," (2016, 384). Connected products with built-in data collection are not passive instruments for harvesting neutral ready-made data in 'the field'; they act within and upon the world. They construct data, through their algorithms, and they engage with people and things through their digital and material presence in the field and in the organization.

Data as 'Things'

In design research, there is currently a strong move towards new ways of visualizing user data (e.g., Anderson 2009) and even physicalizing data (Jansen et al. 2015; Buur et al. 2018) to make Big Data accessible to data non-experts. Data physicalization may be a way of generating narratives with the people from whom the data originates (Karyda et al. 2020), and thereby using big data to create thick data. From our study, we find that UX practitioners are highly concerned with digital data as a new source of user data, as they consider it an external influence on the way they design. It appears that the fundamental understanding of 'data' is at stake. In engineering dominated companies and in medical industry the conceptualization of 'data as fact' can be detrimental to arguing the value of qualitative research. Actor Network Theory (Latour 1992) inspired notions of material agency, however, may provide an alternative perspective on the role of data in the field and in organizations. Seen in that light, data physicalizations may offer a way of turning data into 'things' that warrant a fundamentally different engagement (Buur et al. 2021).

From Data to Relations

As mentioned previously, embracing digitalization is not simply about adding 'connectivity' to existing products; rather, it implies thinking of products in a completely new way. Likewise, connectivity demands a reconceptualization of user research and user data. When products send information back and forth between companies and users, they are not simply harvesting more and bigger data. They are, in fact, establishing relationships with people and other products in the context of use, thereby fundamentally changing not only the nature of the product, but the role of the product in the user-company relationship, the nature of that relationship, as well as the nature of user research. From the perspective of classic anthropological theories of *exchange* and *reciprocity* (see Mauss, 1993/1925; Lévi-Strauss, 1969/1949), the exchange of data that takes place between users and companies does not simply result in 'disinterested' data moving back and forth, the exchange essentially shapes their relationship.

The theories of exchange and reciprocity explain how humans form relationships through obligations to give, to receive, and to reciprocate (Mauss 1993/1925). Gift relationships are cyclical: Give-receive-reciprocate/give-receive-reciprocate/… New or casual relationships have short, frequent intervals with gifts of equal value (taking turns buying coffee, e.g.), while deep or familial relationships have longer reciprocation intervals where the value of the gift varies (buying each other birthday gifts, e.g.). Transactions, on the other hand, are linear: Give. Receive. Reciprocate. No relationship is established because the debt in the exchange is immediately settled.

When talking about physical products, companies usually have transactional relationships with users. The company provides the user a product, in exchange for money. The product and the money are equal in value, and the exchange is completed in a short time frame (a transaction). When connectivity is integrated into physical products, companies exchange services or features for continuously collected user data. Instead of a monetary transaction, the value of the things exchanged becomes unclear. The time frame for reciprocation is more open-ended, leaving the relationship ongoing, rather than transactional. By rethinking user data and product connectivity in terms of *exchange* and *reciprocity*, we understand the user-product-company relations in entirely new ways.

Similarly, this continuous exchange changes the nature of user research. To some extent, products with built-in data collection never really *leave* the company and user research potentially never really ends. The movement of data back and forth means that companies have a continuous 'presence' in the field, and users a continuous presence in the company, thereby blurring the boundaries of what constitutes the 'inside' and 'outside' of the product, the field, and the company.

This blurring of the boundaries of separate entities, things, and spaces can be understood through Karen Barad's (2014) concept of *intra-action*. Barad describes intra-action as:

> [T]he mutual constitution of entangled agencies. (…) In contrast to the usual 'interaction,' which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. (Barad 2007, 33)

To think of *exchange* and *intra-action* of *entangled agencies* makes it possible to rethink UX research as well as the relationship/contradiction between 'big' and 'thick' data. The premise is moved, and the possibilities are different. The user, the product, the organization, and the field, all become intertwined.

THE ORGANIZATIONAL CHALLENGE – CONNECTED PROBLEMS

The third challenge our design teams face is organizational. With increased 'product connectivity', design problems may also be seen as increasingly interconnected. Therefore, UX departments are challenged to find local solutions to issues that cut across organizational divisions and company boundaries. This challenge is enhanced by existing practices and structures within the companies that tend to sustain an understanding of products as separate entities, positioning UX design as the finishing touch at the end of product development. One of the practitioners in our study described how working as a UX designer "*often feels like putting lipstick on a pig*," as they attempt to fix a product that is ready to go to market, rather than design a coherent experience before the development of this singular entity. Another practitioner put it like this:

> "One thing is top-management saying that design should play a bigger role in the strategy, but another thing is what becomes possible on a daily level. I have been in the company for many years, and things have not changed drastically. Despite the aim to involve design on a broader and more strategic level, we are still seen as the ones fixing the user experience. But design cannot just fix something that already started off wrong."

The companies we collaborated with tend to understand UX design as a function that supports specific parts of the development process and sits in a particular UX 'silo'. As one of the design managers says:

> "Design-type people do not sit next to the CEO, it is still a bit lower in the organization. That also says something about how we look at design internally."

However, our study shows that UX problems and their solutions increasingly tend to cut across and beyond organizational structures.

From Local to Global Problem-Solving

Increasingly complex and interconnected products challenge company structures that maintain and support the idea that "problems are best solved in separate departments." Thinking of products and data in relational and dynamic terms, as we have suggested above, implies moving from the companies' treatment of UX design as a compartmentalizable specialist task, to positioning UX design as a critical part of identifying the larger problems that the products solve and the value that they bring. Ultimately, it also implies rethinking organizational structures as well as collaborations across different companies and organizations. Gardien et al. (2014) suggest thinking in terms of *competence networks* that span various forms of companies and organizations when working with connected design problems, characteristic of a transformation economy, which are simultaneously local and global.

To make the transition toward these competence networks, trust must be established between collaborators. One way of establishing trust is by creating value through reciprocity (Gardien et al. 2014, 131). Just as connected products stimulated relationships between users and the company, through data exchange, UX practitioners can generate trust between themselves and different company and external actors through, e.g., the exchange of big and thick data, in design research collaborations. In fact, Gardien et al. point to design methods, like concretizing ideas and using visuals and tangibles to smooth cooperation and communication between stakeholders (2014, 133). In a sense, this is what we experimented with, with the introduction of theory cards.

THEORY CARDS

Recently, we have worked closely with UX practitioners to explore how playing with theoretical concepts may facilitate fundamental shifts in perspective, necessary to instigating change in UX practice. Rather than developing new methods – as originally requested - we wanted to tinker with theoretical perspectives that might allow new ways of understanding and responding to connectivity challenges.

We were invited by one of our collaborator companies to host a workshop where we could bring theoretical perspectives into a collaborative analysis of their user research data. From our side, we wanted to experiment with introducing a new vocabulary, to challenge taken-for-granted perspectives within the team and the company, and to unfold new questions, insights, and ideas.

In this experiment, we were particularly interested in the way concepts such as product ecologies (Forlizzi 2013; Sung et al. 2010) fluid assemblages (Redström & Wiltse 2018; Suchman 2007), or intra-actions (Barad 2007) might become part of the company's vocabulary, and how that vocabulary may gain practical relevance through their daily practices and allow for the imagining of other futures, practices, products, and use(rs).

To that end, we developed a deck of 14 'theory cards' (see Figure 3). Each card represents a particular theoretical concept or perspective (for example, 'fluid assemblages, 'product ecology', 'intra-action'), and includes a short explanation, an illustration of the central idea, a quotation and a reference. We curated the deck of cards to include theories we

found particularly relevant for re-framing issues of connectivity, as well as 'wild cards' that were less obviously relevant, but might turn out to elicit interesting perspectives on the material. In contrast to the more well-known 'methods cards' (IDEO 2003; Wölfel et al. 2013, Lucero et al.2016), these 'theory cards' were intended to support 'ways of seeing' rather than 'ways of doing'. It was important for us that the cards supported a more playful and pragmatic approach to analysis rather than a deductive one. We therefore saw the theories as lenses which in some cases allowed us to discover new and interesting perspectives into the material, and in other cases not.

The participatory research workshop had 7 participants, 4 from the company and 3 from the university. As part of new product development, the UX design team had asked potential users to conduct video diaries for 2 weeks. This user material was meant to inform the development of a new 'health product' that would replace an existing product.

The co-analysis process consisted of starting with selections of user data and/or salient insights emerging from the UX practitioners' field research, then picking 1-3 theory cards to discuss what these particular perspectives would let us see in that material, and what additional questions they would inspire in continuing field research.

Figure 3: The deck of theory cards used in a participatory research workshop to encourage perspective shifts on qualitative field material consisting of a large number of self-recorded user videos. Photograph © Jacob Buur.

Re-Framing the Connectivity Challenge through Product Ecology

To illustrate the way this theory card co-analysis experiment worked, we will take the product ecology card as an example. We matched a particular user's video diary data with the product ecology card, and began discussing which things, people, and spaces were present in the video material. Then we tried collaboratively mapping the 'product ecology' that this user is a part of. The task required constant negotiations of what could be seen in the video and what it meant. While mapping people, products, and the dynamic relations between them, the team started to notice connections between things that were previously understood as belonging to separate realms. Facebook is an example of a seemingly non-related technology that made it onto our product ecology map. For the user whose data we looked at, Facebook plays a central role in the way she relates to her health. Facebook is where she forms relationships with other people with health issues similar to hers. The information and advice shared in Facebook communities play an important role in shaping her understanding of her own health, and the way she could or should use various health products to improve her condition and her life.

Based on the product ecology map, the team discussed how replacing the old health product with a new version might not simply offer new functionalities for the users, but may in fact lead to an entirely new type of product ecology. Working from a product ecology perspective sparked an awareness in the group of how things that were previously seen as merely in the 'background' might actually be integral to the way a product is used and made sense of. For the project leader, an engineer, working with this theory card uncovered what he saw as a flaw in the way 'connectivity' had thus far been marketed internally in the company: as a desirable 'user feature' and a 'unique sales point'. Through mapping product ecologies, he realized that in order to fully understanding how adding connectivity would eventually serve the user, an in-depth understanding of the context of users and products would be essential. The product ecology perspective eventually served as way of re-framing the project team's understanding of connectivity as something way beyond simply "adding a chip" and extra functionality to their product.

This experiment with the UX practitioners demonstrated the potential in using theory cards as a way of playing with theoretical perspectives (in user research) to allow new ways of seeing (products, data, and design problems) in the attempt to find new and more meaningful and innovative solutions.

CONCLUSION

We see the contribution of the design anthropological research presented in this this paper as four-fold:

First, our research offers ethnographic insights into the ways that emerging UX design challenges are experienced and addressed within and across five manufacturing companies in Denmark, at a time where we look into an increasingly complex and digitalized future. We identify three general challenges across the five companies involved in the study: 1) the challenge of connected products, 2) the challenge of connected data, and 3) the challenge of connected problems. Our material shows how (the description and experience of) these challenges are linked to particular cultural understandings of people, products, and design processes embedded within the current vocabulary, methods, practices, and structures of the organizations.

Second, we introduce alternative theoretical perspectives and vocabulary - such as product ecologies, fluid assemblages, and intra-action - to illustrate the potentials of playing with different conceptual lenses, in order to see the challenges and possibilities for UX design and its practitioners in new ways.

Rather than new methods, more fundamental mind-shifts within the organizations are required. We see a need for developing and expanding conceptual frameworks and professional vocabulary in order to re-frame issues of connectivity and redevelop research methods. We discuss how implementing ideas of product ecologies, fluid assemblages, and intra-action in product development practices in companies does not only challenge popular UX tools such as the user journey, it also challenges company structures and practices on a more profound level.

Third, we propose *theory cards* as pragmatic and playful approach to introducing new perspectives and vocabulary into design projects and organizations to help re-frame current practices, challenges, and possibilities.

We argue that introducing theoretical perspectives and concepts from anthropology and broader fields of human interaction in a pragmatic and playful manner can be instrumental in shifting perspectives towards more fundamental understandings of how digitalization influences people and organizations. Through an interventionist experiment with one of the companies, we show how theory cards may instigate a shift from thinking in terms of entities (such as users, products, and systems) to thinking in terms of socio-material assemblages, product ecologies, and intra-action.

Finally, our work shows that what ethnography and design anthropology may offer design is as much about challenging and re-framing taken-for-granted understandings as it is about providing methods and user insights.

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Papers

Seeing New Futures

How do we innovate for the future without understanding the past? How do we simultaneously prevent the past from locking us into just reproducing what we've already experienced? The papers in this session span theory to practice, all in service of unleashing a better unknown, but through the structure of controlled methods.

Searching for the Next Billion

Global Design for Information Seeking Across Cultures

JENNIFER ZAMORA, *Google Inc.*

While billions of people are established internet users, there are still billions of new users who have just come online in recent years and this growth will continue, especially on mobile in non-Western countries. Information seeking is essential to online behavior across the world, yet many prominent information-seeking platforms are heavily influenced by Western design patterns and use cases that originate from desktop. As we anticipate the future of information-seeking designs for new users, we explore opportunities to improve the experience by establishing a framework to evaluate common barriers to information seeking online across cultures.

Qualitative insights were collected from 164 participants to understand information-seeking patterns and barriers for users across three countries: Nigeria, Mexico, and India. Interviews were conducted with participants in their day-to-day environment, including home, work, internet cafes, markets, and university campuses. For every region, the overarching theme of our study was focused on barriers to information seeking. Each study also had a secondary goal based on previous learnings, new hypotheses, and emerging areas of interest. The secondary goal for each region was as follows: the Nigeria study explored perception of online information sources, the Mexico study explored local information needs, and the India study explored how users stay informed on topics of interest.

Based on this and past research, we created a framework that has five pillars to evaluate common barriers to information seeking: 1) User perception, 2) Infrastructure of internet and hardware devices, 3) Input and output, 4) Content quality of information, and 5) Context and overall journey.

INTRODUCTION

Of approximately 7.75 billion people in the world, an estimated 53% have internet access, and of those who have internet, 47% are from the developing world (International Telecommunication Union 2019). Countries like Nigeria, Mexico, and India have some of the largest growth potential for new internet users coming online due to variables including population influx and infrastructure advancements. Information seeking online is a ubiquitous behavior, but across cultures, the means by which people search online have evolved beyond the traditional search engine established by Western companies like Yahoo, Infoseek, Google and many others. Application designs that work in Western cultures present challenges for users who are not accustomed to Western design patterns, and mental models that originated from desktop do not necessarily translate for new users who started their internet experience on mobile. Based on common barriers to information seeking, technology developers anticipate new design patterns will be critical for creating a more inclusive internet experience for new users coming online.

Access to information has implications on the experiences and quality of life. The ability to use internet platforms to access information becomes increasingly important every year, especially when these platforms address meaningful everyday needs (Katz and Gonzalez 2016). The world is moving toward digitalization, whether people are ready for it or not. In countries like India, we see an increase of government official resources hosted online. This requires citizens to learn and grow their digital literacy in order to use fundamental services related to things like health, education, and electronic payments.

Search engines are often the starting point of an internet journey for billions of people around the world. Many search engines were designed by Western culture for desktop computers, but are used globally on mobile devices. This evolution in usage by cultures and devices has led to the lack of regional nuances and mobile specific needs for information seeking. Designing a search engine for global use with the expectation for it to work well for everyone is non-trivial given the varying degrees of information needs, cultural consideration, technology savvy, literacy, hardware, and internet infrastructure.

A significant amount of work has gone into researching and advancing the design of search engines, resulting in improved algorithms or design best practices for user interfaces (Croft 2008; Resnick and Vaugh 2006). Past research on mobile information access has identified device, connectivity, and language hurdles for marginalized segments of the population, and many have focused deeply on a specific country in South Asia or East Africa (Mancilla 2018; Rangaswamy and Cutrell 2012; Sambasivan et al. 2016; Steinfeld et al. 2015; Sultana et al. 2019; Wyche 2015).

In this study, we expand on the challenges of infrastructure and language by capturing the broader ecosystem of information seeking. Specifically, we explore the entire search journey that happens before interacting with the search engine, as well as challenges throughout the information-seeking experience. We also explore a range of information-seeking needs; for example, information-seeking tasks can include one-off queries, repeated queries over time, or multi-session queries that cannot be easily answered in one session. In addition, we explore behaviors across cultures in Mexico, Nigeria, and India to expand on the established body of research by covering Latin America, South Asia, and West Africa.

The intent of this study was to build a framework to understand barriers to using search engines. The scope of this research also included understanding how users currently seek out information through alternative means. As communities continue to lean on alternative platforms for information, like social media, we want to better understand the reasons for this behavior and what barriers may be preventing new users from seeking information on search engines. The information-seeking barriers framework has been used as a way to identify pain points in current and proposed search engine designs. The framework also allows us to understand the nuances and severity of specific barriers across regions. Understanding the prominence of barriers can help prioritize which issues to address as we build a global experience for information seeking.

RELATED WORK

Substantial research efforts have pushed the design and technology of search engines, including the user experience, by improving mental models over time (Mlilo and Thatcher 2011). However, there is a steep learning curve for query formulation, and users still struggle with this fundamental aspect of the service (Croft 2008; Mlilo and Thatcher 2011). Even among Nigerian graduate students who reported being "somewhat confident" in their ability to use search engines, awareness of advanced search features was low (Salako 2007).

The digital divide impacts certain segments of the population more severely than others. For example, we see women are at a "significant disadvantage" relative to men across regions, and especially in lower socioeconomic classes (Hafkin 2007; Steinfeld et al. 2015; Sultana et al. 2019). The key to unlocking online information is user education, which can have a significant impact on access to education and career development resources. Past

research in Mexico and India has shown that internet education can lead to more proactive information seeking for important needs related to learning and employment (Mancilla 2018; Mukherjee, Ilavarasan, and Kat 2019; Vishwanath, Kumar, and Kumar 2016). The more intuitive and culturally relevant search engines are for users, the more likely they are to be capable of searching and finding information for critical life needs.

Language and literacy are often barriers to information seeking. In traditional libraries, we find limited content in local languages for Nigerians (Momodu 2012). This challenge carries over to the internet as well, as most of the web content available in the world is in English. Searching for content with limited literacy can make a simple task much more complex. It requires more non-textual information seeking, which research has shown is extremely challenging (Wang and Shah 2016). Multilingualism also presents challenges in countries like India and Kenya, where there can be complications in language selection, non-structured blends of languages, and users with limited literacy in both language and technology (Rangaswamy and Cutrell 2012; Wyche 2015).

Creating text-based content online in languages other than English can be challenging. Many input options are designed for roman alphabets, but even for Romanized Indic languages, we still see significant hurdles (Gosh and Joshi 2014). As a result, people may be turning to other sources of information, such as social media, where it is easier to create and share content in local languages through visual imagery, audio recordings, or simple tap-based interactions that require less typing and spelling. The social media search trend has increased for other reasons as well, including the desire to consume content in a local language, personalized answers, fun factor, timeliness, perceived reliability, and local information (Oeldorf-Hirsch et al. 2014; Morris, Teevan and Panovich 2010; Kavanaugh et al. 2016).

METHOD

We collected insights from 164 users in Nigeria, Mexico, and India. The research projects were phased over the course of two years. For every study, the primary research objective was to understand information seeking and barriers that users face in obtaining information.

Each study also had a secondary goal based on previous learnings, new hypotheses, and emerging areas of interest. The secondary goal for each region is as follows: the Nigeria study explored perception of online information sources, the Mexico study explored local information needs, and the India study explored how users stay informed on topics of interest. Each of these secondary topics offered a different perspective on information-seeking needs that informed the final framework. The perception of online information sources influences the habits of where one retrieves information. The way someone goes about fulfilling local information needs is often varied from seeking globally relevant information. The way we seek information for a one-time topic of interest is different from how we stay up to date on topics we regularly seek out. By understanding how these different contexts impact information-seeking experiences, we are able to shape the barriers framework in a way that applies to more scenarios.

The data collection included a combination of in-depth interviews, usability tasks, and intercept interviews (see Table 1 for details). The home visits were in-depth interviews focused on information-seeking behaviors, perception of online information sources, mobile

usage, and usability tasks for information seeking on a mobile search engine. Intercept interviews were conducted to collect a wider perspective from participants not opted into a research database. The locations were public spaces and focused on information-seeking behaviors.

The participant sample included a mix of urban and peri-urban cities to include a mix of perspectives. Participants were between 18-30 years old. Based largely on income, all participants were upper-middle to lower-middle socioeconomic class respective to their location. This categorization was determined based on region and defined by local researchers from the country. There was a mix of gender across the regions and all smartphone participants were using Android OS.

Table 1. Overview of method sampling by region for a total of 164 participants.

Method sample size per country	Nigeria (n=31)	Mexico (n=82)	India (n=51)
Home visits (120 min)	18	20	16
Intercept interviews (15 mins)	13	62	35

Interviews were conducted in English in Nigeria, Spanish in Mexico, and a mix of English and Indic languages in India. Local research agencies managed travel logistics, participant recruitment, translation, and participant incentive distribution. The interviews were conducted by a Google researcher with a local translator. All participants received a thank-you incentive that was distributed in local currency by the in-country research agency. The denomination was based on market rate for research participation based on involvement by the participant. For example, the intercept participants received a lesser incentive for the shorter 15-minute sessions relative to the 120-minute home visits.

Insights were analyzed by the Google field team, including a mix of technology developer roles: UX Researchers, UX Designers, Product Managers, Engineers, and Product Marketing Managers. The local agency researchers and translators also participated to provide additional context through the workshop. Analysis tasks included exercises like affinity diagrams, journey mapping, and thematic categorization.

Nigeria

The study took place in Lagos and Ikaram, Nigeria. Lagos has an estimated population of 21 million residents, whereas Ikaram has an estimated population of 20,000. The two cities are approximately 248 miles apart.

We collected insights from 31 participants through in-depth home interviews and intercept interviews. The intercept interviews in Lagos were conducted in a technology market called Computer Village, and in Ikaram were conducted in a produce market. In addition to information-seeking barriers, we also explored the perception of online sources of information from platforms like social media, websites, and search engines.

The analysis process included a full-day workshop with 22 field attendees from mixed disciplines, and two additional days with only lead researchers.

Mexico

The study took place in Mexico City and Ecatepec, Mexico. Mexico City has an estimated population of 8.8 million residents, whereas Ecatepec has an estimated population of 1.6 million. The two cities are approximately 15 miles apart.

We collected insights from 82 participants through in-depth home interviews and intercept interviews. The intercept interviews in Mexico City were conducted at the National Autonomous University of Mexico campus, and in Ecatepec were conducted in an open produce and home supply market. In addition to information-seeking barriers, we also explored local information needs like looking up business hours for a small neighborhood shop, or regional needs like seeking details about national elections.

The analysis process included a two-day workshop with 10 field attendees from mixed disciplines.

India

The study took place in New Delhi and Gurgaon, India. New Delhi has an estimated population of 21 million residents, whereas Gurgaon has an estimated population of 877,000. The two cities are approximately 18 miles apart.

We collected insights from 51 participants through in-depth home interviews and intercept interviews. The intercept interviews in New Delhi were conducted at the Jawaharlal Nehru University. The in-depth interviews focused on information-seeking behaviors, how users stay up to date on topics of interest, and mobile usage. Topics of interest can include a range of categories that typically require information seeking, such as hobbies like gardening, activities like shopping, news like political events, or sports like score updates.

The analysis process included a one-day workshop with 11 field attendees from mixed disciplines.

A FRAMEWORK FOR BARRIERS TO INFORMATION

A framework for evaluating information sources emerged from user scenarios throughout the search journey. As we collected more insights and perspectives from additional regions, we evolved the framework to be inclusive of new findings. There are five categories of barriers:

1. User perception
2. Infrastructure of internet and hardware devices
3. Input and output
4. Content quality of information
5. Context and overall journey

User Perception

Before users engage with any particular app for information-seeking, their impression and past experiences shaped their perception of their options. The perception of search engines was limited due to the over-simplictic text-field design that offered little guidance, limited exposure to search engines outside of academic contexts, and the learning curve of knowing how to use a search engine effectively.

Awareness of search engine capabilities was limited. Users were aware of basic search functionalities, but perceived search engines to have insufficient capabilities. Specifically, the text-based experience with search engines left users wanting more visual aid for context. Another common limitation of using a search engine was the lack of recent content, especially for current news topics.

> "Google is a website where we search for meaning of some words, and any assignment given to us in English." (P13, Nigeria)

> "On Instagram you can find people who upload photos you like, while Google gives you a lot of link results." (P29, Mexico)

> "If I want to check for the latest news, I look on UC News. Searching online won't show me new things." (P14, India)

Expectations were defined by previous internet and search engine experiences. Searching for information online is perceived as work because participants felt you had to think of what to search for, type in your query, sift through results, and potentially repeat the process if the results were inadequate. For first-time internet users, search engine potential was unknown as there were no well-defined expectations, so users were not sure what they could search for.

> "[The internet] I heard it is where you can find anything." (P27, Nigeria)

> "If there's something I need to research, I use this app [Google], but you need to sift through answers to find the right answer because things aren't always precise." (P3, Mexico)

> "Search is a procedure. You have to think of what to type, type it, and find what you are looking for in the text. "(P2, India)

Infrastructure of Internet and Hardware Devices

Fast and reliable internet was not feasible for most participants. For this reason, many relied on lite apps with reasonable latency (i.e. Opera Mini, Facebook Lite). These lite apps offered smaller APK sizes, taking up less memory. Many lite apps also focused their feature designs on core capabilities, meaning there were fewer features overall. This allows the application to run with lower latency.

Affordable and reliable internet access was a challenge due to relatively high data costs in Mexico and Nigeria. There was also limited broadband access in homes for India and Nigeria. This has led to high data consciousness around usage and management.

> "Data is very expensive, but I get 1MB free for buying talk time every week. I use this to see Facebook. I get about 2 minutes of Facebook." (P21, Nigeria)

> "Once I run out of data, I only use Wifi until I can get more data." (P9, Mexico)

> "During the afternoons, my data becomes throttled. I can stream videos during the night or early in the morning." (P46, India)

Device constraints were high due to an older Android device economy with smaller screens making search navigation harder, limited RAM slowing down application usage, and minimal storage availability bogging down the operating system. As a result, users found workarounds to manage or optimize their device performance.

> "The main problems are the battery and the network signal. The battery problem is due to the fact that the phone is old and the network signal in this community is weak." (P2, Nigeria)

> "Sometimes it [the battery] doesn't even make it through the day, so I have to keep it off." (P1, Mexico)

> "The phone has minimal GB, and I can only have so many apps without lag. I have to constantly delete, so I have a memory stick in which I can save my photos [from their phone]." (P16, India)

Input and Output Format

Input is a point of friction. Literacy is a challenge, including users with little-to-no written capabilities or knowledge only of common words and phrases. Searching for information without a strong grasp of written language prevents people from expressing their needs.

For those who don't face literacy limitations, there is still the tedious process of querying. Thinking of a query requires knowing what you want to find, how to word your query, and how to spell it out. A successful query also requires an understanding of how keywords will impact search results. In many cases, this also involves query refinement, in which users must adjust the words they are using to find more accurate search results. While this is a process that exists for all searchers, those with older devices experience amplified issues due to slower response times.

The QWERTY keyboard format was also challenging for users. New internet users struggled with typing due to low familiarity with the QWERTY keyboard format. Non-Roman alphabet users, like Hindi speakers, also struggled with the QWERTY keyboard since the design was not intended for Indic languages.

An alternative is voice input, but there are challenges with this format as well, including lack of awareness. This is due to low discoverability and incorrect interpretation of the microphone icon used to trigger voice input. A second challenge for voice input is social acceptance. In some societies, speaking to your phone out loud may be considered rude, embarrassing, or even dangerous for privacy reasons. In regions like India, voice was very much accepted in public spaces, but did come with socioeconomic stigma. For some, the implications of using voice meant you were not educated enough to type.

> "I don't think it [voice input] would hear me, or I would have to speak loud so that everyone would hear." (P14, Nigeria)

> "I don't want people to hear what I'm searching for." (P5, Mexico)

"If I use voice, people will think I'm from the villages. (P27, India)

Video and image results were often expected due to the ubiquity of highly visual sources like Facebook or Instagram. Web search provided text-heavy content that did not enrich the experience in the same manner. In some cases, images were described as an indicator for verification of the topic or validity of the content.

"[Search engine] It is okay. It gives me the information I need. It's neither interesting nor bad." (P25, Nigeria)

"I looked on Pinterest for how to make sushi. Instagram and Pinterest show me how, where Google tells me and maybe shows me a diagram." (P12, Mexico)

"If there are pictures, it is better. That way you know it happened [referencing images as a way to verify news information]" (P29, India)

Content Quality of Information

Search results were typically in English in India and Nigeria, but were often irrelevant because the content was from other English-speaking nations. For example, finding information from another English-speaking country like the United Kingdom was not useful as it lacked regional or cultural context. In India, many participants were not fluent in English, but received mobile information in English due to their phone settings being set to English. Phone language settings often influence app language by default. The English phone setting is prevalent in India and users wish to keep it for aspirational and societal reasons. For regions that are predominantly mono-lingual, as in Mexico with Spanish, there were far fewer complications.

"I have the phone in English to help me learn [Hindi speaker]" (P4, India)

For some local needs, users preferred to search in regional languages like Hausa or Hindi, but knew from prior experiences that this would yield limited or poor results. For bi-lingual users, there is an awareness that the quality of search results is often better in English versus non-English.

"I was searching for this sewing machine model for my business, but the only site selling it was in UK. I found one at the market and that is where I bought it." (P12, Nigeria)

"I search in English, because there's nothing if I search in Hindi." (P7, India)

Fresh content comes from social media. While search engines provide a lot of information, they are not known as a source for recent news or local information. However, the search engines are a source of information when users want to verify information or cannot find it on other platforms.

"[How would you check the status of the current local political polls?] It's on Snapchat." (P17, Nigeria)

> "I get my news from Forbes and CNN, I follow their page on Facebook and they send me notifications. Then I visit the post on Facebook." (P12, Mexico)

> "I follow celebrities and brands on Facebook and Instagram, and then I'll check the trending feature on Facebook or the explore tab on Instagram." (P32, India)

Every region has its local ecosystem of internet content that is relevant to that population. The health of the local information ecosystem, specifically the quality of the content breadth and depth, and recency of content creation differs by region and local language. The ecosystem health of local internet content directly impacts the quality of search results for people seeking information online. Many users tried searching for local business information, such as hours of operation, but were not able to find this online. Business owners were not familiar with how to create a website so they created a page on social media for their company, as this was a familiar concept.

When searching for local information needs, imagery and peer validation were critical pieces of information that users needed in order to make decisions. These are both strong components on social media platforms, making it the ideal source for local information needs. Users often could not find local information in non-social applications, and so social networks were the most reliable source for local information needs. This included leveraging social media platforms, messaging apps, and face to face communication.

> "[How are these search results created?] "I don't know but most information is produced by Google." (P25, Nigeria)

> "I found this speakeasy bar on Facebook. My friend checked-in and I saw it on my feed. It looks like a fun place, and we were looking for somewhere to go." (P12, Mexico)

> "I can ask someone on WhatsApp." (P13, India)

Context and Overall Journey

Repeat information needs like weather are simple, typically easy to access with as few steps as possible, and would be useful if surfaced proactively in application feeds or notifications. Instead of proactive content surfacing for repeat information needs, users must go through the mundane task of redoing search queries for every routine need. In addition, users expect new information to be provided, which social media often fulfils.

> "I have something new to read like how to be a good wife on Facebook every day. On Google I see something new on this maybe once every 2-3 months." (P19, Nigeria)

> "I like to check the latest fashion trends on Instagram [owns a boutique shop]." (P37, Mexico)

> "I check cricket scores every day in Cricbuzz." (P 47, India)

Multi-step information needs are journeys that require several steps to obtain the required information. For example, a mother seeking information about a balanced diet for her children searched online through a search engine and Instagram. Then she wanted to cook different recipes that contained all these ingredients by watching how-to videos on Snapchat and YouTube. This took several queries on different apps and is likely a common need. Journeys like this could be improved upon by structuring information in a concise and relevant way based on information-seeking trends.

> "I cook different recipes that contain all the classes of food to ensure my children eat a balanced diet." (P23, Nigeria)

> "Google gives you a lot of answers, but takes time to find it." (P40, Mexico)

> "If I see it on other sites, then I know it's true [cross references information for verification]." (P9, India)

REGIONAL INFORMATION-SEEKING THEMES

As part of the research design, we explored barriers to information in all three countries in addition to one unique focus in each country.

Nigeria and the Perception of Online Information Sources

Search engines were often described as a transactional tool, and associated with academia. This perception stemmed from the exposure to search engines in the academic setting. Many teachers use search engines as tools that compliment curriculum. This sets the context and expectations of when a search engine is used, and what it is good for.

> "I teach how to use Google so they can study better and be empowered." (P18, Nigeria)

The perception of some Western designs, like iconography, were unfamiliar to participants. In particular, those who were new internet users struggled with common Western icons. For example, the microphone icon that is used for voice input was not recognized. Failed recognition was due to unfamiliarity with the microphone symbol, and limited awareness of voice input technology.

> "I don't know what that is, I wouldn't tap on that [microphone icon for voice input]." (P24, Nigeria)

Participants viewed social media as a reliable source of information for places near them. The business owners we spoke to were more likely to create online profiles on social media platforms than to create traditional websites. The primary internet presence for businesses was on social media like Facebook, Instagram, and Snapchat. The rationale for why business owners chose to develop their online identity on social media included the ability to leverage an established social network and familiarity and ease of account creation. Because many participants built their business profiles on top of their personal social media accounts, they

had an established social network. This set of peers also provided immediate gratification through expressions of support, including likes and comments. Creating a profile for a business on Facebook requires minimal technology skills, and the platform offers a familiar experience from personal use. When compared to alternative methods of online presence, a website requires an unfamiliar process and most participants had no idea where to start. Many business owners were unsure of how to register or validate their shop information online for platforms like Google Search or Google Maps.

> "Right now I can only manage flyers, posting on FB, and updating on WhatsApp. I don't know how to make a blog. I don't think I will have time for it [owns hair salon]" (P16, Nigeria)

Mexico and Local Information Needs

Peer validation was a critical piece of information seeking for local information needs such as business hours, recommended shops, and images of venues. As a result, we saw a stronger preference for social media as a local information source than traditional web content. Another common challenge was sifting through long form content on website results.

> "Google is a lot of info, covering a broad timeline while Twitter is 120 characters, like here's a link, click it. It's fresh." (P2, Mexico)

Many telecommunication data packages incentivized social media usage. The majority of participants had subsidized data plans that included free usage of select social media apps like Facebook, WhatsApp, or Twitter. This influences the user's decision when information seeking as they have the option to use an app like Facebook for free, without incurring any data usage costs.

> "I can check movie times by asking my friends to look it up. I normally only use WhatsApp, that's enough for me [has free WhatsApp with data plan]." (P7, Mexico)

India and Topics of Interest

Topics of interest included any subject of content that users actively sought on a weekly basis or more frequently. Examples included gardening, fixing up cars, political news, beauty and fashion, and childcare. For each of these topics, participants had described proactively seeking out information on a regular basis (i.e. weekly or more frequently).

Participants generally favored highly visual content in the form of photographs and videos. This was often preferred over text-based experiences, and because of this preference social media was frequently used for following topics of interest. Participants described photographic content as much more enjoyable and easier to access than text. Many challenges around text content stemmed from language complexities; for example, the formality of results in Hindi was difficult to comprehend, or the limited content in Indic languages pushed users towards less relevant English results.

> "I read blogs every day on Snapchat [reads BuzzFeed makeup tutorials]." (P6, India)

Notifications about tailored topics of interests with a short description were viewed as desirable among users in India. Participants liked the idea of pushed content that did not require active pursuit of information. However, the participants that liked the pushed content assumed that the notifications would be accurately tailored to their specific interest. This assumption did not account for receiving slightly off-topic content, which is inevitable today as algorithms behind that content are not perfectly tailored for every individual.

> "Notifications are like a newsfeed experience [points to the list of notifications that are on the lock screen of his phone]." (P3, India)

DISCUSSION

This framework allows us to programmatically evaluate the user experience beyond traditional methods like task-based usability or log analysis, because these methods focus on behavioral data explicitly within a single product. This usage and usability data lacks an understanding of the user experience prior to the actual engagement with a search engine.

We have expanded on the existing knowledge of infrastructure and language barriers for information seeking by including a framework approach that captures the entire information-seeking journey. We have also built on the knowledge of information barriers for people beyond South Asia and East Africa by including representation from Mexico, Nigeria, and India in a holistic analysis.

The framework includes barriers throughout the journey, including barriers like perception. We see some users perceive traditional search engine designs as unfamiliar, too academic, or too much work for accessing information. The perception of information sources is greatly influenced by peers, social media ubiquity and incentivization, and contextual exposure. These factors have profound consequences on how people go about getting information, and the likelihood of even considering where they begin their information journey.

Current information sources offer a similar experience for users whether they are seeking information that is straightforward, requires multiple steps, or includes complex query needs. The burden of gathering information through multiple steps or several queries is put on the user rather than bundled together by most information platforms.

The quality of informational content available in each region can be a barrier for users, and varies based on the content ecosystem available. In particular, local information relies heavily on people from a particular region to create hyperlocal content that keeps up with rapidly changing environments.

Many of the needs discussed are successfully fulfilled on social media platforms. The trend of seeking information on social media raises the importance of the concerns about reliability and validation. The spread of misinformation becomes a reality when anyone can create content online, and viewers do not have the context they need to validate it. Future work should explore reliability concerns for common topics of interest, as well as the validation processes across regions.

CONCLUSION

In order to provide information access equally to all users, technology developers need to address user barriers to information seeking. This can be achieved by ensuring the following are accessible to people: users are aware of broader search engine functionalities to surface a mix of perspectives from different sources; users have options for limited device performance or data connectivity so they can access the internet; users are comfortable with the input options provided regardless of literacy level; users can consume information in an engaging format; users can find locally relevant content; users can collect all of the material they need to complete their information journey; and users are not inconvenienced by redundancies or additional steps.

Information seeking is a universal need, but the tools used for this need are not designed with a global perspective. As we have identified themes in barriers for users in non-Western countries, we see an opportunity to address these hurdles by applying this framework in our future work processes.

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Leveraging Speculative Design to Re-Imagine Product Roadmaps

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Businesses often have strategic visions for the future of a product space; however, identifying and building toward preferable futures is a daunting task, especially when designing for complex systems, e.g., Digital advertising platforms that include multiple complex interfaces and internal organizational structures. Moreover, because businesses need to iterate on products quickly, often in a reactive manner, many businesses, and consequently researchers, struggle to go beyond short-term needs to tackle long-term solutions; that is, they mostly react to immediate needs and changes rather than taking a proactive strategic approach towards building a favorable future. Speculative design as a methodology to support proactive strategic thinking helps set a pathway to explore a variety of future states with participants, in our case business owners. It does so by designing immersive and impactful experiments for participants that draws insight from well-researched forecast of the probable future, as viewed from today but also more open-form future possibilities, that rely on speculative and fantastical prompts (e.g., science fiction, modern art, fantastical scenarios etc) to generate reflection and dialogue. In this paper, we will present different variations of speculative design implementations at Facebook that allowed us to explore different potential futures of digital advertising. In addition to discussing this research approach, which was novel to this space, we have included retrospective thoughts and best practices that emerged among our product design teams as they reflected on their participation in this work. We hope that our lessons learned can benefit the research community, by broadening the strategic impact of research to design products and services that better anticipate future user needs and identify potential risks early in the process.

INTRODUCTION

Digital advertising is a fast-evolving industry with billions of businesses with wide-ranging needs and abilities and a variety of competing products to serve those needs. In the competitive marketplace of enterprise software, it is no longer sufficient to simply fix design issues or to make incremental improvements to products, but instead, efforts must increasingly be made to anticipate the future needs of users in response to potential changes to industry and the market-- Examples might include technological advancements, the introduction of automation, or evolving regulatory requirements. Addressing these topics effectively, surfaces two major challenges for research practitioners: 1) common user experience practices that are centered around rapid feedback and iteration on presumptive high-fidelity designs, and 2) organizational structures that are built to emphasize the efficiency of the end result by dividing the experience and the work across teams and functions.

In designing product roadmaps, one objective is to orchestrate and align all the functions in a way that minimizes overlaps and keeps the engine running smoothly. Accordingly, each function has a dedicated role and degree of influence at different phases. Research usually comes hand in hand with design to help bring the ideas closer to user needs and to achieve this, researchers work within well-defined boundaries of initial product goals and assumptions. This positioning can not only minimize the strategic value that research

can add in the initial framing of the requirements, but it also limits the influence of customer voices to be incorporated in designing holistic experiences that will truly fit their needs beyond the boundaries of the known space and time.

There have been well established methodologies and research best practices to facilitate the comparatively small research function within this cross-functional product framework, including usability studies and iterative testing - both of which are commonly held contributions for researchers in engineering-lead organizations. While these methodologies and practices remain important for pressing day-to-day product needs, it is equally important that novel approaches are introduced, at least some of the time, to disrupt these rhythms and practices. Such methodological innovations can cross disciplinary and organizational boundaries and challenge our assumptions about what users will want and need in the future. Speculative Design, the focus of this paper, is one such disruptive approach. It is one that can enable teams to step beyond the limitations of familiar yet still critical user experience practices, internal organizational hierarchies, and product development processes, to forge new pathways for learning. While speculative design methods, as a whole, remain at the vanguard of research in the more open-ended spaces of service design, transformational design and futurism, its application within the multidimensional enterprise software organization, where we were operating, was completely novel at this time.

