DESIGN FOR ALL

REDEFINING DESIGN'S DOMAIN THROUGH THE FOUR ORDERS OF DESIGN

GUEST EDITOR

SHANNON IACINO

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GUEST EDITOR
SHANNON IACINO

Shannon Iacino is a Professor of Industrial Design and Design for Sustainability at Savannah College of Art and Design. Her work specializes in leveraging technology to advance the principles of the circular economy and design for social good. With a background in sustainable design and emerging technologies, Shannon integrates innovation and ecological responsibility into her teaching and research. Her work emphasizes creating systems and products that minimize waste, promote resource efficiency, and address societal challenges. Through interdisciplinary design projects, Shannon collaborates with students and communities to develop impactful solutions that balance technological advancement with sustainable practices.

EDITORIAL:

FROM SYMBOL TO SYSTEM: DESIGNING A WORLD THAT INCLUDES EVERYONE

Professor Shannon Iacino

In 1992, design theorist Richard Buchanan introduced the concept of the Four Orders of Design; a framework that continues to shape how we understand the breadth and responsibility of design practice today. These four orders—Symbolic (signs and communication), Material (products and artifacts), Interactional (actions and experiences), and Systemic (complex systems and organizations)—offer a powerful lens for reimagining how design can meet the challenges of an increasingly diverse and interdependent world.
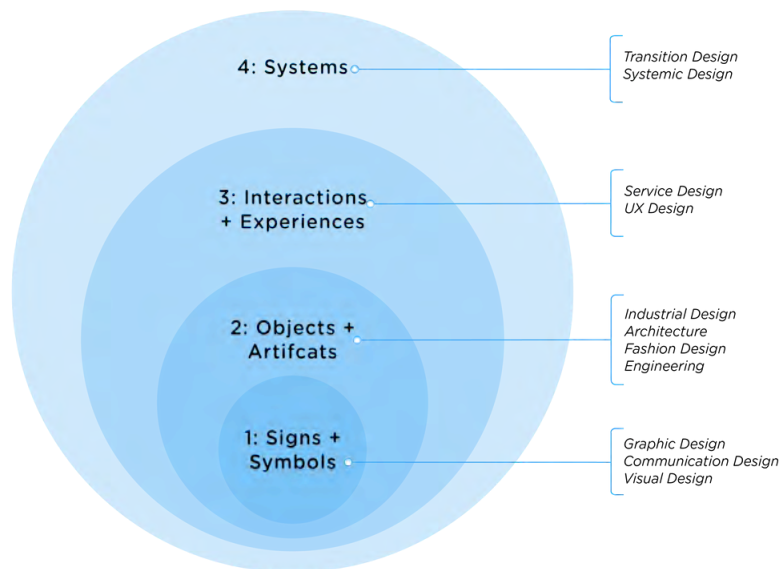
Figure 1: Richard Buchanan's Four Orders of Design

This issue of Design for All explores how Buchanan's Four Orders can be harnessed to serve the widest possible spectrum of human needs. In a world marked by diversity of ability, identity, culture, and context, design has the power—and the responsibility—to enable equitable access, dignity, and participation for all.

The Four Orders

- **Symbolic Order reminds us that the stories and signs we craft carry real power: a symbol can enfranchise a community or erase it from public memory.**
- **Material Order demands that we shape products and environments that respect the brilliant diversity of bodies and minds.**
- **Interactional Order challenges us to make every click, touch, or conversation an invitation to belong.**
- **Systemic Order pushes us to redesign the invisible infrastructures— policies, supply chains, data flows—that so often determine who is included and who is left out.**

Across these four orders lies a single imperative: to do the most good for the most people. That means confronting exclusion wherever it hides but it also means celebrating design's capacity to heal. Contributors to this issue examine how their work can challenge exclusion, reduce barriers, and amplify inclusion.

But even as we frame this issue through the lens of these four orders, it's important to recognize that design rarely operates in neatly defined categories. In practice, these orders are deeply interconnected. A material object might carry symbolic weight. A digital interface can reflect systemic values. A community-engaged design process may result in both tangible products and policy shifts. As the domain of design continues to expand, so too must our capacity as designers to think holistically.

Today's design challenges—climate change, social fragmentation, algorithmic bias, aging populations, displaced communities—cannot be solved through isolated interventions. They require systems thinking, cross-disciplinary collaboration, and a relentless commitment to inclusion.

Designers must now consider not just what they are creating, but who it is for, how it is accessed, and what broader ripple effects it may cause. Our responsibility is no longer just to solve problems, but to frame the right ones, ask better questions, and anticipate consequences.

I look forward to sharing these conversations—and in the possibilities they reveal

Acknowledgements

ORDER ONE:

SYMBOLS OF PEACE: REIMAGINING PEACE THROUGH INCLUSIVE DESIGN

Chetna Chauhan
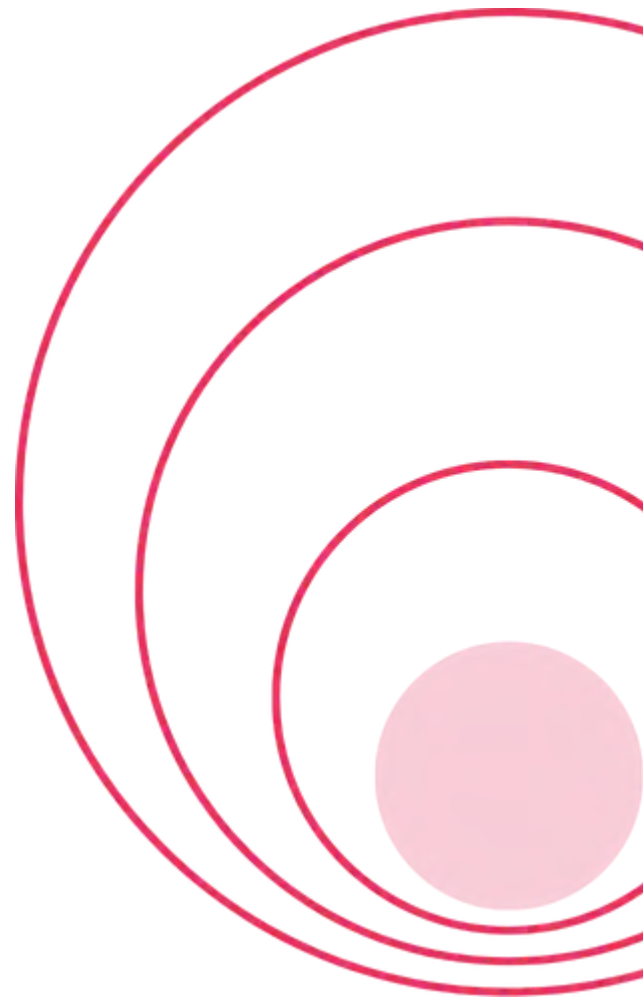
CHETNA
CHAUHAN

Chetna Chauhan is a designer from Delhi, India, currently pursuing an MFA in Design for Sustainability at the Savannah College of Art and Design (SCAD). Grounded in lived experiences from working with underserved communities in India, their design practice is shaped by empathy, systems thinking, and a commitment to social and emotional justice. With a background in visual communication and creative direction, Chetna approaches design not just as a tool of communication, but as a way to challenge extractive systems and restore dignity where it has long been denied. Chetna aims to focus on conflict-affected and historically marginalized spaces, exploring how participatory design, peace studies, and cultural symbolism can support healing, resilience, and community-led futures. For them, design is a political and emotional act a way to reimagine relationships, repair harm, and hold space for collective hope.