This paper provides an overview into the role of three main pillars that are critical to designing future products: product development processes, research methodologies supporting product roadmaps, and customer experience and expectations.

Product Development Process

The complexity and modular nature of enterprise software imposes distributed organizational structures where various design teams focus on targeted and siloed components of the system. Within each module, product roadmaps are what keeps different disciplines aligned and focused on the next priority so that together they can build and iterate quickly. This approach, although born of an economy of efficiency, (e.g., the work is so complex that it must be distributed) often discourages or even disincentivizes the focus on the broader ecosystem or the holistic end-to-end experiences.

To support the product development process and timely response to research needs raised through product roadmaps, researchers risk being pressured into inadvertently presenting a limited perspective of their participants – that focuses on their current use and understanding of products. Not only does this make it easy to decontextualize tasks from the overall focus on ecosystem-level experiences, it can also serve as a short-term fix to immediate needs that ultimately masks our ability to identify and articulate the longer-term needs and desires of users.

Research Methodologies

Two dominant models of user experience research are: 1) incremental iterative research on adopted products; and 2) generative research on new product innovation. The first is common practice for user researchers and largely focuses on identifying and solving immediate user needs or improving known design flaws by emphasizing incremental iterations of products. The second leverages inductive learnings to uncover users' needs beyond the most immediate ones. This is done in the service of imagining the next

generation of products to fit a potential need. Though both are essential for making great experiences, they can leave important gaps in moving products and users from their tactical near-term needs to bright and shiny future possibilities.

Customer Experiences

Enterprise software, such as advertising platforms, include many autonomous modules that must interact with each other to provide a smooth interconnected experience satisfying both businesses and consumers' needs. However, while customers may expect seamless end-to-end experiences, the complex nature of the products often necessitates breaking the work into specific component parts, leading to fragmented and inconsistent user experiences that struggle to capture real world workflows.

Users of such complex systems can also vary widely in their technical knowledge or task focus; For instance, among small businesses, advertisers spend much of their effort focused on addressing the basic needs of keeping their business afloat and digital marketing may be but one of their priorities, leaving limited time for strategic future-looking thinking or expansion. By contrast, for larger businesses there may be entire teams focused on specific analytic tasks, forecasting or growth. The focus on day-to-day usage of the product also makes it hard for users to think beyond the current state and engage with futuristic possibilities or needs that are not in their current horizon.

Looking beyond Tomorrow

The collective result of these various factors makes it difficult for product teams and users alike to imagine, prioritize, and plan long-term needs in product design and can make it difficult to recognize issues that hinder the journey towards creating more favorable futures for customers.

In this research study, we tried to address some of these challenges; we partnered with a multidisciplinary group of experts across a family of products within the Facebook Advertising Platform organization to examine different ways of representing a holistic understanding of our products that would address end-to-end needs of our customers. Using speculative design as our research methodology helped transition our internal teams as well as our customers to the future state situated on their existing experiences while disconnecting them from the present and limitations of the known space. We also examined different ways to build a common ground with our customers and engage them by creating the future narrative with us through this work.

This approach was new both to our team and to this product space so there was some turbulence and learning along the way, and that learning about best practices is part of the story we will share here too. Ultimately this work proved impactful in that what began as a pilot program to translate an abstract idea into a concrete implementation ultimately evolved into an internal design program that sponsored multiple spin-off projects that leaned on both the methods and learnings of this early work. We hope that by sharing these learnings we can help guide research practitioners to more efficiently identify opportunities to apply this method and to effectively generate outcomes that will help to better visualize and plan for future products.

RELATED WORK

In recent years and with the growing research discipline within the product space, there has been a growing emphasis on user-centered practices. User-centered design is focused on improving user experience "for users" in a world "as is." Different approaches, such as contextual design, human factor, usability testing, have all been used for implementation of human-centered design. Although user-centered research methods have increased the emphasis on user's immediate needs, they still tend to fall into some limiting pattern of analysis when it comes to longer term planning and anticipating future.

User-centered Design and "Designing for Users"

Human centered approach has been mostly led by researchers to observe user needs and behaviors and how they interact with a product. This could potentially result in overlooking other factors and variables in the ecosystem beyond the product and users (i.e., other actors, policies, global crises) that eventually affect user experiences (Sanders and Stappers, 2014). For instance, in IoT design, the owner of things, i.e., objects are the focus of researchers and designers, and other actors, such as neighbors and visitors, are mostly neglected (Yao et al., 2019).

A second shortcoming of user-centered design is focusing on a limited range of user profiles in the universe of possibilities in effort to fully capture their mental model and interaction needs (Abras et al., 2004). Well-known example of this occurred in early face recognition applications that failed to be inclusive of skin color as part of the required facial features in improved face recognition, leading to increased risk of discrimination based on false identification of individuals (Harwell 2019). Airbnb had overlooked their product use in low-income residents in the early stages of their work. Fortunately, the trend towards product inclusion and accessibility has been more upward in recent years.

The third common limitation of user-centered design is a narrow focus on one siloed product and overlooking how interconnected products affect overall user experience (Abras et al., 2004). For instance, in digital advertising platforms, a design team working on improving advertisers' experience to best communicate their marketing goals mostly focuses on how they initiate the campaign and define budget and target elements. Their design could potentially benefit from observing advertisers' interactions with the outcome reports at a later stage of their work to better fit into the end-to-end flow of the product experience.

The final limitation is that product design takes a short-term approach to building solutions, focusing only on users' immediate needs. This approach, although effective in competitive landscape and satisfying present requirements, could produce findings that are not easily scalable beyond a specific time horizon.

Shift to "Designing with Users"

Approaches such as applied ethnography, lead-user innovation, and participatory design shifted the design mindset of "for users" to "with users." These methods involve customers from the early stages of design and consider them as partners in the research process. Discursive design and critical design depart from what benefits customers or markets in the contemporary world and focus on the near future. Discursive approach encourages discourse around a product or service by including customers and the public to the

discussion. Critical design focuses on questioning reasons for a specific product by challenging commercial and conventional values.

While the mindset of design "with users" has shifted the process into the realm of empathy design, different methods have focused on designing for a world "as is" taking the focus away from what it could be. The focus on the present world limits our understanding of a broader context and how user requirements would change between the near and distant future. A well-known quote by Henry Ford reflects the importance of going beyond the existing constraints to better design for long-term user needs; "If I had asked people what they wanted, they would have said faster horses".

Anticipating the Future through Speculative Design

The importance of considering a broader context and researching to shape the longer-term vision of products has motivated scholars and UX practitioners to evolve their process around adapting a more forward-looking mindset and speculative design (Dunne and Raby, 2013). Speculative design overcomes UX product design shortcomings by promoting concept design over product design and is distinct in that it strives to open a discursive space that is underwritten by the unavoidable plurality of the future. As Dunne & Raby put it "the idea is not to show how things will be but to open up a space for discussion". Speculative design approach has a "with user" mindset to design for the "what if" state of the world in the future and is almost entirely focused on the idea, the plurality of the idea, and the associated connotations of that thinking. (Lindley et al., 2014)

The artifacts that are created to support this methodology are considered as provocations or stimuli rather than preferable outcomes in their own right. These future scenarios can be animated through concept videos, designed artifacts, or situated conceptual proposals (Wong and Khovanskaya, 2018). Figure 1 shows different user-centered design methods supporting different product timelines.

Designers and researchers use this methodology to step beyond existing possibilities to create with fewer constraints and apply different stimuli to loosen users' imaginations to capture their foundational insights. They are empowered to depart from existing product design assumptions and consider various social, political, and environmental variables to design future prototypes and understand how to create a favorable future (Wong et al., 2020). While there are no definite facts about the future of a product and its broader context, creative futuristic design prototypes can eventually shed light on gaps between the current design and pave the way towards the desirable future. A more recent example of products developed using this approach that changed telecommunication is Apple's iPhone. Apple envisioned a future beyond connecting people through voice and identified the importance of having a touch screen to smooth the interaction between users and cellphones.

Speculative design has not been used solely in creating breakthrough innovations. One of the main motivations of using this approach is to consider societal issues and raise awareness among people through design (Dunne and Raby, 2013). A recent application of a speculative design approach is in visualizing the future considering socio-technical factors untangled from commercial restrictions (Iadarola, 2018). A designer on this project, Anab Jain, held several exhibitions with her team at Superflux beginning in 2010 to explore how emerging technologies affect our world. In their last show in 2019, they encouraged thinking

of a future in which AI would resolve all world problems (i.e., climate change, diseases) and how we, as a society, need a new cultural sensibility to understand what kind of creature AI is and will be (Abras et al., 2004).

To create successful speculative design projects, we should consider how to best illustrate possible futures. Since this approach considers the holistic context of the product and its reflection on users to create possible future scenarios, it matters how we integrate elements that motivate our participants to engage with future concepts.

Wakkary et al. took an extensive view into different ways for designing artifacts that can be more effective in bringing users along into fictive scenarios while disconnecting them from their existing workflows (Wakkary et al., 2015). They proposed material speculation, the sum of the counterfactual artifact that is designed to exist in the everyday world to be encountered and the multitude of possible worlds it generates by those encounters. Applying the material existence of specifically designed artifacts situated in the everyday can be an effective way to create the speculative future for users.

Stimulating the sense of control and familiarity in participants has been proposed as a technique to encourage them to engage with an unknown and provocative future (Auger, 2013). Dunne and Raby applied the same technique in "Tech-nological Dream Series: No. 1, Robots' project to balance the fear of participants about future robots. They designed robots with familiar appearance features in a domestic scene, shared a little bit about the functionality, and had too much desire for attention and social needs (Dunne and Raby, 2007). The appearance of robots was different from the usual robots that people saw in movies; these robots were like home furniture and designers added human interaction a requirement for robots to function. Participants could easily engage with such robots despite having little information about their functionality. The feeling of power in this instance facilitated participants' interactions (Auger, 2013).

Another technique is including some ordinary, familiar, and small details that are not noticeable compared to the main artifacts. The ordinary items would help participants easily communicate with an ambiguous artifact. The Sensual Interfaces project by Chris Woebken integrated familiar elements of a typical office room, such as a table, a mug, a monitor, and a suited man into a video. The video shows the man sitting at his desk and touching seeds to simulate thoughts around smart dust, and different ways of data mining, i.e., breaking, sharing, throwing away data) (Woebken, 2007).

While including minimum familiar elements would help better perceive a radically different future in some topics, for exploring uncomfortable topics such as death, a familiar design plays a more critical role. For instance, Auger and his colleagues in the 'Afterlife' project designed a coffin that would charge batteries over the post-death process. They aimed to initiate conversations and discussion around perceiving life after death, a cultural shift from religious beliefs to a more factual based understanding of life after death. Dalton and his colleagues used the same technique to initiate discussions around politics and ethical issues of using daily personal data at work. They ran the 'Quantified Toilets' project in CHI 2014 and provided signs in restrooms explaining that the quantified toilet can collect the amount of alcohol and drugs in blood and the data will be sent to employers (Dalton et al., 2014).

Familiarity and tangibility of designed artifacts also help communicate an abstract concept. Rogers and his colleagues explored the role of trust in having a healthy emergent technology, voice-controlled internet. They used a combination of filmmaking and product

design and found that including physical objects plays a critical role in communicating an abstract concept with their audiences (Rogers et al., 2019).

Figure 1. Research methods for solving present and future problems

Operationalizing Speculative Design in a Novel Context

Projects described above have engaged participants with unknown futures through different techniques and design practices, but they have largely done so within the boundaries of contained product spaces. What is missing from these examples is the exploration of concepts that lie within complex systems that include both autonomous and interdependent components, like the structure of advertising platforms. They also do not take into account exploring the future in a setting where customers have conventional practices integrated in their routine use of the product and existing product structures are satisfying their day-to-day needs, which can come on the way of future thinking. In our work we addressed both considerations: the complexity and modular nature of the product and participants' familiarity and comfort with existing workflows.

Traditional product road mapping follows a familiar blueprint that is largely focused on the sizing, efficiency and prioritization of user experience fixes, iterative improvements, and sometimes, the planned introduction of new features. In this process, research most often plays the role of synthesizing and surfacing relevant "inbound" voice-of-the-user learnings. Particular emphasis is placed on any findings that could impact the budgeting and planning of the team goals and commitments as they are being mapped out over timelines that extend over the quarter, the half, or the year. This alignment is useful and particularly critical for complex interconnected products like enterprise software where the product teams are often distributed across multiple features and functions. However, when it comes to untapped future opportunity spaces or distant potential headwinds, the playbook is much less clearly established and from a research perspective, the role is more ambiguous. Indeed, it is not uncommon for research to be excluded during these early stages of speculation, planning

and development and only to be pulled in once the product is more fully in motion and some key decisions have already been made.

In recent years and with more tech companies moving to make headway in uncharted territories, the development process has begun to shift and the benefit of bringing in users and research at an earlier stage of the development process is increasingly being recognized. In the case of this paper, the Facebook example that exemplified this changing product mindset was a collection of projects to better understand the future of advertising from the perspective of an advertiser.

While traditional approaches may have been more willing to rely on opportunity analysis and market research, we were excited to explore a different approach, one which brought researchers into the development process early on, where they could help shape the definition of the product before any design and engineering was locked in. In taking on this role, the design of the future product state for advertisers (in these examples) to respond to, then became our primary challenge and one that required us to look beyond our typical methodological toolkit.

In addition to the challenge of designing for a multi-layered product experience, the selection of users was critical to our learning and so too was the need to decide how to introduce key external elements, e.g., changing regulations that would adequately disrupt their current thinking to imagine future states more fully. The need to generate strong signals across relatively small sample sizes also required us to carefully set a shared context so that research participants could move forward independently, but from a foundation of common ground.

Not only this project was creating a novel experience for our users, but also it was disruptive to our internal product teams because of the ways they lived outside of our typical practices. Prior experiences had shown us how siloed organizational structures could not just distort time horizons but how they could also limit our collective ability to imagine user experiences holistically, a process that was only amplified when considering more distant future product states. Accordingly, although researchers may have been driving these projects, they were not operating alone and the success of the work relied not just on the implementation of a new process but also on the deep domain expertise from a variety of disciplines that were active in the current advertiser space, as well as their shared willingness to try something new and potentially uncomfortable.

Our research in designing a methodology to address these problems and help discover the unknown unknowns ultimately led us to select the speculative design approach. In doing so, we operationalized a version of that approach that fit the complexity of the digital advertising space and significantly, in a way that redefined product roadmaps through the early privileging of the customer points of view, above and beyond the more modular needs of our internal organizations.

METHODOLOGY

This project was initiated to understand the needs of Facebook advertising clients and capture those evolving interactions in future in response to external factors such as new regulations and technological advancements like the move towards automation, or internal measures, i.e., changes in business models or policies. To overcome the limitations of product org structures, we formed a multi-disciplinary team of interaction and content

designers, product experts, and researchers from interconnected product teams that would present a holistic view of the platform, just as our customers see it.

From the vast diversity of ways in which people think about and frame the future (Szpunar et al. 2016) we chose to "simulate" an extreme scenario as provocations, and we shared a construction of a detailed mental representation of that future with our participants.

To implement the research, we applied the abstract speculative concept and operationalized it in a way that the simulated version of future advertising space was situated on participants' existing workflows as well as their evolving needs. These immersive stimuli helped us with building a common space between product teams and customers to share the journey to the future.

In what was defined as a pilot for trying out of the box frameworks in exploring the future product direction, we implemented speculative design in two different ways: In our first approach we took a sudden jump to the future state with our participants and disclosed the information and drastic changes all at once. We called this "jump to the future" because in this scenario, participants were placed in a new reality right away which was completely disjoint from the existing, familiar space. We asked them to explore, understand, and adapt to this new system rather than taking responsibility in building it. Our aim here was to give a quick tour of the future to our participants and collect "first impressions" through a less costly implementation of research and eliminating the exploratory aspect of it.

With our second approach, we applied a gradual and longitudinal disclosure of an extreme future scenario. The research was designed similar to a diary study and unfolded over a 10-day period. We shared daily stimuli with 12 participants representing 3 different market segments and user profiles to provide balanced insights into the end-to-end requirements. We started with news articles and information pieces to prepare them, in the abstract for the more concrete stimuli by the end of the week that mimicked current product experiences but simulated dramatic changes to their familiar business practices. In our deliverable we included provocations and prompts for them to think through when exploring the changes and offered several ways that they could share back their thoughts, including comments, sketches, and conversations, both in group and individually. Our goal with the gradual disclosure, although long and costly, was to build a stronger common ground and understanding with our participants, creating empathy and higher engagement in the follow up conversations that we had planned.

Jump to the Future

With our first implementation of speculative design, jump to the future, we aimed to capture participants' reactions right as they entered a dramatically different future. In this method we designed cross-sectional research where participants attended one in-person interview session and we presented them with the future scenario imposed by technological necessities, e.g., automation, with minimal preparation or context setting, immediate reveal of the future state. Since this was a one interview study setting, recruiting had less complexities, i.e., we needed to ensure we have a representative sample of the audience across different advertising personas. We applied different control and staging techniques (Salovaara et al., 2017) to concretize the future scenarios and narrate them through designed artifacts that were presented to 12 participants, representing 3 market segments and customer profiles, during individual 60-minute interview sessions.

The right design for these artifacts was the most critical point of research; we wanted to give them enough disconnection from their existing scenarios to detach and think beyond their familiar space. There is also a blurry line between the stimuli designed to show a long-term future and design mockups used for feature introduction within the product concept that is familiar to participants. This is where speculative design can differentiate itself through creative thinking to design stimuli that are fully disconnected from the current reality of the existing user experiences. In our project, research, product and content design took a stab at framing the prototypes through ideation and design thinking sessions, what might be considered a longer preparation aspect of this research. Not only did we ask participants to provide specific feedback on the stimuli, but we also invited them to redesign the concept which didn't seem right to them. This research setup was beneficial in implementing speculative design with shorter turn around, iteration, and scalability.

Gradual Disclosure

The main prerequisites for the success of this implementation were recruiting to ensure we are targeting the right audience (marketers from different backgrounds, countries, and business sizes) who could commit to being part of the research for a defined duration. We applied best practices in designing longitudinal studies, to ensure an efficient compensation system and keeping participants motivated and engaged throughout the research project. Our pre-interviews during the recruiting process were an effective way to minimize the attrition rate throughout the 10 days of study. We also created a phased compensation plan so participants would remain encouraged to continue with their engagement, except unforeseen situations. After finalizing the recruitment, the official research was kicked off by conducting an initial in-person interview where we did deep-dives to get to know our participants, including their business objectives, their existing use cases, day-to-day practices and application of the system, and high-level perception around hypothetical future scenarios we had planned to simulate a future state mainly imposed by external factors, e.g, regulatory mandates. With this initial interview we collected an unbiased baseline to refer to as a point of comparison towards the end of the study and after we revealed the revolutionary changes in the system.

The second part of the research was designed as a week-long experiment where participants received daily stimuli to help them immerse themselves in the idea of future possibilities and open their perspective into thinking broadly and differently about how they would best use the "new" platform. This phase was our version of diary implementation with a small difference that we did not design explicit tasks throughout the day. Participants were provided with provocations and explicit scenarios to get them better engaged with the upcoming future scenario and they could freely share their thoughts or just get to explore around. Each participant was provided with their own private version of stimuli shared through a central platform, in this case MURAL digital whiteboards, with the intention of creating the most accessible space where they felt safe and heard. Researchers took daily check-ins on the individual boards to answer any question and capture potential reactions. We took the first few days as an educational opportunity to set the context and unfolded the complete future scenario on day 4 through the concept of time machine. On day 5 participants received the full set of stimuli emulating the current platform which was altered

based on extreme future scenarios. They had additional 2 days to explore the holistic system at once before we entered the next phase of the research.

In the third part of the research, we ran another round of individual interviews to capture the delta on participant's reactions compared to their response on the very first day.

Finally, we included one last stage in this research with a day of focus group sessions. For the first time during this project, we brought in the participants in one place, creating a space for more comparative and competitive discussions between businesses from different sectors.

Applying the Insights to Initiate a New Process

With two types of implementations within two quarters, we now had strong case studies to showcase the application of speculative design within the complex digital advertising space. Our team consisted of 20 skilled researchers, product designers, and content designers who came together to get these projects implemented over the course of six months. This massive amount of work sparked an idea to conduct additional research on the process, to interview the team and establish best practices.

As researchers we don't always get to have a strong stake as strategic partners in an engineering-driven industry and this process enabled us to get there by creating more actionable and data-driven insights. We kicked off an internal program across the company to establish the speculative design methodology as a framework to build a window to the future. To do this, we interviewed members of the core teams involved in this process, including the core players, product and content designers, and researchers, and stakeholders/sponsors of the work, e.g., product owners and program managers. This phase was designed as semi-structured guided interviews in one-on-one settings.

FINDINGS

This was the very first time that speculative design was fully integrated within the context of digital advertising, and we were able to demonstrate the significant impact that using this method can have in generating more tangible and foundational learnings on the topic as well as leading the path for future anticipation work. We brought our participants with us through a time machine and explored designing a new platform together, elevating their perspective and creating strong empathy in them.

The interview data was analyzed using thematic analysis, focusing on interview questions as a sensitizing device and looking for emergent themes. We went through interview notes and transcripts after each phase and identified patterns of design practices, formulating future scenarios, design artifacts, and common issues that needed to be addressed. The findings and product direction resulted from this research are more practical, actionable, and already confirmed by a representative sample of users.

From our observation, combining longitudinal methods with speculative design ideas enabled higher levels of interaction and stronger empathy in participants. Also, it uniquely positioned us to observe a gradual shift in our participants' perception towards the future scenario we were presenting to them without making them defensive or creating those moments of frustration that comes with every change in product direction.

The most interesting observation from the gradual implementation of the method was the increased empathy among participants and their nuanced and embodied understanding

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of the complexity of this future space. While they demanded to have a working solution despite drastic changes on the first interview, they presented a more empathetic perspective on these interviews at the end. In contrast to the start of the project their role had shifted from more passive "customers" to proactive problem-solving "partners".

The main challenge our participants faced in the jump to the future method was uneven understanding of the concept and knowledge about the future landscape. Since we didn't invest in creating common ground, we observed an uneven level of insight among our participants, combined with strong push backs towards the introduced changes. This implementation can be applied where the time allocation for the early-stage research is limited.

Ethnographic Reflexivity

It is worth noting that these two projects formed the core of a proof-of-concept pilot that, if deemed a success, would inform the formation of an internal speculative design initiative more broadly in our organization. With that in mind, we were keen to turn the ethnographer's lens on ourselves, not only to assess the viability and replicability of this approach, but in the service of quenching our own inherent researcher-participant curiosity. To undertake this retrospective analysis, we interviewed a range of our colleagues from across disciplines, to dig into their experience of applying this new approach to user research.

In addition to invaluable product specific learnings, we achieved a new level in the implementation of speculative design methodology and were able to generate best practices and learnings to be applied across Facebook products in a way that is suitable for complex product development and enterprise processes. We believe our learnings from this implementation can be scaled by this community and as a foundation for any futuristic research within fast moving, complex industries.

We have framed the findings of the retrospective interviews with the core players on the end-to-end process of this project around four main themes:

1. research setting rationales,
2. team dynamics and collaboration between different stakeholders,
3. conceptualization of the future scenarios, and
4. common challenges in adoption of speculative design as a research methodology.

Research Setting Rationales

Researchers used two techniques for sharing information with participants: gradual vs. sudden. In both cases we were aiming to go beyond the surface either in an extended time that clients needed to grasp the future scenarios or in a sudden shift of attention. The gradual information sharing over the experiment helped participants feel the reality of nuances of their workflow in the future and prepared them to engage and interact with that future. The application of longitudinal research was framed to obtain insights in four stages: initial perception, reaction to stimuli, insights after the experience, and group discussions.

> "It is essential that participants have a central space to experience and spend time in it. This is coming from the design background where you would have a studio

with prototypes set up in it, and people would come in and experience them." A product designer's perspective

Jump to the future, the sudden information sharing, aimed to capture participants' reactions right as they entered a dramatically different future. This method is useful when participants do not require a longer time to process information and have some level of understanding about the future scenario. Researchers shared a three-part futuristic user experience flow with participants to take them to a space that was designed drastically differently compared to their current workflows. This helped researchers gain deep insights into participants' long-term thinking about the product space.

While the two methodologies had clear differences, in both cases, researchers helped participants visualize the future through semi-structured interviews and encouraged them to think beyond their daily practices and business routines.

> "It's designing the scenarios and designing what we want to show to people, or what kind of reality we want them to frame their thinking around … that's the most critical part because the questions that we ask might not be that different from what we would ask in a typical scenario, but here it is about how we are generating those thinking around the questions." A researcher's perspective

Team Dynamics and Collaboration

Given that these initial projects were both part of a pilot program it was important for us to evaluate what had worked well and what we might improve or change going forward. The experience had been edifying for us researchers, but it's probably fair to say that we are more accustomed to accepting the messiness of new practices and new situations than most, so we were eager to turn our ethnographic lens on ourselves and our teams too-- not just to tease out more domain learnings but to better understand how this new approach had been experienced by our interdisciplinary teammates. New practices need a plan for building alignment and this work certainly helped us identify some important guiding principles including:

Build common ground and over-communicate; we recommend starting by building a common ground among all members of the team for this type of projects that are less commonly practiced. Over communication is recommended to ensure all members are on the same page all the time.

Involve experts in both domain and process; including both expertise from the early stages of defining the problem space can help pivoting easier and minimizes the blockers for the team. In our case we had researchers with extended knowledge of advertising space and researchers that are experts in speculative design methodology.

Set the expectations and get alignment; by having a fully staffed team across different roles, and identifying goals, responsibilities, and deliverables early in the process, we will help the team reach a shared understanding of the project, but regular meetings are also important to help the team pivot, adapt, and re-align to a process that remains somewhat ambiguous and open to interpretation by design.

Choose the right team size; while each project may have different team size, three roles, including product designers, researchers, and content designers, are essential for projects in

this scale to be successful. There are advantages to keeping the team relatively small and agile, because, although bigger teams can increase scope, they also require more coordination efforts to ensure the consistency of expectations and more inertia when it comes to making changes.

Divide responsibilities between disciplines; while all the roles should be present from the early stages of the project, the main responsibilities vary through the project timeline - Figure 2 shows which role is recommended to be the main POC in each stage. In team settings where there are multiple representatives from each function, assigning one person as a dedicated Point of Contact (POC) would facilitate coordination among individuals with the same role.

Researchers play an important role in defining research settings, goals, and constraints that should be applied in designing artifacts. They are also a project manager in the absence of a dedicated resource for it. Product and content designers work together to iterate different design stimuli based on open questions and scenarios and finalize prototypes with internal product owners.
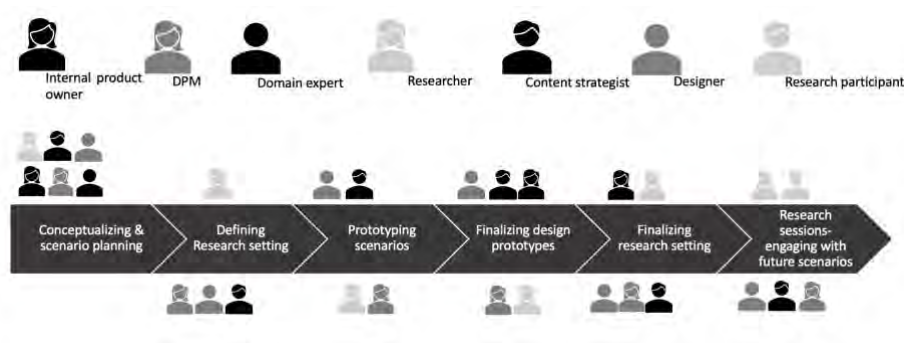
Figure 2. Division of Responsibilities- Roles above the arrow have main responsibilities for the work in each stage. Roles below the arrow will be involved in the work and provide feedback to improve the work.

Conceptualization and Planning the Future Scenarios

Speculative design projects require consideration of a broader context and different variables that could affect future scenarios. As a result, conceptualizing scenarios and operationalizing them through designed artifacts play a critical role in its success. In our implementation of this method, we considered all possible variables initially and narrowed down the emphasis by only including variables that directly impacted the project goals. Finalizing the focus scenario (extreme usecase in our example) early in the process helped with ensuring that there is enough time for iteration and generating new ideas to represent possible futures that last longer.

> "We considered many variables: What are the global policies? What does the workplace of the future look like? What kind of changes in human lifespan or access to healthcare, or changes in literacy, or access to technology will we have? What are the potential variables that we can pull into the scenario?" A content designer's perspective

We focused on the main products that have general usage and are highly interconnected to avoid unnecessary complications for advertisers while interacting with future prototypes. The fidelity level of design stimuli can also vary depending on the team's bandwidth. Ensuring the right level of prototype fidelity is also a factor in retaining participant's engagement throughout the research study.

> "We have to shift our mindset outside of the deliverables that we usually provide in testing, which are clickable prototypes." A product designer's perspective

We should also consider how future-oriented the participants are. In some cases, participants might not be concerned about implementing futuristic approaches in their products. As a result, guiding them to visualize possible future scenarios would require different techniques.

Common Challenges in Adopting Speculative Design Methodology in Research

During our scenario planning phase, we investigated a broad range of societal factors to better define the problem space. We had to find the right balance between too open-ended and too specific scenarios in order to generate informed insights and deal with ambiguity that can be hidden in different phases of the project. Examples of the areas that might seem ambiguous are identifying the problem space, scenario planning, and designing right artifacts to narrate scenarios accurately.

> "Because the method is like philosophy, and to make something real, it had to ground itself in a body of knowledge that informed it, and it had to ground in some of the concrete steps that we would imagine would define it." A researchers' perspective

We used different strategies to accomplish project goals despite the ambiguity of using this new approach. We quickly came to realize that this approach has a philosophical notion which requires us to be open about the uncertainty of applying this approach in practice. Designers in this project initially compared it to sprint design, later they detached their thoughts from what they knew and took their design ideas into the extreme future scenarios. As soon as we got to identify and agree on the level of fidelity, we had the design rolling smoothly. Researchers compared this approach to the participatory and ethnomethodology approaches initially and later they focused on the futuristic component of the method and how it should ground itself with the body of knowledge.

> "I kind of see speculative design as an ethnomethodological approach where you're breaking norms to study reactions. Traditional ethnomethodological studies would look at things like, say, walking backward in the street to understand what people's baseline understanding of certain norms are, like you're showing radically different norms. For speculative design we are showing a radically different future." A researcher's perspective

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Impact & Outcomes

Ultimately, the internal impact of these pilots was validated for us across a number of variables. Firstly, it prompted a range of spin-off explorations on the future of digital advertising at a time when the understanding of that topic in a proactive manner was of vital importance to our organization, increasing the breadth of our collective knowledge in the process. Secondly, this work led to an enthusiastic response from our researcher peers, revealing their shared desire to try new approaches that might help themselves and their teams to get beyond the day-to-day and to begin thinking proactively about more nebulous future states as a matter of best practice. For the authors of this paper, it has also meant an internal consulting role, in which we have advised numerous other researchers on how best to design experiments to explore future states. Finally, this proactive and creative approach to exploring the future of products and experiences has been part of a bigger internal groundswell within the company to create more roles within the research organization including roles like pathfinding, new product experimentation, and responsible innovation research, increasingly empowering researchers to amplify their voice in critical conversations about strategic directions, holistic experiences, risk assessment and aspirational designs.

CONCLUSION

Speculative design methodology is different from conventional methodologies used in product design and research as it focuses on a more distant future and aims to design concepts rather than products (Dunne and Raby, 2013). Researchers may hesitate to use this approach due to unfamiliarity and ambiguity of future scenarios and planning them in the most representative way, which can be further expanded in the context of complex platforms or modular products. We applied this method in different implementations and presented the best practices of using it in the context of digital advertising where the scope of the projects was broad, and users did not get to envision the long-term needs through their daily application.

First, methodologically, we presented different techniques of immersing participants with future scenarios. Predicting what kind of reactions from our participants could be most useful, based on historical research on the topic, helped researchers choose the right level of stimuli in presenting the future. Through these studies we showed how different methods of unfolding future scenarios for participants can yield different outcomes.

Second, we presented the nuances of collaboration among stakeholders in the context of a future product planning through speculative design. Most speculative studies focus on a contained product space within an organization which can be limiting the scope unnecessarily and neglect the interdependencies between organizations. We broadened the scope of speculative design application to scale and within our dynamic Facebook platform, minimizing the potential blind spots.

Third, we showed how we created future scenarios when there are many moving variables that would affect our clients and other stakeholders' long-term requirements. We recommend focusing on the most effective variables in pursuing the project's goals. Once speculative design teams run the research sessions and form insights, they can decide on the importance of including additional variables in planning subsequent speculative projects.

Fourth, we shared some expected challenges and how teams can overcome those. We recommend teams to embrace ambiguity of the process and incorporate their foundational

knowledge in creating a version of the future that resonates most with participants or can be balanced with their existing knowledge, to get deeper insights.

Speculative design is a methodology that empowers researchers to best position their user needs in the process of establishing next generation experiences and building products that truly fits their needs. There are many ways that this method can be implemented but it is important to keep in mind that it is not suitable for every project concept or as a general replacement for commonly used research methods. With the right setting and clear directions in identifying elements of the future that will impact the product, we can bring our customers into the immersive experience of designing the desired future within the products.

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Anticipating Headwinds

Using "Narrative Tacking" to Build an Inclusive Future

KATE SIECK

This paper proposes a framework for addressing entrenched resistance to change. It borrows a metaphor from sailing to suggest that the best way through unwanted transformations is by "narrative tacking." Drawing a parallel to how sailors navigate through headwinds by "tacking," I argue that "tacking" through the narrative of change calms the resistance and enables forward motion. Specifically, it requires shifting the locus of attention from behaviors or the future state to the values and intentions of the actors. In attending to intentional states, we create space and flexibility in the narrative of change that enables the "wiggle room" needed for forward movement. I demonstrate the process through two case studies of complex, high-stakes transformation efforts that succeeded above and beyond what anyone expected. I suggest how these maneuvers provide a template for other kinds of change projects as well. In the end, by anticipating and harnessing resistance, we can craft change processes that are more inclusive.

Keywords: Change management; narrative; inclusivity.

INTRODUCTION

> *"Waves are not measured in feet or inches; they are measured in increments of fear."*
> *–Buzzy Trent, pioneer of big wave surfing*

For many people, change is hard. In fact, it is a terrifying, unwelcome, rage-inducing experience. This is especially true when the change is not internally initiated, but triggered by people or circumstances outside our control. The magnitude of the requested change may seem minor to those who pose it, but to the receiver, it can feel like a tidal wave swamping their world. It is of little surprise that resistance is a common response to a perceived impending disaster. In fact, it's the appropriate response. We should protect and defend.

For those of us whose job it is to lead change, the question becomes: what now? How should we handle resistance? The conundrum lies in the fact that those leading change rarely see disaster ahead. We see better futures – our "good" lies forward. Change efforts typically stem from a recognition of problems in the present that will lead to bigger problems in the future unless we alter what we're doing now. And yet for those resisting change, "good" – in a multitude of forms – tends to reside in the now. Hence the problem.

As ethnographers working in industry, we are often the architects and artists of those happier imagined futures. We play a critical role in building alternative worlds through our lives as service designers, product designers, experience designers, data designers, communications designers, organization change leaders, and a multitude of other catalytic roles (Lovejoy & Lucas 2020). Through these roles, we occupy a privileged space that enables us to reframe the dynamics of change resistance in order to create a more harmonious and inclusive transformation experience. We have the power to not only create a better future, but to ease the path toward it.

This paper posits a framework built from social theory – and sailing – that enables us to design a better transformation *process* by anticipating resistance to that work. Drawing a parallel to how sailors navigate through headwinds by "tacking," I argue that "tacking"

through the narrative of change calms the resistance and enables forward motion. Specifically, it requires shifting the locus of attention from behaviors or the future state to the values and intentions of the actors. In attending to intentional states, we create space and flexibility in the narrative of change that enables the "wiggle room" needed for forward movement. I demonstrate the process through two case studies of complex, high-stakes transformation efforts that succeeded above and beyond what anyone expected. I suggest how these maneuvers provide a template for other kinds of change projects as well.

NAVIGATING THE TRADITIONAL WAY

> *A ship in the harbor is safe, but that's not what ships are built for.*
> *–William Shedd*

The literature on how to manage change is certainly plentiful, but deceptively unhelpful when it comes to addressing sustained resistance to change. It largely falls into three buckets: how to nudge specific behaviors; how to sell the vision of the future; and how to deal with ongoing defiance and opposition.

At a basic level, behavioral science work on change acknowledges that change can be difficult, and recommends making it "fun." The gamification movement is clearly one example of this. There are examples of gamified change in everything from weight loss (Trent 2015) to financial goals (Walden & Foreman 2021) to learning new languages (TPR), to corporate initiatives (Forbes Tech Council 2019). Gamification incorporates rewards, competition, challenges and other similar dynamics to compel people to make needed and desired change.

Another approach is to embrace the "spoonful of sugar" model and "bundle" the hard parts of change with the rewards that people want (see Milkman 2021). For example, if you struggle to get to the gym after work because you look forward to binge-watching TV, then watch TV while working out at the gym. The core idea of "bundling" is to wrap the good with the hard so that the work is the reward.

Alternatively, "commitment devices" extend the concept of the promise through the creation of penalties for breaking them (Rogers, Milkman & Volpp 2014). These tactics inspire people to hold to commitments by imposing costs or accountability (social, financial, physical) for lapses. This can be a "buddy system" involving another person, or a device that "locks" you out before/after a certain event, or an app that triggers something when certain conditions are present. The point is to make breaking the promise painful and/or costly.

All of these nudge tactics work, but not in all cases, and often not for the long-haul (see Milkman 2021). The reason many of them fail in the long run centers on what behavioral scientists refer to as "present bias" – the tendency we have to give greater weight to a more immediate moment over the indeterminacy of a future state (see O'Donoghue & Rabin 1999). From this perspective, it is also a failure to properly read the problems of the present and the potential of the future state – it is "settling" for what is comfortable over what is arguably a more optimal state.

When present bias kicks in and stirs up resistance to change, the research suggests focusing on the future state. First, solicit input from those who resist change (Porter 2016). Hear their concerns and listen, even if their comments ultimately don't change the direction of the plan. This might also include providing options to those who are resisting change

(Lewis & Russ 2011). Then, enhance the story of what comes next. Tversky & Kahneman's work on the certainty effect (1986) and prospect theory (1979) indicate that people can be moved past present bias by emphasizing the promise of gains: "Once you get people to see the gains as equal to or exceeding the 100% better threshold, they will be able to see the future opportunity as worth participating in, even over the reliable and proven state" (Nobl 2021). In short, tell a better and more enticing story about the future, and people will join you.

When all of these approaches fail, the research suggests that we typically turn to ignoring the naysayers, and if needed, forcing them out (see Lewis & Russ 2011; Hayashi 2017). While not affording resistors too much power, the evidence suggests that those requesting change typically move forward, and believe that the resistors will either come along eventually, or simply drop out and move elsewhere when the transformation becomes too uncomfortable. When they don't leave voluntarily, then the standard course of action is dismissal. Framed as dangerous to the whole effort, resistance is portrayed as a kind of virus that, if left untouched, might spread through the ranks and foment serious problems. While benign neglect is certainly less aggressive that active dismissals, it runs a similar risk of stoking conflict by positioning those leading change as unresponsive and unconcerned with the perspectives of those affected by it.

There are two core challenges with these general approaches to managing change. At one level, they are tightly focused on individual behavior. There is little attention to the social motivations and relationships that shape and drive actions on behalf of a wider community – to what Lawrence (1969) referred to as the "change in their human relationships that generally accompanies technical change." Additionally, each one of these tactics begins with the assumption that the future is a better state, and therein denigrates the present without regard to a person's status within that present. As Kanter (2012) noted, "When change involves a big shift of strategic direction, the people responsible for the previous direction dread the perception that they must have been wrong." Crafting a future that will engage the full community necessitates understanding their experience of the now, and how stories function, and so we turn to that challenge now.

STORIES AS NAVIGATIONAL DEVICES

> *"I'll teach you how to jump on the wind's back and then away we go"*
> *—JM Barrie, "Peter Pan"*

Theorists who study narrative posit that stories function as navigational devices within cultures. On the one hand, they serve as reminders of what is expected and serve to keep people from going too far astray from cultural norms (see Basso 1990; Holland & Quinn 1987). This is particularly true of things like folktales, "just-so" stories, fairy tales, and a range of literature for young people which teaches standards and expectation. For example, Quinn (1987) articulates the ways in which movies and books create a convergent model of marriage and romance in America, providing a template for young women as they navigate their own relationships. These become "cultural scripts" or "schemas" that channel behavior toward a socially desired, standard outcome. Importantly, these narratives are often "fuzzy," lacking in specificity that enables members of the culture to apply the story to fit their own experiences.