ABSTRACT

This paper argues that design, especially the symbols we use, can significantly influence our perceptions and meanings. By situating the research in Johan Galtung's Peace model, we further explore how these symbols can be used to redefine and reimagine the idea of peace and conflict resolution. It examines how elements such as visual storytelling, language, and metaphors can either support or hinder peace efforts. We develop a holistic idea of peace where we are not only talking about stopping violence but focusing on creating a just and equitable culture, which ties back to Johan Galtung's concept of Positive Peace. Additionally, it incorporates John Paul Lederach's concept of 'moral imagination' and Elise Boulding's perspective on peace as an everyday experience. It argues for how design can help us imagine new possibilities and bring peace into our daily lives through symbols and rituals. It discusses the importance of designing with communities, as Ezio Manzini suggests, highlighting tools such as empathy maps, visual stories, and community-created symbols that can aid in healing. Ultimately, it introduces a special empathy mapping tool designed for communities recovering from conflict, aiming to help people express their feelings and share their stories, thereby turning communication into a unified and respectful conversation about peace.

Keywords: *Symbolic Design, Peacebuilding, Conflict Resolution, Participatory Design*

# SYMBOLS OF PEACE: REIMAGINING PEACE THROUGH INCLUSIVE DESIGN

I. Introduction: The Politics of Symbolic Design

Design is not neutral, it helps shape perceptions, memory, and create meaning. Things we design end up designing the world around us. Design isn't just about function, it shapes our reality. The reality we live in is a mix of our socio-economic background and experiences but these experiences are heavily influenced by design. The implications of this extend far beyond everyday objects, it reaches into the very fabric of our social understanding. Given this inherent and pervasive power, it's crucial to examine how design intervenes in our collective consciousness in areas of societal impact and its role in shaping perceptions of complex human experiences. As Stuart Hall's foundational work illustrates, meaning is not inherent in things [1], but is constructed through language, images, and other symbolic systems. Representation, therefore, is not simply a reflection of reality, but an active process of making sense of the world. Hall consistently linked representation to power stating those with influence often control the dominant forms of representation, shaping public understanding ultimately reinforcing certain ideologies. Given this power of design, it is crucial to interrogate how design contributes to collective meaning-making around complex human experiences, especially in a world marked by increasing conflict, trauma, and inequality. It is precisely within this critical context that this paper explores how design communication profoundly shapes the understanding of peace and conflict. This underscores the vital importance of examining visual storytelling and language in post-conflict work.

To systematically analyze the role of design in conflict work, this paper will draw upon Richard Buchanan's Four Orders of Design. The core thesis of this paper is that design, when used with ethical sensitivity and cultural awareness, can reshape how we understand peace, conflict, and dignity through symbolic forms of communication. We will briefly mention all four of Buchanan's Orders, then spotlight Order 1, exploring how symbols (language, visuals, metaphors) can support or damage peace.

II. Redefining Peace Through Symbolic Design

In times of global instability, increasing complexities with intersecting conflicts, our traditional definition of peace falls short to find solutions that truly serve all. Which is why there is a need to redefine our idea of peace and embrace a more holistic perspective. Johan Galtung's concept of Positive Peace and Negative Peace has laid a foundational framework re-defining peace reimagining peace in this broader, more inclusive way.
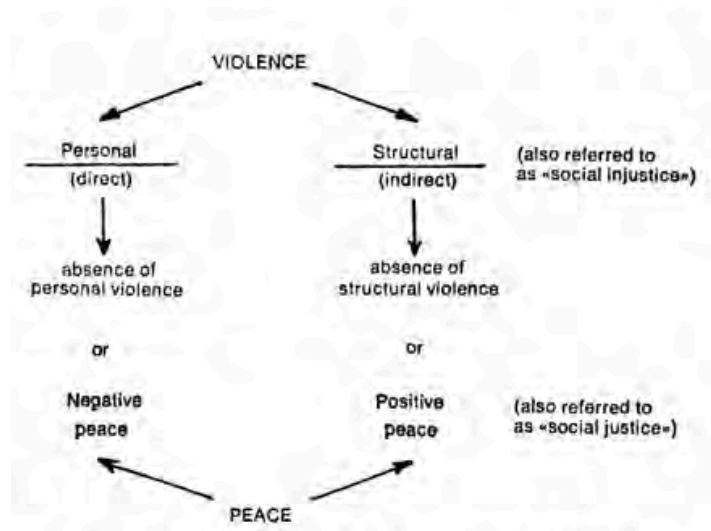
Figure 1: The extended concepts of violence and peace
(Source: Galtung 1969)

Galtung defines peace as not just the mere absence of war but also an unequivocal need for an equitable and just society[2]. His work emphasizes that the presence of justice and social equity is what will lead us to achieve sustainable peace solutions. (Peace by Peaceful Means, 1996). In direct violence in forms of structural or cultural violence exists and is often used to implicit power structure and continue oppression. Therefore, to solve for peace, we must work on these structures and the culture of oppression that persists with them. He also states that "Peace is the integration of human society." Hence, designing for peace is not just about neutrality or silence but about creating conditions where dignity, justice, and emotional healing are present.

Peace is not a passive or neutral condition but rather something intentionally constructed through systems, relationships, and communication. Symbols and stories are integral to this integration process, as they carry meaning that can either support or undermine peace.

John Paul Lederach offers a deeply human approach to peacebuilding, arguing thatsustainable peace requires the ability to imagine relationships beyond violence[3]. His concept of moral imagination is about envisioning new possibilities in deeply divided contexts. This serves as an invitation to designers. Design is not just fixing problems; it goes far beyond to help people imagine and experience different futures. Lederach's use of metaphor and storytelling aligns seamlessly with symbolic design, legitimizing the use of tools such as visual storytelling, empathy mapping, and community symbols as integral parts of conflict transformation. The key idea here is that peace is envisioned, communicated, and made real through collective ideas and actions. Similarly, Elise Boulding speaks of peace as a lived culture, not merely a treaty, but a way of being. She emphasizes that peace is maintained through rituals, stories, art, and symbols that reinforce cooperation and mutual respect[4]. This supports the idea that everyday design visuals, metaphors, community events, and participatory storytelling can shape peaceful identities and shared memories. Her work reinforces that design is not just a technical tool but a cultural practice that can help create environments of care and resilience. This justifies the inclusion of community-led art, memory spaces, and symbolic healing practices as legitimate components of peace design.

III. Tools of Symbolic Healing

Interdisciplinary design has emerged as a critical approach to addressing complex societal issues, including peacebuilding. It helps us integrate diverse fields such as sociology, psychology, and design to create innovative solutions that resonate with the needs and experiences of affected communities.