On the other hand, we also tell stories when something has gone "off course," and requires an explanation. We use narratives to justify a deviation from the standard or expected path within our culture (see D'Andrade & Strauss 1992; Shore 1996; Comaroff 1981). Shore's (1996) recounting of Samoan adoption narratives is a poignant case study of the ways in which cultures deploy core values to enhance the socially positive aspects of a personally difficult experience, and create a valued role for those who experience this event. In fact, the whole premise of the "Manchester School" approach to anthropology was to find those moments where cultures "break," and to lean into the explanations people offer as a way to understand the assumptions about how we behave within a cultural context (see Colson 2008; Elvers & Handleman 2006).

How this happens is an important related question – one explored in depth by Jerome Bruner in his work on how events and actions become meaningful within a cultural context (1990). Bruner argues that a narrative forges links:

> "between the exceptional and the ordinary. … It focuses upon the expectable and/or the usual in the human condition. It endows these with legitimacy… Yet is has powerful means that are purpose-built for rendering the exceptional and the unusual into comprehensible form. … ***The function of a story is to find an intentional state that mitigates or at least makes comprehensible a deviation from a canonical cultural pattern***." (emphasis mine)

In short, stories deploy deeply held shared beliefs about "why we do what we do" in order to weave a compelling and sensible arc that connects two or more events and renders a portrayal of the person as a member of the culture. Whereas the standard cultural script may have a person go from Point A to Point C, narratives can also weave a justifiable explanation as to why we landed at Point F, when needed, by framing motivation and intention in particular ways that enable the person to remain a member of society.

This is largely why members external to a community can see inconsistencies between a person's actions and their stated values, when those inside the group do not perceive (or give credence to) the discrepancy. As Graeber noted, value "is the way people represent the importance of their own actions to themselves" (2001:45). Given that these are shaped within and evaluated through cultural contexts, we can extend Graeber's position to parallel Kluckhohn's (1951) inclusion of the group – namely, value is the way we represent ourselves to those who matter in our social worlds. What is critical to note is that – within each community – people read their actions as consistent with deeply held beliefs and values, and thus hold motivations and intentions that facilitate the expression of those values. In short, we try to act as good people within our cultural and social world.

Bruner's focus on intentional states and motivations is a key corrective to the recent work linking change efforts to the behavioral sciences. If we follow the logic of his argument, the flexibility of a story lies not in the actions per se, but in the underlying values and theories about intentional states. **If we identify the culturally-appropriate intentional state, then any action or behavior can be woven into a coherent narrative that has value within the social context**. Hence the opportunity space in managing resistance to change is not addressing behaviors, nor in articulating a brighter picture of the future state, but in **understanding the intentional state and motives of the person in the present, and then using that as the connective thread for the actions that will get us to that**

anticipated future state. In this move, we enable people to hold on to a sense of a valued social self while facilitating change in how that self is expressed and engaged through actions.

NARRATIVE TACKING: UNDERSTANDING PORT AND STARBOARD

The fishermen know that the sea is dangerous and the storm terrible, but they have never found these dangers sufficient reason for remaining ashore.
—Vincent Van Gogh

Too often in our effort to detail a better future, we denigrate and dismiss the "now" as broken, old-fashioned, obsolete, out-of-touch, and a host of other descriptors. It is the failure of change management efforts to properly excavate and embrace the "good" within the present that is the generative force of headwinds. This is often the advice from behavioral scientists – make the future infinitely preferable to the present.

In trying to understand how to manage resistance, I turned to other fields to explore the concept as managed in radically other contexts. This brought me to sailing. In sailing, boats cannot sail directly into the wind. Rather, they move through headwinds in a repeating dance with opposites. It is referred to as tacking: by shifting the direction of the bow between port (left) and starboard (right), the boat moves forward in a series of diagonal maneuvers by catching the wind as it alternates from one side to the other (ASA 2021). The sails harness the wind by glancing along its course.

If we are to extend this metaphor, then we need to consider how to harness the resistance to the stories we tell about change. Narratives contain five central elements: Characters, Setting, Plot, Motivation (Conflict), and Tone (Theme). **In narrative tacking, the challenge for the change agent is to connect the existing intentional state to new features across each of these elements**. For example, if the old narrative was set at home, how might it be set elsewhere? If the old narrative was motivated by exclusivity, how might it become a story of transparency? The change agent must "tack" through each element to weave together a story that is both perfectly familiar – in that it retains the intentional state of the person – and at the same time, entirely new – in that it entails a shift in all the elements of the story itself.

While this may sound complicated, cultures (and stories) are purpose-built for precisely this kind of old-yet-new dynamic. Indeed, one of the more fascinating dynamics of cultures is their ability to be both enduringly static and ever-dynamic. To appear unchanged over centuries, with the essence of a culture traceable across decades of food, fashion, institutions, languages, and so on. And yet, in parallel, we can similarly map differences both subtle and profound. Taussig (1993) referred to this as the dance between mimesis and alterity: sameness and difference. The energy that powers this sameness-while-different comes from dialectics: oppositions held in constant dialogue such that their inability to fully resolve the debate is the generative force of cultural patterns (Turner 1995, Nuckolls 1998, Mintz 1985).

Every culture has dialectics. Indeed, every core concept has a dialectical opposite: home and away; in and out; rich and poor; old and new; stasis and change; individual and collective; self and other; and so on (Bellah 1986, Riesman 1963, Putman 2001, Hsu 1983). When held as dialectics, they create the flexibility that is central to Bruner's theory about the role of narrative: if stories enable people to explicate a divergent path in a culturally-

appropriate way, then the intentional states create the necessary space for opposites to become included in the master narrative – for the divergent to become the expected.

The chart below offers a concise rendition of the framework we used for "narrative tacking":

Story element	Identifying the Dialectic
Character	Thinking about the present as narrated by those resisting change, how do they convey a valued sense of self? How do they portray others? Who do they trust? Who connects them to the moment?
Setting	Thinking about the background of the story, what meaningful elements of the present could be brought forward into the future state in a changed way? How can you facilitate their control over aspects of the setting? What settings do they fear?
Plot	What matters most is their perception of being valued and valuable. How can you facilitate their ability to be good?
Tone (Theme)	Given their portrayal of the present, what is the appropriate tone for who they perceive themselves to be in relation to the change-agents?
Motivation (Conflict)	What matters to the people who don't want to come along? Where is their present legitimately better than the future? How can we preserve this? How can you lean into those values?

The following case studies detail the way "narrative tacking" can be used to diffuse resistance to change. The first example details how tacking enables personal change, while the second presents an example of organizational change.

CASE EXAMPLE 1: NAVIGATING DIFFICULT LIVES

> *If one does not know to which port one is sailing, no wind is favorable.*
> *–Lucius Annaeus Seneca*

In the course of our existence, it happens all too often that we are derailed in pursuit of the future we envisioned for ourselves. "Things happen" – so they say. Such simple words, and yet so personally devastating at an experiential level. "Things" like the death of loved ones, the loss of meaning-filled activity and employment, the loss of a home, the loss of friends, a "no" when we really wanted a "yes." While the clinical literature calmly refers to them as "adverse life events," they are experienced as massive tumult – to follow our sailing metaphor, one could call them waves that can and do capsize ships.

For all their destructive power, the damage may not always be similarly assessed by all people. While some may see a boat that is completely destroyed, others will cling to a piece of wood and feel they are just fine as they float through the wreckage.

A classic example of this happens in the case of alcohol abuse disorder: while people may look at the drinking patterns of another as highly problematic and see the ruin caused

by such quantities of consumption, the person themselves may not agree with the assessment and see their alcohol use and life as perfectly fine. The statistics bear this out: it is estimated that roughly 14.5 million Americans have Alcohol Use Disorder, and 92% of people who meet the clinical diagnostic guidelines for AUD will refuse treatment because they personally disagree with the diagnosis (NIAAA 2021).

While we could simply say "to each their own," the reality is not so simple. The estimated costs to the US economy of this refusal of treatment ranges from $249 billion to $1.45 trillion annually (see Sacks et al, 2010; RCA 2016). Getting more people into healthier patterns with alcohol has significant ramifications for everyone.

The standard cultural narrative of alcohol abuse posits that interventions will not work until the person "hits bottom" and has lost something of such value that they finally seek treatment – this is akin to Tversky & Kahneman's point that the future must be so much better than the present to inspire change. If needed, we provide treatment through in-patient programs that remove the individual from their life and cultural context. We offer a core "12-step" program of supportive strangers who've walked a similar path and can affirm the emotional wounds of the addict while providing guidance on next steps. The narratives positions individuals as powerless in the face of alcohol and only able achieve a healthy life through abstinence.

So how do we convince nearly 14 million people that this is their story? That they have a problem with alcohol? We don't. Clearly, that creates headwinds and they refuse. When asked why they refuse, people state things like:

- "I'm not that kind of addict."
- "I don't need to change."
- "I can stop any time."

It is important to note that most of these people hold jobs, they have houses and apartments that are home to them. They talk at length about friends and loved ones and children. They are involved and active in their communities. They go out. They are, by many measures, very typical members of our society. They also happen to have very complicated relationships with alcohol, often consuming upwards of 30 drinks within a week.

When confronted about their drinking in the past, they reported entrenching in their resistance. Returning to Tversky & Kahneman, the more others built an idyllic sober world, the more they dismissed it. In short, the more people pushed, the harder they pushed back, often to the point of cutting out relationships with people who wanted them to change. Because in their narrative, their present is "good," and they are "good," albeit imperfect people.

Yet each refusal generates an opportunity for an alternative type of intervention premised in dialectics: one that is not tied to the concept of "hitting bottom" first; one that endows the person with a sense of agency and control and respect; one that shifts the focus from a behavioral and mental model to something else; and one that shifts the location of treatment from "away" to "home." Such a program might have a chance at engaging some portion of those 92% of deniers.

This is precisely what a team of researchers did (see Watkins et al., 2017). The interdisciplinary group included people with deep, ongoing contact with the 92% who refused treatment. Leveraging their decades of diverse experience, they collaboratively

developed a program for treating Alcohol and Substance Use Disorder that anticipated headwinds, and countered them by shifting the narrative at each stage. Their novel intervention took on each component of the cultural script about addiction and created an alternative path to a more sober and healthy life:

- **Characters:** For a range of reasons, trust is challenging for people in the midst of AUD, which is largely why they mistrust the motives of those who try to help them, and are suspect of the motives and relevance of strangers in a 12-step program. The team foresaw this challenge, and looked for consistent individuals within the social networks of people with AUD who had nothing to gain or lose from the person's state of sobriety. In the end, they built upon established positive relationships with personal physicians – which also tied to behaviors that signaled a responsible person attending to their health.
- **Motivation:** The team had seen all too many cases of "hitting bottom" result in death, and wanted an intervention that – in essence – created a "bottom" for people. Moreover, their experiences signaled that engaging people in discussion about AUD from the perspective of emotions and mental health typically put people on the defensive and limited the efficacy of efforts. Having identified primary care physicians as a positive and reliable relationship for this cohort, they shifted the motivation for action from mental well-being to physical well-being. Specifically, they did not talk about "addiction" or "abuse," but focused on health and biomarkers (e.g., "your liver enzymes are elevated," or "you've put on a lot of weight recently").
- **Tone**: The standard script for addiction posits the individual as "helpless" in the face of alcohol, which runs counter to cultural narratives of adults as agentive and responsible. To counter this, the team focused on reduction, not elimination, thereby evidencing respect for the person as capable and in control of their choices.
- **Setting**: In contrast to the standard script which sets treatment "outside" the lives and relationships of people with AUD, the team referred people to individualized cognitive-based therapist within the clinic to develop health plans tailored around their lives and goals. In normalizing the context, it reduced the potential shame and stigma attending to behavior that is so abnormal that it requires sequestration from the community.
- **Plot**: They standard script is a demand for a life-long change, often premised on a conflictual "intervention." In lieu of this, the team leveraged ongoing dialogue with trusted individuals, and gave people multiple opportunities to try the program at any time, and to leave the program at any time. The idea was to find tailored shifts that worked for the person, and to partner the person with someone who reflected back their sense of self as a competent, responsible person.

In short, the team changed critical elements of the story by leaning into the dialectical oppositions identified through the refusals, all while preserving the original intentional state of "responsible, good" person. For each point of resistance, they changed the dynamic, removed the block, and enabled the story to move forward.

Within the first year, 60% of patients who were invited to enroll did, and 35% completed the full 6-mont intervention. They dramatically reduced their alcohol intake and improved their physical (and consequently financial) well-being. All remained in this healthier state a year out when I interviewed them. While there are others who declined during the study period, it is possible they joined after our tracking ceased. Either way, it was a significant improvement over established change efforts and holds promise for additional settings and extensions.

The situation of individual resistance to change creates opportunities for tailoring stories to each person, but this is more challenging in collective transformation programs, such as are common in business and other organizations. Yet there are indications that this "tacking" approach of addressing difficult change may yet succeed.

CASE STUDY 2: BUILDING A BIG ENOUGH SHIP

"Headwinds are sore vexations and the more passengers the sorer."
—*Ralph Waldo Emerson*

It is often a thankless job to be the person who leads change in organizations. There is absolutely no way to do so without kicking up resistance, simply because there are so many interpretations of the present state. And so many more characters, motivations, plot twists, and so forth that must be navigated in these efforts.

Even so, there is power within this approach. Consider the challenge of building robust plans for addressing diversity, equity, inclusion and belonging (DEI&B) within an organization. On the heels of the racial strife that rocked the US in 2020, many companies pledged to address racial issues within their organizations, including increasing diversity, addressing pay equity, and building a culture where differences are welcomed and embraced.

As might be expected, this has met with varying degrees of success across organizations. While the sentiment for supporting DEI&B is often strong, there are cases of resistance to adopting practices and behaviors that appear to conflict with organizational mission and values. This is particularly salient in organizations that purport to hire "the best and brightest," or that lean into values such as objectivity, rigor, best-in-class, world-class, and so forth.

In one example from my work, the organization launched a new effort in July 2020 on the heels of the racial strife. For certain members of the organization, this was a most welcomed initiative. Many of these individuals had tried to make a case for DEI&B among senior leadership for nearly a decade, yet felt their efforts resulted in minimal change or token change (e.g., food sharing events to entertain the employees). For others, the initiative was a fundamental threat to the organization's foundational values – values that they perceived to be the cornerstone of the organizations storied history. From them, the cry of resistance from within the ranks took an interesting form: "culture eats strategy for breakfast, so there's really not much we can do." Meaning, there's no strategy for making our organization more diverse because the existing culture will quash it. Clearly, addressing DEI&B directly was meeting significant headwinds, as it had for the better part of the previous decade.

In a trial effort at "narrative tacking," I collaborated with a team designated by leadership to devise a DEI&B strategy that sought to achieve those goals while leaning

heavily into the organization's core tenets: objectivity, rigor and effectiveness. On the surface, this was not an obviously DEI&B program or proposal – it was a proposal to strengthen the organization as a whole. And yet, if it worked, it would drive the DEI&B metrics as a result.

Collectively, the program "tacked" through a narrative of change in the following way:

- **Character:** The organization was highly selective in terms of people afforded respect. In particular, there was little regard for consultants and business transformation "experts." They would not, in short, consider data from the "business world" as relevant to their organization. The best voices would be the voices of the internal teams, and those from a small cadre of esteemed peer institutions. To that end, we paid careful attention to who was included in the effort, and what external organizations became models of "possible" future states.
- **Motivation:** Above all else, the organization prided itself on its objectivity. Yet this had long been defined as an individual act of being "above political concerns." Drawing upon published research from neurosciences (in collaboration with some internal research teams), we put forth data that debunked the idea of individual objectivity in favor of objectivity as a by-product of highly diverse groups. This became the leverage point for the transformation effort overall. Leaning into the thing that most defined the organization, we held them to account for and be objective in the most science-backed way possible.
- **Plot:** The work of the organization was driven largely by a rubric of "effectiveness." While long framed as implementing policy, we shifted the focus by expanding the set of stakeholders. This enabled more specific questions regarding for whom interventions worked (for the researcher? For the government? For the people in the community?), under what contexts, why, and how they could be scaled appropriately. This was in contrast to the broad, heavy-hammered perspective of legislation, and by default, forced the organization to consider diversity in its accountability framework.
- **Tone**: There was a deeply felt need across the organization to serve as agents of positive change in the world and to do ground-breaking innovative work. At the same time, the senior leadership was highly risk-averse and staunchly "neutral" in its communications. They needed to see the path forward to be those agents of change. Combining research on tactical strategies for building diverse teams, with ideas solicited from the internal teams themselves, and tactics solicited from esteemed peer institutions, we crafted specific plans for how to build DEI&B into processes under the auspices of ensuring objective and effective research.
- **Setting**: The teams had long focused on equity and opportunity in their work for external partners – with research dating back to the 1950s. They were masterful at assessing opportunity and discrimination in external settings. Helping them turn that same eye toward the internal organization was the shift they needed here, and they tagged several of their most lauded researchers to replicate their work on behalf of the organization itself. For example, providing teams with data on staffing and pay enabled them to look at those challenges with the same critical eye they would turn to an external partner. This allowed them to also see the organization as part of the

wider world in which they existed, in spite of their often aloof and distanced stance in relation to the public.

What was interesting in this collaboration is that the ideas themselves typically came from the teams and individuals within the organization. What I provided was the framework for how to organize and activate those ideas. The concept of "narrative tacking" provided them with a platform for how to examine each element of the problem, and consider how to shift it based on the evidence that would be compelling to those who resisted change. This matters because it speaks to critical power dynamics that are often ignored in transformation efforts. In saying this, my intention is to signal that many worthy and effective ideas for how to navigate change likely exist – in communities and organizations alike – but their authors lack the perceived expertise or power to enact them. As change agents, understanding this framework can help you not only think about the narratives we tell, but to identify the people who may have the better story from the start, and to elevate their voices as needed.

As to the outcomes of the proposal, I cannot speak in full because it is still unfolding and evolving. What I can attest to is that this proposal was blessed by senior leadership who, for more than a decade, had argued that the organization did not need a special initiative on DEI&B. By leaning into what was treasured and valued about the organization, and then carrying forward that intentional state, the team tasked with this challenge was able to make progress because the new felt very familiar. They were not asking the organization to be anything other than what it was – but they pointed out that to hold that cherished identity, it would entail different actions. This felt inspiring to the teams, and fed their desire to be innovative and leading-edge.

CONCLUSION

> *The goal is not to sail the boat, but rather to help the boat sail herself.*
> *–John Rousmaniere, pioneering author of technical handbooks on sailing amid storms*

Navigating change will likely never be easy. As May (1996 [1950]) notes, "in every experience of creativity something in the past is killed that something new in the present may be born." Those deaths are often meaning-filled things that people hold dear – our sense of connections, our accomplishments, our very sense of self and personhood. When we attack the present in our enthusiasm for the future, we often dismiss the ways in which the present supports and validates certain members of the community. This is not to say that change should not happen – too often those who benefit from the present do so at the expense of others, and those inequities and inequalities are both dangerous and problematic. However, going at those tensions directly fosters divisiveness, resistance, and rage – and ultimately stalls the very change that needs to occur.

The past few years (decades?) of societal turmoil are evidence of this. As a world, people and organizations and societies are destroying themselves trying to bring about or resist change. I genuinely felt there had to be a better way. While leapfrogs and moonshots work for some things, they are far more difficult to manifest when it comes to building inclusive and accepting human relationships.

I write this as someone who is often terribly impatient with the present, and who revels in the possibility of a future that is more equitable, and facilitates belonging. But I also write this as someone who has learned that telling people their "good" is "not good" rarely

inspires them to join the effort. In contrast, seeking a deep understanding of their intentions and motivations – as people trying to hold on to something good – and engaging them to co-design new ways-of-being that more fully express those intentions and motivations. has proven a powerful way to gain allies toward change – especially in cases where people do not agree with the need to change.

These case studies are not perfect, but they signal a possible way forward when change must happen, and it is not an agreed-upon path by all who will be impacted. Neither succeeded in convincing everyone within the time we tracked responses, but both made significant progress in moving people who staunchly resisted previous efforts. And in part, this should be expected. Focusing on the "why" as opposed to the "what" or "how" has been a known path to success in changing hearts and minds for some time (Sinek 2009). That said, focusing on "why" seemed too abstract to me in terms of next steps of change management. What I hope this paper has provided is a preliminary actionable framework for how to proceed with complex transformations once you understand the cause of headwinds – dance with those forces, harness them, and help people to new worlds in ways that feel all too familiar.

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Papers

Ownership of Ideas

A digitally connected world ostensibly signifies "progress" and "betterment"—but for whom exactly, and in what ways? In this session, we consider how ideas that lead to progress can be better situated within communities, and how anthropology supports communities that originate ideas to continue to be stewards, even within the context of the instantaneous and digital sharing.

Weaving Textile Futures

Indigenous Resistance and Intellectual Property

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Indigenous textiles are objects and material culture creations often exposed and subjected to plagiarism by international brands. The concept of intellectual property is not created for, or considering indigenous dynamics and social structures. This article argues, through the study of a Mixtec community in Oaxaca, Mexico, how new concepts should be outlined. Through the use of ethnography and the anticipation of plagiarism, a community requests the work of an anthropologist to backup their textile knowledge and allow for a precedent to be set where the particular know-how is detailed as part of the Collective Intellectual Property of the community.

WEAVING AND WRITING: INTRODUCTION

On January 2015, textile plagiarism took the Internet by storm raising the question of how intellectual property should be considered, when the community of Santa María Tlahuitoltepec Mixe, in the Sierra Norte region of Oaxaca, announced that Isabel Marant, a French fashion designer, had plagiarized their blouse. Through a post on social media, the news of the plagiarism of the blouse started to circulate. A Mexican public figure blew the whistle on the issue by tweeting a picture of the blouse in a store.

This very controversial case turned the interest of the public towards the questions of legal protection of indigenous textiles. The authorities of Tlahuitoltepec released a statement in which they asked Marant to face the community and explain what happened, as well as demand the recognition of the authorship of the designs (Castillo 2017). Marant only denied the situation, arguing that she just "came up" with the design on her own, and that the similarities were merely a coincidence. It was not until Antik Batik, another European brand, sued Marant for plagiarizing their design, that Marant admitted to have taken "inspiration" from the Mixe blouse. Indigenous communities are not considered as legal entities, and therefore could not present a binding legal claim against Marant, unlike Antik Batik. In other words, it was not until Marant was faced with a legal claim that could actually get her in trouble, that she decided to side with the "lesser evil", and say that her inspiration came from an indigenous community, which had no way of legally prosecuting the issue.

This has been the case over and over again, with brands like Zara, Mango, and more recently, Carolina Herrera, dismissing very obvious accusations of plagiarism as "inspiration", if they even acknowledge them at all. Why would they respond differently, if they are not pressured to? Surely, they would not dare to plagiarize each other so bluntly. Anthropologists ask why. Some other examples include a 2019 plagiarism from Nike of guna textiles, or cases of Zara and Mango using Andean patterns in their clothing collections. These cases go beyond Mexican borders, since indigenous communities and traditional patterns exist all around the globe. The intention is to focus on communities within a specific territory, Mexico, to comment on specific relationships to particular legal systems and the relevance of ethnography within a specific framework.

The popularity of the case sparked, brought a wave of indignation from civilians, and the case was highly mediatized. The community of Santa María Tlahuitoltepec Mixe did not try to persecute the matter through legal apparatuses of any kind, at least in the beginning.

María del Carmen Castillo, from the Mexican National Institute of Anthropology and History, was entrusted with the task of creating an anthropological expert document of the blouse, for she had worked in the community for her master's research. She agreed, under the condition that two people from the community should be involved in the process, and that the document would stick to the general terms set forth by the statement released by the authorities (Castillo 2017). The document explains how the blouse is used in different contexts, how it has changed through the years, and how it represents a part of the identity of the community. The relevance of this action is present in the involvement of an anthropologist in using ethnographic data in a request the community had.

Particularly, this issue helps us see how a community can stand by themselves and be heard. With help from academia and institutions in Oaxaca like the Textile Museum, the authorities of Tlahuitoltepec found places to amplify their message.

It is important to consider certain things to understand how this article is written. "Indigenous" is a term with various connotations and of debated pertinence, particularly for the groups of people it attempts to describe. The term is used through the length of this paper as an operative term in order to adhere to international legislation, and to maintain a homogenous concept line through the entire piece. Also, although there are techniques and textile descriptions, this analysis draws from original ethnography to generate a reflection on a wider topic, framing the issue through a specific case study. This means that not all reflections or considerations apply only to the context of San Pablo Tijaltepec

The textile industry is known as an ever-changing parade of colors, seasons, and styles. It would be impossible to pin-point the first time one culture copied another, or when textile plagiarism started, much as it is impossible to identify the first racist comment ever spoken. Thus, it is not the purpose of this paper to discuss the moral implications of textile plagiarism, or to enlighten on yet another cultural analysis of textile traditions. It is, rather, an observation of how anthropology can be both a tool and a means to shed light on issues that concern the communities so often portrayed in ethnography. Ethnographic practice can be taken to set a framework of actions to contribute in response to what these communities ask of our discipline. Ethnographic praxis in this case presented an opportunity to generate knowledge for the community to potentially use should a case of plagiarism present itself. Also, to have written accounts of the community's textile tradition as part of their heritage.

PLAGIARISM ON THE WORLD STAGE

"It happened again. It will keep happening." As the story of a famous designer brand from New York City that had plagiarized indigenous textile designs for her new 2018 clothing line broke through social media, people took to voicing that there should be a patent to protect those designs. I could only think of how we are not thinking about this issue of intellectual property from the core. Anyone who has taken a trip through the Mixtec Highlands of Oaxaca should be aware of the many turns and complications the road confronts the travelers with. After many trips up and down those mountains, I learned to identify the territory I traveled through. The *Nudo mixteco / Mixtec Knot* sets the stage for a complex matter surrounding indigenous communities and intellectual property, very much like those intertwined mountains in Oaxaca.

Since that case in 2015, many new accounts of plagiarism and outrage have come out to light, but this is still cited as an important turning point for researchers and actions that have

taken place since. Movements through social media spheres have taken action in creating maps, and documentation on plagiarism cases. The use of the internet, and discussions on social media, have taken a central role as a tool to communicate and learn.

Ethnography and Social Media Play a Role

The Tlahuitoltepec case brought to the attention of the Mexican public the issue of textile plagiarism and the evident lack of legal action that can be taken by the communities. It also rose questions of whether communities want or should take legal actions, sparking debates of how to avoid this from happening. The existence of an ethnographic document helped to back up what the community explained regarding the history and cultural significance of their blouse for having a documented and detailed account.

Through social media, many communities have raised their voice in their own terms against these cases. Every time it happens, the social media attention cycle starts with groups of people who are enraged and discuss the issue over and over. The idea of cultural appropriation, textile plagiarism, giving credit, and involving the communities in market processes are debated in online conversations. However, the sensible conclusion is always the same: there is no legal way to take action, there is no framework through which plagiarism of textiles from indigenous communities can be considered as something to prosecute. Also, the interest of how each community chooses to handle each case varies, sparking a discussion of how far non-indigenous activists can or should go in advocating for indigenous groups.

Community dynamics are changing, and so are communication strategies. The idea of having platforms to voice such happenings available to a larger audience is important in the sense that it generates new places to discuss what goes on inside these communities when plagiarism happens.

Figure 1. Woman embroidering in San Pablo Tijaltepec. © Amapola Rangel, 2018.

EMBROIDERING AND RESISTING

In the way we usually imagine indigenous groups, they are undeniably linked to clothing, music, dances, rituals, and artisanal productions of ceramics and textiles, that help identify them as a social group. We can all be amazed at the ability of women who sit with a backstrap loom tied to their waist and skillfully create wonderful pieces of colorful yarn. This practice can also portray, in a romanticized way, a continuity of customs that is not reflecting reality. Indigenous communities are often celebrated by the traditions that link them to the past, but not for how those traditions are inserted in their present realities (De Avila 1997). The global market values these colorful pieces of clothing without considering the life conditions, or the significance those textiles have for the communities that create them (Lechuga 1990; Stresser-Pean 2016). The particular transmission of knowledge is a relevant act of socialization in indigenous communities, making textiles a complex item of clothing, that represents far more than a need to cover the body. Some authors (Makovicky 2020) reject the traditional splits of mind (technique) and body (creation), considering both to be part of a whole, meaning that textiles draw from both the ideas that are portrayed within the fabric, and the social context that created them. The know-how, the embroidery technique and aesthetic distribution of elements, is learned and passed down from generation to generation. However, there is always room for change. Just as I do not wear the same

clothes my grandmother wore in her youth, nor do the women of Tijaltepec wear the same style of blouse as their grandmothers did. It drives from the same knowledge, but the elements adapt to what people want to portray at the time. Textiles are dynamic elements of material culture.

Embroidery in textiles has a particular significance, depending on the context and the different designs that are used (Santos Briones and Pérez-Tellez 2015). In Tijaltepec, textiles can have a particular symbolism in representing cultural aspects of social life. Not only is the act of embroidering a space of social exchange, but the embroidery itself can represent diverse aspects of cultural elements. For example, a common design represented in blouses is the deer, which is an important figure in Mixtec history, and local fauna. Also, many of the designs represented in the sleeves show the rivers, the mountains, and other local flora. Textiles are more than clothing. They "[…] represent the border between the individual and the social," (Turner 2012, 468). Designs and textile aesthetics are both fixed and negotiated with society, for it marks gender, sexual, cultural, and social differentiations, at the same time that they include individual expressions of identity. In indigenous communities, the concept of cloth is a vast and complicated one, that covers various aspects of identity and knowledge (Lechuga 1990).

Textiles and clothing are part of the identity of indigenous groups, but also represent a source of income for families in these communities. Anthropologists have described textiles traditions from around the world, focusing on technique and significance of this type of clothing (Lechuga 1990). However, a problem has risen outside the limited audience that reads academic papers. Textiles, more than mere crafts, are visual testimonies of time, space, and invention; they share relationships to what was, and what could be. Once inserted into a market, they become merchandise and commodities, desired objects derooted from their contexts and resignified through agency and invention (Appadurai 1986; Green 1999). This is where plagiarism and property become relevant: textile knowledge belongs to entire communities, not individuals. In today's market, the textiles are undervalued and are not considered as the particular know-how that they are. This also leads to the loss of a tradition, specially in favor of more marketable designs or embroidery techniques that can be more profitable related to market demand. Anthropology, however, also has an important application in describing these textiles, and in giving them a revalued status on an economic market (Escalona 2016; De Avila 1997).

San Pablo Tijaltepec

Within the Mixtec Highlands of Oaxaca, San Pablo Tijaltepec is a community of Mixtec people with an important textile history. While walking around the town square, one would see many women walking around, wearing an embroidered blouse and colorful skirts, adorned by beaded necklaces. The main panel in the front of the blouse will depict animal shapes in a sort of "negative" embroidery, generated through the technique known as *pepenado fruncido*, which consists in generating small lines in the fabric, and intertwining them through yarn. It creates a canvas that opens way for images of all sorts to be created by the women of Tijaltepec.

Figure 2. Blouse from San Pablo Tijaltepec. © Amapola Rangel, 2018.

The blouse is composed of four panels of embroidery: two in the front, united by a thick line of weaved yarn; and two for the sleeves, one on each side. The front panels usually portray animals, that used to be stylized images of local fauna, and can now be copied from images in books, magazines, or the internet. Some even include words or dates to mark when the blouse was created. Others include traces of older designs, in the form of houses, eagles or flora representations. Common animals to be represented here are deer, chickens, and eagles. However, with this new way of copying images from different places, one can find giraffes, caricature dogs, rhinos, or different types of fish. This means that now it is not necessary for the embroidery to reflect local fauna. For the sleeves, most people include geometric designs, or big flowers, also copied from various detailed sources.

Textile history and memory in the community go back to the times that were spent living between the valley and the mountains, represented through the lines that are embroidered to mark a path in each panel. It would be easy to fall into common arguments of how textiles preserve traditions, again linking them to the past. However, the blouse is not as it used to be, and neither is the skirt or most of the other elements. There has been change.

Many communities in the area do not wear embroidered clothes anymore. Although textiles are still made and appreciated, people wear commercial, imported clothing. However, Tijaltepec's people are proud of their blouses, and the attire the women wear. A common

sight anywhere in the community is to see women embroidering or assembling new blouses while caring for their animals, taking a break from household chores, or when they return from working in the field. There is a social and cultural relevance to keep making these blouses, as they have become an element of identity for the community. The continued relevance of textiles in Tijaltepec has to do with innovation, with how change has been made through time, allowing a tradition to live on.

BEFORE IT HAPPENS: ANTICIPATE A POSSIBILITY

The people in San Pablo Tijaltepec started to see their blouse being sold in heavy commercial places, like Oaxaca City, while following the media cases of other communities and their plagiarized textiles. They began to plan how to avoid that to happen to them, to find a way to anticipate a plagiarism. One initial thought was to restrict selling the items, but that harmed families' income and other aspects of commercialization. In the process of thinking how to proceed, someone suggested that the authorities should look for an anthropologist who could research and write about the textiles in the community. Although with a different purpose, originally to produce an anthropology expert document, my field work began there.

"We want you to help us create a way to protect what is ours before something happens to it," said the President of the San Pablo Tijaltepec community on my first visit. They intended for me to generate an anthropological expert document, where I established some cultural and technical aspects of the embroidery of the blouse to have as a background in case a plagiarism happened. In recent years, the blouse of Tijaltepec has been exposed to more market demand, which led to the creation of new collectives, and groups of women to sell their blouses in bigger cities. This, besides providing a new source of income for families, has brought internal disputes over how to prevent that their blouse should follow the same fate as other textiles, like the one from Santa Maria Tlahuitoltepec. "We are worried because maybe someone will want to steal it [the embroidery], and take [the blouse] away to make copies of it."

Change and Continuity

"I remember my mother wearing only little animals, because it was so hard to get the thread and it took so much time. They only made a little strip, not like today were young women make large designs. They use a lot of materials. It was not like that when I was little." Nadia is an elderly woman who frequently invited me into her smoke-filled kitchen. She taught me how to say many words and small phrases in Mixtec, because she hardly speaks Spanish. We had a fun relationship, where we only half understood each other with words, and the other half through drawings and translations. She drew designs she remembered in my little notebook, and helped me with explaining to other elders why my research was important. She explained many times how the blouse and the *nahua*, or skirt, had changed through the years. It was important to her that I understood that it was not always as it is today.

Textiles are accompanied by a mystic air of being settled and static, of drawing patterns from an unimaginable amount of knowledge gathered from the past, as if one of those threads could extend to the earliest memories of humankind. However, as mentioned above, most of the people reading this will not be wearing the same clothes their grandparents wore

back in their time. Fashion, style, and dress needs change. These aspects of material culture respond to social needs and trends, which in turn reflect particular issues of the social context in which clothes are made and used. "[Clothing] allows for a great possibility of construction, color and pattern formation, which gives [...] an almost infinite possibility of communication." (Schneider and Weiner 1989, 2) Considering clothing as a way to transmit cultural ideas, it is important to also see them through their changes, in a way to reflect how the society from which they emerge, has changed as well. If this is true for Western-based industrialized societies, it can also be true within indigenous communities.

Figure 3. Woman packing up to leave after the Day of the Dead festivities. © Amapola Rangel, 2018.

Roy Wagner (2016) explained how innovation and convention of cultural meanings and traits are a hand-in-hand process. The author explains that convention can only happen through a process of change, and that invention is achieved through combining context in convention, that makes particular traits a collective entity. In this particular case, both invention within embroidery imagery and the convention of adapting and creating new images to set in those panels, generate a continuum allowing creativity, adaptation, and re-invention of design to maintain the craft a living and used practice.

In short, the mere act of adapting textiles to new tastes and necessities, very much like clothing in general, keep certain things alive. In the early 1990's, the blouses in Tijaltepec were decorated with thin strips of embroidery, probably seven centimeters tall. The images that were represented were of local animals, in a geometrical style that allowed for many figures to be embroidered in the same strip. Each blouse could contain about twelve animals in the front panels of the blouse. However, today each panel portrays one large figure with

much more detail than before. In my opinion, this is also something that makes it harder to copy or reproduce in industrial-level. The type of embroidery and the designs are complex to grasp or program within a machine. However, with a growing standardized taste in outside consumers, a pattern could be established and replicated, if not in the same technique, probably with the same aesthetic elements, meaning that, although not all elements are vulnerable to mass reproduction, the main image and composition of the blouse is actually exposed to plagiarism.

FRAMING THE LOCAL WITHIN THE GLOBAL: INTELLECTUAL PROPERTY

The World Intellectual Property Organization (WIPO) was established in 1967 and counts 193 member states. Though an analysis of its composition, it is evident that the little-to-none indigenous representation limited the knowledge and inclusion of indigenous concerns for intellectual property. This including the idea of knowledge as a collective entity, and how, even if they are immersed in commercial settings, not all products are created under the same logics. Perhaps this is the reason why intellectual property is still considered as it was when it was invented: considering property as an individual and fixed asset, without considering the collectiveness that constitutes certain social groups, or the fact that knowledge changes through time.

Textiles vary according to what the social group creating them desires to transmit. Since they respond to cultural traits, they change with time and with generations of people who transmit the knowledge to the next one. This is a total opposite to intellectual property at its core. Innovation in this legal aspect implies a new artifact or design, but the complexity of textile production is that there are no two textiles alike. Each one is a particular creation. If we were to take intellectual property to its core, it would mean that each and every embroidered piece should be registered, and prevented from plagiarism through a particular and specific protection. This is not only impossible to do in indigenous communities, it is not practical, since there are so many new textiles being fabricated every day. Therefore, the idea of protecting the know-how and a particular style could be a way to express the idea that textile knowledge belongs to the community through which it emanates. However, this would leave little room for innovation, since it would imply that knowledge and style are drawn from this invisible thread that can be traced to the beginning of time.

The work to be done by anthropologists is vital in this uncertain field of international law. Ethnographic methods can be used to generate documentation drawn from the communities, and include them in procedings to adapt legal structures and definitions. The ethnographic method provides a way for academia to contribute with knowledge and examples of what has been done before, and a way to document what communities express in their desire to make it known that this know-how belongs to them. It is also a way to signal what goes on during these situations, and an opportunity for the information to reach other audiences.

The Individual versus the Collective

In the coasts of Panama and Colombia, in the region of Guna Yala, the Guna indigenous groups has achieved something that is an example of what can be made in a direction to solve this problem. The Regulating Law No. 20 of 2000 (Asamblea Legislativa

2000) states that the indigenous groups of Panama are recognized under the law as creators of Collective Material Culture. This law and this concept allowed the National Guna Congress to set forward a decree to protect their textile designs, called molas, after a big case of plagiarism in the 1980s (Marks 2014). Molas are woven panels, embroidered with appliqué reverse technique, that illustrate aspects of ritual or social life, flora, fauna, and other elements of Guna life.

This is an exemplary case because under the decree that protects the molas, the intellectual property is granted to the indigenous groups as a whole, and not to particular entities. Also, the law foresees changes and adaptations in designs. The Ruling of the Use of the Collective Right of "Mola Kuna Panama" (Ministerio de Comercio e Industrias n.d.), explains that designs are not static and are subjected to innovations and changes that do not change their legal status as property of the indigenous group. Anthropologists and lawyers of Guna ascent helped in the adaptation of this law to the customs and needs of the indigenous group (Marks 2014). Under this context, the owner of a luxury brand, Franklin Panama, whom I met during my time in Panama, sought for years to obtain a permit to reproduce molas in luxury fabrics and silk for their products. The owner personally negotiated with the Guna National Congress and obtained permission to reproduce molas, under the condition of giving a significant share of the profits to the Congress, which they use to encourage mola creation in their communities.

Figure 4. Guna woman finishing a mola in the streets of Panama City. © Amapola Rangel, 2017.

This law is clearly not perfect, because while walking in Panama City one will encounter hundreds of resellers, stores that use molas in their products, and markets that sell other household items, with molas embedded without recognition of who made them or what they are, even. The law protects molas against reproduction, but it does not state anything regarding the use of the mola once the Guna women have sold it. In these markets, one can also find textiles from Guatemala, Mexico, Colombia, and Peru, to name a few. The Guna people have achieved the determination of the terms under which they will commercialize their textiles, giving them a unitary and identity value, all in favor of the indigenous group. Tourism in Panama sparked the interest and the tourism-targeted commerce of textiles (Marks 2014; Martinez Mauri 2014), which in turn, placed textiles in a sort of danger regarding their usage in the market. The mercatilization of identity and indigeneity causes schisms in communities, regarding how they should be sold, at what price, and other competition issues that come with the selling of these products (Escalona 2016). In the case of Panama, this represents an issue because of high rates of migration to the city and the distinction of communication of the region of Guna Yala, as opposed to Panama City. This was mediated by the law, and with the works of anthropologists that have worked in the area and have published anthropological studies on the textiles, promoting to a wider audience what they are and what they represent.

WIPO and Indigenous Communities

Plagiarism of indigenous textiles has been a problem that has grown in different countries, taking internal problems with law-making and legal proposals about indigenous communities to an international level (Castillo 2017). Each country manages this situation differently, but it is now part of a generalized discussion on social media spheres related to cultural institutions, academic circles, and people interested in textiles, that they are endangered and that laws must be made in their favor. The application of anthropological analysis in the legal system can be a key tool to attempt to mediate between indigenous communities and a system that was not designed to consider them. Legally, there must be more background to a legislation on the protection of textiles than a simple vague idea. There needs to be consultation to the communities and an understanding of the complexity of what textiles represent. Ethnography can be the tool through which these consultations can be relevant and adapted to the context as needed.

The World Intellectual Property Organization [WIPO] specifies that, in order to register traditional crafts, there are two major concepts: a collective brand, and a certification brand (WIPO 2016). Collective brands must have one owner, which can be a company or a cooperative, and they are characterized for having a specific geographical origin, and a specific material and production technique. This could be considered a tool for registration and protection of indigenous textiles, but it does not consider that textiles traditions and designs do not have one owner, and this scheme would leave out other cooperatives that do not fall under the registry. This would, in theory, make illegal practice that belongs to past and future generations of communities or ethnic groups, that are also not located in one specific place at all times. What about those who migrate to a different country or city? Are they not as owners of their traditions and therefore entitled to reproduce them? An anthropological approach would consider factors such as migration and relations between

communities when planning a way to adapt intellectual property to the need of indigenous groups.

Figure 5. Women share a moment to embroider while at the local market. © Amapola Rangel, 2018.

The other proposal for protection is a certification brand, which is exemplified with the production of molas in Panama, and it involves the fact that there should be a certificate of authenticity given out with "original" molas to avoid imitations. During my fieldwork in Panama in December 2017, I observed the commerce of these textiles and talked with women selling them in different areas of the city. While in any market in Panama, one can see Guna women all over, selling and sewing molas. This, to any anthropologist, would make them "authentic," and they do not hand out any such certificate, because they are restricted by the Cultural authorities and are very difficult to acquire. Guna women who migrate to the city for educational or economic opportunities do not give out these certificates, but that does not make their piece any less authentic. In a way, it comes down to what is considered authentic in terms of origin – where it comes from and who made it –, and what can be considered authentic through the legal system – whether it has a certificate or not.

Both the collective and the certification brand models, much like origin denominations and other legal figures, are constructed in what already exists as legislation for protecting goods in the market. These categories exist under the concept of intellectual property, but have proved to be insufficient to protect traditions and knowledge from indigenous communities around the world.

"IT IS A PART OF EVERYONE": COLLECTIVENESS AND ETHNOGRAPHY

Anthropology is a collective endeavor. It requires the ethnographer to be in touch with different people, to describe through different perspectives, to think through different authors, to explain ideas to different audiences. Textiles are also collective elements of culture. They drive from knowledge that is transmitted from one generation to another. Although each textile is an individual and unique piece, they also reflect changes in social structure, cultural continuums, and sociopolitical practice. Textiles anticipate, especially when we consider through ethnography how the piece itself speaks of the context where it was created, and how it can set into action a possible future. Just as the women of San Pablo Tijaltepec share their embroidery with each other, I now share the importance of ethnography with this audience, to represent and exemplify why our method is relevant.

Figure 6. Women of Tijaltepec gathered around the plaza. © Amapola Rangel, 2019.

Ethnography in this case represents a tool, in the form of a document, that the people of Tijaltepec can have and use at their convenience. Anthropology and its different fields can provide perspectives through which to take on a complex issue like intellectual property. Considering this, Legal Anthropology can provide a framework where legal documents are contextualized through implementation in indigenous communities. It is here where we can ask ourselves why the current system has failed to provide a proper concept that might be

useful in protesting or acting against textile plagiarism. After considering all past happenings, we can consider what is missing from the narrative. It might be a little obvious, but the answer is: the communities.

TOWARDS COMMUNITY-CENTERED DISCUSSIONS

Instead of trying to accommodate indigenous logics within existing paradigms, legal frameworks should generate new concepts that can be inserted into legislation regarding intellectual property, but that are proposed from the communities, and not the other way around. Legal frameworks are not designed or settled through considering what these communities have to say for themselves. It is important that this happens in order to provide more context and possibilities when generating change. It also has to do with how legal hegemony works, with an industry-oriented society proposing legal statutes for a general population within a determined geographical setting, without considering how diverse societies that might live within that territory operate under different logics. Anna Tsing uses the term *scalability* (2015) to define how to use the preserve the same framework in new dimensions of applicability. Considering this, it would be useful to generate ethnographies in the local level, an use them to generate a more comprehensive macro legal framework. The idea being that considering how textiles and material culture operate, there can be new possibilities to name types of "property". Leaving the Political Anthropology discussion and criticism of the State for another day, it is important to set the focus on diversity. Ethnography situates different communities within their nation-state context, in this case, Mexico. This also sets the stage for new proposals directly from the communities, towards the larger legal apparatus.

In Tijaltepec the narrative of the blouse, of the know-how to the embroidery and technique, is that it belongs to everyone. Women exchange embroidered pieces to copy, or to be finished by somebody else. Textiles are not private. They are public, they are part of what makes the community a whole. I do not believe that at this point I can set forth the answer to my question by introducing a proper term, but inserting the idea of *Collective* Intellectual Property into the discussion might be a first step into using ethnography to generate and propose these concepts.

Every textile is different. Every blouse is created to represent whatever its creator decided to include. It is part of a personal decision of style and design, but of a collective generation of aesthetic and taste. It is part of what constitutes a community's heritage, and passed-down know-how, but each generation adapts it to what is relevant to them. Where to draw the line? There is no proper way of knowing how the blouse will look like in a few years or the next decades, but ethnography can help us draw a line towards those futures, anticipating and tending to the need to make the world know what the people of San Pablo Tijaltepec do, and how their textiles belong to them.

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NOTES

Acknowledgments – All textile knowledge and designs presented in this article, unless stated otherwise, belong to the community of San Pablo Tijaltepec, and is used for academic and research purposes only. This paper draws ideas from my undergraduate thesis presented to the Universidad de las Américas Puebla (UDLAP) in May 2020.

1. The few names that are mentioned are changed to protect the integrity of my original sources, and I did not use frontal photographs of people in the community to protect their identities and personal wishes. Wider shots of events were authorized for all academic and research purposes related to my stay in the community by authorities and the people in the first plains.

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Cities as Anticipatory Systems

Analyzing "Weak Signals" to Explore beyond the Predictability of Their Future

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In the last decade, Future Studies have developed a very important corpus of theory and methods aimed to analyze the future of cities. Meanwhile the world is confronted with major challenges like climate change, global pandemics, migration, inequality and poverty, government agencies, professional urbanists, academia and other organizations, concerned with strategic planning, are looking for new ways to provide insight into how we approach unforeseeable challenges and integrate complexity and novelty for better futures.

In this paper we reviewed the notion of "weak signal" as a retrospective exploratory method to think of cities as anticipatory systems (Boer, Wiekens, and Damhof 2018) of future emerging problems. Using qualitative retrospective analysis and secondary research we focused on three urban innovations in transportation, workplaces and food domains at different cities to understand how to anticipate unforeseen scenarios and explore new ways of generating possible perspectives of the future.

Our findings showed that some urban innovations are preceded by a group of weak signals (usually low in visibility or too diffuse) that need to incorporate more robust signals in their own context but could be a starting point to identify people's underlying assumptions, to sketch collective scenarios and increase their capacity to think about the present in order to move toward a desired and possible future, concept that Miller (2011) describes as "Future Literacy".

Keywords: Weak signals, Anticipation, Futures Literacy, Sharing Cities.

INTRODUCTION

In recent decades, a new meta-narrative has emerged about the future as being predominantly urban, where cities are protagonist places that have the conditions to develop socio-technical innovation, capable of transit toward a sustainable future (Irwin, Tonkinwise, and Kossoff 2020).

Adding to this, there is a trend of proliferation of citizen labs, hubs and Think-Tank's worldwide, dedicated to promoting future scenarios building for STEEP (Social, technology, economic, ecology and politics) sectors, (Brenner, 2018).

In a recent study about future production in cities (Gonzalez-Arellano 2019), we identify two main visions: the fictional, opposed to the non-fiction one. The first one, includes a science fiction view of the future and encompasses a variety of media and literature genres, (comics, video games and movies). Among this prolific media production, there are two main dichotomous perspectives: the utopian versus the dystopian city where we can find a variety of emerging topics: conflicts of planetary urbanization, relations between the constructed world and nature, impacting in societal alienation, an oppressive centralized power and effects against human freedom, the transformation of spatio-temporal relations, and prominence of information and biotechnologies incorporated in urban life. (Collie, 2011).

There is also another group of future visions, the more speculative ones, which aims to provoke a serious reflection about particular situations within the urban environment, usually developed by architects, urban planners, economist and foresight experts, who try to "predict" how cities might operate and look in the future, their efforts are aimed to communicate society about how a city "ought" or "should" behave and it is usually conveyed by a collection of alternative futures. (Dunn, Cureton and Pollastri, 2014). We argue that there is an anticipation character for these kinds of visions since they try to convey a possible and probable future that seeks certain consensus or veracity among urban society.

CITIES AS ANTICIPATORY SYSTEMS

Literature normally identifies schools of thought about the future that correspond to epistemic frames or worldviews that involve certain conceptions or assumptions and their own set of methods. We could group those interested in the production of the future in the interdisciplinary field of Future Studies which has gradually matured a robust corpus of relevant methods, techniques, and experiences. A concept that has particularly caught our attention in Future Studies is the notion of *weak signal*, an approach started by Igor Ansoff as an innovative forecasting tool for management in organization studies that gradually has moved toward other spheres of strategic planning and anticipation. (Miller, Rossel and Jorgensen, 2012).

In this article we understand cities as anticipatory systems, able to develop their capacity to incorporate a sense of "after now" (the future) in the way they work, make decisions, operate, and imagine in a more active role than simply contemplative or passive one.

Here is a more concrete example using Robert Poli's claim: "Anticipation occurs when the future is used in action" (Poli 2017). A population growth scenario is not anticipatory but using that information to propose the new transport infrastructure for a city, is instead an anticipatory behavior. To be consistent with Rosen definition (1989) -later taken by Miller and Poli (2018)- an anticipatory system considers at least three elements. The first is the model of a dynamic system. The second is the use of a predictive model of itself and/or its environment. The third incorporates the results of the predictive model into the first model allowing an actualization of the original model.

Cities have long been characterized as dynamic models from different perspectives like in urban economy, climate change, transporting and metabolic systems. All these models are not static, but simplified versions of diverse interactions of variables considering an urban component. Any city at one point, could develop an anticipatory strategy by modifying their present behavior (for example: decide to expand a line in its underground system), or incorporate a predictive model (a city plan or growth scenario based on the tendency to use private cars). By understanding how cities use their anticipation capabilities we could identify those who centralize their processes in government visions or those that use more participatory ones.

Seeing the city as an anticipatory system is more complex than having a centralized decision-making version. The anticipatory system of a city is the set of system updates that make a city based on their own predictive models. Urban systems are very diverse; each city has their own productive processes, services and infrastructures and different ways to deal

with information and food access to their citizens. This diversity makes cities' anticipatory capacities complex, contradictory, and sometimes causes of conflict.

We believe that such conflicts and contradictions don't need to be avoided but are necessary to change cities' perspective toward anticipation. Instead of pursuing actions expecting optimal outcomes, cities need to make decisions under conditions of great uncertainty, and based on contingent interpretations of each situation, and in the context of future co-creation. We think that the weak signal's framework could be a great tool to anticipate cities' futures.

We start by asking what a weak signal is? explore some definitions and examples as well as the evolution of the term. Then we follow with the analysis of three cases of urban innovation through the lenses of emergence and evolution of weak signals. In the next section, we communicate our findings and open the discussion to the implications and potential of the approach in the context of cities' capacities to anticipate, imagine and decide about the future, or at least become aware of their anticipatory assumptions, making it possible to invent more feasible futures. Finally, we reflect on the process of identification and interpretation of weak signals and the need to conceive cities as anticipatory systems in the context of turbulent and uncertain times.

WEAK SIGNALS AND THE FUTURE OF CITIES

The institutionalization of futures has recognized a hegemonic future where most individuals and organizations seem to adopt what can be summarized as a global geopolitical turn with epicenter in the China-India region. This turn is characterized by climate disorder, the economy of decarbonization, technological and biotechnological innovation expansion and demographic transition towards an aged population, migration and, beyond all, a consolidation of the planet's urbanization. (GO Science, 2016).

Three main references stand out in the hegemonic future global agenda for cities: The UN Sustainable Development Goals with their 17 urgent global solutions; The Paris Agreement, addressing mainly climate change and "The New Urban Agenda" adopted at United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador (UN-Habitat, 2016). These agendas convey the global megatrends discourse within a strong normative/prescriptive charge, their main rhetoric focuses on conveying a rational scientific and technological discourse. These agendas produce two main dimensional frameworks: the normative prescriptive and the analytical-descriptive one, leaving a poor capacity/alternative/chance to imagine a "future" beyond this certainty.

Three Paths towards the Future

We observe a growing interest in analyzing future urban scenarios among urban professionals, academics, and government agencies responsible for thinking of a strategy and planning a city. Considering this as a process of institutionalization of the future, we identified three main dimensions:

    a. A *regulatory or legislative* dimension, where the future of a city is the result of policies or normative laws, that obliges city's authorities to build a future within certain parameters that are translated into policies.

b. The *normative and value* dimension: The future in question adopts a system of social norms and values that guide citizen's elections and actions. It shows how things ought to be done and legitimize or mediate actions towards achieving certain goals.

c. *Cognitive* dimension: Every city's future needs to share a set of concepts, languages, frameworks, traditions, and beliefs within a culture that usually adhere to organizations and individuals.

These three dimensions aim to institutionalize the future vision and establish a frame that accommodates the system regulations, norms and values, assumptions and knowledge of individuals and collectives (Scott, 2008).

WEAK SIGNAL FRAMEWORK

The notion of 'weak signal' as an approach to study the future started around 70 years ago with Igor Ansoff, an applied mathematician with considerable interdisciplinary interests, in 1974 he pioneered an innovative approach for management and strategic planning in business, aimed to help managers in organizations to make decisions in time of great uncertainty (Rossel, 2012). The concept of weak or early signal has evolved and was adopted in the field of future studies. In the last two decades it has evolved conceptually as well as technologically through the development of a variety of registration and interpretation methods that have produced data mining and robust algorithms (Ahlqvist & Uotila, 2020; Holopainen & Toivonen, 2012).

The general hypothesis surrounding 'weak signals' is as follows: any change or event that occurs inside an organization or its environment is preceded by some form of "warning" or signal, eventually observable by individuals or organizations with certain skills, that after captured and interpreted could be associated with possible events or phenomena in the future. Weak signals refer to imprecise early signs of possible changes –but not confirmed– that could happen further in time. Later, these signals turn into more meaningful indicators of critical forces, sufficiently visible and concrete that can help managers avoid strategic threats, or help develop business innovations, they might also foresee a potential impact of a novel phenomenon, change of a paradigm, a trend, drivers, or discontinuities (Saritas & Smith, 2011). The intensity, number and visibility of the signals is variable, at early stages they are characterized by a poor or faint visibility, but they become stronger and recognizable therefore clearer to interpret, as they move closer to the phenomena or event they precede. (Fig 1.0)
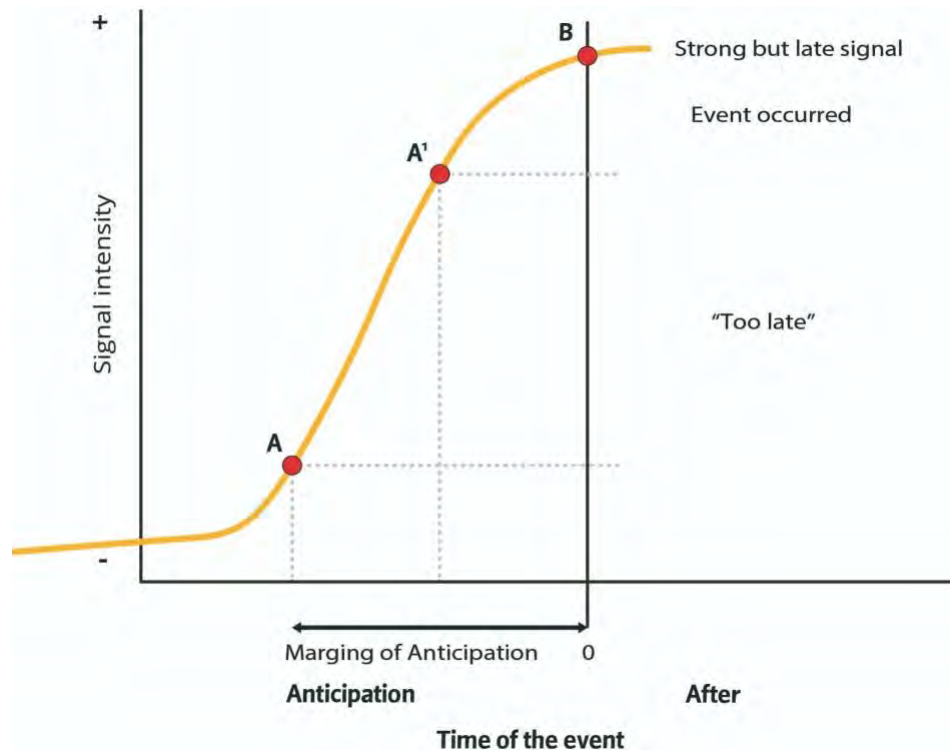
Figure 1. Line graph diagram showing the evolution of a weak signal adaptation Nora Morales and Salomon González from (Lesca and Lesca 2011).

Definition

Weak signals are "seemingly random" or disconnected pieces of information that at first appear to be background noise but can be recognized as part of a significant pattern by viewing it through a different frame or connecting it with other pieces of information. (Schoemaker and Day 2009).

According to the Ansoffian tradition a weak signal has 4 distinctive features:

1. *Novelty.* The signal points toward a new perspective or unknown prospect
2. *Surprise.* It causes some strangeness or astonishment to its analyst
3. *Challenging.* It causes some tension in the assumptions of the interpreter, involving some difficulty to detect and tends to go unnoticed.
4. *Delay.* The sign describes something significant that takes time to mature.

From a Future Literacy perspective, thinking and imagining future scenarios is an individual and collective competence skill that can be translated into a series of practical skills in the decision-making process and the ability to anticipate a phenomenon. (Miller 2018). In this sense, weak signals become relevant in a situation that indicates the emergence of a new trend or the slowdown of an existing one. It can be considered as an indicator of an emergent phenomenon when it is associated with the disappearance or slowdown of an existing process.

Problems Concerning Weak Signals

Some aspects in the contemporary weak signal debate draw some concerns related to the delimitation of the concept and the relation between the actual signal and the phenomena they precede. We argue that considering the type of event to determine the nature of the signal that precedes it, constitutes a bias that can make it difficult to identify and interpret. In other words: the magnitude, the nature, the degree of innovation or the plausibility of an event, should not be a source to discriminate or filter weak signals. This position calls for a need to broaden the conceptual and methodological framework to well-known, low-impact and more familiar events (Holopainen & Toivonen, 2012).

While weak signals are often associated with the anticipation of high-impact, innovative, or disruptive events, we consider that it is useful to amplify the notion to more familiar and everyday life events, which are preceded with a series of early signals. Those kinds of events could be natural in their origin, biophysical like the rain, a flu, or even animal gestation processes or a season. Many of us might seem too familiarized with these events, to even reflect that they are also preceded by weak signals, easy to identify and to interpret, not only by humans but animals. There are many other examples of events originated by humans that could benefit from the analysis with the lenses of weak signals. Some political social sciences studies have identified early signals that warn of a possible coup attempt to overthrow a government or change in regime. (Kraus 2020). Economics is another field that has also benefited from the early identification of a repertoire of "symptoms" or signals that anticipate a great recession, inflation, or unemployment.

METHODS AND DATA

Using a retrospective methodology to analyze weak signal trajectories of emergent events in the urban context, we selected three cases aimed to track the evolution of an early signal. We focused on three urban innovations: a) The adoption of sharing bike systems b) The emergence of Coworking spaces, and c) new modes of urban prepared food processes "Dark Kitchen". All three urban cases take place at different moments and geographies. Urban Sharing Bicycle systems *(USBS)* started in the 60's, the first coworking space (CW) was registered in 2005 and the Dark Kitchen's phenomena (DK) is a recent urban expression that started to emerge around 2017.

For the diagnostic phase we reviewed various sources of literature of each theme to trace the historic and geographic evolution of weak signals and identify groups of key actors participating in the process of innovation. The signals were analyzed according to Elina Hiltunen's Three Dimensions method, using a semiotic triadic model of the future sign in three dimensional spaces (Hiltunen, 2008):

1. The *Signal.* the number and visibility of the signal
2. The *Issue* or *Topic.* depends on the variety of order units describing the diffusion of the phenomenon
3. The *Interpretation.* the receiver's understanding of the future sign's meaning.

Adding to Hiltunen's framework, we consider that interpretation and contextualization of the signals require the aggregation of other signals or events that apparently are not directly linked with the topic or inquiry of the future. For each case we have identified those kinds of signals that we call *parallel or contextualized signals.*

The Evolution of Social Innovation

The process of analysis was tailored to consider Manzini's social innovation evolution model which suggests that, once an innovation is identified, it is possible to trace their evolution paths from the early stages until the innovation reaches a maturity phase (Manzini and Coad 2019). Manzini describes three phases in the evolutionary trajectory of a collaborative solution, in relation to patterns of behaviour, organization and negotiations, between stakeholders capable of modulating their relational intensity of interactions, until they reach a *transformative normality* state. The model consists on the following phases:

A *heroic phase*, where activists and creative enthusiasts with certain leadership skills and a practical sense, unite or get together towards a common cause. It invents and puts into practice new ways of being and doing things, generally encouraged by a social movement and usually questions the status-quo. The *Continuity phase* is a more mature proposal which becomes accessible to a wider, less committed public, this stage usually involves a prototype put into practice which makes the advantages visible and tangible giving more continuity and realisms to the project, calling the attention to actors in the political domain who start to recognize the proposal value. Finally, in the *Consolidation phase,* maturity has been achieved, the proposal is feasible and accessible to a less compromised audience; it has reached a more suitable financial and regulatory environment, provoking a change of mentality in citizens who have adapted to new habits and lifestyles that interweave together and may produce new communities of practice in a totally new urban concept. (Manzini and Coad 2019).

TRACKING WEAK SIGNALS WITHIN THREE URBAN INNOVATIONS

Why Are Cities So Important?

In the Global Foresight Summit of 2020, Finnish futurist Eleina Hultinen talked about 10 things that surprised her while she was writing her book: "*Tulossa huomenna"* or "Mega-Trends" (published on Finnish language in 2019), she entitles surprise number #4: "Change the city and change the future", referring to the mega trend of urbanization.

With this statement Hiltunen suggests something very similar to our premise: Cities are hot-spots for understanding the future of this planet, that is why we need to pay more attention to how they are 'using-the-future' (Miller 2018) in the present to anticipate future actions. The special consideration of Megacities (those with a population over 1 million inhabitants) is based on an estimated exponential growth, starting from 10 megacities in 1990, to 41 megacities by 2030 in Asia, Africa, and Latin America regions (Hiltunen 2019). We believe that megacities are breeding grounds for innovation, and, at the same time, they represent the greatest challenges for sustainability. That is why the problems will get worse if we don't do anything. The weak signal framework WSF, as a theory and a practice, is a good way to understand this complexity.

Megacities are complex information ecosystems: dynamic, adaptive, and disruptive by nature, and we believe are good environments to use the WSF, in order to anticipate either threats or opportunities in the future.

We identify three mechanisms that provide an overview of the cognitive model of a city's anticipation capabilities: 1) *Observation systems* of formal and informal surveillance implemented by practitioners and institutional actors participating in the city's governance. Those systems collect data under some bureaucratic internal structures or external sources,

like academic initiatives or external censuses or survey agencies. 2) A city's *cognitive filter* is present through the instruments of observation and media used, which settle the kind of signals worthy of attention. Each city has different organizations and mediatic communication, and ways to control access, which define their own codification processes and manipulation of the information. Based on this filter, we could infer a city's "cognitive model". 3) The *filter of power* is seen through the decisions certain groups of actors prioritize among others, they set the general urban agenda and plans of a city.

The information infrastructure of a city counts as an important part of their territorial intelligence systems and the relationships with their citizens. Information infrastructure corresponds to digital and analog technologies as well as new media, and what a city considers valuables. It is generally based on statistical data and management teams that represent the power structure of the city and plays an important role to discriminate certain data as irrelevant. This situation contributes to what some authors have called "organizational cognitive bias", which has the effect of a general reinforcement of the status quo and a blindness towards weak or early signs of future threats or opportunities. (Schoemaker & Day, 2009).

Following the 4 distinctive features suggested by the Ansoffian framework, we developed a descriptive analysis of each case. Starting with a brief introduction, followed by the historical evolution or the signal path in the context, then we consider the "challenging" aspects of the weak signal interpretation, which always emerge through a landscape of constant dispute and tension within a turbulent environment. At this stage, we question the framing of interpretation of the experience and question our own biases and influences

To do so, we ask some questions: What other events or discourses have helped to construct the signal? What is the present social paradigm it privileges in the present and what kind of conflicts trigger among actors? Which assumptions of the future are made preferable and by whom?

Any city innovation carries order disruption, there are some who might benefit from it, and some who wouldn't. We finish our analysis by synthesizing aspects that need to be paid more attention to to create transformative spaces of alternative futures.

URBAN SHARING BIKE SYSTEMS, A KEY AGENDA FOR CITY MOBILITY

Mobility and transport have become one of the main concerns of the global urban agenda. The weak signals that feed the imaginary of future scenarios in this domain consider processes such as modal shift patterns (mainly using the car less or stop using it), transformations of travel patterns, incorporation of telecommunication technologies and changes in the lifestyle (where limits are being pushed to the extreme) and causes clashes of scale in traveling. (Kaufmann and Ravalet 2016). Within these short-term development paths, urban bicycle sharing systems (UBSS) as Fishman (2016) points out, are innovation proposals that have expanded globally and have continued to improve.

Weak Signals Path

One of the pioneer community bicycle initiatives started in the Netherlands in 1965 with the emergence of an activist group led by Luud Schimmelpennink, they painted 50 bicycles in white and put them -without a lock- in the streets of Amsterdam free for everyone to use.

In the beginning the solutions that tried to cover the demands and proposals among a variety of actors and the urban cycling movement were not based on the notion of shared bicycle systems as we know them, but instead sought to fulfil the claims of ecological, economic and health issues.

In Mexico City during the decade of 80's and 90's we can identify early signals regarding this issue as a response to a bicycle activism movement that claimed for safer roads and better air quality, it was the prelude to a war against cars. The influence of other social global movements like sustainability and sharing economy in combination with other trends like the development of mobile information technologies and new models of public-private participation (PPP) for urban services, could explain the consolidation of Urban Sharing Bicycle Systems (USBS) in the city. Although, at one point, if we go back to the traceability of weak signals, the events mentioned above have already escalated in visibility and frequency, in retrospect, we noticed a series of informal activities organized by small citizen groups, like the "night rides" or "bike convoys", operated by cyclist (specially women concerned with their commute security) that get together after working hours and ride back watching each other to their home neighborhood, avoiding transport rush hour and others treads. These activities eventually acquire more continuity and visibility, drawing attention from the political city sphere. With the tagline "more cyclists and less pollution" the bicycle activist group transformed their movement into political actions, addressed at the local government and demanded infrastructure, new regulations, and laws. Eventually the public administration supported the events, and the weekend bicycle rides by the end of each month became a popular attraction to the rest of the population. Government authorities helped by closing "Reforma", one of the main avenues in the city, establishing safe circuits around the Historical Center, and provided bicycle stations, organizing rides and, eventually, even a "Bicycle Marathon" (Cyclothon).

Just by themselves these weak signals could not anticipate the development of an urban sharing bicycle system in Mexico City. The innovation wasn't present in the first initiatives organized by the cyclist activist group, they were too small to be noticed but defied the current status quo of a city of 40,000 vehicles and 9,003,827 people. To understand their emergent quality, it was necessary to relate those signals with a pair of social phenomena happening simultaneously. As a practice, the renting of bikes already existed but it was not articulated with a stronger network of bicycle stations (accessibility) that the city provided while supporting the movement. Those stations were distributed among the neighborhoods surrounding the Historic Center area which is, by the way, topographically suitable. The progression of change continued with an intermodal strategy: closing vehicular lanes and adding a bicycle one through the main avenues that lead to the city center, thus providing better public transportation. We cannot forget that the development of mobile locative technologies helped decrease bicycle theft and made payments easier for the public and simplified the logistics for the stations. Finally, we can see a change of vision in the authorities about public space in Mexico City. It has strengthened since the 80's and opened to consideration the possibility of investment and implementation of urban infrastructure in collaboration with non-government actors.

Challenges and Assumptions

We observe some tensions surrounding the use of public space among street restaurant and store owners, and other urban services like parking meter infrastructures and other mobile alternative vehicles stations. The use of public street space is regulated by city authorities based on policies that favor walkability and encourage bicycle use at least in certain neighborhoods but after the COVID-19 pandemic, the government gave permission to restaurants to extend their premises to parking lot lanes to revive the economy.

The right to administer public space is unbalanced, so we see the order of public space as constant demand and negotiation between stakeholders.

What to Look for?

Citizens will continue to use intelligent cards or mobile apps to use different mobility urban sharing systems services: bike, scooter, motorbike, gyroscopic two-wheeled vehicles will continue to develop and will integrate electrical motors al those strategies will focus on solving the "last mile" of the typical urban journey length and connect users to public transport network systems. The emerging urban mobility landscape of the near future on transportation leans toward electric or energy efficient vehicles, integrated GPS devices with less material infrastructure like parking docks or stations. An interesting aspect is that with the post-pandemic increase of delivery of food and goods courier services UBSS would become a key advantage tool for the general workforce.

COWORKING: NEGOTIATING CONVERGENCE BETWEEN WORK AND HOME

Coworking is a special kind of arrangement of working spaces where independent workers and teams share and eventually cooperate, that allow cost savings and convenience using common infrastructures. These kinds of spaces are used by many types of practitioners -many of them independent-, industries and through different knowledge domains. The most common model works as a rental office space where workers have equipment (desk), utilities (wifi connection) receptionist, custodial services (Brown, 2017; Gandini, 2015).

Weak signals path

While the literature cites the first coworking space in 2005 in San Francisco, we can trace some early signs of this initiative, in the September 1983 issue of an article in "American Way" Magazine where the term *virtual office* suggested the possibility of dislocating the regular work tasks involved in an office supported by information and communication technologies -like telephony, computer networks, fax and messaging- already familiar back then. But it wasn't until 1992, that the first business model of virtual rental offices "Business Space Limited" was established in London and, since then, it has been replicated through many places around the world. Although emerging solutions have taken different paths and probably disassociate with the original intentions of coworking spaces. We could identify early signs of delocalization of the workplace that functions as triggers of something closer to remote working or "home office".

The modern notion of "working at home", has an early manifestation that responds to the long commuting hours of the workers at the big metropolis. The term *commuting* in

English refers to the journey that someone takes from home to work and back again, and it caught the attention of academics and policy makers in the 80's and since then, especially in The United States and Europe, started to explore the idea of working at home as a strategy to diminish those journeys starting a debate about cost-benefit and viability. The idea was initially well received by certain types of workers and industry professionals but, at present, after the pandemic has forced the adoptions of new ways of working (Boland *et al.* 2020), there is no consensus on the impact of remote working initiatives and the preferences between workers, supervisors and business employers is clearly divided. Other aspects worth considering for this analysis is the emotional state of the work-at-home professional which relates to social aspects or feeling of isolation due to lack of interaction with other persons that goes with the independent worker at home and was considered by the first coworking initiatives as one of the drivers to offer a shared space.

On the other hand, the practice of doing work meetings in coffee shops or similar spaces accentuated when portable laptop computers and other presentation devices became lighter and enabled communications through digital and mobile technology. So, the step from having job interviews or meetings in coffee shops to working spaces with laptops and wifi connections was continuous and predictable. Internet connectivity becoming more widespread and mobile phone technologies more accessible, were two early aspects that enabled certain types of professionals to look for places outside their work and cities' centers. Another driver is the transformation of both the labor market and an increase in numbers of autonomous freelance workers. Brad Neuberg, considered the founder of the coworking movement in 2005 (DiRisio, 2019). He has the early heroic vision of the movement, starting the preliminary phase inspired by the open-source movement by grouping efforts of collaboration with highly motivated persons that saw the potential and social value to share a workspace.

We can track a series of weak signals that anticipate the emergence of this new typology of spaces, collective groups of architects and artists decide to rent and share a common space usually as an old or abandoned building or storage in the periphery of Chicago metropolitan area, around the 1990s. The rehabilitation of those spaces led to the contemporary loft type housing we can see today. These groups were faced with the difficulty of being able to economically enjoy services and comforts of the urban environment and acted accordingly to adapt and optimize the available space in which they work or live. Another important aspect is that those initiatives questioned the established hegemonic culture--in this case the real estate market. There have been many prototype ideas of coworking spaces that have developed in different contexts, in American history could be tracked to artist colonies, journalist newsrooms and rent-an-office spaces in some cities, but none of them had the open community aspect of coworking. We noticed that these kinds of initiatives could be linked to social movements such as the open-source movement and hackerspaces that appeared in the early 90s in Europe. The sharing economy and the minimalist movement, we would like to stress an emergence of a new young generation called *Digital Nomads* (Makimoto and Manners 1997) –concept used for titles of the novel by Tsugio Makimoto and David Mannersnomadic in 1997.–. As a movement, Digital nomads are more familiar with telecommunications technologies and used them to earn a living and conduct their life in a nomadic manner, they see work as a lifestyle and are location independent, they usually sell several possessions to make travel easier and may also sell or rent their house and are open to share their spaces with others. The foundation of the digital

nomad movement is remote work (Ikea, 2016; Mohn 2014). and one its characterizations is the rejection of traditional nuclear families' ways of cohabitation (De Paula, 2016). All those new behavioral patterns of living and working blurs the limit between the places we have designated for the two activities, if we want to explore new models of coworking, we must look beyond the original concept of shared offices space and look for more flexible and multifunctional fringes of both spaces. The same applies for identifying weak signals regarding this topic, we need to look for early "homely" or relaxation and ludic adaptations to working scenes, as well as "office like" adaptations of life at home much like the brilliant work of ethnoarchaeology by Jeanne E. Arnold captured the middle-class American home in her book *Life at Home in the Twenty-First Century* (Jeanne E. Arnold & Al, 2012).

Challenges and Assumptions

We noticed that coworking as an innovation trend in the urban environment defies some real state regulations and standards, especially among those who get to decide the value of a place. What does it mean to "share" a place and what other kinds of regulation might be put into practice that are not economically based? After the pandemic, coworking spaces became an option for certain labor sectors (technology and office work) but setting aside plenty of other occupations like medical caregivers, delivery services and restaurant and leisure arenas, which require human proximity to execute their work. Even among office or education workers, the remote work alternative after the pandemic showed some gender inequalities and increased domestic violence at home, women working from home had more difficulty balancing both activities. There are some coworking spaces that see this difficulty as an opportunity and are starting to focus on women. Figure. 2.0 shows an advertising campaign in México for a coworking space focused only on mothers, called "co-madre".

What to Look for?

Emerging coworking and remote work initiatives represent one of the most profound signs of transformation in labor and consequently life in contemporary societies; they also set the pace for the new ways of spatiotemporal arrangements in a city. This transformation of a place opens new typologies of innovation for architecture and service design. The new coworking spaces proposals are still in the *continuity phase,* looking for constant replication and prototyping. As many of the sharing economy initiatives they are constantly adapting to context, compromising urban normative and regulation in real estate as well as new sanitary laws. We need to consider some disruptive changes in the urban shared spaces, especially after the COVID-19 Pandemic.

Before the pandemic, coworking visibility had reached the interest of the political sphere to a degree that certain economies, mainly Asian and Latin American, where governments were starting to plan new regulatory policies for remote work and started to recognize alternative places for remunerated activities than those established by the employer. At least it opened the questions of which occupations require physical presence at the center of employment and which hybrid models and resources could help employees work remotely and continue with better productivity while maintaining social security and health standards.

"DARK KITCHENS", EMERGING SPACES OF PRODUCTION AND DISTRIBUTION OF URBAN FOOD

Urban Food Systems have been showing early signals of the radical transformation of the relations humans have with food and their impact on health and sustainability of the planet in the future. Some of them may be interpreted through the lens of what some authors have named the great food transition. (Kampers & Fresco, 2017). As expected, any change in urban food systems (UFS) carries a spatial dimension among the emergence of new practices that impact the future of the city's ecosystem and inhabitants. Some examples of these practices are new spaces of food production in urban agriculture, proliferation of local markets in public spaces, consumer cooperatives worried about nutritional aspects. There are many innovative strategies that focus on one aspect of the whole food supply chain process. An urban initiative of production isn't only grown on land but involves fishing and aquaculture as well. The food transport, distribution and sale phases have incorporated digital technologies by using on-line and digital platforms, as well as delivering services that take a meal or groceries to your door. There are also innovations in new forms of food preparation and the places to consume it, as well as new initiatives concerned with food waste that try to diminish or recycle it. (Steel et al., 2020).

In this case, we will center on one innovation strategy that deals with one of the main places of preparation and food consumption: the kitchen, the main operation and production heart of a food system. A "Dark Kitchen" (DK) or "ghost kitchen" is an innovation model that incorporates the operational activities of a kitchen but without a public face (Nunn 2021) and consists of multiplying virtual points of selling of restaurant, caterers, and wholesale business by sharing the same kitchen space. Having the same operational space means that different food businesses could share ingredients, equipment, and employers to supply multiple product brands. While DK models can vary, the traditional model focuses on maximizing efficiency and keeping operational costs down to expand to online delivery orders. In practice this means that a client could order any kind of food: Indian, Italian, hamburgers, or pizza from different restaurants but it all comes from the same place. (Bromwich, 2019).

The initiative is trying to reach the restaurant sector in many cities by adapting to different contexts and focusing on serving diners to different consumers either at home or in the office using alliances with delivery aggregator apps like *Doordash* and *Uber Eats* which are entering into the Dark Kitchens game by offering kitchen space and equipment for restaurant businesses to rent.

Weak Signals Path

If we try to identify the first signs of this phenomenon, we go back to the emergence of digital platforms such as KITCH in France (Bridet, 2020), which based their offer on an exclusive tasting variety of food to customers willing to pay for it. The first registered DK startup was *Maple* in New York City, which started in 2015 and closed in 2017. (Bromwich, 2019). Digging in the term connotation of "ghost", referred us to more clandestine purposes. An NBC article, in 2015, exposed some restaurant owners in New York who were listing their restaurant under multiple brands and using their kitchens under different names and addresses to skip inspection grades.

This liminal connotation could be linked to "Speakeasies" private unlicensed barrooms and restaurants in Chicago and New York, back in the Prohibition in the late 1920s which created an underground nightclub culture where jazz fit the mood and have evolved to their contemporary version "Speakeasy" culinary and music "illicit" events located temporarily on warehouses, stores or places with non-commercial land use. The DK phenomena clearly questions the "status quo" of kitchens as places of food preparation and follows an economic logic in terms by getting rid of service operators, waiters, storefronts, and high rental costs anchored to one location.

As a business model, DK emerged with the digitization of information in combination with the rapid growth in consumer demand for restaurant delivery meals. They have clearly occupied their place in the food economy and start-up sector and are waving for the attention of the restaurant sector.

Summing up to these changing attitudes, the restrictive policies caused by the sanitary emergency caused by COVID-19 has forced many food services businesses to look for alternatives to survive. The DK model has become an alternative for the preparation and delivery of food that could hold many businesses together and help share many resources or consumption and infrastructure in the same place.

One of the obvious trajectories of DK relates to "Take-away" restaurants, but we could dig deeper in their genealogy and trace back to the urbanization phenomena and its dynamics: like the "*Fast Food*" movement or the incorporation of women in the force of labor, all those aspect influenced food changes habits of the population of big cities, such as eating alone, shorten the extension of the time slot for eating, and increased diversity of food offerings for each context. To understand the role of these weak signals is essential to trace the consolidation of any innovation and could help us anticipate and imagine the future of a city. These perspectives open the possibility to track convergent paths and coincidences, like with this topic, we could broaden our research to explore the trend to use autonomous cars or drones for food delivery.

Challenges and Assumptions

For this realm, we must question how power and economic structures are distributed among stakeholders of cooking and preparation stages and service providers in restaurants. Also, who gets to manage the whole process and who really benefits from it.

As a practical solution we must question who benefits the most from the sharing of space. The connotation of "hidden" for kitchen activities can carry some negative interpretation in relation to quality control processes causing tensions among regulatory standards for places related to cook preparation.

What's Next

The pandemic effect had led many restaurants to close their doors to the public and adapt their menu to "take-out" and follow new standards of social distance worldwide. The concept of Ghost Kitchens is becoming popular, and it could be an alternative to keep the business afloat. Some indicators show that food sale and delivery at home will have a great boom in major cities (Mexico City increased food delivery service at 55% in 2020 with respect to the previous year).

Central Business districts have been slow to rebound from the pandemic effects, they might need to adapt to more inclusive and affordable means. A prominent consequence of this is that those food service businesses that cannot adapt to the imminent digitization platforms might be doomed to disappear. Cities with a strong orientation toward tourism would converge towards a process of "foodification" where specialized functions are centered predominantly around food.

Innovative transformations of a city rarely arrive without warnings but our own bias and filters function as barriers to identify and interpret their early manifestations. The three urban cases addressed showed diffuse early signals, almost invisible at first, if we analyze them as isolated topics, they are difficult to use as a form of anticipation. So, to interpret *weak signals*, we believe it is necessary to incorporate them to a contextual dimension.