The Critical need for interdisciplinary approaches in design, particularly in addressing complex social issues like peace and conflict resolution, was first highlighted by Richard Buchannan in his work on "Wicked Problem"[5] . He argued that design is inherently a problem-solving discipline that must engage with various fields, such as sociology, psychology, and systems thinking, to develop comprehensive solutions for complex and challenging problems. To do so, we can use various design tools that help designers centre their work to their core audience and their mindsets. One of them is the Empathy Map[6], a tool used in design thinking and user experience (UX) design, initially created by Dave Grey to help probe specific questions and understand how users feel, act, and what influences their decisions.
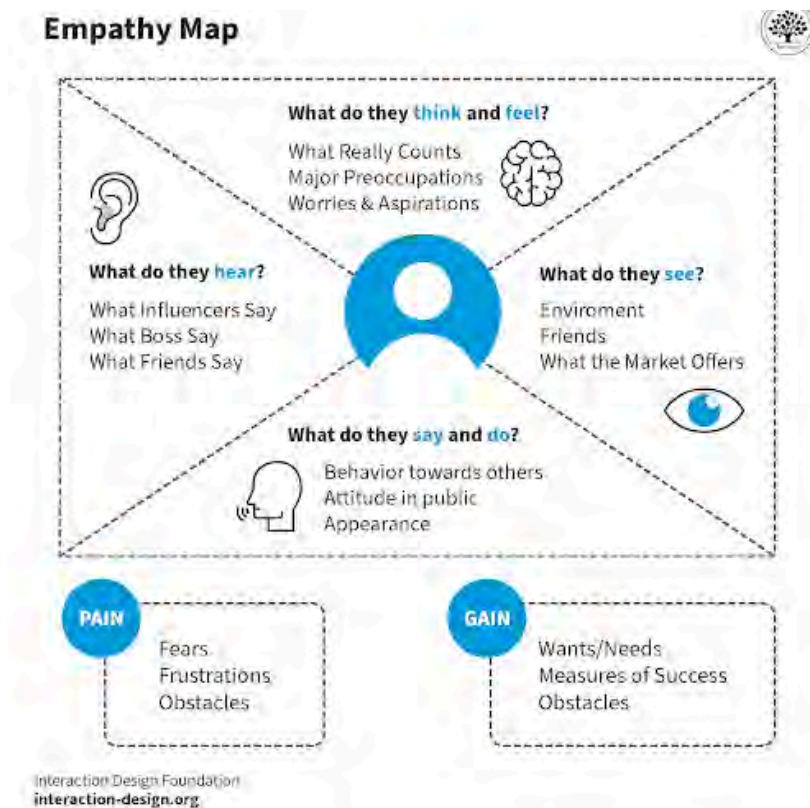
Figure 2: Empathy Map
(Interaction Design Foundation)

To surface unseen narratives, particularly in environments where open expression might be emotionally difficult or socially dangerous. This tool enables the emergence of non-verbal, emotional, and cultural insights. Additionally, we can utilize methods of Visual Storytelling (as employed in Participatory Research) and Symbols to gain a deeper understanding of the people we are working with.

We frame these tools using Ezio Manzini's concept of 'designing with,' rather than 'designing for,' from his work 'Design When Everybody Designs'. Manzini emphasizes that communities possess deep reservoirs of knowledge and symbolic meaning, and participatory design helps externalize this. These tools return agency to participants, especially when the goal is not a product but shared understanding or healing.

Examples of community-generated symbols as evidence that symbolic design can be created with people, not just for them, include:

- **Murals that narrate resistance or resilience**
- **Storytelling circles or visual maps where people reconstruct memory together**
- **Protest art that communicates trauma, dignity, and political intent simultaneously**

We can specifically reference the Life & Peace Institute's work in Somalia as a key case study. They utilized co-created visual maps and drawings in their Participatory Action Research (PAR) process to help communities discuss violence and imagine peace[7]. These drawings became tools for reconciliation, not just illustrations.

The District Six Museum centres on lived memory and resistance through objects, walls of names, and stories—curated in collaboration with former residents to preserve a history erased by apartheid violence[8].

*Figure 3: District Six
Museum*

*Figure 4: District Six
Museum*

The Kigali Genocide Memorial uses imagery, ritual, and space to construct a narrative of shared mourning, public education, and intergenerational warning—making violence visible while creating a space for grief and transformation. This space serves as the final resting-place for 250,000 victims of the Genocide against the Tutsi. It is also a driver in Rwanda's extraordinary journey towards healing and reconciliation[9].
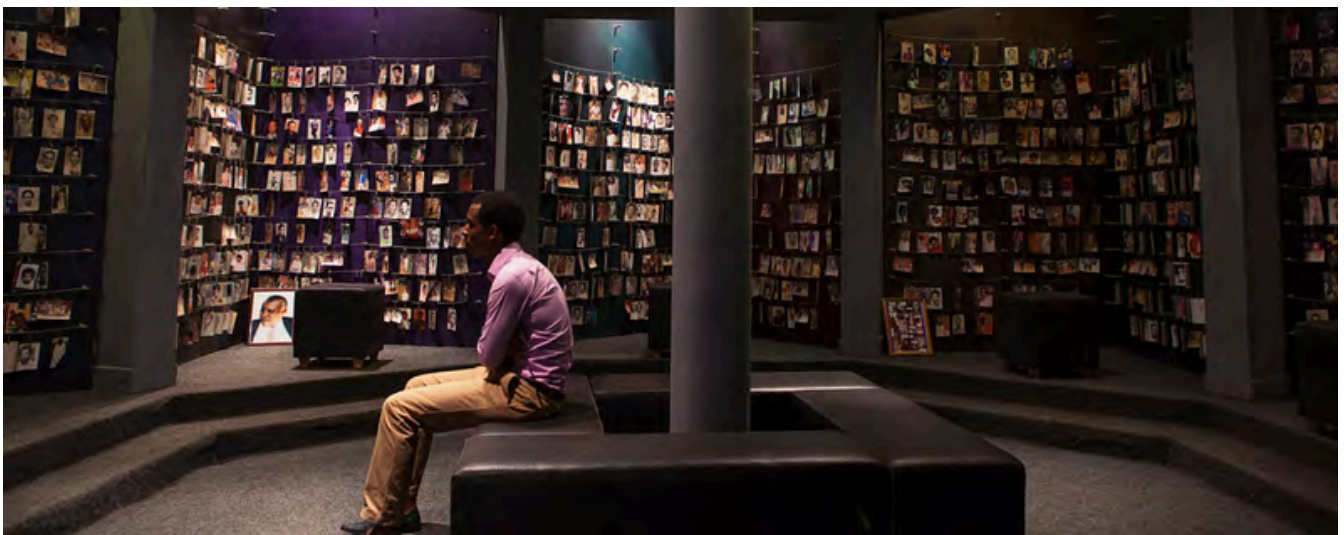
Figure 5: District Six Museum

The Jallianwala Bagh Memorial in Amritsar, India, is another symbolic site of collective trauma and historical resistance. It commemorates the 1919 massacre of unarmed Indian civilians by British colonial forces a pivotal event in India's anti-colonial struggle. The preserved bullet marks on walls, the martyr's well, and the layout of the garden function as physical symbols of historical violence. Though its spatial design has been contested in recent years for being overly aestheticized, the site itself remains a powerful reminder of how memory, architecture, and public symbolism shape historical consciousness and national identity.

Figure 6: Preserved bullets shots Marked on the walls of Jallianwala Bagh

This emphasis on the role of design in preserving historical memory helps us feel connected to the past and its impact on the present.

Returning to Elise Boulding, she writes that peace is sustained through symbolic systems—songs, artefacts, and rituals that shape memory and values over time. This supports the idea that design can intentionally craft these systems as part of long-term peacebuilding. This section will argue that symbolic design is not aesthetic decoration; it is cultural infrastructure.

IV. A Community-Centered Empathy Mapping Tool

Studying the Empathy Map tool in line with the need for participatory tools that support symbolic healing, we developed a customized empathy mapping tool designed specifically for use in community-centered, post-conflict environments. Unlike conventional empathy maps used in product design or UX contexts, this tool was adapted to:

- **Facilitate emotional expression where verbalization may be difficult or unsafe**
- **Honour cultural nuance and symbolic language**
- **Encourage shared authorship of emotional and social realities**

Figure 7: Community-Centered Empathy Mapping Tool

Inspired by Manzini's concept of "designing with" and Lederach's emphasis on moral imagination, this tool invites participants to contribute experiences not only as individuals but as members of a collective memory system.[10][11] Participants are guided through visual, metaphorical, and storytelling-based prompts that help surface unspoken narratives such as fear, pride, silence, resilience, and grief without relying solely on words.

It is designed to be co-created and co-owned, allowing communities to revise its structure based on their own expressions of meaning. Language within the map has been intentionally shifted from extractive framing, such as "gains" and "pains", to terms that reflect dignity, agency, and emotional truth. The process allows communities not only to document but to shape the structure of the tool itself, ensuring it reflects their cultural meanings and healing practices. Grounded in participatory design thinking and human capabilities theory, this map becomes both a research method and a space for dialogue, an artefact that bridges memory, design, and the pursuit of peace.

V. Conclusion: Symbols as Seeds of Peace

Symbolic design plays a critical role in shaping how communities remember, heal, and imagine peace. It holds the potential to transform communication from a detached monologue into a meaningful, collective dialogue. When practiced with cultural awareness and ethical sensitivity, symbolic communication can open space for reconciliation, restore dignity, and disrupt dominant narratives that often erase or simplify lived experiences of conflict.

This paper has argued that design must be understood not only as a tool for function or communication, but as a cultural and emotional infrastructure, a system of meaning-making that can either uphold systems of oppression or seed alternatives. Through the lens of Buchanan's Order 1, and grounded in the philosophies of Galtung, Lederach, and Boulding, symbolic design emerges as a strategy for justice, memory, and hope.

In this context, the development of my own community-centered empathy mapping tool reflects an attempt to move beyond critique and into practice. Designed specifically for post-conflict and emotionally sensitive environments, the tool invites participants to surface unspoken experiences, co-author narratives, and reclaim agency in how their realities are represented. It aims not to extract insight, but to build understanding and trust bridging symbolic communication with emotional depth and participatory ethics.

Ultimately, this work calls on designers to step into their roles as careful listeners, critical storytellers, and ethical co-creators. To design for peace is to design for the unseen, the unspoken, and the unresolved —holding space not only for what has happened, but for what still can be imagined.

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ORDER TWO:
LA TARDE DE QUETZALCOATL
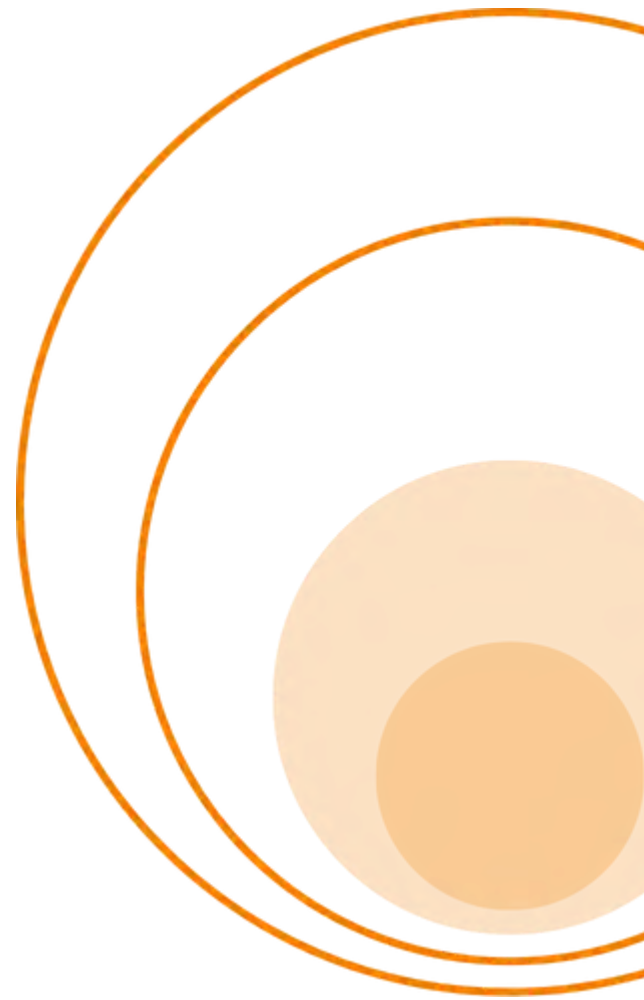
Aileen Judith De La Ree Valencia

AILEEN JUDITH DE LA REE VALENCIA

Aileen De La Ree Valencia is a designer, maker, and artist whose practice is rooted in empathy, intentionality, pluralism, and a respect for humanity's, and, consequently, design's, evolving and imperfect nature. She earned a Bachelor of Science in Industrial Design from the Virginia Polytechnic Institute and State University in 2020 and a Master of Fine Arts in Furniture Design from the Savannah College of Art and Design in 2025.

Committed to expanding beyond the constraints of a singular narrative, she explores the nuances of her own culture to contribute to a landscape of diverse perspectives. Aileen approaches each design with a meticulous eye for detail, infusing every aspect of her work with a human touch and deep intentionality. Her practice is an ongoing exploration of how art and design can not only reflect but also shape a more inclusive, compassionate, and multifaceted world.

ABSTRACT

Contemporary design practices lean towards a standard of Western ideals and norms, concealing or omitting the aesthetics and design practices of cultures around the world. Speculative design, the practice of imagining alternative realities within the realm of physical possibility, offers an opportunity to envision a world where Mesoamerican influences are held in equal regard to Western design practices. Inspired by Afrofuturism, Mexofuturism explores a divergent history where Mesoamerican and European cultures co evolved instead of the historically accurate version where European culture dominated and suppressed culture at the point of colonization.

La Tarde de Quetzalcoatl tells a slice-of-life story through a daybed, dining collection, and a set of tapestries meant to illustrate the tradition of la comida y siesta, a pillar of Mexican culture even 500 years after colonization. The story shows elements of fabrication, aesthetic, and cultural nuances that might have been different if Spanish contact with Mesoamerica had been a collaboration of cultures instead of a colonization. These pieces will draw from Mesoamerican codices, art, and architecture as well as European culture and design practices to project an imagined reality where design embraces diverse cultural influences, challenging the Western narrative default and illustrating that while there is much to gain from European design practices, we might be narrowing our playground by adhering to the sensibilities of the West. Through thoughtful material selection and aesthetic inspiration, this collection, existing in a speculative world, serves as a tangible exploration of what could have transpired had cultural exchange been equitable.

Keywords: *Furniture Design; Mexofuturism; Speculative Design; Decolonization*

LA TARDE DE QUETZALCOATL

La Tarde de Quetzalcoatl is a collection of furniture found in a present-day home, but in a slightly different reality. This reality is based on the question:

> *"What might furniture look like today if 500 years ago, European and Mesoamerican cultures were held in equal regard upon initial contact?"*

The body of work uses speculative design and Mexofuturism to frame further conversations about the accepted standards in furniture design and project a future that embraces pluralism over a single narrative of what is considered "good design."

The Investigation section outlines the philosophies and world-building strategies employed to craft the narrative of La Tarde de Quetzalcoatl. The Visual and Material Inspiration highlights the application of the philosophies to the collection of furniture. Finally a short summary of the resulting work based on the philosophies. Through speculative design and Mexofuturism, one is invited to reimagine a familiar moment, subtly altered by centuries of different cultural values, material prioritization, and aesthetic sensibilities. In doing so, the collection opens the conversation to how present-day designers can change the prioritized narrative to one that embraces pluralism and diversity instead of homogeny, which is ever present in the current design zeitgeist.