CONCLUSIONS

Identifying weak signals in the context of cities has pointed out a strong spatial component. While innovation flows between cities, there is a strong diffusion pattern of knowledge and experimentation exchange, even if they are distant from each other, cities influence themselves through the processes of adoption and adaptation of innovations. A source of weak signals innovation in one city, starts with the observation and experimentation of what is happening in a distant one. The case of bicycle sharing systems, coworking spaces and DK are concrete examples of the rapid mechanisms and circulation of ideas that cities have worldwide.

Although this project is work in progress, our experience so far shows that weak signals are early warnings circulating from one place to another constantly adjusting and adapting to new contexts.

We noticed two kinds of cities regarding weak signal behavior: for cities where innovation originates, weak signals have to do with experimenting and transformation activities like changes in lifestyles, social habits and customs, technology adaptation or appropriation and for the rest of the cities, weak signals function as early warnings that come from other places and need to adjust or adapt to the new context.

The cases analyzed are examples of emergent models of urban space based on collaborative and commonality principles, even if they come as business initiatives with profitable results in mind (some even questioned regarding their sustainable impact) we cannot deny that these initiatives are based on collaborative way of doing things that expresses a high degree of autonomy, cooperation and solidarity of the parties involved. It should be noted that there is a prevalence of collaborative models in the organization of practices that demonstrate a proliferation of initiatives in cities that have already been identified by some groups, coining the emerging term "Sharing Cities" or "Sharing Spaces" (Chan & Zhang, 2021).

Despite these several challenges we believe that an open and consistent weak signal approach in a city, along with time, could bring the development of capabilities to anticipate to its citizens.

In the last two decades many cities have opened urban observatories; these initiatives correspond to the first steps of development in territorial intelligence, where the identification, collection, and analysis of data of the urban environment is carried out. We consider that observatories are perfect spaces for the incorporation of the weak signals

approach (González Arellano, 2014), Nevertheless most of the urban observatories work with a common cognitive bias that favors quantitative index trends, leaving aside weak signals.

Finally, we believe that cities could act as innovation cultivation spaces, able to use their anticipatory capabilities to start hypotheses for a variety of future-looking knowledge processes (Rossel 2021) enhancing their conscious 'use-the-future' capacity (Rosen 1985) to make it function in ways that are relevant for a diversity of stakeholders.

We hope to inspire readers or listeners to reflect upon exploratory methods to analyze unforeseen futures of certain urban phenomena, question their own assumptions and be curious about how to develop their capacity to imagine new visions of the future with more creativity.

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Papers

Communities

The emic position is an ethnographic tradition, fraught with contradictions of the multiple perspectives brought to bear on the interpretation of culture. Ethnographers in this session call upon us all to examine how ethnography can truly embrace the communities it watches. These authors show us that where and how the emic tradition can be brought forth, reinvented, and invigorated.

Reimagining Livelihoods

An Ethnographic Inquiry into Anticipation, Agency, and Reflexivity as India's Impact Ecosystem Responds To Post-Pandemic Rebuilding

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The COVID19 induced lockdown in India and consequent migration of workers severely affected the economy. When the migrants returned to urban areas, newer challenges surfaced around the scale and nature of jobs on offer, as well as the skills and aspirations of workers. In this paper, we follow a social impact project focused on livelihoods and post pandemic rebuilding, to explore the trails of ethnography and how its engagement along multiple networks shapes its possibilities as a research method that helps foreground emic perspectives. In doing so, we analyse agencies and social relations from the field, and their role in shaping project imaginaries. Anchored in original, long-term participatory ethnographic research, our paper thinks alongside Appadurai (2013) to surmise that anticipation is imbricated in the coming together of a grounds-up 'ethics of possibility' and a top-down 'ethics of probability'. Importantly, we turn to Actor-Network Theory as a framework to understand the multiple assemblages in our research field which (continue to) challenge existing knowledge practices and open up new lines of inquiry for ascertaining emergent areas of research and innovation. Such coeval realisations of aspirations and resources are evidenced on multiple occasions as we engage with designers, skilling experts, entrepreneurs, and technologists. These range from beauticians in peri urban areas following the country's leading Instagram influencers to keep themselves abreast of the latest trends in metropolitan cities as a way of compressing spatial and temporal barriers (Field Notes 2020), to delivery boys who found meaning in working as gig-workers even though it implied precarity, and telemedicine entrepreneurs who realized that factoring in the social (of community health workers who they worked with) in the sense of integrating biomedical responses to the pandemic was essential for the success of their technological interventions (Field Notes 2021; Burgess and Horii 2012). Thus, our paper argues that future making as at once a means and an end is 'not just a technical or neutral space' but a 'cultural fact' (Appadurai 2013).

Keywords: Livelihoods, Anticipation, Reflexivity, Ethnography, Emic, Future-making

INTRODUCTION

On a sultry June evening, we were to speak with Debashish Biswal (name changed), a delivery worker with a well-known pharmaceutical chain which had ventured into the ePharmacy business. Dialling his number, we were worried about how the conversation would go. It had barely been three months since the countrywide COVID19 lockdown was announced, the repercussions of which continued to be acutely felt by gig workers like him.

Figure 1: "Even dreaming comes at a price", said Debashish. Illustration by Vidya Gopal

In his mid-twenties, Kolkata-based Debashish had begun his career about three years ago in retail, at a city store. The promise of a good salary had him change track to last mile delivery, with one of India's most successful ecommerce companies. Yet, the branch he was attached to did not do too well and when the prospect of a transfer presented itself, he joined an eGrocery company as a member of their delivery staff even though the pay was lower. And from there he had moved to ePharmacy delivery just before the lockdown.

> "I have a cousin brother who is also a delivery boy. I consult and take advice from him. OLX, Quickr, and Facebook have forums which I track for job opportunities. Sometimes I call companies directly." (Field Notes 2020)

Our conversation shifted to careers. Given the pandemic and its unpredictability on one hand, and the fact that he had already spent up to three years as a last mile delivery worker on the other, we asked if he had considered upskilling. Was there a particular training programme or course which he might be interested in?

> "I have an undergraduate degree in education and teaching from the West Bengal State University. I wanted to do an MA, earn my Doctorate, and then become a teacher. I even considered a career in hotel management at one point as an alternative, but could not pursue it. My father is no more. And at home I have my

mother and two younger brothers, one of whom is still studying. I have to provide (for them). *Sochne mein bhi paisa lagta hai* (even dreaming comes at a price)." (Field Notes 2020)

After a pause, Debashish continued.

"As part of my job now, I am required to speak with pharmacists. In the process, I get to learn about medicines. The company might not have given me any training on medicines. Yet, I learn from pharmacy store owners and store hands themselves. In fact, customers ask me about the medicines I deliver, and I have learnt to be able to address their queries myself. *Medicine ka composition samajh mein aa jayega toh achha hai… customers ko bata sakte hain* (of course, it would be good if I knew the composition of medicines, for I could also advise customers). With this learning, I hope to one day open my own pharmacy." (Field Notes 2020)

Appadurai (2013, 285-300) advances that an anthropological treatment of future-making might factor in ideas of the "good life" rooted in "the search for prosperity, mobility, and voice", which he alludes to as the "capacity to aspire". This, he posits, is an inherently social and cultural construct which draws on "local systems of value, meaning, communication, and dissent" to configure and reconfigure future imaginaries and their negotiations in a continuous and incomplete endeavour: in short, anticipation (Appadurai 2013). Ultimately, the capacity to aspire and anticipation itself is framed within affective negotiations between a bottom-up "ethics of possibility" (effectively, the emic *socialities,* or agencies and social relations which permit an expansion of hope) and a top-down "ethics of probability" (essentially, those etic artefacts of risk, calculation, and technocracy which serve to define what can and what can not be). This then, is why "those who seek to design the future, or even to design for the future" must recognise that "the future is a cultural fact" (Appadurai 2013).

The first nationwide COVID19 pandemic-induced lockdown triggered an exodus of migrant workers from India's cities over March/April 2020, and brought into sharp relief the "precarious transitions" (Roy *et al.* 2021) of those employed in the informal and gig economies. As markets reopened and migrant workers returned to urban areas, still newer challenges emerged around the scale (numbers) and nature (different kinds) of jobs on offer to them, their skills and availability (BW People 2020), and the systemic deepening of their social and economic vulnerabilities (Srivastava 2020). In fact, these continue to be further compounded by a recrudescent pandemic and its attendant uncertainties.

As at once anthropologists as well as inhabitants of spaces which we shared with the socially and economically affected, we turned to leveraging the disciplinary canon and putting research to use in collaboration with impact sector specialists. Our collective starting point was to study and design jobs which returning migrant workers as well as informal sector and gig economy workers could perform in the scenarios being defined by and through the pandemic and lockdowns, as well as the skills needed to do those jobs well. The *job* was thus our construction of how the "good life" (Appadurai 2013) might be imagined by those we were studying. And the intent of our collaborative endeavour was for the associated data assemblages of jobs and skills to be hosted on a technology platform which might be used by workers and their potential employers alike to realise them. In this manner, our response fell squarely within the realm of the digital solutionism which emerged as a

response to the pandemic and the attendant crisis over the summer of 2020, where administrators, employers, skilling organizations and impact entrepreneurs alike turned to ontological imaginations resident at the intersection of data, platforms, and technologies, to enable speedy and at-scale matching of job demands and availability/skills of labour supply.

Figure 2: Debashish was not seeking to be a better delivery worker, but wanting to learn about medicines so as to open his own pharmacy. Illustration by Vidya Gopal

As Debashish's example shows, our starting efforts were anchored in a top-down view manifestly as a *skill development platform* predicated on the *job*. Yet notwithstanding the limitations of capital (not having pursued teaching or hotel management because of financial constraints), this was sought to be negotiated by him through imaginaries of the "good life" (Appadurai 2013) as lying beyond the job, in the sense of the far broader notion of the *livelihood* (not seeking to be a better delivery worker, but wanting to learn about medicines so as to open his own pharmacy). Any intervention by us, whether sanctioned by or through technology, needed to therefore be situated in both the *lived everyday* as well as the *incomplete localities* of those whom we sought to study. And as we show in this paper, ethnographic understandings rooted in reflexive considerations (what is our research really about?, who is it helping?) allowed our project and its charter to evolve in tune with their "capacity to aspire", as our gaze shifted from *jobs* to *livelihoods*, and from *skill development* to an *enablement exercise*. In the process, our paper serves to demonstrate how ethnography and its vocabulary

can help frame the design of approaches which albeit rooted in the digital do not privilege technology alone, but instead render visible and draw upon evolving understandings and appreciations of the *socialities* of those we design for.

Field, Methods, And Research Questions

Our project is a continuing endeavour, as we cover different sectors such as telemedicine, delivery and logistics, home utilities, as well as beauty and health. To the extent that we (have) sought to trace how livelihoods are being reimagined in each sector, yet as part of a broader post- and *in-* pandemic rebuilding imaginary, our research field (has) changed from one sector to the other.

Taking our work in the telemedicine sector as an example, we note how our inquiries of the *community health worker* as a livelihood led us to trace teleconsultation as an activity (between the doctor and the patient), a *process* (including elements such as scheduling, using the mobile or laptop based app, or following up with a second consultation or even a second opinion), and an *object* (as defined by the app, or the wellness centres in rural or semi urban settings with their audio-visual equipment to facilitate teleconsultations for patients). While on one hand, we sought to understand the agencies of the network of stakeholders both human and non-human (as we explain later in this paper in reference to Latour's Actor-Network Theory), we also considered various sites of participation and observation within the telemedicine sector. In other words, our research field was multi-sited, where our approach was to "follow the object", as for example where teleconsultation was the *object* and its circulation is what we chose to *follow* (Marcus 1995). At the same time, each of the sites were bounded geographically (the city of Bangalore as one site, a peri-urban neighbourhood of Mumbai as the second site), in recognition of the fact that each presented an "incomplete window onto complexity" (Candea 2007).

In telemedicine as in the case of each of our sector-specific research fields, the pandemic's realities pushed us to adopt and adapt various remote ethnographic methods such as ethnographic interviewing, day-in-the-life studies using photo elicitation over WhatsApp, public culture analyses (Appadurai and Breckenridge 1988), and embodiment or first-person perspectives. Yet it behooves us to clarify that *this* paper is in fact, a Frazerian reflection on our research across different sectors. It is imbricated in at once our positionality as researchers of those affected by crisis, the phenomenological materialization of being affected by crisis ourselves, as well as a reflexivity born of being "an-other" (Sarukkai 1997), in the sense of being members of a broader Bangalore-based team of designers, skilling experts, entrepreneurs, and technologists which sought to resolve the crisis. And so, even as our paper is moored in autoethnographic reflections on the continuing, long-term participatory ethnographic research which we have been involved in at a site of production (Hall 1999) (in the form of a technology-enabled attempt at addressing the crisis of 2020), it oscillates in its reading of subject and object (is it the informal sector worker, the designer, *or the researcher*?) and equally between analysis (why and how has it come to be? have our methods and notions of the "good life" (Appadurai 2013) elided the agency of our informants?) and synthesis (what can be done?). And thus, the questions we have sought to root this paper in, are as under:

1. How is technology/digital constituted by and constitutive of the imaginaries of new roles and associated skills for migrant or informal sector workers?
2. Who are the knowledge-actors guiding the realization of these imaginaries? Which aspects are made visible by their inherent knowledge practices? What elements are rendered invisible in the design ideologies?
3. How does the reproduction of social relations, the agencies of the field, and negotiations in the everyday influence the project of future-making as an emergent "cultural fact" (Appadurai 2013)?
4. And how does this in turn, shift the epistemology of future-making among the many stakeholders, including the researchers themselves?

Reading This Paper

In the first chapter, we describe the collective project/endeavour we were part of and which came to be known first as *Reimagined Livelihoods* (wherefrom this paper draws inspiration for its title) and subsequently as *Upjeevika* (Upjeevika 2021) (translating from Hindi to *occupation or livelihood*). We trace its evolution, and highlight how ethnography helped foreground an emic perspective.

Our second chapter has us delve deeper into how agencies and social relations from the field influenced project imaginaries and design ideologies. And in our third and final chapter, we examine the turns and resets in epistemological perspectives and ontological realizations, as the project evolved. Taken together, we note how such negotiations and shape-shifting respectively, aided the coeval realizations of aspirations and resources.

As we conclude, we return to our principal argument that adopting an emic perspective permits anticipation to be understood as an engagement with an *emerging* field, and to be framed as a "cultural fact" (Appadurai 2013). For the future is not only always up for change but is also continually being challenged through reconfiguration and reterritorialization. And ethnographic readings can help identify such moves and trends.

CHAPTER 1: THE IMAGINARIES OF REBUILDING

The *reimagined livelihoods* endeavour owes its origins to a series of "thought starters" as posts on social media which were initiated by two impact sector professionals in the early months of the pandemic in India (Vasudevan and Kaushal 2020a). With their individual focus on communications and skill training, they sought to use the updates (titled "Reimagining Livelihoods to DeCoronize India") to investigate and articulate the shifts in migrant worker jobs which could "enable aspirations of India's informal workers in a *post* COVID-19 world" (Vasudevan and Kaushal 2020a). The distress engendered by the pandemic-induced lockdown, such as reverse migration, is well documented (Patel 2020) with visuals both disturbing and sobering. In particular, the informal sector was the most affected, with 71% of the demographic (or 91 million people) having lost their jobs by April 2020 (Vyas 2020).

While an exercise in future making, the initiative concomitantly sought to invoke an archetype of the past, in the form of Mahatma Gandhi's economic philosophy of the "self-sufficient village" which emphasizes the need for meaningful employment in the rural economy, by creating infrastructure in the form of 'village and cottage industries' (Datta 2021). The updates variously realised and represented livelihoods as distinctly bounded jobs,

different for rural and urban India (we will shortly return to this in greater detail). The envisaged shifts in job roles purported to lay the ground for reskilling and relearning, so as to "equip *individuals* in these job roles to be better prepared" (Vasudevan and Kaushal 2020a). The initiative invited "colleagues in the states, corporates, civil society organizations and *urban* communities" to support this tangible *transition*, and to "deCoronize" (Vasudevan and Kaushal 2020a).

Each of the posts as indicated in Figure 1 (Vasudevan and Kaushal 2020b) was job or role specific, carried infographics on industry and consumer trends that validated the market demand for that job, and outlined the persona or profile of a role holder in the form of demographic and socio-economic data (such as age, education, and salary). Finally, each post proposed what the job could look like in a pandemic reality, and the skills that might be needed to "future proof" (Vasudevan and Kaushal 2020b) them as livelihoods. Buoyed by the popular support it gathered, the initiators of the posts added that it was time to stop talking about job losses [in the present] and to start thinking about how jobs/work could be created for the most affected [in the future] (Field Notes 2020).

Figure 3 (Vasudevan and Kaushal 2020b): The thought starter posts of the reimagined livelihoods initiative, in the early days of the pandemic

Ethnography As A Way In

As consumers of social media content, our interest was piqued by how the persona of a role holder had been laid out, drawing on demographic and socio-economic data as *facts*. Reaching out to the authors of the posts, we tabled the need for understanding existing knowledge practices amongst the role holders before designing communications to support the initiative, as a methodological way in for the inclusion of emic, bottom-up views in the narratives. In the process, we sought to endorse the inclusion of the voices of the role holders, their lived realities, and their aspirations in the articulation of the persona. Our subsequent involvement in the project towards June 2020 thus marked the second phase of the initiative, with a weaving in of ethnography as a praxis.

Over the next few weeks, we started reaching out to migrant workers who had returned from cities, as well as informal workers in the cities who were delivering groceries and

medicines as essential services during the lockdown. In light of the restrictions that the pandemic presented as also the distress across the country, we were conscious and mindful of the situation which these individuals and their families found themselves in. This had a bearing on our research methodology as well, and we sought to adopt channels that our interlocutors were familiar with, such as phone calls, WhatsApp chats in the vernacular, and mobile photography (serving as a record keeper of the everyday). Furthermore, these methods yielded oral, written, and visual artefacts as "cultural texts" (Geertz 1973) or meanings. These meanings informed our subsequent lines of inquiry, but more importantly, started challenging our own understanding of the context.

As a starting point, our own understandings had been shaped by studying the *Reimagining Livelihoods* project's narratives and communication materials, interviews with the two impact sector professionals who had initiated it, as well as an analysis of the demographic and socio-economic data that had been foregrounded in the existing personas of the role holders. Our conversations with our research participants prompted a return to this material, where adopting an interpretive approach (in a Geertzian manner of sensemaking (Tholen 2018)) rendered visible the assumptions which the initiative had incorporated as a given on one hand, and brought into view its invisible negotiations on the other, in the manner which only a bottom-up emic gaze could unearth. As an example, the project had conceptualized the urban and the rural as having distinct permutations of how jobs/work could be created (Vasudevan and Kaushal 2020a). Furthermore, the reverse migration was envisioned as a finality, with a belief that "those who have moved back to their roots, may decide to stay there, either due to social pressures from their families or due to the inability of the urban ecosystem to absorb them back" (Vasudevan and Kaushal 2020a). And finally, the role holder was now divorced from the *socialities* of their workplaces which were once possible in a pre-pandemic era, and instead conceived as a "solopreneur", as for example in the case of the auto service technician, whose job role was envisaged as shifting from service centre delivery to doorstep delivery (Vasudevan and Kaushal 2020b).

Back And Forth To Move Ahead

Our research organically led us down the path of a hermeneutic spiral (Tholen 2018), with each conversation challenging our notions and shaping our participant interactions. This new understanding helped shape how livelihoods came to be represented in the articulation of subsequent job roles. At the very least, as one of the two impact professionals pointed out, the voices "from the ground" (Field Notes 2020) were being included as aspirations and challenges of the individual role holders. Soon enough however, we realized that the meanings that individuals drew from their work often went beyond their jobs or livelihoods, and were a commentary on the larger socio-cultural realities that shaped their possibilities. These possibilities were not of livelihood alone, but of the social relations which governed them. They were indeed the possibilities of life itself. Furthermore, we noted that neither the urban, nor the rural was a terminal point or a final destination. This was corroborated by the fact that the migrants largely returned to the cities they had fled from, after the lockdown restrictions were lifted (Kumar 2020). Where most approaches to studying migration have adopted a structuralist approach, we advance that the issue of migration is one that involves moving *lives*. In short, migration covers a variety of life aspects, on account of the movement from one socio-cultural ecosystem to another. Thus,

our ethnographic inquiries questioned the binary assumption of rural and urban livelihoods in the project thus far, and whether they could even be considered as being distinct.

Our conversations with electricians based in peri-urban areas of a city in central India, revealed that the aspirations of an urban livelihood were rooted in not the individual's, but the family's aspirations (such as quality education for the children), that supported the social goal of family mobility. Even within cities, migrants relied on existing (rural) kinship networks which had served to facilitate joint livelihoods, and were translated into their lived realities on how an individual found work, gained skills, and got support when in need. In this sense, livelihood was not an individual construct but rather, a social one.

And on a similar note, our conversations also made clear that the connections which the electricians had with their villages were inextricably linked to ownership of land and assets in the rural areas, without which, they were unwilling to move back for good. These insights led to fresh contexts, and a shift in the narratives that *Reimagining Livelihoods* subsequently adopted. In the articulation of emergent job roles for electricians, the distinction between urban and rural was called out as indicative (and therefore having a contingent meaning) and it was acknowledged that the roles should be viewed as a whole, as a reflection of the possibilities that were offered by the urban and rural ecosystems jointly (Figure 4) (Vasudevan and Kaushal 2020c). The contingent meaning has started to blur the boundaries of the binary.

Figure 4 (Vasudevan and Kaushal 2020c): The thought starter posts of the reimagined livelihoods initiative, as ethnography was introduced

The Scale Of Imagination, And The Imagination Of Scale

These newer understandings in turn opened additional lines of inquiry. Considerations on how livelihoods might be made "future proof" (Vasudevan and Kaushal 2020b) led to a focus on skills and skilling. Not only were the existing skills being examined for continued relevance, but new skills such as hygiene and sanitization skills started entering the frames. The gaze had shifted from tracing individual skill progression, to skills that guaranteed reliance and sustainable livelihoods, as well as livelihoods rooted in the socio-cultural realities. Would for example, community or network-based skilling be more effective for electricians? How could training be imparted for skills and tasks which were tactile? A digital platform began to be visualised, as a repository of jobs/skills which could be accessed by workers, employers, and other members of the ecosystem to enable the livelihoods in question.

The reception of the social media updates inspired the imagination of a bigger scale of impact. The thought starters had yielded areas of opportunity for rebuilding, and with an influx of funds, a technology led narrative started to materialize. The pandemic had established the certainty of an uncertain future, with the livelihood and hunger crisis progressively intensifying as infection or caseload waves waxed and waned (Paliath 2021). This uncertainty brought technological solutionism in its wake, with the scale and speed of pandemic rebuilding being construed as necessary for impact. As we have noted elsewhere, in our study of the discourses and negotiations within the startup ecosystem in Bangalore over 2019, "scale begets scale", where "with each subsequent stage of scaling-up, the necessary evidence was acquired as at once a qualification and an exercise in preparing for the forthcoming stage" (Saksena and Mohanty 2020). We can draw comparisons with how the imaginaries of rebuilding (as envisioned through and by the Reimagining Livelihoods project) transformed with scale. Funding was secured towards the end of 2020 and with it, the scale of imagination was amplified. A narrative of technology-led leapfrogging took centrestage. The intent of the initiative did not stop at merely galvanizing support, but turned towards seeding a social impact incubator which proffered "an ecosystem that can provide promising social enterprises with the skills, technology, community support, and market linkages they need to scale their impact" (Upjeevika 2021). The *Reimagining Livelihoods* project was rechristened as *UpJeevika - Reimagining Livelihoods at Scale*, and sought to leverage analytically grounded, anthropological interrogations of how livelihoods in specific sectors (such as telemedicine, delivery and logistics, and energy) were being "imagined, represented, negotiated, and experienced in the everyday", to define mandates for innovation challenges that could source ideas and social enterprises for incubation (Upjeevika 2021).

This new scale also presented an opportunity for us to reflect upon our research, and reestablish our key considerations. In the process, and in a continuing endeavour, our study of subsequent livelihoods has thus come to be marked by the following:

1. Studying considerations of the future as "cultural facts" (Appadurai 2013). For example, the construct of resilient livelihoods was now seen as imperative, to build readiness for the next crisis (Upjeevika 2021). And with these new imaginaries entering the narratives, what implications could they have for the lived realities of those whose livelihoods were at stake?

2. Investigating the imaginaries of technology solutionism as building and augmenting the *potential of impact*. For example, the potential of livelihoods within telemedicine had to be studied across the value chains that defined its technological landscape (such as teleconsultation, eHealth, ePharmacy, and last-mile-telehealth). Within these frames, which of these technologies were being considered for matching providing better healthcare (as both reach and quality) with patient data privacy? And thus, where did the opportunities of rebuilding livelihoods at scale lie.

3. Actively exploring the turn to *actionable research*, that is translating meaning to reflexive inquiries or "livelihood challenges" around which potential solutions from organizations and enterprises could be invited for "building livelihoods at scale" (Upjeevika 2021), whilst keeping in mind that migrant, informal, and gig worker *socialities* in India are "essentially composite and digitally immature communication ecologies" (Rangaswamy and Toyama 2006).

In this chapter, we have described how the starting point or impetus for the *Reimagined Livelihoods* project was to identify those jobs which returning migrant workers could turn to, as an immediate response to the reverse migration problem. As we have shown, the imaginaries of post-pandemic rebuilding evolved at the confluence of an inherently technological discourse and a comparatively low-resource/analog *socialities*. Thus, the focus of the project shifted first to the design of a skilling technology platform for various roles, and subsequently to the enablement of livelihoods and enterprise in different sectors (through the livelihoods challenge) informed in turn by ethnographic readings of the *lived everyday and incomplete localities* of the pandemic. In short, adopting an emic view which incorporated the *socialities* of migrant, informal and gig economy workers, catalysed the evolution of the project's gaze from jobs, to skills, and finally to livelihoods.

CHAPTER 2: ETHNOGRAPHY AS NEGOTIATING THE NARRATIVES OF FUTURE-MAKING

Had he not said as much, we would have been hard pressed to guess from the Zoom video call alone that he was still studying for his medical degree. In his final semester, Ali (name changed) was volunteering with the local municipal authorities in Bangalore to triage COVID19 patients, advise treatment for them via teleconsultation, as well as conduct vaccination camps. Evident from the manner in which he shared his views, the experience had instilled a remarkable sense of confidence.

> "Telemedicine is here to stay. There were network and connectivity problems last year, yes. And we had to turn to WhatsApp. But all of that has been addressed now. The larger worry is that most of the teleconsultation apps are just too complicated. The older doctors in particular find the whole process rather cumbersome. They have to boot the system, navigate the app, schedule the consultation... I mean, ultimately it would be simpler if the doctor could just talk to a patient." (Field Notes 2021)

It was the month of May 2021, when India was in the midst of the COVID19 pandemic's devastating second wave, and Bangalore itself was among the two cities

recording the highest infection case counts (Dutta 2021). We ask how patients have found the turn to teleconsultation.

> "It saves them time and money. And protects them from unwanted infections, and more so at a time like now. Yet they do need more convincing on a video consultation, than in person. And there's also the rest of the household… the whole family gets involved. Sometimes, they ask questions for themselves as well. Before you know it, a fifteen minutes' consultation has turned into a half-hour session." (Field Notes 2021)

We are interrupted by a zealous phone call, which Ali excuses himself for. While the audio is muted, the camera-feed is still live. And we can discern that the call is quite the animated one.

> "I'm sorry for that. I can't exactly switch my phone off, you know. It is mostly about prescriptions… patients have doubts about the prescriptions. They call us or text us... Our privacy... we really do not have time... everyone expects us to be hooked to our phones... They keep calling us. We really don't have time for ourselves. And all of this is not counted... it is a whole package deal that one teleconsultation session leads to." (Field Notes 2021)

Although the COVID19 pandemic has focused public attention on telemedicine, the concept and its coeval practices such as teleconsultation, telediagnostics, and telehealth are not new in India (EY 2020). Critical analyses of its successes and failures in fact, have pointed to a need for considering factors such as *connectivity* and reliability (in low resource settings), *tutoring* (in the sense of improving the competence of healthcare professionals), and *moulding* the patients/beneficiaries (by increasing their self-efficacy and ensuring social support) (Chandwani, De, and Dwivedi 2018). And sitting alongside this is the anthropological understanding that responses to health are socially determined as opposed to merely being biomedical (Burgess and Horii 2012). In other words, a consideration of the socio-cultural logics of the telemedicine interventions become imperative.

In March/April 2021, the gaze of the *Reimagined Livelihoods* project shifted to the telemedicine sector. The *community health worker* was identified with a view to understanding how the livelihood could manifestly enable interventions such as teleconsultation. Our first ethnographic port of call included doctors and patients, as at once users of teleconsultation apps and platforms on one hand, and as members of the ecosystem who community health workers engaged with to drive the adoption of teleconsultation initiatives on the other. These encounters had us calibrate our approach in varied ways. As we have explained earlier in this paper, it became evident that we needed to "follow the object" (Marcus 1995), and thus trace the entanglements of a teleconsultation app/platform or initiative. Our field thus emerged as multi-sited, to cover healthcare actors engaging with a nascent teleconsultation platform. Furthermore, and as our interaction with Ali suggested, we expanded the field to encompass both direct and indirect users such as patients' families (as multiple members of the family tended to participate in a consultation), members of the teams which scheduled and coordinated teleconsultations (to help doctors navigate the process), and even the designers of the app/platform themselves (how were they accounting for the interactions which lay outside of the app/platform-based teleconsultation itself?) (Field Notes 2021). The

preliminary ethnographic interactions also informed our research questions as we sought to understand if and how the app/platform considered the competing constraints of *connectivity*, *tutoring*, and *moulding* (Chandwani, De, and Dwivedi 2018) and whether it proffered an opportunity for the *community health worker*. And finally, our research methods adapted to the low resource settings which the app/platforms themselves were being used in, as for example by resorting to asynchronous tools such as photo elicitation over WhatsApp.

Ethnography was thus not merely a methodology, but also an episteme which framed anticipation (what should the research focus on? how will this help? who will this help?) against the backdrop of considerations for success/failure of telemedicine, as "cultural facts" (Appadurai 2013). It anchored a questioning of the imaginaries of technological solutionism, by advancing that they were in fact social constructions with social, political, and environmental consequences, and where (thinking alongside Heidegger) we might view the design of an app/platform or intervention as the manifestation of one of manifold potentialities on offer (Heidegger 1977). The designers of the teleconsultation platform which had come to shape our field for example, alluded (in conversation with us) to how their proposition was "a teleclinic which helped translate remote diagnoses accurately for the doctor in the hospital" (Field Notes 2021), thereby privileging at once the *doctor* and the *hospital*, contra the *patient*. Furthermore, ethnographic readings also catalysed the realisation of *actionable research*, by situating "livelihood challenges" (Upjeevika 2021) in the lived realities of the teleconsultation app/platform. We note instances such as when platform glitches made patients question doctors and seek second opinions, or for example where both doctors and patients alike turned to human coordinators for a seamless consultation experience, or the fact that the consultation itself was a social affair in the sense that it mirrored the analogous practice of having a friend or family member accompany the patient for a doctor visit (Field Notes 2021), or even when patients demanded physical copies of prescriptions as a familiar and familial practice of keeping records of health history. These not only serve to shape and challenge the boundaries of the app/platform, but also reveal symbolically what technology is and is not. Equally importantly perhaps, they underline how anticipation was liable to being configured, negotiated, and reconfigured in a manner such that the potential solutions being invited from organizations and enterprises for "building livelihoods at scale" (Upjeevika 2021) and their socio-technological futures would come to occupy the "cracks and gaps" (Sundaram 2010) or the interstitialities of its constructions.

As a final point, we observe how the teleconsultation app/platform which came to structure our field furthered a rural-urban divide in terms of the meanings which its designers imagined patients and local doctors to be attaching to its use, built on assumed inadequacies of *connectivity*, *tutoring*, and *moulding* (Chandwani, De, and Dwivedi 2018) in rural areas alone (Field Notes 2021). In turn, this was seen as warranting a hub-and-spoke model in the design of how teleconsultation was delivered as a service, eliding the agency of users (Field Notes 2021). Here we are reminded of the Italian cultural theorist Paul Virilio and his engagement with technology and subjectivity. Rooted in the imageries of war and (resultant) automation and speed, Virilio argued that technology/speed only serves to marginalise the individual, in the form of a "subtle enslavement of the human being to 'intelligent' machines" (Virilio 1998). Yet, and as we have shown in this chapter, agencies and social relations from the field influenced both the field itself as well as project imaginaries. Ethnographic understandings helped counter the foregrounding of technology in design ideologies of the *Reimagined Livelihoods* project, by framing and reframing anticipation within

the socio-cultural logics in which the technology was realised. In our next and final chapter, we interrogate these turns and resets.

CHAPTER 3: SHAPE-SHIFTING

> "Using a slogan from ANT, you have 'to follow the actors themselves', that is try to catch up with their often wild innovations in order to learn from them what the collective existence has become in their hands, which methods they have elaborated to make it fit together, which accounts could best define the new associations that they have been forced to establish. If the sociology of the social works fine with what has been already assembled, it does not work so well to collect anew the participants in what is not—not yet—a sort of social realm" (Latour 2005)

In his seminal work, Reassembling the Social, Bruno Latour presents a compelling argument to view sociology as a *sociology of associations* where heterogeneous participants are actively engaged in assembling and "reassembling of the collective" (Latour 2005). He challenges the notion of the social as a "glue" or as a "homogenous thing", and advances a consideration of the social as a "trail of associations between heterogeneous elements" that is ever laden with the possibilities of reassociation revealing new meanings, concepts, processes and organizations (Latour 2005). These associations can be further understood as novel and active connections among things are not inherently social, and in this manner, challenge the notion of social as a given or "a thing among other things" (Latour 2005). This necessitates a shift, from using "social explanation" as a shortcut, to instead determining the new associations that have taken shape, and in turn, the multiple ontologies that they reveal (Latour 2005). Latour urges us to not limit the "advance of the shape, size, heterogeneity, and combination of associations" but instead, trace the flows as they manifest themselves (Latour 2005). In this manner, Latour elucidates his interpretation of the extant Actor-Network Theory (ANT) and proffers three key considerations. Firstly, non-humans can be deemed as *actors* explicitly participating in these associations and thus, demonstrating active agency beyond any "symbolic or a naturalist type of causality" (Latour 2005). Secondly, no extant paradigm of a stable *social* is used to validate the trails and progressions, and finally, the intent remains firmly grounded in understanding the emergent concepts and associations. We infer then that any given epistemology or ontology can only be explained within a point in time suspension of the movements, before the movements from one association to the next resume again and the collective gets reassembled.

Figure 5: The collective agency of the assemblage was challenging the knowledge practice.
Illustration by Vidya Gopal

Thinking with ANT, we draw inspiration from Latham, McDonald and Reeves who, in their paper titled *Following the Invisible Road Rules in the Field Using ANT for CTF*, reference Latour to analyse the agency of a collective, that encompasses a heterogeneous network of humans, non-humans and objects, and the role of such an agency in making "farmers [in an agricultural zone in Australia] enact a precision farming technique" called *controlled traffic farming* (Latham, McDonald and Reeves 2019). The authors examine the farming system to trace associations among "a heterogeneous network of interactions of human and non-human actors such as knowledge, technology, money, farmland, animals, plants, and so forth" to then draw insights on what influences the success of these flows. In privileging the collective, the authors challenge the "binary and hierarchical notions of humans versus technology and human versus nature", and adopt ANT as an approach for analysis that aims to interpret agency as being distributed among and being performed by the human and non-human actors in the collective such as "farmers, machines and other entities" (Latham, McDonald and Reeves 2019). At the same time, the authors emphasize the importance of research impartiality, by considering the different actors "in the same terms, regardless of their effect upon others" (Latham, McDonald and Reeves 2019).

Earlier in this paper, we have stated that our research led us down the path of a hermeneutic spiral, with emergent meanings leading us down new trails of research. In each sector, such as telemedicine, delivery and logistics, home utilities, and beauty and health, the defining process or activity was analytically approached as an *object* whose circulation is what we decided to *follow*. These collectives or assemblages were inherently constituted by humans and non-human actors, and as we followed their trails, they revealed the associations of actors and their collective agencies that the static knowledge practices of rebuilding livelihoods had not kept *track* of. As an example, it was our conversations with beauticians

in the summer of 2020 that brought us face to face with the emergent associations and the agencies they were effecting. The prevalent imaginaries of rebuilding livelihoods entailed in - person skilling programs, with the pandemic necessitating a shift to the online. But a new association, drawing from the *possibilities of life*, has already been formed. Our research indicated that the beauticians in peri-urban areas, while appreciative of these training programs, did not rely on them solely as a measure of keeping themselves abreast of the skills needed for their roles. They knew that the latest styles and fashion trends originated in the metropolitan cities, and "what is popular there now, will be popular here after a few months" (Field Notes 2020). It is this anticipation that framed the skills they aspired to learn, and they actively followed Instagram and YouTube channels of leading Indian beauty influencers based in Delhi and Mumbai.

> "I have a *guru* who is a social media influencer. I follow his Instagram channel to learn latest trends, especially make-up and hair styling because they have a high earning potential...I want to learn Russian hair styling which is popular in Delhi now, and will become popular here soon in 3-4 months" (Field Notes 2020).

In other words, Instagram and YouTube channels were actively engaged as participants in the reassembling of this collective. And their agency was compelling a shift in the existing narratives and enablement of livelihoods. Skilling practices in the beauty and health sector, for example, had to recognize the effects of the agency demonstrated by heterogeneous agents such as beauticians, Instagram and YouTube, social media influencers, makeup and hair styling trends that constituted an assemblage, amongst other such active assemblages.

We draw another example from our research in the telemedicine sector, where we noted how the design of online/ digital teleconsultation platforms often privilege the doctor and/or the hospital administration, where the focus is on convenience and ease-of-use, efficiency, and/or the technology itself. This abstracts away the agency of the patient as the user and instead proposes a behavioural compliance on their behalf, in the sense of "the idea that technological development determines social change" (Bimber 1990). Yet the interaction between a doctor and their patient is "in the form of a story" (Biswas 2020), and anchored in relations and flows. A design driven by technology and economics alone is distant, and makes assumptions on what is important for the patient as the user, at once ignoring the social relations within which the platform is likely to be used. On the teleconsultation platform we analysed, a focus on the individual patient in the platform's design was emblematized through the notion of data privacy. This in turn implies that what perhaps lay outside design considerations is the approach of the Indian patient as an assemblage in itself where the user of the platform is not the patient alone, but also their kith and kin. Most consultations involve members of the family, either putting forward questions to the doctor regarding the primary patient's condition and treatment, or even tabling related inquiries of their own during the same session. How can telemedicine platforms then account for such a notion of participation (in direct opposition to a notion of individual privacy), is thus a question which offered itself. It is evident that the technology or platforms for telemedicine had to factor in the contexts of the various human actors and the networks of relationships and interactions among them. Similarly, an understanding of teleconsultation as an *object* would have been impossible without a consideration and interpretation of the agency exercised by the non-human actors in this collective or assemblage. A series of

conversations with a member of the on-ground operations team supporting the platform helped illuminate these associations.

> "Patients trusting us is a challenge... people are used to in-person consultations, they have to believe in the doctors who are online. Connectivity as a problem covers time slots, network issues from both sides... earlier we used a different platform, and even did WhatsApp video conference calls after taking due consent. [This TeleMedicine platform] is a lot better from the previous app, it takes 5 to 10 minutes for the doctor and patient to get connected. … We need to connect with the patient even after the process is over, so that they come back to us… this will impact patient retention. Patients can reach out for other ailments as well." (Field Notes 2021)

Figure 6: The assemblage of 'telemedicine' goes beyond the act of teleconsultation. Illustration by Vidya Gopal

The assemblages entailed networks among doctors, patients, family members, community health workers, operations team members, platform designers as also with platforms, networks, video conferencing, instant messaging apps, web browsers, connectivity, prescriptions, time slots, telemedicine centres amongst others. And the examination and interpretation of this collective agency was challenging the knowledge practices guiding the reimagination of livelihoods even as they were getting formed. Within the telemedicine sector, the assemblage of the community health workers and technology platforms was critical for its success, and the performative agency of the health worker remains as pertinent in establishing trust amongst patients and their families, with the emergent role extending beyond, that is before and after the act of teleconsultation is carried out on the digital platform. We concur with Latham, McDonald and Reeves in their argument that the binary of technology and human emerges as irrelevant, with the

assemblage of technology and human in turn coming to determine the continued relevance and impact of the project of rebuilding livelihoods. Similarly situated is the agency of the assemblage of platform, connectivity, devices and apps, with the collective performative agency influencing a first time patient's acceptance of teleconsultation. A failure of this assemblage is capable of adversely impacting the credibility of the doctor. In this manner, we infer that the future in the *future-making* cannot be conceived any longer as a stable object, but as already manifesting as a "cultural fact" (Appadurai 2013) along multiple ontologies. The project and its researchers learnt that a project of rebuilding must continually trace these associations and study their *agency* in the present to navigate the way forward.