Investigation

Evidence of Western Dominance

Design theorist Tony Fry argues that over the past 500 years, colonization enabled philosophies from the Global North, often synonymous with "Western" or "Eurocentric," to dominate globally [1]. Despite its origins being a plural collective of cultures, anything "other" than Eurocentric and Western philosophies is, in the eyes of Western culture, referred to as The Global South. Much like "Eurocentric" no longer only references European culture, often including the United States of America, and certainly does not embody the diverse values and cultures of the European continent, Western and South are decoupled from actual geography and refer to the evolution, spread, and adoption of the values and philosophies that began with Eurocentrism [1]. For the rest of this paper, I will be using the terms "Western" and "South or non-Western" to describe the culture seen as the standard and anything "other."

A Google search of "Most Famous Chairs" yields 68 unique designs, only seven of which originate outside the West. Even among those, two show clear Western influence, while the rest are the result of anonymous artisans from longstanding traditional crafts from non-Western cultures. This is evidence of skewed representation, considering the fact that 88% of the global population lives outside the West [2]. The fact that the five designs from non-Western cultures are from long-lasting artisan traditions raises a critical observation of the expectations of non-Western design. The prevalent narrative often portrays design from the Global South as primitive, frozen in time, and static. Mexican anthropologist Federico Navarrete Linares critiques this bias, noting how Western narratives often equate cultural distance with temporal regression, imagining non-Western societies as relics of the past [3].

In Western cultures, innovation is celebrated as this natural part of seeing humanity move forward. A culture obsessed with progress, coupled with the bias that Southern cultures are frozen in time, results in the harmful conclusion that in order to advance, the West must impose their culture to develop countries in their image [4].

It is evident that the current design landscape is heavily influenced by the Western default, and notable examples of chairs from other cultures date back to a time before Western dominance. The one-size-fits-all narrative suggesting that Western ideas are the only path to progress needs to be consciously challenged. The South's cultures should not be treated as a theme or aesthetic pitstop in trends when there is an abundant source of material to innovate with, blend, and explore within the specifications of their cultures.

Pluralism

Pluralism, at its core, is the idea that multiple things exist and can be true at once. To put it simply, it is a term that offers a more nuanced definition of diversity. It extends past the notion of cultural, ethnic, and religious differences associated with diversity in our culture. Pluralism can be applied to social, political, philosophical, economic, and various other elements from and outside of our built world. In this way, pluralism can be thought of as the multiplicity of whole entire worlds, or as the Zapatistas, a far-left revolutionary group from Chiapas, Mexico, would say, a world where many worlds fit." [5]

In Design for the Pluriverse, Arturo Escobar explains that current global crises stem from what sociologist John Law calls the "One-World World"—a worldview that assumes Western modernity is the only viable model. Western practices on their own are not inherently more or less problematic than the practices and standards of other communities and cultures; the issue arises from the idea and expectation that Western practices and philosophies are the universal truth and should be applied broadly at the expense of other world-making practices. Escobar states next, "The diversity of the world is infinite; succinctly, the world is made up of multiple worlds, multiple ontologies or reals that are far from being exhausted by the Eurocentric experience or being reducible to it" [6]. However, recognizing alternatives is difficult due to what Escobar calls the "sociology of absences"—the belief that what does not exist is not credible. Standard design practices and design thinking strategies often shown in schools as being "the way" of working often reinforce this absence, limiting our ability to imagine other worlds. As Escobar notes, changing this wilL require a radical reorientation of the rationalist and modernist frameworks through which design operates. One powerful way of reorienting opinion is through a type of conceptual art/design called speculative design [7].

Speculative Design

While pluralism acknowledges multiple realities, speculative design offers a way to materialize a vision of possible realities. In Speculative Everything, Anthony Dunne and Fiona Raby describe speculative design as a method to challenge dominant narratives through fiction. It doesn't aim to predict the future but instead opens space for alternatives by "acting on people's imaginations rather than the material world" [8]. Though ambiguous, fiction offers a powerful platform for introducing radical ideas in non-threatening ways. While radical ideas might be shot down or scoffed at in rooms where laws are made, conceptual design can circulate in public discourse more freely than policy proposals. This camouflaged idea can work to subtly reshape how people perceive the present. Dunne and Raby describe the constraints of possible futures for speculative design with the Probable/Plausible/Possible/Preferable diagram. The cones radiating from the present moment symbolize all of the possible futures, within which are the probable, plausible, and possible, ascending in size in this order [9]. Often, as described in the earlier section with the sociology of absence, the cone, labeled preferable, overlapping with the probable and plausible, is what we tend to expect to come next. Breaking away from these cones seems impossible, but it is not, according to speculative design. While this story respects the PPPP framework by staying within what is physically possible but outside of "preferable," there is a bit of divergence by deciding to change a historical event instead of moving from the present point forward. This modification to Anthony Dunne and Fiona Raby's speculative design, closely aligns with an art movement called Afrofuturism.

Mexofuturism

In the Introduction of Afrofuturism: a History of Black Futures, written by Dr. Kevin M. Strait, Afrofuturism is described as "a way for writers and artists to explore how technology, fantasy, and ideas about the future could advance black life." Dr. Strait summarizes the intent of this style of art, "It seeks to weave together contemporary notions of freedom with both past experiences and future possibilities." In contrast to speculative design, which focuses more on the future from the present moment forward, Afrofuturism introduces more chronological flexibility when engaging with these hypothetical worlds.

He explains the benefit of altering a moment in history by saying, "Reimagining the Black experience of the past provides new templates for reimagining Black futures to come–while also informing Black life in the present" [10].

Similar explorations of a Mexican futurism, or Mexofuturism, are just beginning to emerge. In "Mexafuturismo," Alberto Chimal proposes that, much like the Afrofuturism movement, Mexican artists should find, collect, amplify, and add new media that engage with the racism within Mexico and question why the nation often excludes its Indigenous people and roots [11]. Mixe activist and linguist, Yásnaya Elena A. Gil's essay "A Dystopic Mesoamerica" critiques how colonization erased Indigenous futures by controlling historical narratives [12]. It is well known that at the point of colonization, the voices of history favored the Spanish and choked out the Indigenous voices. While efforts have been made to preserve Indigenous voices through their existing ancestors, remaining codices, and even attempting to compile every existing evidence of the colonization from the Indigenous perspective with books such as Broken Spears by Miguel León-Portilla, ultimately, the suppression of Indigenous voices persists. The destruction of texts, art, religion, and imposed practices gave us a fragmented picture of the past. Twentieth-century archaeologist Pablo Martínez del Río stated, "The story of Indian Mexico must be written with soft chalk, easily erased and corrected" [13]. Each discovery adds to a fragmented picture and can change the entire landscape of what is known at any moment.

Mexofuturism gives Mexican artists and designers a way to engage with erased or fragmented identities. It responds to the question posed by Mark Dery to the author Chimal from earlier about whether communities whose histories have been erased can imagine their futures. Chimal answers, "Yes, of course: One only needs the understanding of their own exploitation and marginalization that is present, and the impulse to re-imagine one's own potential" [11].

While considering the terms Mexofuturism and Mesofuturism, the topic of mestizaje came to mind. Literally translated, mestizaje is "of mixed race." While there are still many Indigenous communities today that practice their traditions, many Mexicans do not fully identify with or know about their Indigenous ancestry. Due to mestizaje, others may also feel connected in part to their Spanish or European ancestry. In fact, one of the crowning principles of the Mexican independence was the idea that most of the population was mixed and did away with the caste system in order to unite against the Spanish. While this history holds its own problematic connotations with a desire for proximity to whiteness, the general sense of being a country of mixed-race individuals holds true. This body of work comes from a place of not fully identifying with or knowing about my Indigenous ancestry. However, the hope is to add to many bodies of work from Mexican and other Latin-American people from across this spectrum to imagine what our cultures would have looked like in a different context, to offer more variety to the future.

Philosophy and framework conclusion

We do not have very many templates for how a society is to blend with another ethically and peacefully. So, while it is true that a very peaceful merging of cultures would have been unlikely to the point of impossible due to the cultural values of the Spanish to spread Christianity and exploration as a means of resource exploitation, the purpose of this story is to show an alternative narrative to help shape the future of globalization. To shift the way we design from one that predominantly worships the West, their aesthetics, and their ideals for one that looks to evolve together into something interesting and new not simply in look but in function. Furniture has the powerful ability to reflect our relationships with each other, ourselves, and societal values.

Visual and Material Inspiration

Figure 1: Richard Lee Gutherie, "Plate 46," The Codex Borgia, 1993.
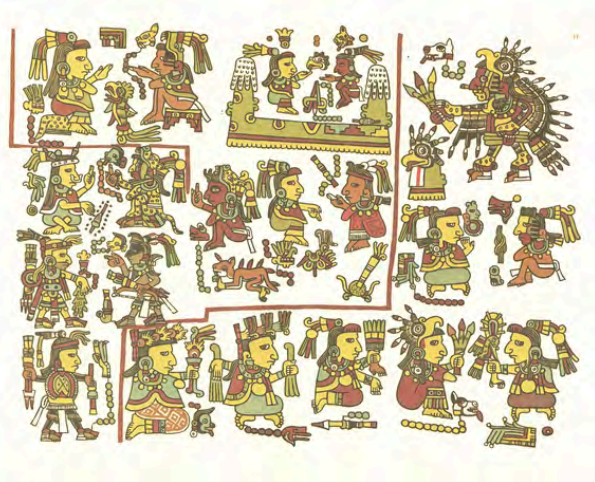
Figure 2: Zelia Nuttall, "Plate 78," The Codex Nuttall, 1975.

Pre-Colonial Codices

Codices are pictorial manuscripts that represent religious and historical knowledge of the Mesoamerican cultures. These texts were painted with natural pigments and feature a distinct and dense visual language. Though once abundant, the majority of these texts were destroyed in the early stages of colonization due to the Spanish's objective to oppress any representation of the "heathen religions" of the Indigenous peoples of Mesoamerica [14]. Sources differ, but today there are between 12-15 of these original pre-colonial manuscripts. Mesoamerican codices are often named after the collector, politician, scholar, or institution that acquired them after they were stolen from their native land.

Scholars Jansen and Pérez Jiménez propose renaming them using Indigenous languages and subject context to better reflect their content, origins, and cultural significance. In this text, I use the Indigenous names proposed by Jansen and Pérez Jiménez to honor the manuscripts' origins because, in this alternate universe, the texts retain their original Indigenous names. While we will never know their proper names, we can imagine the world where they carry meaningful, culturally relevant names rather than the names of their captors [15].

Codex Yoalli Ehēcatl: Known as the Codex Borgia, this manuscript was once part of Cardinal Stefano Borgia's collection. It depicts ritual scenes, including human figures turning into "bodies of darkness" wearing Wind God masks. The name Yoalli Ehēcatl, meaning "night and wind" in Nahuatl, was chosen by Jansen and Pérez Jiménez to reflect the codex's metaphoric imagery. Its intricate visual language inspired the illustrations for La Tarde de Quetzalcoatl [16]. Codex Tonindeye: Known as the Codex Zouche-Nuttall, this manuscript includes a Mixtec king's biography and various dynastic histories. Jansen and Pérez Jiménez renamed it Tonindeye, meaning "lineage history" in the Mixtec language. It includes rich representations of ceremonial clothing, which informed design elements in the collection [17].

Materials

In addition to the codices, the resulting works from La Tarde de Quetzalcoatl gives Indigenous cultures their voice by prioritizing materials native to Mesoamerica throughout this collection. Fiber and dye are treated with methods in line with historical practices, while other materials are used in experimental ways to explore what design innovation might look like under equitable cultural exchange. Additionally, the representation through geographically available materials aligns with the values of a culture that sought harmony with the natural world.

Tezontle: This red volcanic rock has strong tradition in pre-Hispanic and colonial architecture. In the 16th-18th century, the Spanish went as far as to dub it the "divine material" due to its versatility as a building material and for coloring stucco walls. By the 19th century, It faded from use due to resource depletion [19]. Its deep hue and cultural legacy within both the pre-hispanic and colonial landscape made it a fitting element in this collection, where it is repurposed as a pigment and aggregate in concrete.

Achiote and Añil (Indigo): Dyeing fabric with natural materials remains a vibrant tradition in Indigenous communities across Mexico.. Añil, or indigo, has been used since pre-colonial times and continues to be an important part of artisan cultures in Mexico. In an interview for the Forbes Pigment Collection, Zapotec weaver Porfirio Gutiérrez expressed concern about the future of this craft: "We don't know how long this tradition is going to last because of today's fast-moving technology and the [embrace of mass production] in our community. We're teaching our young people how to use natural dyes, which we hope means it'll last a long time; but we don't know what's going to happen in the future" [20]. His work, now part of the Forbes Pigment Collection, has already sparked meaningful conversations among visitors. The use of natural dyes in this speculative world aspires to do the same, inviting us to consider: why not color our homes with the beauty already present in nature the way we used to? Achiote, the seed of an evergreen shrub native to Central America, adds an earthy orange hue. While its pre-Hispanic use is not well documented, it became common in colonial times as a food coloring [21]. Today, Indigenous fiber artisans like Bulmaro Perez incorporate achiote in their natural dye palettes, and its unique tone has gained popularity among fabric dyers worldwide.

Ichcatl (White Cotton): Gossypium hirsutum is a species of cotton native to Mesoamerica. There are a few varieties of colors, but white cotton is known in Nahuatl as Ichcatl. The use of cotton in Mesoamerican culture ranged broadly.

Cotton cloth was produced for a variety of purposes, including religious offerings; awnings or decorative hangings for temples, palaces and marketplaces; rich adornments for deities; marriage payments; gifts for special ritual and social events, such as the dedication of a youth to the calpulli school, the potlatch-like exchanges by merchants at their flamboyant feasts, or politically-inspired exchanges among powerful rulers; household utility items, such as tortilla covers; a warrior's battle armor; and finally, wrappings for mummy bundles prepared, usually, for cremation. Certain white cotton mantas (quachtli) served money functions in the economy, circulating as a medium of exchange, and serving payment and standard of value functions as well. And, of course, the predominant use of textiles was as clothing, whether plain or exquisitely decorated cloaks, shifts, skirts and loincloths. (Berdan) [22]

With such dominant use, it stands to reason that naturally dyed fabric would have become the textile of choice for home upholstery. Another motivating factor for the usage of cotton in this collection, in addition to being widely used and available, is that natural dyes do not successfully dye synthetic fabrics. In the universe of La Tarde de Quetzalcoatl, the desire to continue with the traditional practice of natural dyes steered this collection to 100% cotton upholstery.