CONCLUSION: ETHNOGRAPHY AS A WAY OUT

In this paper, we referenced a social impact project (which we have been involved in) focused on livelihoods and post pandemic rebuilding, to explore the trails of ethnography and how its engagement along multiple networks shapes its possibilities as a research method that helps foreground emic perspectives. In doing so, we analysed agencies and social relations from the field, and their role in shaping project imaginaries. We have drawn inspiration from Arjun Appadurai's call for an anthropology of *future-making* that frames anticipation itself within affective negotiations between a bottom-up "ethics of possibility" (or effectively, the emic *socialities* which permit an expansion of hope) and a top-down "ethics of probability" (or essentially, those etic artefacts of risk, calculation, and technocracy which serve to define what can and what can not be) (Appadurai 2013). The future then, is a "cultural fact" (Appadurai 2013). Finally, we turned to Actor-Network Theory as a framework to understand the multiple assemblages in our research field which (continue to) challenge existing knowledge practices and open up new lines of inquiry for ascertaining emergent areas of research and innovation.

In May 2021, the *UpJeevika - Reimagining Livelihoods at Scale* project announced the livelihood challenges for the telemedicine sector, stating its intent to "arm innovators and change-makers with *actionable research*, invite them to ideate collaboratively, and prototype scalable solutions that impact" (Upjeevika 2021). We reproduce a few of these challenges here.

> *"How might Community Health Workers (CHWs), such as ASHAs, be remotely upskilled to provide post-delivery connect with patients so that they trust and return to the online/remote doctor in a telemedicine set-up?"...*"Our research tells us that 'people are used to in-person consultations' and are wary of treatments or 'doctors who are online'. The role of the CHW involves 'providing education to communities and families on a range of health issues' as well as 'assisting families in gaining access to medical and other health services' (ILO 2012). And even now, CHWs take the effort to 'connect with the patient even after the process is over, so that they come back'" (Field Notes 2021).

> *"How might the potential and networks of CHWs be leveraged for community mobilisation to overcome the barriers of social acceptance for telemedicine?"...*"From our research, we know that the CHW is a social body and not an independent, individual actor (Field Notes 2021). And that responses to health are socially determined, not merely biomedical (Burgess and Horii 2012). We recognise therefore, that a holistic response is required to help CHWs realise their role as socio-political actors of

health, touching upon multiple aspects such as training, dissemination of community relevant and accessible information to build awareness, infrastructural support, the technology itself, as well as a consideration of on-ground realities anchored in how health is negotiated through and by the community"

"How might we strengthen learning and performance for CHWs in low resource settings so that their aspirations are taken into account and their capacity to work in incentive-based structures increases?"..."We know that telemedicine's 'logistical ease and low cost provide a platform for increased CHW training and support availability, thereby decreasing multiple program barriers, including knowledge, competency, structural, contextual, and attitudinal' (Vaughan et al. 2020). Prior research has also demonstrated that the effectiveness of building a community of practice around telemedicine can enhance the medical practice and sustainability of telemedicine interventions (Chandwani, De, and Dwivedi 2018). As a final note, we submit (as our research also underlines) that this must be done in alignment with the 'cultural map of aspirations' (Appadurai 2004) which CHWs navigate as they help realise health interventions. While doing so, it is important to account for the relations in the ecosystem that influence the success of such initiatives, including supervisors, community leaders, other CHW workers as peers, family members, patients, health officials, and professional healthcare providers"

Thus, the narratives have started shifting. Yet, an acknowledgement of the negotiations of lived realities in the everyday is neither an end game, nor should it be construed as a processual victory or validation for ethnography. If the future is itself not stable, how can the research ever reach a point of culmination? In conclusion then, we proffer that ethnography lends a continual way out of the risks of status quo. There is an ever present danger of discourses not evolving with the emergent associations or getting entrenched as rigid knowledge practices. Ethnography must seek to continually examine the realities of today, and in those specificities, locate the emergent associations among heterogeneous actors that are actively engaged in *the possibilities of future-making.*

ABOUT THE AUTHORS

The authors are Co-founders and Co-directors of LagomWorks, where they focus on applied anthropology led ethnographic research and design strategy, working with corporate organisations, educational institutions, social enterprises, and startups in India, the Middle East, and the EU. Along with the larger team, they also carry out original anthropological research at the entanglements of society, culture, and technology, centred on the (future of) work and ways of working, data and platforms, and livelihoods and scale.

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Empowering Communities

Future-Making through Citizen Ethnography

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This paper proposes a way to harness the power and benefits of community-led future change through the process of "citizen ethnography". Just as "citizen science" has become a potent method for non-scientists to collect and contribute to scientific knowledge and outcomes, citizen ethnography is where non-ethnographers are trained in the tools and techniques of ethnography to research social phenomena to understand, recommend and lead their own change initiatives.

Citizen ethnography essentially flips the model of a single or small team of ethnographers and consultants working with a community, to one where groups of community members research their own challenges in order to identify their own needs, preferred futures and mechanisms for change. Importantly, this approach requires a significant 'stepping away' of the ethnographer as the research expert and move towards a role of skill-builder, coach and facilitator. This democratisation of ethnography helps to equip and empower communities with useful skills, while also reconnecting ethnography to the fundamentals of its well-established method and foundation in the ethics of representation. We provide an example of how citizen ethnography is being used to deal with youth suicide in Australia, highlighting how through engaging community members in the process and skills of ethnography they can unpack their own questions of belonging and identity, participate with eachother in the solutions to their current challenges and approach their future as engaged and empowered citizens.

Keywords: citizen, representation, community, reflexivity, collaboration, democratisation, practice, change

INTRODUCTION

This paper explores the idea of 'citizen ethnography' - where ethnographic skills and methods are wholly owned by community members rather than professional ethnographers. Our aim is to contribute to timely discussions on the democratisation of applied ethnography and the role of the ethnographic practitioner, while also suggesting an approach to change that may lead to better community outcomes. We provide an example of a program currently using this approach to support a community dealing with high incidences of youth suicide.

This paper is also a catalyst for healthy discussion within the EPIC community about broadening ethnography from it's increasingly dominant commercial category, intertwined with its purpose of generating research insights, to one of employing the tools, training and perspectives of ethnography to empower others and to democratise the ethnographer's skillset. Reflections about the commercialisation of ethnography and what it has meant for the practice of ethnography in industry have been a regular and ongoing topic at EPIC over the years (for example, Nafus and Anderson, 2006; Bezaitis 2009; Cefkin 2009; Madsbjerg, 2014). With this year's theme of anticipation, and as more and more trained ethnographers seem to be expanding into roles in organisations, it is a timely occasion to propose what might be next for ethnography beyond existing roles in corporations.

We appreciate that the democratisation of the ethnographer's skillset, central to citizen ethnography, may or may not sit comfortably with some ethnographers. In fact, it is

precisely this discomfort that we aim to confront in order to tease out the complexities of our approach. We hope this paper provides a robust contribution to continuing discussions on the politics of representation and the ethics of ethnographic methodology. Indeed, questions around ethnographic method have, and will always, be questions about ethics, which can never be static; whereby the relevance and application must always be revisited and assessed in relation to specific phenomena and its effect on the lives of real people in the world.

What Is 'Citizen Ethnography'?

The politics of representation are at the heart of citizenship and at the heart of ethnography (Clifford 1986, 1988; May 1997; McDougall 2013; Ortner 2005). Therefore, we use the term "citizen ethnography" to describe a process whereby the people who belong to the community being researched are the ones responsible for generating knowledge and meaning about their lived experience, and are therefore responsible for driving change interventions for themselves. We also recognise that by engaging in the reflexive practice embedded in the ethnographic process, those citizen ethnographers will inevitably ask fundamental questions about their own citizenship; with regards to their rights, responsibilities, levels of inclusion and agency, as well as opportunities to be heard and represented on a political scale (McDougall 2013). As such, we see "citizen ethnography" as both a reflexive approach to citizenship as well as a method of engaging citizens in the conduct of their own auto-ethnography. Drawing on Appadurai (2006), we will show how the capacity to do research is also a pathway to "full citizenship". We appreciate that there is slippage in the terminology that may cause confusion to some, but we are satisfied that this slippage is acceptable when applying a phenomenological method to the collection of ethnographic data.

In a phenomenological approach, reflexivity and multiple perspectives are taken into consideration to understand the lived experience of social phenomena (Neubauer, Witkop, and Varpio 2019). The process starts with identifying a phenomenon and investigating that experience as it is lived, rather than as it is conceptualized. Researchers reflect on the essential phenomenological themes that characterize the participant's experience with the phenomena, simultaneously reflecting on their own experiences (Neubauer, Witkop, and Varpio 2019). Researchers capture their reflections in writing and then reflect and write again, creating continuous, iterative cycles to develop increasingly robust and nuanced analyses. It is a specific methodology of describing, interpreting, writing, editing, triangulating and validating, and it is rendered more robust when the process is democratised; when the collation, synthesis and analysis of information is co-constructed, contested and shared (Loblay et al. 2021; Neubauer, Witkop, and Varpio 2019). Throughout the analysis, researchers must maintain a strong orientation to the phenomenon under study. That strong orientation is one's embeddedness in the field (Neubauer, Witkop, and Varpio 2019). Embedded implementation research, as Churruca (2019) defines it offers a range of advantages over traditional dichotomized research-practice designs, including better understanding of local context and direct feedback to improve the implementation along the way.

Citizen ethnography is therefore a potent method to empower non-ethnographers to make sense of their experiences and enact future change. By enabling citizens to reflect and

capture thick descriptions of their environment, analyse their own data and decide on a course of action for their future, we suggest that citizen ethnography can lead to successful change activities which are suited to a given context. Citizen ethnography therefore attempts to create more sustainable systems change, positive outcomes, replicable and scalable structures, greater knowledge and understanding, as well as processes that are envisioned, defined, designed, anticipated and enacted by the very people who are affected the most. Citizen ethnography transforms the method of enquiry to appreciate the dynamic nature of change and causality, creating an environment where adaptation, safe critique, evolution and supportive relationships are the norm.

We therefore situate citizen ethnography as a significant approach that valorises the lived experience in understanding complex social phenomena. We believe that, in doing ethnography, the setting of future directions and outcomes should benefit and be driven by the very people being 'researched'. We feel strongly that ethnography has plenty to offer society, and sharing it with citizens who can benefit is one way to achieve this. We also think that this is a necessary direction for our profession to not only have positive social impact but also for future professional relevance beyond being typecast in organisational settings as insight professionals and researchers of "real" people (Nafus and Anderson, 2006).

How Is It Different from Other Approaches?

To experienced researchers and tertiary trained ethnographers, the involvement of non-ethnographers in ethnographic processes is hardly a new concept. In many applied settings, forms of community engagement such as citizen assemblies, cultural probes and co-design have at their centre the ethnographer leading, making sense of and intervening on behalf of the community. In this paradigm, the "expert" ethnographer is the agent of change, whereas in the method we are proposing members of the community become the agents of change.

Citizen ethnography perhaps shares the most with existing approaches to participatory ethnography (Grace-McCaskey et al. 2019; Haynes and Tanner 2015; Hemment 2007; Kral 2012; McDougall 2013). Both are deeply concerned with global/structural inequality, and both are also attentive to the power relations inherent within the research encounter (Hemment 2007). However, whilst participatory ethnography offers the researcher a framework for engaging in collaborative research practice (Hemment 2007), citizen ethnography offers the researcher a framework for stepping away and handing over the research to the very people who seek to benefit from the study. Importantly, citizen ethnography aims to equip community members with ethnographic skills to be almost completely community-led. By democratising the skills of the researcher, citizen ethnography helps members of a community to harness the innate wisdom of a community to solve its own challenges so they can work towards realising a truly community-led future.

In fact, citizen ethnography has perhaps been emerging for some time, but under different labels. For instance at EPIC 2013, Ichikawa, Tamura and Akama shared an example of a "model of participatory social innovation" that they experimented with as part of research conducted with Japanese prefectures impacted by the Great Eastern Japanese Earthquake in 2011. The team of ethnographers encountered a situation where, after months of work, their findings and recommendations for economic recovery for the prefectures were politely regarded as "good ideas" but attempts to "*hand over*" their research and actions to the community found that "no one was willing to receive it on the other end" (2013). As a

result, the research team decided to shift to an experimental combination of participatory action research, that situated people as research partners and change agents, with transformation design to identify possible social innovations and community-led interventions. This new combination of approaches embraced both the inherent knowledge and inventiveness of communities to tackle challenges. The result was an increase in local connections and information sharing across sub-groups within the community, increased sense of local pride, new vocational pathways, intergenerational learning and new sources of income for local businesses. In their paper, Ichikawa et al (2013) concluded that the success of their experiment was the combination of approaches which focussed on the community gathering information and making sense of it, developing and utilising skills within the community enabling community-led innovation to emerge, and the potential for change to be nurtured.

We suggest that there are two important, and beneficial distinctions of citizen ethnography over other participatory approaches. Firstly, citizen ethnography has the potential to leave communities better equipped to navigate possible futures beyond a one-off, moment-in-time research project. Similar to Ichikawa et al's (2013) experimental approach, we expect citizen ethnography to increase individual and collective skills (such as self-awareness, critical thinking, data collection and analysis) and lead to healthier, more resilient communities (including greater tolerance and understanding of diverse perspectives, the establishment of new and/or deepening of existing relationships, building a source of local pride). The second benefit we suggest for equipping citizens to do their own ethnography, are increased chances of successful and suitable change to occur. This, we propose, is because the community trusts that the process and results of the research are truly grounded in the reality of the community, they are community-led and owned, not just community informed as is more often the case in traditional consultation processes. Additionally, the knowledge gained through this style of research stays in the community rather than leaving with the external researcher. This intimacy, involvement and embodiment of experience being elicited by a community member (that is, the citizen ethnographer) we think can actually compel people to contribute more honestly and authentically and to move more purposefully towards the changes needed for community betterment.

The downside to citizen ethnography is the fact that robust ethnography takes time, as does learning how to manage, process and analyse the vast amounts of information gathered. Similarly, gaining a level of self-awareness of the cultural lens through which information is gathered and interpreted also requires an investment of time. However, established processes from user-centred design and systems thinking can provide useful methodological tools to operationalise and speed up the process (Haines 2009; Hawe, Shiell, and Riley 2009; Irwin 2018; McKercher 2020). We outline how this can be done at in a later section of this paper; "Example project: Anthropology, Suicide and Citizen Ethnography".

Who Should Collect and Make Sense of Thick Data?

When attempting to understand complex sociological phenomenon, as ethnographers often are, we need to open our field of enquiry to include not just the objective and subjective forms of knowledge that can be captured through traditional means, we also need to include the shared/social and the embodied forms of knowledge (Madsbjerg 2017; Roberts 2020). Madsbjerg (2017) states that having access to all these four domains of

knowledge (objective, subjective, shared/social and embodied) are essential in the process he calls "sensemaking" (although where we talk about embodied knowledge, he talks of the sensory). This process of sensemaking is central to the way in which humans "make-sense" of the lived experience of a phenomena - parts of our experience that are not easily accessible through conscious or verbal means - the parts that are felt and known and intuited deep in our bodies – the parts that are not easily represented through statistical means alone (Roberts 2020). It is precisely because human existence and meaning is not simply understood via mental constructs (found in the domains of subjective and objective knowledge) that humans have used culture as an embodied means of sensemaking. Culture is the mechanism through which we marshal our embodied knowledge to make sense of our lived experience and existential struggles. Living is experiencing, experiencing is learning and processing, and culture is the lens we use to filter those experiences in order to make sense of them. We perform that culture and embed it in our bodies through rituals, practices, stories, symbols, relationships and interactions.

As such, embodied knowledge and "thick", ethnographic data can only be gained from direct human experience. This is why we as anthropologists spend years in the field for our PhDs, using a phenomenological approach to study an individual's lived-experience of the world. In the applied realm, we frequently try to balance "being there" and immersive activities to experience as much as clients or employers will permit based on project timeframes and budget constraints.

If the value of embodied knowledge is recognised in both academic and applied realms for its insight into a phenomena, the question arises about what is the best way to 'collect' embodied knowledge? As mentioned above, in the academic and applied sense in ethnographic engagements, this often involves the ethnographer being the instrument to collect and make sense of phenomena. Citizen ethnography aims to collect embodied knowledge another way – by equipping those already with the lived knowledge with the skills to reflect, make sense of and document the knowledge they already have about a phenomena. By having a lived experience of a culture, citizens use their bodies as the information sensing, processing, analysing and synthesising tool to become both the operator and the instrument of data collection (May 1997).

By now ethnographers reading this may be feeling uncomfortable, perhaps even asking the inevitable question: Can anyone be an ethnographic researcher? If so, then what becomes of us as professional ethnographers who have been trying so hard to establish the legitimacy of our skillset and professional expertise? Appadurai (2006) notes that research is a term given to describe the general capacity to make inquiries into things we need to know but that aren't known yet (p.167). All humans, he argues, are in fact researchers in that they systematically engage in gaining new knowledge to make decisions, especially in contemporary society. Additionally, he proposes that being able to research is in fact a special kind of human right that ultimately leads to a democratic society by equipping citizens with research capability. "Viewing research in a rights-based perspective", he argues, "is to force us to take some distance from the normal, professionalised view of research, and derive some benefit from regarding research as a much more universal, elementary and improvable capacity" (p.168). Furthermore, research enables citizens "to approach their city and their lives as objects of study, and as contexts susceptible to change" (p.175) which provides a degree of empowerment and agency over their future. Building capacity in research also builds social and cultural capabilities to plan, hope and achieve socially valuable

goals (defined as "the capacity to aspire")(p.176). Framed in this way, equipping communities with ethnographic research skills via citizen ethnography enables them to gain the capacity to make informed decisions about their future.

By supporting community members to produce and gather thick ethnographic data we can also empower them to tell their own stories in a medium with which they feel comfortable, therefore diminishing the "hierarchical relationship between the researcher and the researched, 'offering a feminist practice of "looking alongside" rather than "looking at" research subjects' (Kindon 2003, p.143)" (as quoted in Haynes and Tanner 2015, p.359). As Haynes recounts, in her study with young people dealing with environmental disasters in the Philippines, methods aligned with citizen ethnography, such as participatory video, enabled groups to research, document and raise awareness of risk, and use screening events to mobilise and advocate for risk reduction measures in their communities (Haynes and Tanner 2015). In particular, it demonstrated that these methods enabled a deeper and more complex level of analysis previously unavailable to professional researchers (Haynes and Tanner 2015).

The Role of the Ethnographer and Why It Matters Now?

Communicating the value of ethnographic research, and by association the value of the ethnographer, has at times been problematic as ethnography has made inroads into business contexts. During this time, the EPIC community has been a place where these challenges are raised and discussed. One of the recurring themes has been the concerns surrounding how ethnography is defined in organisations and what that means for ethnography's significance and relevance to business in the long term. For instance, Nafus and Anderson (2006) traced how ethnography became defined as research conducted in "real" environments with "real" people" to find out what's "really" happening as part of it's trajectory in organisations. While the "real framework" was a useful and successful starting point, they argue that it has become a limitation on the ethnographic 'brand' (2006). Similarly, Bezaitis (2009) noted that across roles in business strategy, marketing and product development, the association of the ethnographic researcher with "users" and "real people" remains strong. Both papers challenge us to expand to new frontiers in order to grow beyond these definitions.

Entangled with the challenges of conducting ethnography in organisations, is its close association with design thinking. Madsbjerg, in the EPIC keynote in 2014, called for ethnography to "distance itself from its partner of the last decade". While design thinking has been a "nice marriage" (2014) that has helped ethnography to find homes in organisations and demonstrate its value to organisations, Madsbjerg argues that a far better application of ethnographers skills are in providing cultural perspectives to big issues, including those in business environments. Criticisms of design thinking have also been gathering pace within the very organisational contexts that enthusiastically adopted them. In a recent Harvard Business Review article Natasha Iskander (2018) argues that design thinking is "at its core a strategy to preserve and defend the status-quo" and thus hardly an approach suited to tackling complex social issues and change. Worse still, she argues that as a method it: privileges the designer's abilities and perspectives above the people they should be serving; positions problem solving as the remit of the powerful with certain skills, and; credentials and limits genuine participation (2018). Even in more collaborative forms of

design thinking, "the designer or policy maker ultimately decides which ideas and preferences are included in the solution" (2018).

As these discussions and critiques have been building for quite some time, the need for our role as ethnographers to change and adapt has been identified, but what is perhaps less clear is how we need to move forward. We suggest that employing the tools, training and perspectives of ethnography to empower others via citizen ethnography is one avenue whereby the value of ethnography can be applied and realised beyond existing roles, associations, frameworks and limitations.

The simple fact is that, as professional ethnographers, we have all been taught to "do" ethnography by someone, in some way. Logic must then follow that it is a teachable methodology. With the appropriate resources and skills, why could it not be taught to groups who wish to ethnographically understand themselves? Moreover, as we have already stated, if this methodology has the potential to lead to better outcomes for the communities we work with, might there not be an ethical obligation to utilise it? In citizen ethnography our role shifts to skill-builders, coaches and facilitators in transferring ethnographic research knowledge and skills to citizens. We move beyond researching in order to produce outputs and "deliverables" such as research reports, journey maps, personas, blueprints, product roadmaps, service design improvements, user requirements etc., and towards facilitating ways for understanding to emerge, solutions to become known and meaningful change to occur.

When reflecting on his own field work in South India, one of the authors of this paper himself employed community members to help with data collection (Badami 2010, 2014). We are therefore highly cognisant of how community members collaborated to help make sense of the data that they themselves gathered as part of the overall research process. We therefore openly welcome the fact that ethnographers are often led and guided to their cultural understanding of a field site by their interlocutors in the field who often want to authorise their own forms of representation. After all, the people with the real resources for understanding culture are the ones with a lived experience of that culture.

As such, in our conceptualisation of citizen ethnography, we ask the question "What defines an ethnographer?" Is it an online course? A PhD? Professional practice? Lived experience? More importantly, what is the role of the ethnographer, and who has the authority to perform that role? And finally, what do we seek to gain by holding on to that title and that role? In fact, we believe that the skillset is more important than the title of ethnographer, and are more concerned with unpacking and articulating the dispositions required to collect the type of data that is relevant in complex social studies.

Employing the Tools, Training and Perspectives of Ethnography to Empower Others

How to "do" Citizen Ethnography

When dealing with the question of how to "do" citizen ethnography, it can be helpful to think about how we teach ethnography to post-graduate and masters students at university. Ethnography is arguably the most "human" of all human-centered methodologies. It therefore cannot be learned from a book or an online course. You have to do it to understand it, you have to live it to master it. Like any skill, it is an embodied disposition. By

existing in a culture, and having a lived experience of that culture, we use our bodies as the information sensing, processing, analysing and synthesising tool. We therefore become both the operator and the instrument of ethnographic data collection. So, "doing ethnography" is not just a methodological statement, it is an existential fact (May 1997).

Just as there are three main types of citizen science (contributory, collaborative and co-created) (Grace-McCaskey et al. 2019), we envisage a process of citizen ethnography that also has similar levels of engagement from community members. From this perspective, at the lowest level of engagement, "contributory" methods would utilize citizens to collect data. "Collaborative" projects, (which possibly most closely resemble current "co-design" methodologies), involve volunteers in data collection but may also enlist citizen ethnographers to participate in other aspects of the ethnographic process, including developing project goals or research questions, analysing data, or producing project reports and summaries (Grace-McCaskey et al. 2019). "Co-created" projects would involve citizens co-designing all aspects of the ethnographic process, ranging from research design to the dissemination of results. Citizen ethnography, and the role of the "ethnographer" can vary in levels, from an approach that enables the collection of large data sets, including data gathered from locations that are inaccessible to the researcher themselves due to geographical, funding or pandemic limitations, or it can extend beyond just an approach to data collection. Citizen ethnography can facilitate a deeply ethical engagement with the task of decolonising the production of knowledge and authority in the ethnographic encounter to better reflect the needs and concerns of local communities. Arguably, it could lead to more meaningful change aimed at and suited to community members.

Having said that, there already exists a range of "playbooks" that enable the functional "doing" of representative, inclusive, collaborative and ethical ethnography in community settings. Although, it is perhaps more appropriate to say that these playbooks are less about the schematic replication of "do-able" activities, and more about the nurturing of mindsets and dispositions required to engage in inclusive citizen ethnography.

However, perhaps one of the best ways to understand what is involved in a project that employs a citizen ethnography approach is with an example project. One of the authors of this paper is currently experimenting with using ethnographic framing and skill-building with a community. He is combining "Asset-Based Community Development" (Coady-International-Institute 2012) with "Trauma-Informed Inclusive Co-design" (McKercher 2020) to facilitate community-based problem solving that is ethnographic in nature. When used alongside the process of "Emerging Transition Design" (Irwin 2018) there are a range of pre-existing "activities" that can be done to facilitate varying levels of community ownership. The remainder of this article outlines the situation with this community, the process to-date (including program learnings), and how an ethnographic mindset and skills are being incorporated into the project to help the community help themselves.

Example Project: Anthropology, Suicide and Citizen Ethnography

Project context

Kiama, a small rural town in New South Wales, Australia, has experienced a disproportionately high rate of youth suicide over the past 11 years. A range of activities and initiatives are underway in Kiama, however, since COVID, this problem intensified, and in

2020, the community suffered the loss of several young people. The issue has energised a community-led coalition of organisations to understand why this is happening and what to do about it.

Why citizen ethnography

In studies of successful community-driven interventions for suicide and self-harm prevention, it is essential to use a variety of data sources (including death certificates, youth risk surveys, emergency call data, and hospital discharges) to understand the phenomena of what is known as "suicide contagion" (Hacker et al. 2008). Suicide contagion is "a process by which exposure to the suicide or suicidal behaviour of one or more persons influences others to commit or attempt suicide" (Hacker et al. 2008). Contagion is deeply social, so we need appropriate and relevant methods to understand it. We know that social, psychological and physical proximity affects contagion, and research supports the need for varied methodology and data sources – including ethnography to help to get a more nuanced picture in order to inform more effective and targeted interventions (Hacker et al. 2008). The simple truth is that getting data on the emotional and psychological state of young people who are actually at risk is almost impossible through statistical means, especially if we want to intervene before a self-harm or suicide event has occurred. Thick ethnographic data entails affording greater attention to social, economic and political factors that influence social vulnerability (Haynes and Tanner 2015).

As a team of anthropologists and public health researchers, one of whom is an embedded practitioner within the Kiama community, we are in the process of undertaking a multi-disciplinary study that goes beyond surveys and standardised approaches to suicide prevention. Through participatory engagements with young people and people working with young people (including teachers and youth workers), we want to see how ethnographic methods can be used as tools to both understand the issues facing young people in Kiama and to enable young people and other community members to develop their own solutions and strategies for change. Our aims and objectives are:

1. To describe how young people in the community understand, experience, and embody social connectivity, personal distress, and identify deficits in their community.
2. To describe the role and value of community mechanisms and event-based interventions to mobilise social connections.
3. To examine the fit between existing mechanisms for well-being education and local contextual considerations to determine whether or not those mechanisms enhance the experience of connectedness and well-being among young people.

A method of community engagement is currently being prototyped and developed that emerges from the ground-up, focusing on the lived experiences of community members, and which centres the voices of young people through a range of ethnographic techniques that address the explicit power dynamics between researcher and "participant".

The Project and Process So Far

The project has been in various stages during the writing of this paper. We provide an outline of some of the key steps in the project so far, starting from the very beginning.

1. *Community social challenge identified*

In 2020, after a series of suicides in close temporal proximity to each other, the Kiama community very quickly mobilised around the shared experience of grief, loss and social disruption. It was clear that members of the community were actively seeking answers, solutions and ways to manage this crisis. Underpinning this was a desire to "do something" to reconcile the overwhelming sense of powerless felt by many. Community members sought connection with each other to attempt to make sense of their loss and confusion.

2. *Community initiates interventions for change*

A number of community organisations and local action groups formed and mobilised in order to initiate interventions for change. In particular, one group, The Kiama and District Stronger Community (KDSC) formed in response to the general perception that what was lacking was good leadership and coordination of existing services. Orchestrating a coordinated community-wide response is critical for success in understanding and preventing suicide and self-harm. Community coalitions are important vehicles for mobilizing community members and exponentially expanding the reach of any efforts (Hacker et al. 2008). However, in line with Chatterjee's (2004, 2008) work on the role of civil society in the context of neo-liberal development, non-state actors within the community (with considerable social, cultural, symbolic…and economic capital) started intervening to "act like states". Chatterjee (2004, 2008) reminds us that irrespective of the intentions, these non-state actors intervene in matters once reserved for government, are wholly self-appointed and have not undergone any democratic process. It is important to reiterate that the KDSC is not the only organisation who mobilised, and what occurred was a range of community groups claiming authority, legitimacy and attempting to establish their position within the social fabric of collective community action. It is in this context that we believe that the democratisation of ethnographic practice speaks to a deeper issue surrounding the politics of engagement, the "writing of culture" in the politics of representation (Clifford 1986), and the authority of knowledge in health interventions (Lupton 1997; Mosse 2004).

It is important to state, at this point, that one of the authors is a member of the KDSC and this paper is a continuation of his own critical reflection of the methodologies used to bring about change in his community.

3. *Baseline data collected through the Community Mental Health Index (cMHI)*

As a result of initial meetings with the KDSC, a Town Hall meeting was held to bring the community together around finding a way forward. This event was both a symbol of solidarity and collective action. In other communities, this collaborative approach has been an important mechanism in the successful response to suicide contagion (Hacker et al. 2008). But importantly, this event also served as an opportunity to engage the community in a baseline survey.

The Community Mental Health Index (cMHI) is a quantitative survey designed by professionals within the community. It was used to identify strengths and areas of improvement to lift mental health literacy in Kiama. The cMHI measured four areas that influence mental health literacy: Improved Recognition; Reduced Stigma; Help-Seeking Behaviour; and Mental Health Promotion. The survey measured how individuals perform in these areas according to four of our most important support systems: Me; My Family; My Friends; and My Community. The intent was to use the cMHI to understand where Kiama is doing well, and what areas we need to focus on, so that we can catch mental health issues earlier, and lend necessary support to struggling individuals, their friends and family, and the community in which we all live.

The survey facilitated the development of an infographic (Figure 1) that helped to show the community that the KDSC was committed to better understanding this situation and doing something about it. Strategic analysis of the results enabled the development of four key priorities in our community response:

1. More events to reduce stigma and increase awareness of services in the area;
2. Increased local mental health support services in the community;
3. A Lighthouse Leadership training program for coaches and mentors in the community; and
4. Making sure that young people's voices are heard.

Figure 1. Slide from the presentation of the cMHI results showing the infographic created from the survey, used with permission from the KDSC.

All these activities are in line with evidence-based successful interventions to deal with an increase in suicide within a community (Ridani et al. 2016; Maskill et al. 2005; Hacker et al. 2008). What the use of quantitative, statistical data allowed was for the community to begin the process recovery and rehabilitation (towards resilience) in a way that drew from community consultation and mobilised collective action. The challenge with the survey was that it was primarily quantitative and sought to identify correlations, but could not point to any of the complex causal factors. It was also not wholly representative of the community, and in particular did not include the voice of young people. In addition, in the context of this gap in representation, the infographic has become an artefact that has the potential to hold claims to objectivity, immediately reminiscent of Tess Lea's (2008) work on health interventions in Indigenous Australia. Lea (2008) examines a culture of community development that needs to create the appearance of action. Her work shows how benevolent efforts to improve health have brought about unexpected co-dependency's and tragic failures and talks about a culture of remedialism that is "unconsciously geared towards its own reproduction" (Lea 2008: x).

The lead up of events to this moment was itself a process where community members authorised their own research, engaged in their own analysis and used it to drive action. This is a very important step in the dissolution of power dynamics between "researcher" and "participant". However, it was clear that because of the kinds of community members involved (concerned community members, many connected to the business community, who were self-appointed as leaders and representatives of this change process) new dynamics of power and contestation were emerging. We were falling into the trap of providing a corporate "culture change" strategy to a community problem, on the one hand, and reproducing a bureaucratic culture of remedialism on the other (Lea 2008). We therefore needed to interrogate the existing data and identify not only what it told us, but more importantly, what and who it left out.

4. *"Citizen ethnography" program developed to build skills and gather "thick data"*

In following the process of how the KDSC and the Kiama Community have begun to make sense of their grief and loss, a big priority was about empowering the community in the processes and decisions that meant the most to them. Whilst community engagement is not a new thing, we hope to turn up the dial to see communities working together, and for each other, in a way that encourages each person to witness and deeply understand the lived experiences of others as part of the decision-making process. For this to work, what is needed is the development of a system that is more genuinely reflective of people, their concerns and their aspirations.

As mentioned, some of the priorities that came out of the cMHI were to: hold more events to reduce stigma and increase awareness of services in the area; to deliver a Lighthouse Leadership training program for mentors in the community; and to make sure that young people's voices are heard. All these priorities are consistent with evidence-based interventions to deal with an increase in suicide within a community (Ridani et al. 2016; Maskill et al. 2005; Hacker et al. 2008). We have leveraged these 3 priorities and are using them as opportunities in our implementation of "citizen ethnography" in Kiama.

Some of the events that were planned and have already delivered include: "brave conversations" to talk about death, suicide, grief, loss and a whole range of other factors affecting young people and parents of young people; community gatherings and festivals; a youth mental health forum; a life skills program; a change-maker program that gives young people the skills to be the drivers of their own change; mental health first aid training, and community leadership workshops. One of the key components of the program is to train and empower young people and people working with young people (including teachers, youth workers and trusted mentors) to deliver these programs whilst simultaneously taking on the role of citizen ethnographer.

Drawing from the work of Hawe et al. (2009) we are theorising these events as interventions that are situated within the complex system that is the Kiama community. As such, these events and interventions build upon each other over time, thus strengthening the relationships (or links) between the nodes within the community and enabling a social process of meaning making and communal enquiry to unfold. Conventional preventative interventions focus over simplistically on what information is delivered or what activities are done (Hawe, Shiell, and Riley 2009). By seeing these events and interventions as existing within a complex system, we hold that the relationships developed and the meanings created within these social experiences are often more important than the content being delivered. Here, the act of coming together is itself a therapeutic intervention as well as a potent symbol and method of developing community resilience. This new conceptualisation has significant implications for how interventions should be evaluated and how they could be made more effective (Hawe, Shiell, and Riley 2009). But it also has significant implications on how we might gather data from these deeply social engagements about the shared experience of existential crisis on a community level. With this new paradigm of assessing and valuing community events, we can see these interventions as not just evidence-based, but also "evidence-making" (Rhodes and Lancaster 2019). The challenge remains; how does one ethnographer, or even a team of ethnographers access and record the vast amounts of information that is generated out of these encounters? This is where citizen ethnography comes in.

The collection of thick data, through the method of citizen ethnography that we propose, employs a method of facilitation which enables the creation of user-generated ethnographic outputs. The sites for data collection range from a para-ethnography of community events, to ethnographic film as a community-generated artifact, to visual storyboards that are generated during workshops and deliverable programs. For example, members of the community create films and documentaries which are screened in a festival to bring people together to explore issues, voice concerns or simply to be creative and tell stories (Haynes and Tanner 2015; McDougall 2013). Another example is where workshop participants give insights into their lived experience through trauma-informed facilitation styles that engender trust and rapport through the establishment of emotional and psychological safety (Coady-International-Institute 2012; Haines 2009; McKercher 2020). These outputs are then reflected upon, contested, negotiated and validated through the bringing together of multiple perspectives. Our method of facilitation combines participant-observation (May 1997) with embodied facilitation techniques that are grounded in the phenomenological method. They apply principles similar to that described by Madsbjerg (2017) and Roberts (2020), and focuses on the embodiment of knowledge with specific methods to extract this knowledge from participants.

The other key component of the project is the use of the Lighthouse Leadership Training program which aims to create oblique (inter-generational) and lateral (peer-to-peer) mentoring relationships which are safe, enable robust conversation about deep existential issues, and which (by virtue of being engaged in a conversation about the topic) enable mentors to have an awareness and an understanding of the problems facing young people as well as their hopes, goals and resources. A key component of this process is that these lighthouse leaders become a conduit to gathering thick data from multiple sources whilst building relationships of trust and rapport (essential for ethnography) which can then be captured, processed, synthesised, analysed later on. It is this component of the program that provides with the opportunity to build the "gathering" of thick data into not only larger community "events" and interventions, but more importantly into the intimate relationships that are forged between individuals through the program.

5. *Community generated evidence is captured, synthesised and shared by the community, discussing 'what' works, and 'what' needs to be considered to realise the envisioned future;*

An important aspect of ethnographic methods that are informed by phenomenology and anthropology is how to balance the multiplicity of perspectives and the iterative discussion, documentation and revisiting of data to enable cultural concepts and meanings to be interrogated, unpacked and understood (Neubauer, Witkop, and Varpio 2019). As citizens describe their experiences and triangulate with other citizens through story share, creative activities, reflective practice and facilitated activities, there will invariably be friction in interpretations of meanings attributed to those experiences. In Kiama, like in most communities, we were immediately confronted with the question of how to pool expertise, funding, and political will to solve complex, interlinked, social and environmental challenges (Sawin 2018) with multiple stakeholders who all had very different cultural orientations (from health, govt, education, business, youth etc). Loblay et al. (2021) assert that "friction points" will naturally emerge and "must be reflexively considered as key learning opportunities for (a) higher order analysis informed by diverse analytical perspectives and (b) more cohesive and useful interpretations of research findings" (Loblay et al. 2021: 1).

In the capturing, sharing, synthesising and cross-checking with community members, friction points and uncomfortable negotiations are necessary for ethical and analytical integrity. As we contest, interrogate and renegotiate what things mean, as we challenge the epistemological assumptions of the researcher, citizens and other stakeholders alike form a shared agreement of meaningful phenomena (Loblay et al. 2021). By explicitly drawing on the diverse perspectives in a community, citizens can help to triangulate meanings and validate data to ensure findings resonate with the participants' experiences (Neubauer, Witkop, and Varpio 2019).

According to Neubauer et al. (2019), by combining this perspective with a design led systems approach to multi-stakeholder engagement, communities can deal with complex problems and communities can provide some structure to these negotiations in order to facilitate a process of meaning-making whereby citizens arrive at a shared definition of the problem. This requires that facilitators leverage collective stakeholder intelligence; provide a process for stakeholders to transcend their differences in the present by co-creating visions of a shared and desirable long-term future (visioning); and provide stakeholders and interdisciplinary teams with a palette of tools and methodologies useful in resolving wicked

problems and seeding/catalysing systems-level change (Irwin 2018). This is a necessary ingredient in the ethical practice of "writing" culture in an inclusive way that views stakeholders as interlocutors and collaborators, rather than just subjects (Clifford 1986, 1988; Ortner 2005).

It is important to note that the approach on this project to date has not explicitly been framed as "citizen ethnography", and we are at the beginning of this process and are still consulting heavily with the young people in our community. At present the community generated forms of evidence are facilitated by a professional anthropologist through the engagement programs being run as part of the Lighthouse Leadership Program. We have mapped out a sequence of programs that aim to include the young people in the process of designing and deciding on the mechanisms for capturing evidence, moving forward, however we are not at that stage just yet.

6.   *Local communities are trained and empowered with the internal capabilities to facilitate community events and interventions that achieve the above aims.*

Figure 2 below is a slide from a presentation of the youth component of the Lighthouse Leadership Program. It is comprised of three stages. The Lifehacks program, which is the initial touchpoint where we facilitate an embodied and transformative workshop that elicits robust ethnographic information from participants through game play, story share, drama activities and asset based-community development processes. This serves as a catalyst for change and generates buy-in from participants. The second phase is a 10-week Changemaker program that uses a design thinking program to get young people to define the issues that are important to them and to develop their own methods of bringing about change in the community. It also serves as a weekly check in for ongoing support. These two stages of the programare are currently running. The third component is the Champions for Change program where young people are equipped with the skills to facilitate the first two programs, thereby integrating them into the methodology and allowing the professional ethnographer to step back and let the young people drive the process organically from within. The three stages of the program represent the three phases of integration from "citizen" to "citizen ethnographer". One of the major outcomes of the program is the development of emotional intelligence, which involves "self-awareness, self-management, social awareness, and relationship management (Goleman, 1998)" (as quoted in Bolewski and Sandu 2021). In fact, the expected emotional intelligence outcomes additionally involve: empathy, perspective taking, stepping back to look at the bigger picture, communicating across differences to gain greater understanding, the ability to hold space for others, the ability to engage in reflective practice, and understanding social dynamics. These qualities are also essential for the conduct of ethnography informed by anthropological and phenomenological methods.
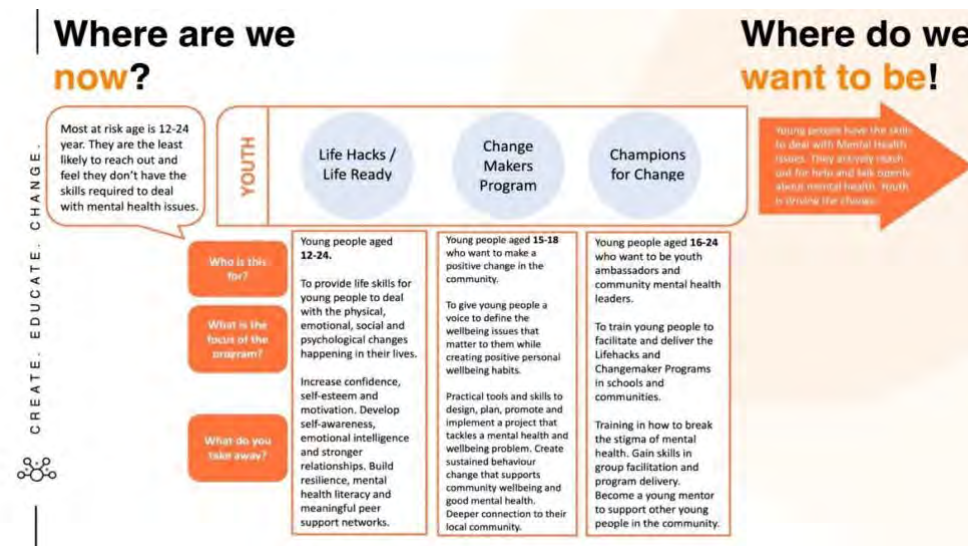
Figure 2. Slide from the presentation of the Youth component of the Lighthouse Leadership Program.

The project in Kiama has had considerable involvement of an "ethnographer" in the initial stages as the engagement and training of young people to perform the role of ethnographer for themselves takes place. However even in this instance, that ethnographer is already a citizen of the community being studied. This aspect of being a member of this community has helped to achieve considerable buy-in for this project. In particular, a level of trust and rapport has already developed based on prior work done over the past 11 years with many of the young people of Kiama. In the last few months, this professional ethnographer has been directly approached by a number of young people who want to do something about the current situation, who want their voices heard and they do not want adults co-opting the narrative.

As mentioned, the end state is that community members become the conduit to gathering thick data from multiple sources whilst building relationships of trust and rapport, which can then be captured, processed, synthesised and analysed. It is in the empowerment of community members to build relationships and gather thick, ethnographic data that we believe the true potential of citizen ethnography resides.

CONCLUSION

This paper proposes a way to harness the power and benefits of community-led future change through the process of "citizen ethnography". Just as "citizen science" has become a potent method for non-scientists to collect and contribute to scientific data collection (Grace-McCaskey et al. 2019), citizen ethnography is where "non-ethnographers" are trained in the tools and techniques of ethnography to research their own communities, understand their challenges and lead their own change initiatives. This paper explored the potential benefits and how citizen ethnography may be applied based on the experiences of the authors working in applying anthropological methods in different settings. The authors have

come together around the central idea of empowering communities with the skills associated with ethnography in order to affect suitable, favourable and effective change.

The model of citizen ethnography theorised in this paper essentially flips the familiar structure of a single or small team of ethnographers and consultants working with community members to determine a course of action, to one where groups of community members identify their own needs, futures and mechanisms for change. In its most complete and comprehensive form, citizen ethnography democratises ethnography and de-colonises knowledge production, enabling communities to listen deeply to each other, creating new connections, strengthening relationships, and supporting each other through change. Individuals gain valuable skills such as facilitation, personal reflection, communication and problem solving that can be passed down to other community members as new social challenges arise. Collectively, the community creates a compelling, achievable vision for the future, and develops the skills and capabilities to intervene in patterns of thinking, processes and ways of doing things that aren't working. Citizen ethnography therefore attempts to create more sustainable systems change, positive outcomes, replicable and scalable structures, greater knowledge and understanding, as well as processes that are envisioned, defined, designed, anticipated and enacted by the very people who are in most need of the benefits ethnographic research can reveal.

Community involvement is hardly a new idea to ethnographers. However, in this paper we aim to push perceptions about what ethnographic projects with communities could look like, and in doing so we touched on fundamental questions about the role of the ethnographer in applied settings. What might we and the communities we work with gain by sharing our knowledge and skills and supporting communities as facilitators and skill-builders? We speculated that citizen ethnography can facilitate a deeply ethical engagement with the task of decolonising the production of knowledge and authority in the ethnographic encounter. Arguably, it could lead to more successful and/or meaningful change for community members. We shared an example of a current project which is aiming to use a citizen ethnography approach to help tackle complex challenges associated with youth suicide prevention in an Australian coastal town. The project is in a relatively early phase, however, it provides an example of the types of social issues citizen ethnography could be well-suited for.

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NOTES

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Papers

Power and Publics

Future visions are products of their locations. But what if those visions are crafted at the periphery and not at the centre? This session decenters visioning, to explore futures from those often silenced, and to highlight ways of doing this decentering.

Come to Your Senses

Ethnography of the Everyday Futuring

JANA JEVTIC, *Gemic*
REBEKAH PARK, *Gemic*

Our practices of research, design, and strategy create landscapes of possibility. Anticipation, an approach that has informed much of the recent ethnographic work on the future, is shaped by how these symbolic and material landscapes, and the forms of agency they make possible, are distributed. This makes anticipation politically significant, prompting an empirical question of when and with respect to whose experience broader future visions occur. Seeking to bring attention to processes of future-making that capture these disparities, we ground anticipation in lived experience. Drawing on two long-term fieldworks, we recognize significant variability in how the future manifests in the course of practical and reflective engagements in everyday life. To explore these engagements, we turn to "future senses" of memory, foresight, voice, optimism, and yearning. We then demonstrate how "future senses" can be productively integrated within conversations about advancing not only more diverse future visions, but also more inclusive planning and strategy.

Keywords: anticipation; future senses; alternative futures; everyday futuring

INTRODUCTION

When we anticipate the future, we often look for what is timeless, identifying behaviors that are enduring, and what is new, taking into account "marginal" or emerging practices that indicate where the mainstream is headed. This approach tends to over-index on the individual as it focuses on what is achieved by an independent, autonomous subject rather than what is achieved intersubjectively, "by means of the ongoing experiences of working together" (Fine 2019, 16). More importantly, it takes an "outside observant" perspective to emerging practices, focusing on how behaviors reflect macro-level shifts and trends rather than "long-lived human needs" (Graffman 2013, 147). While never shutting out macro-level shifts and other conditions that shape our lives, we propose an approach to futuring or foresight work that suspends assumptions as to their impact and relevance in order to attend closely to how circumstances are lived and made meaningful "through time" (Stephan and Flaherty 2019, 4). In this view, what appears from the outside as a stable vision of the future is always to some extent an abstraction from "lived experience" (Stephan and Flaherty 2019, 5). By pushing forward an experiential, bottom-up perspective, we give agency to communities to do futuring or foresight work themselves. Rather than seeing the future as an observed social practice, "out there" for us to discover, this view recognizes and tracks how the future emerges from within communities, and how it manifests across the range of practical and reflective engagements in everyday life—what we might call "everyday futuring."

Once we recognize that lived experience is essential to any reading of what the future might entail, then an analysis of anticipation takes on a new, distinctively political, relevance. To clarify this point, we might consider an anthropological approach to the future that makes anticipation legible through its association with prediction and planning practices (Adams et al. 2009; Appadurai 2013; Bear 2016; Guyer 2007). In contrast, an approach through lived experience shows that anticipation is not always a clear and distinctive

previewing of future possibilities. When we anticipate the future, therefore, we must ask when and with respect to whose experience anticipation of the future occurs, or to put it another way, how any orientation to the future comes about, "and how [...] vicissitudes and permutations might be related to one another" (Stephan and Flaherty 2019, 6).

As should be clear from what we stated above, anticipation makes the future sensible in the present, but it also highlights the vagueness of our circumstances or sets us up for disappointment. This depends "not only upon the actual course of events," but upon the collective conditions within which anticipation is embedded (Stephan and Flaherty 2019, 11). It is for this reason that we take particular interest in how we anticipate alongside others, in collaboration with them, and on their behalves. Central to our approach are Marcus Bussey's "future senses" of memory, foresight, voice, optimism, and yearning, which connect us to others. While we will discuss these senses at some length later in the paper, we want to note here that interactions that happen when we engage in these senses order our perceptions, inform our decisions, "and shape our dreams" (Bussey 2017, 50). Simply put, they project us into the future. This makes "future senses" an essential analytic lens for understanding future-making. Anticipation, we might add, is an effective means through which the intrinsic interconnections of these senses can be disclosed. The paper, therefore, takes up a multifold agenda of attending to experiential circumstances through which anticipation arises, and reflecting upon the nature of those experiences to better understand what the future might entail.

We begin with an overview of anthropological studies of the future, showing that they imply, but few explicitly engage with, "everyday futuring." In response to this lacuna, we draw on two long-term fieldworks, one in Argentina, the other in England and Bosnia, to show how memory, foresight, voice, optimism, and yearning spark actions in the present and bring alternative futures into being. After laying this groundwork, we move on to the task of applying "future senses," and previous experiences of long-term fieldwork, to our work in the corporate setting. While we have not until this point explicitly stated that we use "future senses" for research conducted for corporate clients, we do in fact advocate for their application either as a method, analytic frame, or ideological position in the corporate setting. The chief benefit of using "future senses" is that they make us aware of whose visions of the future we are attending to, and whose actions we are seeking to build upon to shape the future. This awareness, we might add, leads to more consciousness about prioritizing one group over another, and inspires us to diversify future visions we put forward to our clients to build around. In what follows, we show how "future senses," far from being an isolated object of analysis, can be emplaced within and read into ongoing conversations about developing not only a better understanding of alternative futures, but also more inclusive planning and strategy.

ANTHROPOLOGICAL STUDIES OF THE FUTURE

Anthropology is teeming with ideas about the future. This rich landscape offers studies of aspiration, hope, and uncertainty, "investigating the variety of roles future possibilities play in shaping the present" (Stephan and Flaherty 2019, 1). Many of these themes have taken on renewed force in recent years, accompanied by calls to turn our gaze toward the future (Bryant and Knight 2019; Pels 2015; Pink and Salazar 2017). In their introduction to "experiencing anticipation," Christopher Stephan and Devin Flaherty argue that it is no

coincidence that anthropology has started to focus on the future in this present moment (Stephan and Flaherty 2019, 1). Note, for example, Purnima Mankekar and Akhil Gupta's ethnography of call centers in India, where they observe, "The future was something with which all our informants [...] seemed obsessed, and as ethnographers we began to take the obsessions of our informants seriously" (Mankekar and Gupta 2017, 69). Such repeated ethnographic encounters with "interests in the future" have inspired anthropologists to argue that attention to the future is a decisive fixation of our times (Stephan and Flaherty 2019, 1). If the future looms larger than ever, "there could never be a better time for anthropological studies of anticipation" (Stephan and Flaherty 2019, 2). Indeed, building on his criticism that anthropology has little to say about the future, especially about it being a "cultural fact" of imagination in the present, Arjun Appadurai suggests that anticipation will be essential to understanding the ways in which we construct the future (Appadurai 2013, 298).

The literature on anticipation within anthropology has thus far been fragmented, reflecting different interpretations and usages. In what is one of its most common usages, anticipation is equated with speculation or prediction (Campbell 2014). This juxtaposes with studies in which anticipation is interpreted as an uncertain previewing of future possibilities (Molé 2010), and an affective state of anxiety or excitement (Hermez 2012). In spite of differences, many of these studies are pitched at the level of the macro-social, and arise out of ethnographers' recognition of power that distinguishes "some lives and futures from others" (Stephan and Flaherty 2019, 3). For this reason, the scope and aim of these studies have not afforded the prospect of foregrounding "everyday futuring," or the idea that, far from being something "out there," the future manifests in the course of practical and reflective engagements in everyday life. That said, as Rebecca Bryant suggests, attending to lived experience of anticipation is essential to understanding the constitution of "broader social and cultural temporalities" (Bryant 2013, 22). We see here an invitation to add to the examination and elaboration of anticipation as it emerges in lived experience. Practitioners doing ethnographic work tend to interweave references to lived experience, such as "lived futures," within accounts of macro-level social phenomena. Indeed, they rely on the idea that these phenomena have impacts and repercussions for people on the ground. "Everyday futuring" is different in that it takes as an object of analysis the way that people themselves perceive, attend to, and anticipate the future. Beyond this, attention to lived experience shows that anticipation draws upon socialized dispositions and plays a crucial role in moderating our relationships to others. In order to grasp how we anticipate alongside others, in collaboration with them, and on their behalves—and how these collective acts orient us toward the future—we now turn our attention to the concept of "future senses."

Future Senses

In *Difference and Repetition*, Gilles Deleuze suggests that people are not tied to the past and the present, "but they also echo to the future" (Deleuze 1994, 107; see also Deleuze and Guattari 1996). "Future senses" of memory, foresight, voice, optimism, and yearning point to the ways in which people echo to the future. These senses, according to Bussey, are by and large natural to us. We remember and anticipate. We act as if we were free agents. We cherish hopes for the future. We yearn for meaning and belonging. These senses also connect us to others. We remember and anticipate as communities. We act as co-creators.

We share our hopes, "and we yearn together for wonder and connection" (Bussey 2017, 50). The relational nature of these senses suggests a new modality for future-making in which relationships act as a "logic of anticipatory power" that allows us to rethink "economics, politics, science, art, and life" (Bussey 2006, 83). It has taken some time to reach this point so that "future senses" themselves can be described.

Memory is the first sense. People remember in communities. They also misremember, entering into shared "memories" that provoke reactions to events in other temporal and spatial contexts that appear to share some common thread of meaning, "such as an old communal hurt being recalled to galvanize a community into action" (Bussey 2017, 60). Memory, as a result, can be manipulated, even invented. Bussey's comments find an interesting complement in Deleuze's reading of *In Search of Lost Time*, where he suggests that memory interprets the signs in Marcel Proust's novel inaccurately, and that the search is "oriented to the future, not to the past" (Deleuze 2000, 10). **Foresight** is the second sense. It is closely linked to memory, and like memory, "it is a natural human faculty," which draws on experiential circumstances (Bussey 2017, 61). Central to foresight is the search for alternative futures that rely on anticipatory imagination, that is, reorienting imagination toward the future while freeing it from the burden of the past. **Voice** is the third sense. Memory and foresight, as will become clear, come to the aid of voice to provide people with reflective tools to "escape their own conditioning" (Bussey 2017, 63; see also Foucault 1982). This, to hark back to Bryant, aligns actions and aspirations with broader social and cultural temporalities. **Optimism** is the fourth sense. Dreaming and seeking, experimenting and testing, "these are the tools deployed by this sense that intuits that there is [...] more to life than meets the eye" (Bussey 2017, 63). To deny optimism greatly limits our capacity to approach others with an open heart and take the needed risks to make alternative futures that are better for many, not just a few. Optimism paves the way for the final sense of **yearning**. It wells up within us as a sense of dissatisfaction with what is and a curiosity for new possibilities and horizons. In this regard, we follow avenues of inquiry opened up by Mihai Nadin who suggests that a sensory reading of the present is "anticipatory in nature" and fosters resilience (Nadin 2010, 110).

We do not espouse a higher-level framework for all anthropological attention to the future. Rather, we turn to "future senses" to parochialize exclusive visions that have long obscured alternative futures. At a time when the pressure upon us to simply "follow trends" is high, such an approach is urgently needed—it shows that the future develops in perspectival showings of a fundamentally shared and mutually constituted present.

FUTURE SENSES IN OUR FIELDWORK

Our thinking about "future senses" is grounded in experience and observation. It comes out of our own long-term fieldworks. [1] The first explores how former political prisoners in Argentina reorganized themselves when detention camps were converted into museums, and requested survivors' testimonies to narrate these spaces. Their collective recounting of "memories of resistance"—instead of torture and other horrors they endured in prison—revealed how the former political prisoners worked to create a future where youth were inspired to act politically rather than fear government repression (Park 2017, 13). Similarly, in England and Bosnia, pro-Palestinian activists drew on what Dipesh Chakrabarty calls "minority histories" to anticipate alternative futures and identities that inhabit them

(Chakrabarty 2000, 97). [2] They engaged with the marginalized and stigmatized conceptualization of Muslims vis-à-vis Europe, "which culminated in the Srebrenica genocide," on the one hand, and the Altab Ali murder, on the other, to give voice to youth worried about the future of their community (Jevtic 2017, 2). These worries, in turn, manifested in contemporary struggles for inclusion and representation. In what follows, we discuss the intrinsic interconnections of "future senses" through the lens of our own long-term fieldworks, paying close attention to how sensing is anticipatory, but anchored in "collections of cultural data we call memory" (Bussey 2017, 59).

Argentina

We draw from fieldwork conducted over two consecutive years in 2008 and 2009 with the Association of Former Political Prisoners of Córdoba, hereafter referred to as *ex-presos*, in Argentina. During the military dictatorship from 1976 to 1983, the state "disappeared" around 30,000 dissidents or suspected dissidents, and illegally detained and tortured 10,000 more. In the mid-2000s, hundreds of former torture camps were being identified and converted into *Espacios para la Memoria,* or Spaces for Memory. These memorialized spaces required the testimonies of former political prisoners to narrate these spaces and serve as legal witnesses of events that took place in these sites during the resumed trials of ex-military officials.

While most scholarship on Argentina's transitional justice process, or how societies deal with legacies of human rights abuses, focuses on Buenos Aires, where the highest number of "disappearances" happened. Córdoba Province, located in the middle of the country, has its own unique history of "disappearances." Córdoba is the original capital of Argentina, and is historically known as the hub of the labor movement and intellectuals—National University of Córdoba is the country's oldest university. The particular history of Córdoba is one of the reasons why the Association was the first to organize—they were the most politically active. What makes the Association a useful case for exploring "future senses" is that they were also collective, that is, they engaged in anticipation and sensing as a group. Their sensing was relational. As we discuss below, the entire work of the Association was in fact undergirded by "future senses"—they engaged in memory, foresight, voice, optimism, and yearning in order to shape their country's political future.

One of the main responsibilities that *ex-presos* had was to lend their memories and testimonies to *Espacios para la Memoria.* Up to 600 torture camps are known to have existed across the country. In Córdoba, two former torture camps have been turned into institutions—*D2,* the former center for police intelligence that became an *archivo* (archive), as well as a museum and community space, and *La Perla*, a military base that was, in 2009, in the process of being turned into a memorialized space. The Association had elected members most in need of a job to work full-time at the *Archivo*, while others were part of the volunteer group that cleaned and prepared *La Perla* for the public.

In the *Archivo, ex-presos* gave tours to students, local visitors, and international groups, such as the United Nations. In one wing of the *Archivo* was a memorialized space to people who were "disappeared" at *D2.* Their families and friends donated personal items for display—journals, dresses, sweaters, books, photos, a typewriter, and paintings. *Ex-presos* told the stories of these *compañeros*—who they were, what they liked, who they dated, what they cared about, who their families and friends were, and how they spent their time. In another

room, visitors had the opportunity to browse the books that had been censored by the dictatorship, such as *The Little Prince* and mathematics textbooks that involved group work. *Ex-presos* recalled smuggling and hiding books, and circulated photographs and newspaper clippings from that era of the military burning piles of books. *Ex-presos* often had to explain to younger visitors why these books were threatening. They also recounted stories of breaking a dictatorship-era law against meeting in groups larger than three to debate writings and politics. At *La Perla*, the tour focused on what had happened there—how they were blindfolded, tortured, and where they believed others were killed in massive graves on site. *Ex-presos* who acted as docents shared how they tried to support each other even as they were prohibited from communicating with each other, how they sang songs in protest, or how they remembered each other's names and voices to tell their families that they had seen them.

The memory work that *ex-presos* did on a daily basis reflected Bussey's "future senses." The repetitive and intersubjective nature of this work reflected the collective sense of **memory**—*ex-presos* told the same stories but riffed upon each other's versions, finished each other's sentences, reminisced together, answered questions, and smiled ruefully at the other's recounting of the past. These memories resurfaced decades later, within a particular political context, and were, therefore, bound to be unstable, contradictory, and inconsistent. That said, what was consistent across the memory work that *ex-presos* did on a daily basis was a desire to make an intervention into how history was written, remembered, and reinforced. This work, in its summation, sought to reach youth in large numbers, to offer an alternative view of what they had read or been told. When speaking to *D2* or *La Perla* visitors, *ex-presos* also emphasized the importance of pushing for bills that would have an impact on the future—tax policy, media regulation, or education reform. *Ex-presos* saw themselves as being in a privileged position because they had the benefit of knowing history, knowing how to lobby, and knowing how to engage the politically indifferent in conversations over coffee. Simply put, they exercised **foresight** through their engagement with youth on contemporary issues. The goal of subversion or reinscription of historical narratives was also essential to a style of representation embedded in *ex-presos* activism. Notably, when the Association debated what to present at the *Archivo* or museum, they often chose to present themselves in an active, strong light, not as passive, damaged torture victims. Even as they fought for reparations as compensation for the past harms that still affected them, the collective sense of **voice** that they exercised publicly was one of defiance, of youthful humor and spirit. The memory work that *ex-presos* did on a daily basis was implicitly and explicitly suffused with **optimism**. They were seeking to inspire and educate youth, to rectify historical narratives, within the very walls of the clandestine centers of detention where they were once tortured. By reclaiming and redefining these spaces they declared that their work mattered, and expressed a **yearning** for it to impact how they would be remembered.

These senses led to processes of future-making. To clarify, we might consider how, due to their engagement in "future senses," half of the Association reactivated their allegiance to a pro-Peronist/Kirchner political party and re-engaged in politics outside of their role as *ex-desaparecidos*. The memory work that *ex-presos* did on a daily basis also shifted how the public viewed *ex-desaparecidos*, and how *ex-presos* viewed themselves in history. The splitting and formation of a political organization engaged with present politics, and not with the past, and a historiographical shift in the victim-perpetrator binary, we might add, are proof of the future *ex-presos* constructed. This is not to suggest that collective efforts toward a specific

political project always come to fruition. Rather, observing over time a group of people engaging more with present political issues, after initially organizing in response to the memory explosion in Argentina's transitional justice process, provided a window into how the role of human rights groups was shifting from memory politics to legislative politics. In addition, by virtue of inserting themselves into the memory spaces, *ex-presos* were shifting the public narrative about the dictatorship. They shifted the focus from the victim-perpetrator binary to recalling people's commitment to various political projects during the Cold War. "Future senses," therefore, are not about trotting out a list of better predictions. They are about the work that is happening on the ground—what people are actually doing to conjure up the future *they* want.

What can we learn from the work of *ex-presos* in terms of "future senses?" One, the engagement with a group lends itself to a study of the social nature of humans and what is created by a collective, as opposed to individual actions within a collective or social group. Two, we are able to see what is socially negotiated, with close attention to the work and tension that go into developing group positions and decisions, as opposed to simply recording the aspirations, beliefs, and needs of an individual. Lastly, this case reveals the productive nature of investigating agendas—political, social, and personal—and how group support for these agendas leads to political activities.

England and Bosnia

The theme of "future senses" carries through fieldwork from England and Bosnia. For four years, from 2009 to 2013, we explored the ways in which pro-Palestinian activism acted as a catalyst around which different discourses on the duties of Muslims and the future of the Islamic community (*umma*) were articulated. Through ethnographic detail, we showed that these discourses were tightly intertwined with local histories and social and cultural contexts, and had as much to do with the plight of Palestinians as they did with the complexities and contingencies of daily Muslim lives in England and Bosnia. In an interesting contrast to the work of *ex-presos*, these discourses were not oriented toward politics as it is conventionally understood—their purpose was not to influence state policy or to mobilize voting blocs. Rather, they were political in a way described by Hannah Arendt— the activities of people who, through the exercise of their agency in contexts of public interaction, "shape the conditions of their collective existence" (Arendt 1958, 64, cited in Hirschkind 2006, 8). In order to flesh out the perspective we develop here, it is useful to examine "future senses" deployed in the context of different discourses on religious obligation, with pro-Palestinian activism as the case in point.

In a plethora of pro-Palestinian initiatives, led by churches, student associations, and trade unions, some of the most innovative ones came from Tower Hamlets, a working-class borough in London, and its Bangladeshi community, which suffered excessively from unemployment, lack of public services, and poor housing conditions. Stari Grad, an old borough in Sarajevo, at the same time, had a recent history of violence that paved the way for strong symbolic ties with the Palestinian people. Anxiety, fear, and hope were all at different times evoked by **memory**, which resulted in different imaginaries of pro-Palestinian activism. In Tower Hamlets, it was a sign of commitment to Islam that inspired hope amid local expressions of racism, most notably the murder of Altab Ali, a 25-year-old Bangladeshi clothing worker. In Stari Grad, it was an emotional response to anxiety and fear

that echoed through an extensive history of international hypocrisy and double standards on human rights. In *The Foresight Principle*, Richard Slaughter suggests that **foresight** needs honing to enable us to deal with "simultaneous and interconnected crises" for which memory on its own is not enough of a guide (Slaughter 1995, 5). Consider, for example, activists who contrasted the parochialism of their elders with a set of welfare needs in Tower Hamlets and a set of geopolitical issues that they believed to be relevant to all Muslims, most notably Palestine. In this, simultaneous and interconnected crises became crucial elements in future-making. Activists drew on lived experience to bring to bear new possibilities and horizons, whether in acts of providing religious instruction or charity. These, we might add, were political acts in that they posed a threat to exclusive visions that rendered Muslims invisible. Similarly, in Stari Grad, activists articulated their calls to religious obligation within a larger discourse on the present plight of the *umma*, which culminated in references to the Srebrenica genocide. The point of such discourse was not victimhood per se, but its role in destabilizing the present and opening up the future. For these activists, it was the doing that mattered. It is, therefore, not surprising that the collective sense of **voice** appeared often during fieldwork. Bussey suggests that voice must be instituted in the doing "as actions build culture, so new cultures emerge from new actions that are reflective of new choices, new values, and new imaginative configurations" (Bussey 2017, 63). These choices, values, and imaginative configurations, in turn, informed **optimism** among activists. Optimism enabled them to continue doing their work despite state surveillance and scrutiny. Lastly, **yearning** emerged as an itch to transgress political pressures, to question and reframe mantras of the present. It pushed anticipatory imagination forward, provoking new explorations of religious obligation in England and Bosnia.

As should be clear from what we stated above, taking "future senses" as both a principle for action and as an active space of imagination pushes at the limits of what is recognizable as religious obligation in England and Bosnia. In an atmosphere saturated by debates about cultural fitness of Muslims in Europe, which depict the values engendered within the largest segments of Muslim communities as incompatible with the ways of life, social norms, and values of Europe, "future senses" serve as a central source of motivation and means by which Muslims in Europe collectively conceptualize their position, as well as action they need to take in order to change that position and create a better future. Unlike their parents and grandparents, new generations of Muslims in Europe are resistant to the apprehensions of the dominant or mainstream society. They see Europe as their home, and they look for new ideas and interpretations of religious obligation that are compatible with the day-to-day realities of life in Europe. Pro-Palestinian activism points to one possibility in a plethora of new choices, new values, and new imaginative configurations.

Particular configurations of choices, values, and imaginaries differentially inflect patterns of attention, reflection upon, and elaboration of "what is anticipated" (Stephan and Flaherty 2019, 6). This variability renders anticipation a valuable object of analysis. It nuances but also challenges us to rethink our planning and strategy. We often assume that clients are the ones who will create the future based on our insights of what we think is to come. What we suggest instead is to study what people are doing in the present to create a better future. In short, our projects should not be suggestions of contexts and behaviors to favor and design for, but rather strategies for clients to tap into the memory, foresight, voice, optimism, and yearning of people working together toward the future.

FUTURE SENSES IN OUR CONSULTING WORK

The cases outlined above show that the future is developed in interpersonal engagements in everyday life. "Future senses," as the lens through which these engagements are explored, have vast implications for how we see our role as practitioners and how we work as ethnographers. We will now discuss how we have drawn upon our previous experiences of long-term fieldwork in the corporate setting of social science-based consulting. The academic tools we bring to our work are not always made explicit to our clients, but they inform the way we frame, conduct, analyze, and apply our findings to provide direction on how to position our clients for the future.

First, one way we have applied a method and theory of "future senses" has been to change our unit of analysis. We have shifted from theorizing on individuals to theorizing on "interacting groups" (Fine 2003, 41). The dominant model is to contextualize individual behaviors within the literature or expert views on macro-level social phenomena. What we suggest instead is that a study of groups where the members work together to make things happen casts light on the everyday. For example, for a tech client, our investigation of fan communities who meet in-person and virtually allowed us to see the formation of what Ray Oldenburg calls a "third place" on online platforms (Oldenburg 1989, 25). We have long discussed how our interactions have shifted with the Internet and social media. But our observation of fans on platforms, such as Discord, regarded their gatherings as being at a café, where they see regulars and meet new fans. Their perception of platforms as a "third place," superior to a physical one, where they make, maintain, and grow their communities, gave us insight into how a major socialization shift has taken place and where the future has developed.

We have observed how groups engage in mundane acts like informal conversations, as in the case of fan communities, to conjure a future that fits their visions and reflects their needs and desires. Focusing on groups or collectives of people has widened our lens not only in terms of a number of individuals involved in the research, but has also enabled us to investigate what people are committed to—being part of something bigger than themselves, we argue, indicates a level of commitment toward making a specific future possible. For example, for a non-profit client, study of Jewish congregations allowed us to see how religious communities maintain and grow religious institutions, and how their approach leads to a future with more or less religious affiliations. How these communities meet and interact in day-to-day presents, in this sense, informed our perspective on possible futures.

Anthropologists approach communities as not just observers but as theorists—we want to understand the customs, rules, moral codes, and histories that one gains from becoming a member or familiar, and accepted, figure within a community. How one enters a community, anthropologists are taught, is extremely important because it will shape how you are seen, trusted, and regarded. Communities are not always defined or formal, they could be a section of a city, a loosely affiliated network, or an investment into a shared identity, and they are more likely not to have a defined platform than have one. All anthropologists are in one way or another drawing the lines of a community by seeking to enter it, but these lines should be defined by those being studied—not the anthropologist. In the corporate setting, we are, along with our clients, drawing the lines of a community and defining what activities we will observe and ask about. But studying "future senses" is about tracing the interactions that people themselves are engaged in, and that they deem to be important. To shift our practice,

we should be—before having conversations with clients—connecting with a broad range of communities and establishing our relationships, such that when we want to bring forth insights, we are doing so by drawing from the multiplicity of collective acts being done in the everyday—with or without explicit agendas.

Second, we have used "future senses" as an analytic frame or a set of concepts to filter our data. Rather than focusing on unmet needs and challenges, we analyzed how the very act of groups coming and working together in the everyday was a shift that opened a door for future shifts to take place. For example, for a healthcare client, we observed how a ballroom community offered young members a chance to express themselves through dance, poses, and outfits, and earn respect from others within a community that was separate from the social pecking order that they had encountered in the dominant or mainstream society. The ways in which a ballroom community communicated what was valued, produced norms, and engaged in competitions opened up more possibilities for individuals within it. Being part of a ballroom community also suggested certain benefits for individuals that had a protective effect on their health. Gaining entry into competitions, for example, required HIV testing. Being part of a ballroom community, therefore, allowed them to be aware of who was sick and who was not. These insights into how to engage with a ballroom community and how to make health interventions was predicated upon understanding the future that this group was oriented toward—gaining social status within a ballroom community helped energize and propel a shared desire to overcome socioeconomic struggles and pursue upward mobility.

Third, we believe that "future senses" offer a useful lens into non-culturally dominant ways of envisioning the future, and what the future might entail, because we are identifying and amplifying specific agendas. The cases of *ex-presos* and pro-Palestinian activists mentioned earlier feature groups with specific agendas to make a specific future possible. As ethnographers, we can identify and amplify groups' agendas that diversify how we see the future. This would require identifying clients who are DEI minded or who are seeking less visible or alternative agendas to the dominant ones. As stated earlier, we must ask when and with respect to whose experience anticipation of the future occurs. For example, for a tech client, we explored experiences of black communities in navigating various forms of racial injustice, and how social media served to amplify these injustices or to circumvent them. We, as a result, observed the role of black communities in building support networks and change movements, especially how these communities helped each other address specific forms of inequalities. The ways in which black creative communities collectively contributed expressions of black culture into the mainstream, in this sense, reflected their shared agenda to counter reductive norms and representations.

"Future senses," as a method, analytic frame, or ideological position, call upon us to become a part of communities as anthropologists. Through the process of striving to become accepted into and learn the "rules" of communities, we develop a perspective on where the future is headed as it emerges from within communities. There is a difference between explaining a historical shift in order to say, "This is where the future is headed, and this is how you should position yourself to meet it," and actively ingratiating oneself within communities to say, "This is the future they are building, and my perspective is built on being a part of their everyday life and seeing how they live." Our argument is not about accuracy of guessing the future but rather about having a different relationship to our subjects, and thereby gaining a different perspective on future visions and how they emerge.

CONCLUSION

Our reflection on "future senses" in general, and suggestion to integrate "future senses" in our practices of research, design, and strategy in particular, has been an adventure into possibility, and new ways of thinking and doing. As should be clear, we are invested in embracing more deeply an experiential, bottom-up perspective when using ethnography in order to provide new insights into the relational nature of future-making. To us, this is meaningful work that calls us to question the idea of the "over there" subject as the object of analysis—something that knowledge can be extracted from and inserted "here." Rather, we locate the possibility of agency—to perceive, attend to, and anticipate the future—within the "empirical particulars of the group being observed" (Fine 2003, 44).

In grounding anticipation in lived experience, moreover, we offer a framework for approaching the way the future develops in different social and cultural contexts, and show how integral the future is to the present. Such an approach has the potential to reveal realities often overlooked in broader future visions, including the inequalities which such visions, strategies, and plans tend to reproduce. Lived experience, we might add, differs across time and space, across cultures and countries. Capturing these disparities, and exploring how they come about, is the first step in creating diverse kinds of potential instead of simply "following trends." As Ákos Östör noted some decades ago, "There are many worlds, human beings are the world makers, and the future is still open ended" (Östör 1993, 88).

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NOTES

1. While these fieldworks were conducted individually, we opt to use an inclusive first person plural pronoun—"our," "us," and "we"—for clarity and consistency.

2. For the sake of brevity, Bosnia and Herzegovina is referred to as "Bosnia" in the paper.

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Futures in Things

Locating the Promise of Infrastructures in Public Libraries

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Public libraries in the U.S. and around the world are rapidly changing due expanding technological and social needs of their communities. The Covid-19 pandemic has intensified the debates about the future of public spaces and public services. In this paper, we report on a qualitative study of librarians in a U.S. urban public library system. The focus of the study was to understand how the concept of "the future of library" is constructed and contested both socially and materially. Using mixed methods, including participant observation, interviews, participatory design and action research, we developed insights about the socio-political dynamics of futures in a public infrastructure. We argue that futures can be shaped not only by socio-technical imaginaries, and representations, which tend to be abstract and distant, but also by socio-material conditions in the present. Specifically, drawing on the work of infrastructure studies, we show how specific objects of librarians can be used to construct and impose a particular version of the future with which librarians have wrestle and to which they have to respond. In this paper, we focus on three examples in the public library: the circulation desk, the bookshelf, and the self-check machine to show how they instantiate narratives and expectations about the future of libraries. During our study, these objects were redesigned as part of ongoing library renovations. The traditional circulation desk was changed to a small pod, thereby changing the embodied experience of librarians and setting up new kinds of interactions and expectations between librarians, the patrons and library space. The traditional stacks were replaced by smaller movable bookshelves making the space more configurable and more adaptable to future needs of the library. The new self-check machine ascribed a set of values to the labor of librarians and introduced new management practices. Based on this argument, that the futures are socio-material and infrastructural, we propose strategies for researchers who study the future and contribute to the growing body of research in anticipatory ethnography.

INTRODUCTION

In recent years, ethnographic researchers within and outside of industry have been adopting futures-oriented and anticipatory methods. These approaches have been inspired by methodological and theoretical advances in design ethnography including such as speculative and critical design (SCD) as well as in futures studies such as experiential futures.(Candy, 2010) These methods can provide an alternative and generative perspectives to problems, systems, and underlying values, which can be useful in examining dominant narratives and making space for new ones. Creating alternative representations of the future is one of the key tenets of these methods. These representations could be in the form of stories, objects or bodily enactments. (Sanders & Stappers, 2014) The goal of these representations is to create a kind of a social and material break from the constraints of the present and to explore alternatives futures outside of questions of practicality and technical feasibility. However, what gets often overlooked in these methods is the socially, materially, and politically constructed nature of temporality itself. That is, how the future emerges from an everyday entanglement of people, things and places and the distribution of power among them. This is especially relevant when the site in question is a large-scale infrastructure where such entanglements take place at multiple scales and temporalities. How might we understand the emergence of alternative futures in everyday experience? What

methodological approaches would allow us to study these futures? What insights can we draw about anticipatory design ethnography? In this paper, we report on a qualitative study that shed light on these research questions.

Our research is based on a qualitative mixed methods study conducted in an urban public library system the Atlanta metro area of Georgia, USA. Drawing from the infrastructure studies and the concept of infrastructuring, we argue that futures are socio-material. Specifically, we examine three objects in the public library infrastructure, the the bookshelf, the circulation desk, and the self-check machine, and demonstrate how they shape and frame futures through relations and discourses that they enable. These socio-material relations include, among other things, enacting management policies, regulating the bodies of librarians and assigning value to their labor today and in the future. Based on these findings we propose strategies for researchers and practitioners of anticipatory ethnography to explore alternative futures and expand the tools of speculative and critical design.

ETHNOGRAPHY, FUTURES & DESIGN: COMMON TRAJECTORIES

As we face a whole range of complex socio-technical changes at various level of scale, from atomic and sub-atomic, to planetary and extraterrestrial, understanding how people and their communities experience and wrestle with emerging futures has become point of interest among anthropologists and ethnographic practitioners. Some have argued that since Margaret Mead, who was one of the founding members of the World Future Society, wrote A Note on Contributions of Anthropology to the Science of the Future in 1971, ethnographic methods have not kept up with the future-oriented shift. (Pink & Salazar, 2017) However, in recent years, a whole range of methodological and theoretical perspective have emerged in design, anthropology, futures studies, science and technology studies and others, that provide useful insight into how futures come to be, and what impact they have on everyday life. In design, speculation about and critique of the future through material engagement has produce novel ways to produce knowledge and, in some cases, debate about futures (Dunne & Raby, 2013). Similarly, in futures studies, which as been traditionally concerned with creating and studying alternative narratives and representations about the future (Polak, 1973), new approaches have been proposed to bridge the "experiential gulf" between the distant imaginary futures and everyday experience. (Candy, 2010) Researchers have also used representation of temporality itself. One example is the futures cone (Voros, 2003) which both challenges the idea of linear progress of the future but has also been critiqued for its Western-oriented bias. (Kozubaev et al., 2020) Another example is the 10,000 year clock proposed by Stuart Brand and is advocated by the Long Now Foundation. (Brand) Extending the time horizon is a one way the future can be challenged and reconceptualized.

There have also been approaches in design anthropology that are focused less on the distant nature of the future and more on the future that is "always already here, as a continuous unfolding of the past and present." (Kjærsgaard et al., 2016) Thus, from a methodological standpoint, there is a tension between the common framing of the future as distant and fictive, and the traditional focus on ethnography on the present and situated experience. Lindley et al propose anticipatory ethnography as one theoretical and practical approach to resolve this tension. They argue that design fiction can serve as input to design ethnography. (Joseph, Sharma, & Potts, 2014) Specifically, the use of *diegetic prototypes*, or

objects as storytelling devices, to suspend disbelief, can be useful in creating an insightful dialogue about the future.

While the use of fictional objects and things is common in speculative design and design fiction, another set of perspectives call for a closer attention to the role things play in shaping futures. Giaccardi et al argue for an approach that takes not only a perspective of a human but also a perspective of a thing. (Giaccardi, Speed, Cila, & Caldwell, 2016, p. 235). This requires taking seriously the idea that things are also actants. Seeing and understanding the world through everyday objects like a kettle, a fridge, or a cup, can challenge anthropocentric assumptions about how the world works, including how the future unfolds. Giaccardi et al frame everyday objects as potential co-ethnographers that can help reveal new insights. Another related perspective comes from infrastructure studies where the focus is not on individual things but on socio-material relations that they enable over time. This point of view helped frame the concept of *infrastructuring* which is a process of attending to relations that technologies enable. (Star & Ruhleder, 1996) In other words, we can understand how things around us shape relations through infrastructures, including how we experience futures and temporality. In large and complex infrastructures, this can occur at different scales and times. For example, Anand et al argue that infrastructures have a promissory quality. Roads, bridges, and other large infrastructural projects are not only used in discourses around brighter and better futures but are also promissory in themselves as they mobilize resources and shape socio-temporal, socio-political, and socio material relations. (Appel, Anand, & Gupta, 2018). It is with this perspective in mind that we developed our research and findings. That is, how things, such as a circulation desk or a bookshelf, in everyday experience serve as actants on the future in everyday experience, and what methodological implications this has on locating and interrogating alternative futures.