Sisal (Agave Fiber): Agave fiber, also known as sisal, is a natural fiber harvested from the agave cactus or maguey in Spanish. Mexican artist Fernando Laposse, in collaboration with community members in Tonahuixtla, developed a new way of using sisal as a design element in his work. One of the motivations for this project was to avoid exploiting Indigenous practices in the world of high design, which has increasingly become standard practice. Instead, he sought to invent a new usage altogether and explore the bounds of the material with the communities that cultivate the material as equal participants [23]. This type of exploration is the exact type of innovation that La Tarde de Quetzalcoatl would see through its evolution, so I have decided to use a sisal rope in the collection as a nod to Laposse's endeavor.
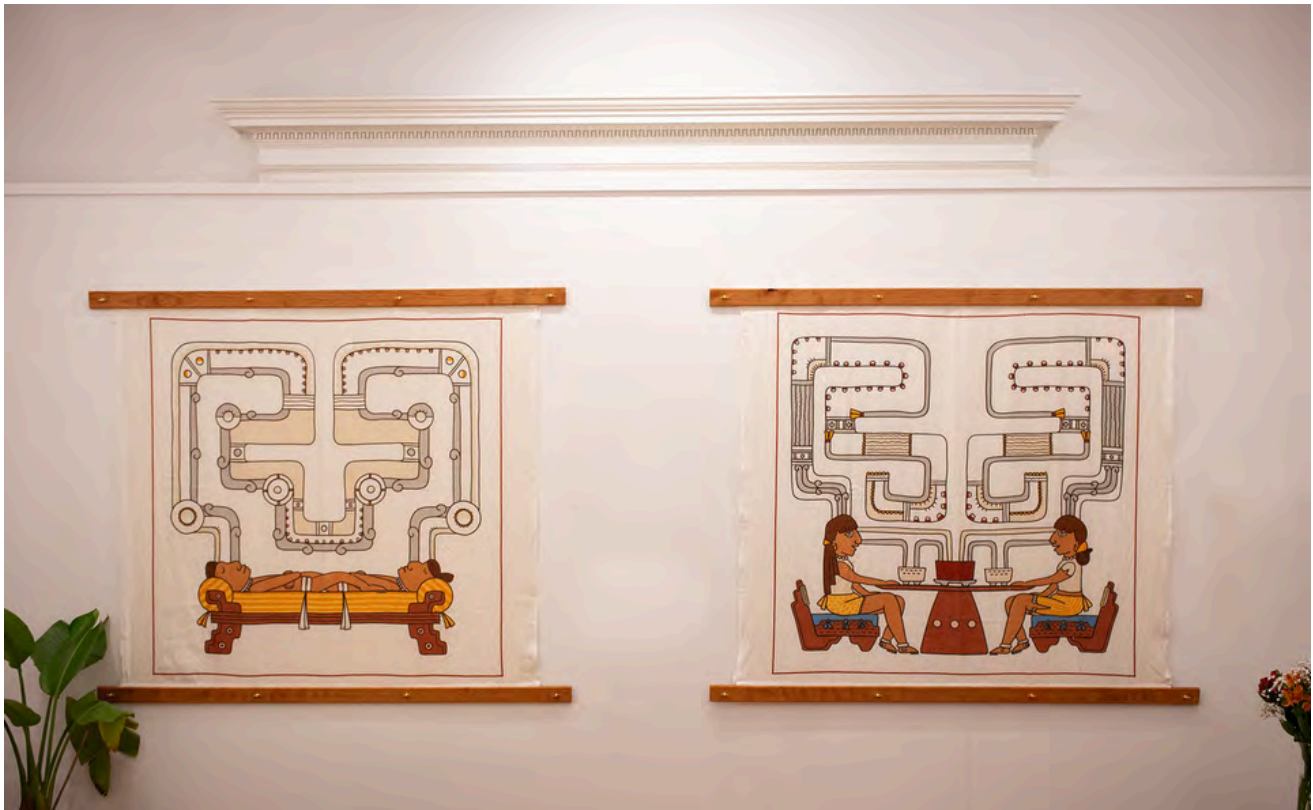
THE WORKS OF
LA TARDE DE QUETZALCOATL

Figure 3: The Rituals

La Tarde de Quetzalcoatl shown in these illustrations in a modernized style of the Codex Yoalli Ehēcatl is a speculative furniture collection that imagines a present-day Mexican home shaped by the equitable fusion of Mesoamerican and Spanish cultures, had colonization unfolded through collaboration instead of colonization. Through a narrative shaped by domestic objects, the collection explores a world where Indigenous aesthetics and functionality remained central to daily life. The narrative unfolds across two everyday rituals: *la comida* (the meal) and *la siesta* (the nap), reimagined through pieces designed to center community and rest.

La Comida

Figure 4: La Tarde de Quetzalcoatl Table and Chairs

There is little to no evidence of furniture specifically made for dining in Mesoamerican culture. In fact, there is not much evidence of anything beyond the humble petate or petlatl in Nahuatl. The petate is a multifunctional mat made from woven palm. This woven mat was their bed, table, lounger, and was even used for burials. It was suitable even for their society's royalty, as can be seen in an image from the Codex Mendoza featuring Emperor Moctezuma sitting on a petate in his palace [24].

Figure 5: Unknown Indigenous painter, Detail of spread showing Moctezuma's palace, Codex Mendoza, 1542,

Many Indigenous communities still eat this way, or have only begun using dining chairs and tables in recent generations. Dining furniture in Mexico is based on Western ideas of posture and dining etiquette, but considering the Indigenous communities were eating on the floor, this collection looks to bring furniture to dining, but at a height that might have been more comfortable or familiar to the Indigenous people. Non-Western cultures worldwide continue to eat on the ground, and some have even developed furniture for this posture. East Asian cultures, such as Japan, already have furniture for this lower seating. Therefore, the collection used existing low seating to inform the ergonomics

Figure 6: Maguey Chairs

The Maguey Chair and Coatl Bench stand at just eleven inches tall and are designed for a low dining experience that facilitates sobremesa, the originally Spanish post-meal tradition of lingering at the dining table for conversation. Their silhouettes and carved perimeter details echo the stepped throne forms found in Mesoamerican codices, especially the Codex Yoalli Ehēcatl, with leg motifs inspired by the architecture of the pyramids. The woven backrest draws from mid-century European rattan designs. The sisal woven backrest takes from the material inspiration highlighted in the Visual and Material Inspiration section and additionally creates a tactile, layered texture language inspired by the codices.

**Figure 7: Richard Lee Gutherie, Close up of Plate 13,
The Codex Borgia, 1993.**

Figure 8: Rotating tray

The Yaqui word Yoemia has several meanings: citizen, humanity, son or daughter of man, the Yaqui people, and family. The multiple definitions of the word reflect how one of Mexico's Indigenous cultures perceives the multifaceted roles of community members within their world. Large and symmetrical, it removes hierarchical seating and re-centers dining as a collective experience. The pedestal base, inspired by the pyramid architecture, features terracotta-red half-spheres referencing the Sonoran landscape that is home to the Yaqui people. At the center of the tabletop on the revolving tray, supported by half spheres echoing those adorning the pedestal, sits a comal from the Citlaltépetl volcano. A comal is a flat griddle pan and a crucial Mexican utensil dating back to pre-hispanic times. It is used for roasting ingredients such as tomatoes and peppers as well as cooking and heating tortillas, all of which are essential elements of many Mexican meals.

La Siesta

Figure 9: The Achiote Day Bed

Many hot-climate cultures embrace a midday break, and la siesta, introduced formally by the Spanish but likely already a part of pre-colonial life due to the local weather, is one such tradition. La siesta prioritizes rest, the daily enjoyable moments, and grounding rituals over the relentless adherence to capitalistic values. In the 21st century, this facet of the day faces the threat of extinction, overshadowed by the growing influence of Western glorification of capitalism and the dominance of hyper-productivity. In La Tarde de Quetzalcoatl, this element of Spanish culture remains a fixed and vital pillar of daily life, preserving a balance between work and rest.