CONTEXT AND METHOD

We provide a detailed ethnographic account and methodology of our research elsewhere. (Kozubaev & DiSalvo, 2021) In this section, we briefly outline some of the key facts about our research site, participants and methods used. We engaged with the Fulton County Library System (FCLS), an urban library system with over 30 branches in the Atlanta metro area in the state of Georgia USA. Our collaboration with the library began in late 2018 and lasted approximately two years. At this time, the library was undergoing a significant capital improvement project which involved renovating all its old branches including the central library in downtown Atlanta, and the construction of several new branches. As part of this process, the library administration, librarians, and the communities they served were engaged in public discussions and design process. Part of this process included imagining a new future for libraries. These discussions were part of a broader debate within the professional librarian community about the future of the profession and the institution. (Chowdhury, Poulter, & McMenemy, 2006; Kozubaev & Di Salvo, 2020; Peet & Yorio, 2018) For example, since 2013 the American Library Association (ALA), has invested in the Center for the Future of Libraries, which seeks to "brings together library experts and innovators to explore the profession's many futures by focusing on emerging trends." (American Library Association, n.d.) Over the course of two years, we engaged with FCLS through volunteering, conducting speculative design workshops, participant observations and in-depth interviews. We also participated in public hearings at branch libraries where

architects, library administrators and community members discussed renovation plans, design decision and future use of libraries. In all these engagements, we tried to identify and document how the future of libraries is imagined, contested, and experienced by members of this professional community. In particular, we focused on the work practices of librarians rather than patrons. This aspect of library futures often gets overlooked and more attention is paid to how the library should provide more value and services for patrons. In fact, in popular press and public discourse, libraries are often framed as out-of-date, slow, or even irrelevant. Thus, focusing on the work of librarians, allows us to see the hidden, infrastructural aspects of how library futures are made.

FUTURES IN THINGS

We uncovered several themes and insights about the relationship between library infrastructures and futures. In prior research, we described how the work of librarians shape infrastructures by expanding their services beyond books through programming and outreach, how libraries can be sites of political activity and contestation, and how librarians navigate the tensions between the forces of market logics and its commitment to being an open, free and inclusive space. (Kozubaev & DiSalvo, 2021) What we uncovered and observed were a whole range of discourses, practices and entanglements that shape and negotiate emerging library futures in messy and subtle ways. The most interesting and unexpected of them were the role of ordinary but infrastructurally crucial objects. Next, we will discuss three such objects that stood out: the bookshelf, the circulation desk, and the self-check machine. These objects are central to the everyday work of librarians and the library space in a mundane and somewhat invisible way. What we will show, is that these objects also enact futures through the relations they enable and the role they play in discourse about library futures.

THE BOOKSHELF

One of the key features of the newly renovated libraries is that the traditional permanent stacks are being replaced by shorter bookshelves that are also on wheels. The reason for this design choice is that future of library space is framed as flexible. Smaller bookshelves on wheels allows the staff to reconfigure the space quickly and easily. In public meetings, we heard several such justifications for this decision including: *"One of the things we tried to do is to make the space flexible"* or *"All the furniture is on wheels including... There is an opportunity to use the space differently."* The movable bookcase sets an expectation that the library space is not just for books and that space should be used in other ways. The second design choice is the height of the bookshelves. The height of the old stacks was 90 inches (229 cm) and the new bookshelves would be up to 66 inches (168 cm). Architects explained that this design provides an increased sense of openness in the library, and that librarians can visually monitor the patrons. In other words, it is also a surveillance feature. Here are some examples of such explanations from our field notes from public meetings: *"The whole space will be much more open. You can look in and see activity in the library." – Meeting 7. "Again, the idea is to have spaces as open as possible. To give the librarians the opportunity to see what's going on. We organized the shelves so that the librarian can see all the way down through the shelves."– Meeting 6.*

This future was not welcomed by everyone and was sometimes contested. One of the tensions that the new bookshelves create is between the size of the physical book collection and available floor space. During public hearings, one of the common questions that community members asked was whether and how many books the library is going to lose as a result of the renovation. For small local libraries, book collections are valued not just as a source of information, but as a source of community identity. (McKenzie, Prigoda, Clement, & McKechnie, 2007). Responding to these questions, the architects and library administration explained that the new shelving is more efficient, and in fact, the top and bottom shelves of the existing stacks are underutilized, because they are harder to reach. The new shelving system became a point of contestation among different stakeholder groups about what the future of library is about. There were some who believed that in the future books should play at least as important a role as it has in the past, and thus a perceived reduction of shelving would prevent that future. At the same time, the idea of a library space as "open" and "flexible" suggests that in fact what the library is about is unknown and the choice of the new shelving is a coping strategy with that uncertainty. We heard this sentiment in our conversations with librarians and it is illustrated by this remark made by one library administrator at a meeting. *"We have to have the ability, if in 2 years if this space doesn't work, we have to be able to adapt without more money. You'll see its flexibility and versatility to meet the changing needs." – Meeting 3.* Thus, the bookshelf as an object is a kind of an agent of the future while at the same time is an indication of broader socio-economic forces with which library administrators and workers have to contend.

THE CIRCULATION DESK

The circulation desk (aka the circ desk) is usually accessible and visible from the main entrance to the library. In its traditional configuration the desk is behind a barrier, like a bar stand. A key feature of the renovations is that the traditional circulation desks are replaced by small, movable pods design for a single library worker. In one meeting one of the representatives explained the reason behind this transition as follows. *"The staff gets an opportunity to circulate and be among patrons as opposed to staying in one location. That's on wheels as well. you can unplug it and move it. You can turn it in a different direction." – Meeting 3.* The other reason for this transition is to free up floor space for some of the new amenities like the new meeting rooms. But there is also a broader narrative behind this design choice, which is the idea that librarians should be interacting more with people and spend less time on simple transactions like checking out book, which are considered not as valuable. Furthermore, circulation desks, it is argued, create a physical barrier between patrons and librarians which is not conducive for human interaction. Like the movable bookshelves, the pod also reinforces library futures as flexible spaces. But unlike the bookshelves, the pod constructs this future through librarians' bodily position and experience.

However, librarians we spoke to pointed out some of the concerns of this design. First, desks don't prevent librarians from interacting with their patrons. Second, providing a sense of authority and power can be beneficial to the work of the librarians and being physically exposed has its dangers as well. Here a librarian explains her experience in an interview:
"Well, you know what, sometimes you don't want to be down there with them [the patrons]. You need to know what you're talking about. And especially me as a small woman, there are a lot of people that will push me around and I get pushed sometimes. There are a lot of times when I know what I'm standing on and

I know my library work and I know what I'm talking about. And I feel a lot more secure being behind that little desk." — Participant 15

This last point about feeling secure brings up how design decisions in the library be based on certain gendered notions like "openness" and "being connected to the patrons" that overlook some of the dangers of a profession the majority of which consists of women. Our participants noted that working behind a small pod in the middle of a room can leave them exposed. *"It's mostly women here… We'll have someone come up and touch us on the arm or to be frank, look at our a**es all day from wherever they're seated. But having something that keeps you at bay, not at bay, but keeps the eyeballs from looking at you all day or people coming up behind you, this is going to be stressful." — Participant 6*.

THE SELF-CHECK MACHINE

Library renovations introduce another new piece of equipment, self-check machines that allow patrons to check out several books at once. They are considered an important tool in relieving the librarians of tasks that can be easily automated and therefore not valuable.

"Typically, it's [book check out interaction] just transactional. The sort of interactions that we want staff to have with the public are higher value interactions than that. So rather than checking an item out, we would want a staff member to show the patron how to check on their own. To walk with them in the stacks to an item that they are asked about, to have more face-to-face interactions because they don't feel like they have to be at the desk to check an item out" — Partiticapnt 3

These machines shape librarian's future work in ways that are more "valuable" to the patrons. Librarians are encouraged to teach patrons to use self-check machines, and library management sets targets on what percentage of such transactions should be automated. Thus, the machine is at once a future shaping device and a compliance mechanism to ensure that the officially preferred future is achieved. But using self-check machines present unique challenges in each community. Indeed, in some cases and for certain demographics, using self-check machines without ever interacting with a librarian is convenient and preferable. But for other, more technologically challenged audiences the machines can be an obstacle.

"A lot of my time will be spent explaining how to use self-checkout because again, the digital divide, people are not that comfortable with computers." — Participant 5. So librarians create their own strategies to both comply with the management vision and to ensure that their patrons are served well. Sometimes, these goals conflict with each other. One librarian told us that because her branch has an older demographic, they were planning to station one of the most experienced and most popular librarians next to the self-check machine so that older patrons don't get intimidated by it. From the perspective of the patron, this arrangement would replicate the experience of a traditional circulation desk. From the perspective of the librarian, it would help comply with management's goals of increasing the use of self-check machines. Most importantly, framing the book check-out interaction as less valuable overlooks other vital but less measurable value of interacting with a librarian. What some might consider trivial "chit-chat", in fact plays an important social and cultural function, especially in smaller local branch libraries, where interpersonal communication is a building block of a public sphere. (Wood, 2020)

The above examples demonstrate how techno-scientific visions of future can be materialized and embedded in the everyday object and experience of librarians. These objects, though discrete and mundane, are part of library infrastructures and shape relations

between people, things and places. As we have seen, in some cases these objects can frame and legitimize particular futures. In others, they can become points of contestation, resistance and sources of alternative futures.

STRATEGIES FOR ANTICIPATION THROUGH THINGS

A common strategy for reflecting on and studying the future is through fictional narratives, representations and things, that is through speculation. From an ethnographic standpoint, it often means studying some sort of an intervention of these fictional artifacts and representations into everyday experience. What we have shown in our examples, is that futures can also emerge from and be shaped by objects, especially in large scale infrastructures. In this section we propose two methodological strategies that begin from the premise that futures are part of the everyday experience, they emerge without any interventions and they can be enacted and shaped by things rather humans.

Strategy 1: Locate Anticipatory Dynamics and Temporalities in Infrastructures

A key aim of futures studies and speculative design is to challenge dominant frameworks of meaning and generate alternative possibilities. For example, Milojevic and Inayatullah argue that the notion of "alternative futures" can be seen as fundamentally transformative, and capable of bringing about social change. (Milojevic & Inayatullah, 2015) Thus, the very act of conceiving and representing alternative futures, affords a certain kind of agency to change one's condition, at least potentially. However, as we have shown in our analysis, FCLS alternative futures are contingent upon the infrastructures in which they originate. First, there is the issue of power relations which determine who gets to propose and legitimate the future and what becomes "the official future." For example, the library management sets the vision of the future which is enacted through administration and policies. Second, perhaps more important, is the socio-materiality of infrastructures itself, which shapes what futures are possible and how they unfold. What does it mean to study futures and propose alternative futures when the very conditions under which the futures are made have existing futures both visible and invisible? In other words, when futures are introduced into infrastructures, such as through design interventions, workshops, art installations etc., they come into contact and are influenced by futures that are already there. This calls for a closer examination of the claims futures methods and other closely aligned ethnographic methods (both academic and professional) regarding their capacity to challenge dominant narratives.

One implication is that futures practice and research need to focus on locating existing futures embedded in infrastructures. This requires a more nuanced understanding of socio-material relations in a given community or place and how they shape temporality. A distinctive trait of infrastructures is the fact that relations are layered over time and become gradually less visible. One aspect of locating the temporalities of infrastructure is tracing those complex histories that determine or otherwise influence temporalities in the present. Bowker proposes that mapping temporalities of infrastructures can provide "ways of escaping the dead weight of progressivist historiography." (Bowker, 2015) From the

perspective of futures studies, this can be useful in identifying temporal trajectories that were set in the past and that continue today.

The second aspect of locating temporalities is mapping how infrastructure orients actors towards the future. In other words, identifying how infrastructure promises particular kinds of futures and foreclose others through socio-material relations that they enable. This kind of analysis sets up a different role for futures studies where the aim is not to forecast and describe distant alternative futures, such as by representing it or by making open to experience (Candy, 2010), but to describe the futures shaped by the infrastructure in the present. Once this is achieved, we can begin to examine the extent to which alternative futures can be produced by engaging with those temporalities rather than breaking away from them. It is not about generating alternative futures in the distance, but about exploring the limits and opportunities for human and non-human agency in producing alternative futures within existing socio-material relations. Since it is difficult, if not impossible, for any one actor to completely change infrastructures, shaping alternative futures in infrastructures implies creating adjacent futures that co-exist and interact with futures that are already there.

Finally, examining infrastructures to locate futures necessitates another, perhaps even more fundamental skill for ethnographic researchers which is attending to objects. That is to say, in order to articulate the socio-materiality of futures, as I have described above, one needs to account for objects, including their materiality and agency, from the object's perspective. What does the bookshelf want? What does the self-check machine see? What future does the circulation desk promise? Taking these kinds of questions seriously can help us articulate alternative ways futures unfold in ways that are not anthropocentric, but center things as actants themselves. Furthermore, they can help us locate futures without relying on fiction and intervention, which can often privilege the researcher or designer as the arbiter and author of futures, even in cases where the process strives to be participatory and inclusive.

Strategy 2: Use Things To Diversify Temporal Representations

One way futures-oriented anticipatory methods distinguish themselves is by focusing on a longer time horizon. Considering decades, centuries or millennia allows one to frame challenges in a way that include larger systems and broader implications (societies, continents, entire planet etc.). One common representation that has been used by design anthropologists is the Voros cone. We have written about its uses and shortcoming elsewhere. (Kozubaev et al., 2020) In this paper we will draw from another representation of temporality based on the work of Stuart Brand and the Long Now. The goal of the Long Now Foundation (LNF) is "to provide a counterpoint to today's accelerating culture and help make long-term thinking more common." (Brand, n.d.) The key premise of this approach is what humans perceive as "now" is a very narrow temporal scale, ranging from this very second to a few days. According to Brand, the challenges of our time stem not from mere selfishness but from a myopic view of time itself. Brand and his collaborators proposed extending "the now" to a much longer time scale, namely ten thousand years, so as to expand our capacity to tackle issues of greater societal and planetary concern. One of the strategies LNF uses is to change cultural representations of time. For example, members of LNF represent the year of a date with an added "0" at the beginning (e.g. the year 2020 would be 02020) drawing attention to the fact that how we represent time is a matter of

cultural convention and convenience and that there are longer time scales. Another project of LNF the 10,000 Year Clock, a clock built into a mountain in western Texas. It is designed to work for 10,000 years without human intervention. Aside from being a unique engineering, design and fabrication challenge, it is intended to make a cultural impact "to be a symbol, an icon for long-term thinking." (Bezos, n.d.)

Implicit in this approach to temporality is the belief that there are multiple levels or layers of temporality that one can organize in a hierarchy. To frame and solve problems at the appropriate scale one has to, in a way, match the temporality of that scale. Brand calls this *pace layering.*

In this mode, the outermost layer is "Fashion", which operates on in the most rapid temporality. Fashion tastes change rapidly and unpredictably. The innermost layer is "Nature" and has the slowest (or longest) temporality. According to Brand, the relationship between the layers is that of reinforcement and sustainment. *"In a healthy society each level is allowed to operate at its own pace, safely sustained by the slower levels below and kept invigorated by the livelier levels above."* (Brand, 1999, p. 36) Pace layering can be useful in thinking about longer and shorter temporalities and can be applied in a variety of contexts. For example, Brand applied a variation of the pace layering model to demonstrate how temporalities in a building nest into each other from the level of an individual object to the site on which the building stands.

However, there are also some shortcomings in this model. First, pace layering and other similar approaches to representing temporality, tend to treat it as a given and, in some way, inherent to a specific scale: Nature is long term, Fashion is fast, infrastructure takes a long time, and so on. In addition, it systematizes temporalities in a fixed hierarchy that doesn't reflect everyday experience, and also depends on the nature-culture duality that is problematic.

As I argued above, multiple temporalities can be embedded in and framed by the socio-materiality of infrastructures. FCLS infrastructures impose and promise certain futures encouraging, and sometimes forcing librarians to be and act one way or another. At the same time, librarians intervene into these temporalities and create pathways for alternative futures to emerge by attending to socio-material relations and creating new ones (i.e. infrastructuring). Therefore, a more accurate way to think about infrastructures is not as marker of a distinct temporality, but as a set of relations that can orient us to different temporalities at the same time. Nature can be experienced as fast, slow or even unchanging depending on the infrastructures through which actors relate to it. The same could be said about fashion. In other words, temporalities are infrastructure-dependent and, like infrastructures themselves, they are relational. We have seen this in the work of librarians. Librarian's everyday experience can be fast-paced and overwhelming. At the same time, these infrastructures can be slow and resistant to change. The Dewey Decimal system of classification, despite its many shortcomings including lack of versatility and a cultural bias, remains the most common system of organizing information in public libraries. (Drabinski, 2008) Furthermore, because many public libraries are part of a local government bureaucracy, they are tied to funding, management, legislative and other infrastructures, that take years, if not decades to change. Therefore, it is important for futures researchers and practitioners to represent temporality in more diverse ways that account for the socio-materiality and socio-politics of futures more comprehensively than established cultural

conventions. (Kozubaev et al., 2020) Taking temporality as a given, either by using some of the common methods and representation that I described here or by not attending to it at all, undermines the very openness and generativity that anticipatory ethnographic methods aspire to achieve.

CONCLUSION

In this paper, we explored how things shape and act on futures on the example of library infrastructures. As evidence for our argument, we used three objects from library infrastructures which we studied using mixed qualitative methods. The three objects, the stacks, the circ desk and the self-check machines, helped us uncover how futures unfold in everyday experience of libraries and how they act on temporality in various ways. Furthermore, we demonstrated how these objects play a role in broader library infrastructure by, for example, enacting management policies, regulating the bodies of librarians and assigning value to labor. Using these insights, we then proposed two methodological strategies for studying and challenging futures. The first is to *Locate Anticipatory Dynamics and Temporalities in Infrastructure,* which requires researchers to attend to the socio-materiality of futures and objects. The second is to *Use Things To Diversify Temporal Representations,* which calls for alternative approaches to understanding and conceptualizing temporality by reference to the things create them in everyday experience. By articulating these strategies, we contribute to the ongoing research and practice in anticipatory ethnography. We hope that practitioners of these methods continue to expand the methodological and epistemological diversity in generating, studying and creating futures.

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PechaKucha

Alternative Methods

What does it mean to use creative methods in our research? From which techniques and toolboxes do we begin, if we want to anticipate the toolbox for our future practice? How can we incorporate alternative methods, paying attention to feelings as well as facts? In this panel, authors become bricoleurs who put their assumptions about knowledge creation on hold in order to explore a range of unexpected sources.

Our Advocacy for Their Change

AMANDA ROSENBERG, *Workday*

Our practice is due for an update.

As researchers, we practice advocacy on behalf of people impacted by product development decisions.

In a time when many of us are striving for more inclusivity, interrogating our approach to advocacy reveals how we can begin to break down the ways we enable — and could enable — change on behalf of whom we're researching.

Sparked by the events of 2020, this talk is a reflection on historical and current advocacy practices outside of research. The talk explores why an update to the research practice matters and how we can go about it.

Demonstrators gathering in Minneapolis to celebrate the murder conviction of polic officer Derek Chauvin in George Floyd's killing Credit: John Minchillo/AP

Amanda Rosenberg is a UX Researcher at Workday, a mom to the cutest rescue dog, and an avid practitioner of yoga. With a dual MDes and MBA from Institute of Design, IIT, she has brought her curiosity to an array of sectors from healthcare to government services to IOT technology.

Intuition

Thinking Through Loopholes

LAURA N. M. REISS

Intuition, contrary to common sense, is not a natural gift. Intuition is born out of experience and it can be a valuable tool for researchers. But what has intuition to do with anticipation? To anticipate we usually rely on understanding current behavioral patterns and extrapolating them. Intuition is great at recognizing patterns and by trusting it more we can become even better researchers.

As with any other skill in order to follow our intuition, we need to practice, to be exposed to a lot of fieldwork, to listen to a lot of people, so that we can not only notice what stands out of the common but give the right value to it. When we learn to use our intuition as a research tool, anticipating becomes natural.

I will bring examples from a research project that aimed to explore the relationship of young women in Brazil with pregnancy and the most valuable insight in this project came from a girl who did not get pregnant.

I will also draw from the world of chess - a game where anticipation is the key to define the next move.

Intuition can illuminate the atypical in order to understand the typical. And that's a powerful tool for any research.

I am a researcher who has been working in Brazil with behavior analysis for more than ten years. I have used a variety of qualitative research methodologies and techniques, such as

ethnographic research - digital and in-person, observational research, user experience research, focus groups, in-depth interviews, and usability tests. For the past five years, I have been working with foreign companies, among several tech companies - such as Uber, Facebook, Instagram, and Google. I have had the chance to understand, assess and share insights from the field with each team involved. I have a BA in Social Sciences from the University of São Paulo - with a specialization in Anthropology, and I am doing an MSc in Digital Anthropology at UCL. In addition, I have taken different courses in design and planning communication.

Reconfiguring Home

Seeing remote work and school through mothers and their children

CHLOE CHANG
VINAY KUMAR MYSORE

What happens when we include children as equal participants? In a project to identify design opportunities to support working mothers during a time when schools have closed across the U.S. in response to COVID-19, we crafted the research to create space for children to voice their needs. What we heard offers opportunities for all parties involved—the designers, the researchers, and the moms who participated.
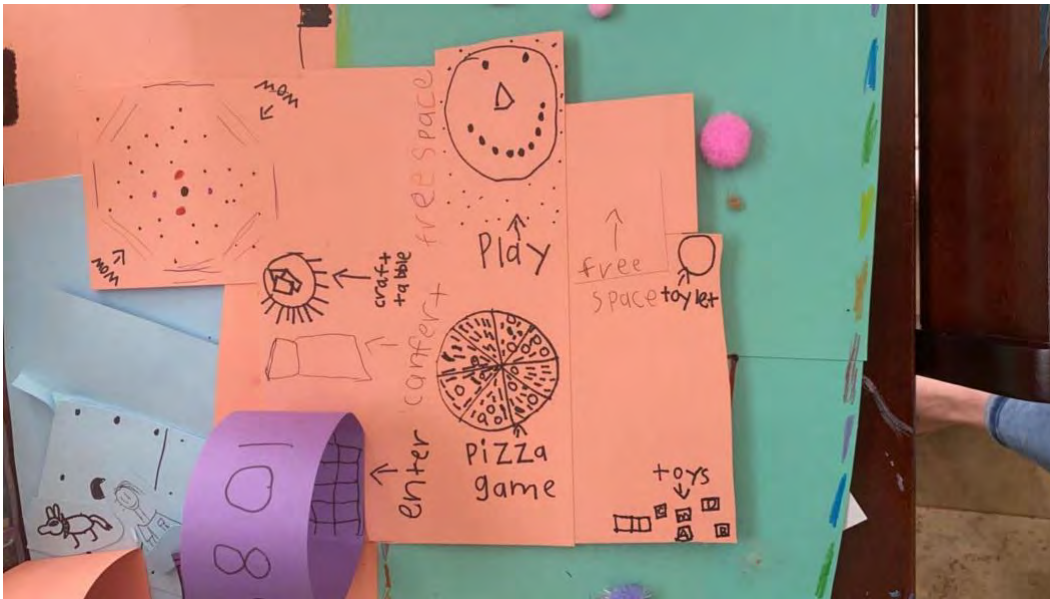
Photo by Chloe Chang and Vinay Kumar Mysore.

Chloe Chang is a design strategist and researcher who advocates for social justice and equity as the best outcome of any design process. With a background in communication and human-centered design, they work to translate complex narratives and system needs into strategies that are inclusive and sustainable for communities, teams, organizations, and cities.

Vinay Kumar Mysore is a parent, design researcher, and hazelnut farmer. Their research interests include community and equity centered design, permaculture, civic engagement, and anti-patriarchy practices.

PechaKucha

Framing Devices

These presentations share a productive commitment to storytelling as a way to address what is uncertain or even risky. They dig deep into the ways that stories—and critically, the way stories are told—can have great bearing on how we anticipate and create futures.

Change the Category, Change the World

How research and great storytelling drove a headline-making world first for supermarkets

JENNIE LENG, *Independent*

The butterfly effect – a small change that has big ripples. This is what Jennie Leng created when she persuaded NZ's largest supermarket to change its language from "sanitary products".

Phrases like "sanitary products" and "feminine hygiene" are ubiquitous around the world, but these euphemisms have connotations of dirtiness, and perpetuate the idea that menstruation is embarrassing and shameful. Jennie used context, anecdotes and quantitative research to build a case for the supermarket to change their language – and they went for it! Countdown Supermarkets now uses the phrase "period care" in all of its digital channels and have rolled the label out in store. Because if you can have skin care and hair care, why not period care?

In this PK, Jennie will touch on the types of evidence and the framing she used to influence the business, and the world-first, headline-making outcomes of this change
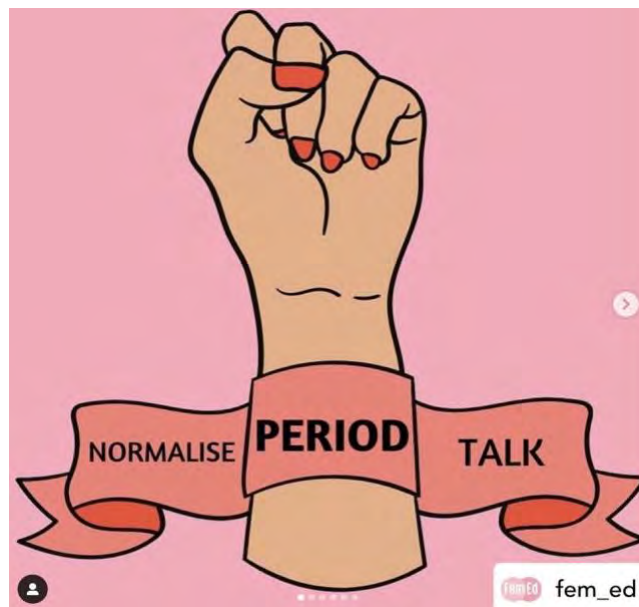
It's time to normalize period talk. Illustration credit @fem_ed instagram

Jennie Leng is a New Zealander, mother-of-3 and currently GM of Digital at Bendon Lingerie. A champion of Design Thinking, Jennie's expertise is in digital strategy, digital product design and research. Jennie's industry experience includes retail, travel, finance and telecommunications. She helps businesses become more human-centred through data, research and "bringing the outside in". She is the author of New Zealand's [Design Maturity Benchmark](#).

Who Deserves to Be Observed?

Wrestling with the Avant-Garde

LETIZIA NARDI, *InProcess*
LOLA BILLAUD, *InProcess*

What happens when the "mildly militaristic jargon of marketing" (2004, Sunderland, Taylor, Denny) seeps into the dialectic process of structuring applied research and blurs the meaning of its stakes? This provokingly titled Pecha-Kucha stems from our experience of recruitment conundrums, ones in which notions of "avant-garde" were used in framing, shaping, or reorienting our approach towards the people we were supposed to observe, analyze and report on.

We resurface from these case studies and attempt to scratch the glossy coat that blankets these notions as we approach the range of theories that try to define who's "deserving" of observation. We point at their implications, revealing the power dynamics that they inevitably create, within and outside the field. Inspired by Escobar's call for non-modern solutions to the stakes of the modern world (2017, Escobar) we reflect on how to make our epistemological choices count in the future shaping processes we find ourselves involved with.

Attempt at shaping the future. Credit: Marie Balloué, Pauline Ferrari.

Letizia Nardi is an anthropologist and practices at InProcess, an innovation agency based in Paris. Letizia enjoys multi-disciplinary research settings and working across industry sectors, with a special preference for BtoB projects and the convergence of design and anthropology.

Lola Billaud is an anthropologist and practices at InProcess, an innovation agency based in Paris, France. Lola is interested in the anthropology of the body and explores visual media as a way to analyse and bear witness of the present.

Anticipating Shared Futures:

Emotion, Connection & Relationships

SARAH HEFFERNAN, *NCAD / Deloitte Digital*

Unprecedented. Unprecedented. Unprecedented. How often did we hear that word at the onslaught of the Covid-19 pandemic? But was it really unprecedented? We've been warned for years that a pandemic was imminent. We know the world has been devastated by them in the past. So why did we declare Covid-19 unprecedented? And why wasn't there a shared anticipation of it?

Reflecting on an idea that was first sparked while working as a bungy jump operator, this PechaKucha explores how facts, figures and predictions are not enough when it comes to helping people anticipate and embrace the unthinkable. This discovery is layered with the grief I experience for a way of life I've never lived and the feeling of hope that comes from a futures project that is not about creating something new.

Keywords: Futures, Food, Storytelling, Emotion, Connection, Relationships

Emotion, connection & relationships. Image courtesy of Karim Manjra, Unsplash

Sarah Heffernan is an award-winning designer and researcher based in Ireland. A curious and thoughtful person, she is happiest exploring and loves connecting people, places and things. Embracing futures thinking and storytelling, she likes to delve into the unthinkable and seeks to understand how future scenarios might feel. As Chapter Lead of This is HCD Ireland, Sarah is extremely grateful for the past, present and future stories she gets to hear and share as part of that community.

PechaKucha

Decentering the Human

These presentations call on us to think beyond the human-centered approaches that are now so well-received and much-loved. They offer alternative lenses on the whole environment—of which human are just a part—at a time when so much of the world is at stake.

Microbes That Matter

CARRIE YURY, *Fjord*

While COVID-19 has made the world hyper vigilant about sanitization, I take a bottoms-up perspective on the threats of a microbe-starved world. Telling the story of Clostridium Difficile, I walk us through how—just as in ethnography—context is everything for microbes. Using different examples from the biosphere, I examine how microbial metaphors matter, and I make the case that understanding microbes in the context of larger environments and ecosystems can help move us toward life centered design.

This Pecha Kucha uses microbes as a contextual metaphor to argue that it is our responsibility to change our perspective; to decenter the human, and start designing for the health of the entire ecosystem, not just one of the players. The Pecha Kucha includes a set of experience principles for life-centered design.

All Images copyright and courtesy of the artist Katherine Streeter.

Carrie Yury is a Group Design Director at Accenture Interactive. She is Fjord's National Design Research lead, responsible for leading the overall quality of design research on Fjord's design and innovation projects, in partnership with Accenture. Over the last 20 years Carrie has held senior-level roles leading ethnographic, UX, and Agile human-centered design research and service design for human centered innovation consultancies.

On Being Well in a Time of Hell

MIRA SHAH, *Spotify*
CHLOE EVANS, *Spotify*
CAMIE STEINHOFF, *Spotify*

For the past year, people around the world have adjusted quickly to unforeseen constraints presented by the COVID-19 pandemic. Upheaval during the pandemic has resulted in a deep sense of grief leaving people in an unpredictable cycle of losing control and attempting to regain it. But, guess what? Researchers also have been experiencing the highs and lows of the pandemic and haven't been immune to the fulcrum of loss and unexpected buoyancy. In sensing the importance of the moment, a group of researchers came together to learn how people around the world were adjusting and coping, and to anticipate how adaptations in contexts, habits, and tools may lead to enduring changes in everyday life.

On Being Well in a Time of Hell is a bricolage from Brazil, Indonesia, and the United States told through diary entries, photos, and drawings that bounce from despair to moments of unexpected connection, creativity, and sometimes, believe it or not, joy. Through gathering as a community of researchers, reflecting on the rich stories of our participants, and owning our process of loss and resilience, our insights about what the future may hold illustrate how we make meaning from experiences and how innovative tools enable those experiences.
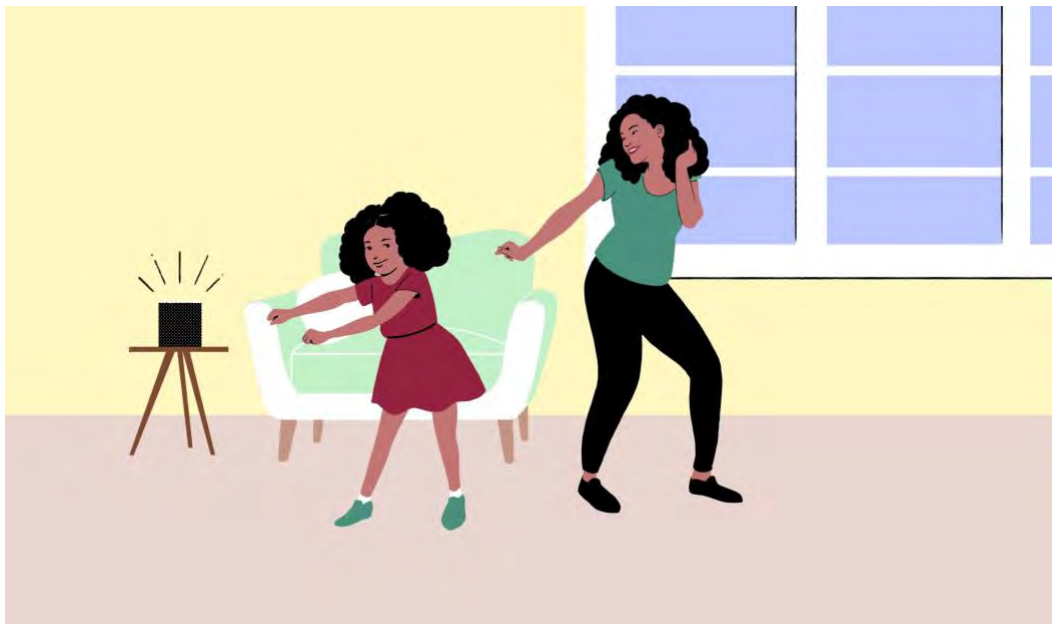
We began to see personal milestones and social routines cancelled, but then people began adapting. Zoom weddings and birthdays gave people a break from daily stress. Illustration by Alex Fine.

Chloe Evans is a user researcher at Spotify. She has a background in Visual Anthropology and specialises in visual methods such as video and photography in data collection and publication.

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Hands Are People Too

Reflections on the Value of Hands (and How to Study Them)

MARIA CURY, *ReD Associates*
KAHYUN SOPHIE KIM, *Facebook Reality Labs*

Did you know that hands have bodies, relationships, and minds of their own? In the coming years as a new wave of technologies focused on our hands is under development, and as AR/VR may include haptics as a key mode of interaction, we need to design for hands as we would for people – keeping the technology in the background to ensure hands can learn, collaborate, and shine. We conducted a study in 2020 about what gives hands unique value to people. The ambition was to understand hand-based skills across contexts and domains of practical expertise. We asked practitioners to record themselves using their hands, analyzed the video footage, and watched the recordings together with each practitioner. We asked practitioners to reflect on their hands and compare how their skills might apply to other contexts. Through this process, we uncovered that the hands have bodies, relationships, and minds of their own. These fundamental observations help us to imagine and anticipate future technology interactions that are not only relevant and useful, but that respect and enable the aspects of our hands that make us feel most human. Note: The presentation was intended to feature GIFs from fieldwork video, but only still images are allowed per the rules of the pecha kucha format; we therefore storyboarded stills from the recordings as the visuals, to highlight the haptic movements.

Keywords: Hands, haptics, technology, interaction design

Image by Katy Osborn, Michele Chang-McGrath, and Matt Kay

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methods. Maria received an MSc in Visual, Material, and Museum Anthropology from Oxford, and a BA in Anthropology with Visual Arts certificate from Princeton University. mcu@redassociates.com

Sophie Kim is a research science manager in Facebook Reality Labs Research at Facebook. Sophie focuses on bringing human-centered and experience-driven approaches to future-facing research and development for AR/VR. She has a special interest in augmented reality interactions and how ethnographic research can help inform it. Sophie received a PhD in Human Factors Engineering from Virginia Tech. sophiekkim@fb.com

The Ballast in Anthropology's Ship

How a Universal Psychological Structure Can Provide Stability and Flexibility in Anthropological Field Work

BEN DOEPKE, *IX*

After a year of new social and cultural constraints, ethnographic approaches have had to quickly evolve. This is the story of how one research method, which enlists the help of close personal contacts around a participating respondent to gather interviews, artifacts, and locations, spotlighted the need for deploying a universal psychological structure (UPS). Even from emic perspectives, the influence of personal bias is uncontested, but how do we account for it? A UPS helps, but how can a structure allow lived experience to flow through it while not altering the experience itself?

We can anticipate that parameters around our discipline will continue to shift, challenging some of its most revered principles. How will the ethnographer adapt? In this presentation, we'll look at the aspects of the human experience that we expect to change the least, and the structure we now have reason to believe will help the most. We'll offer clear evidence for the inclusive functionality of the UPS, and directional solutions for practitioners to take up, personalize, and apply to their craft.

Key words: Psychology, Bias, Otherness, Embodiment

A ketch sailboat is tossed by a storm's waves.
Storm op zee met tweemaster by Andreas Schelfhout

Ben Doepke (ben@ixcompany.com) is Principal, strategist, and researcher at IX. As a brand mythologist and ethnographer, I help my clients understand the essence and boundaries of their brand(s) and the people those brands serve. My life's work is to ensure brand decisions carry due reverence for our state of human being.

PechaKucha

Imagining Futures/Restrospective Futures

The PechaKuchas in this session go beyond peering into our futures—they unsettle long-standing truisms about what it means to be human, as bodies and beings in space and time. Presenters offer new and even experimental approaches to understanding what a future might look like when we reimagine bodies and senses.

"Do Not Fear Mistakes—There Are None"

Ethnography as Improvisation

KATHERINE METZO, *Lowe's Home Improvement, Elemental Research*

I use the iconic album, Kind of Blue, to re-frame a conversation around ethnography and innovation. Moving fast and breaking stuff is not how ethnography brings value to the business. Rather, we use our craft to move nimbly through the complex terrain of "users" in much the same way as jazz musicians improvise. We are grounded in our craft through practice, but technical mastery is not enough. Bounded by structures and constraints, we move nimbly because knowing the rules allows us to creatively push against boundaries. And ethnography never exists in a vacuum, even if we're the only anthropologist in the room. Instead, we riff off those who came before us, in community with those who innovate alongside us. The core value of ethnography is to improvise—to use our mastery of our craft to build on what came before, to make sense of it, and anticipate what comes next.

Photo by Spencer Imbrock (Unsplash.com)

Katherine Metzo is an ethnographer and methods geek who has worked in public policy, non-profit, market research and user/customer experience. She is driven by understanding how culture and events shape our material and experiential worlds and finding new ways to uncover the next unknown insight that is instantly familiar.

Investigating a Gestational Care Facility

An Ethnographic Exploration of Bio-technological Possibilities Through a Retro-speculative Lens

OSHIN SIAO BHATT, *Design Academy Eindhoven*

This story outlines the use of a fictional ethnography to delve into the theme of human-technology interface, with assisted reproduction as its focus. Drawing from my ethnographic experiences around reproductive technologies and clinical spaces at large, the narrative imagines a world where technologies that assist in processes of conception and birthing have become increasingly inventive as well as readily available. The story, drawing on both existing as well as retrospeculative techniques, studies, and theoretical concepts, explores the notion of a child-to-be as symbolic of the idea of birthing futures. The speculative ethnography of a clinical facility centered around assisted reproduction, in an alternative present, dives into the 'promissory' role played by reproductive technologies and substances, while questioning normative notions of 'desired futures'. With its focus on technological innovations and their relationship to ever-evolving socio-cultural norms and values, this narrative addresses the theme of anticipation through the lens of technological speculation, possible socio-ethical dilemmas, and desirable familial futures. It also brings to the fore themes and issues evident in our reality, by presenting extreme-case scenarios that highlight the discourses around them. The use of fiction and ethnography allows room for provocations, while providing a space to create an imagined setting, which aids in addressing multiple thematics simultaneously

Keywords: Assisted Reproductive Technologies, Retrospeculation, Speculative Ethnography, Technological Speculation, Clinical Spaces

Oshin Siao Bhatt is an independent researcher from New Delhi, India with a background in Sociology, Social Anthropology and Design Research. She has worked with organizations across the spaces of design, development and academia on topics like citizen engagement, sexual and reproductive health, reproductive technologies, healthcare, women's rights, etc. She is currently enrolled in a Master Program at the Critical Inquiry Lab at Design Academy Eindhoven and is interested in exploring the interconnections between design, the social sciences and biotechnology.

Holidays and the Anticipation of Ritual

ROB MURRAY, *IBM*

COVID-19 disrupted so much. It also disrupted rituals, holidays and events on an incredible scale. Many of us lost track of time without these expected markers.

But 2021 is all about a new perspective. I found myself anticipating and wanting to engage with rituals as never before. January 2021 was the beginning of a journey to reestablish ritual and patterns of time. I chose to note and celebrate and anticipate simple holidays. This is new territory for me as I did not celebrate holidays to any degree pre-2021. They were noted but I did not really participate. That has changed. The curious researcher in me is on a journey to explore and embrace holidays and ritual. I now anticipate holidays instead of being a passive passenger in time. Calendars adorn my walls and I plan holidays like people plan vacations. And I'm shopping…

I think this effort is underpinned by observation. I'm really taking a step back to see these rituals with new eyes. I'm even excited to buy holiday themed postage stamps! Who does that?! Well, me now. A big part of the enjoyment is deconstructing holidays into anthropological components — color, food, patterns, icons, context, clothing, decorations, symbols, etc. All researchers should embrace these rituals as a kind of cognitive and temporal exercise and use these experiences to connect with people, colleagues and participants. I've been able to use this holiday hobby to entertain and amuse, but more importantly, to connect with people. At first virtually, but now more and more in real life. It's whimsical, It's fun, it's silly, but it's a new story that my socially-distanced friends and family can engage with.

Anticipation is all about curiosity and the future. Holidays can help build muscle memory for experience, connection and empathy which are critical skills for researchers and the curious. Participating in rituals like holidays is a way to become a better observer. Think of it as temporal exercise.

Rob Murray is the Global Leader for Experience Intelligence at IBM Consulting. He leads the go-to-market efforts for the experience management practice. Rob helps clients get to better insights through multiple data gathering, synthesis, and analysis methods. He began his career at Chicago's Museum of Science and Industry as an exhibit designer. Rob applies his curiosity, design thinking tools, and analysis methods to bring insights and innovation to clients. He also loves holidays. rob.murray@ibm.com