The Achiote Daybed and Ehēcatl rug is designed for this nap ritual. Much like the Maguey chair, the stepping motifs in this design are greatly influenced by the stepped thrones depicted in the Codex Yoalli Ehēcatl. While the steps in the codex feature sharp edges, the Achiote daybed introduces softer curves to evoke a sense of comfort and leisure. The arms and legs of the daybed are adorned with circular medallions, inspired by the round adornments seen in the Codex Yoalli Ehēcatl. This interpretation incorporates tezontle, as discussed in the Visual and Material Inspiration portion of this paper, to bring the medallion motif to life. The bed sits atop four legs that give it the feeling of sitting atop a grand and mighty lion. This abstraction of zoomorphic legs traces back to Ancient Egypt and evolved through European artistic traditions. Jaguar pelts are often depicted on clothing and stools throughout various codices. It would stand to reason that the tradition of zoomorphic legs would translate to a feline-inspired furniture piece in La Tarde de Quetzalcoatl.

A horizontal stretcher, breaking up the central legs and inspired by depictions of seating elements in the codices, introduces the collection's first textural detail. Stripes can be seen as a recurring motif in the Codex Yoalli Ehēcatl. This piece translates this element from illustration into a three-dimensional texture that wraps around the center, framing the mattress.

Finally, the Ehēcatl rug. Ehēcatl, meaning "wind" in Nahuatl, symbolizes a gentle breeze that would enhance the bliss of a mid-day nap. The design draws inspiration from the Codex Yoalli Ehēcatl, formally abstracted into this minimal composition that frames the Achiote daybed in plush wool.

Features and Design Elements Across the Collection

The upholstery, inspired by depictions of attire in the Codex Tonindeye, features cushions that tie into place, serving functionally as well as aesthetically. The depiction of attire have ornamentation and tasseling that I was looking to extend to the collection. This is why each cushion has intentional and decorative elements for tying down the upholstery to the frame. Each ribbon is sewn with raw edges to have an organic frayed texture.

Figure 10: La Tarde de Quetzalcoatl Collection

The cushion chosen for the upholstery is soft enough to provide comfort for an extended sobremesa but not so soft that it becomes difficult to get out of the seat. The Achiote daybed features a much softer cushion to provide a soft enveloping cushion for the purpose of a nap. For the chair, bench, and daybed, the frame on which the upholstery sits is a solid cherry frame with jute webbing to provide springy comfort. This element is an excellent example of European furniture technology and fabrication techniques. In the story of evolution, I imagine something with this level of comfort efficiency would have gotten absorbed into Mesoamerican furniture-making processes, enhancing local materials in much the same way they did in Europe in the 18th century at the peak of upholstery in France. The upholstery fabric is 100% cotton corduroy, chosen for its tactile stripe and ability to break up visual monotony. Alternating striped panels mimic an over-under weave, and hand-dyed gradients celebrate the inconsistencies of natural dye processes, turning imperfections into design features.

Figure 11: Jute Webbing

Drawing from the stepped throne motifs of the Codex Yoalli Ehēcatl, the furniture frames feature offset carved lines treated with soft chamfers. A distinctive gouged texture, created with a ball-gouge on an angle grinder, adds a layered, tessellated surface that evokes the dense visual richness of Mesoamerican sculpture and codices. These carvings, inspired by the architectural landscape and geometric patterns evident in Mesoamerican art and architecture, create a tactile tapestry that brings historical texture traditions into contemporary form.

Conclusion

This body of work intentionally distances itself from contemporary Mesoamerican and Indigenous cultures, whose traditions remain vibrant today. Due to time and resource limitations, I chose not to engage with living cultures or even the religious content found within the codices since I would not have the ability to do so ethically or collaboratively. Instead, I focused on historical perspectives, as I cannot authentically represent experiences I haven't lived. My position, as a Mexican raised outside of Mexico, affords me a unique perspective on cultural blending.This project is really just a beginning. Its themes have infinite potential for reinterpretation, beyond myself and beyond Mexico.

Future versions could incorporate more sustainable materials; though I avoided harmful adhesives, the current cushions are synthetic due to limited access to eco-friendly options. Ideally, natural latex and biodegradable batting would replace them. Most importantly, future iterations should involve collaboration with artists and scholars from across Mexico's diverse identities, especially those with deeper ties to Mesoamerican cultures. My experience is just one of many Mexican narratives, and a richer, more inclusive vision will emerge through shared storytelling.

I hope this story inspires artists from Mexico and around the world to question the colonization of their homelands and fight to reclaim forgotten values, materials, and aesthetics combining them with those of their neighbors to build something entirely new. The human experience is diverse and often contradictory, yet it also has the potential for harmony.

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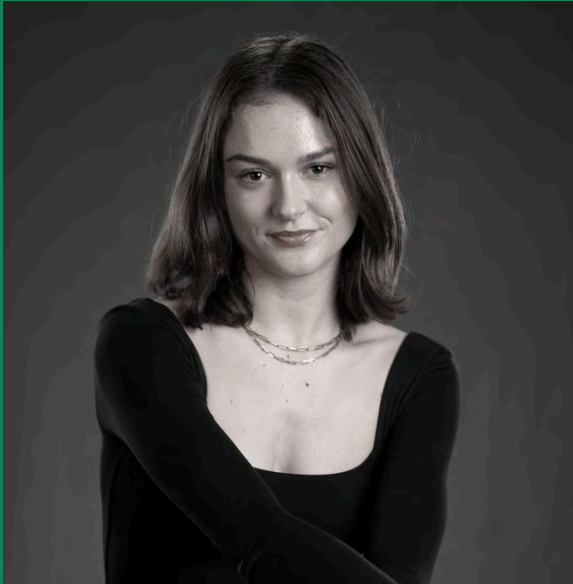[24] MS. Arch. Selden, A. 1, fols. 1v–2r, Codex Mendoza, Viceroyalty of New Spain, c. 1541–1542

ORDER THREE:

THE COMPASS PROJECT: CREATING EQUITABLE ACCESS THROUGH KIOSKS AND CO-DESIGN

Dylan Randall-Newberg

DYLAN
RANDALL-NEWBERG

Dylan Randall-Newberg is a UX design student at the Savannah College of Art and Design (SCAD), where she focuses on human-centered systems, inclusive design, and emerging technologies. Her work blends research, interaction design, and social impact. Dylan is a Red Dot Design Award recipient and passionate about designing equitable tools for collective agency.

ABSTRACT

In Georgia's Chatham County, individuals experiencing homelessness face barriers to accessing essential services due to limited accurate real-time information. The Compass Project, a collaboration between students at the Savannah College of Art and Design (SCAD) and the Chatham Savannah Authority for the Homeless (CSAH), sought to address these inequities through a network of public-facing digital kiosks. Grounded in the Design Justice Network Principles[1] and Buchanan's Four Orders of Design[2], the project defined expertise as lived experience through participatory design. SCAD students facilitated this through three co-design workshops when a group of community members currently experiencing homelessness utilized SCAD student designers as tools to create a solution for their community. This paper outlines the design process and outcomes for inclusion across symbolic, material, interactional, and systemic dimensions. By choosing equity as a foundation for the structure of the kiosk and the community system that sustains it, The Compass Project offers a model for justice-oriented public infrastructure where technology is not just accessible but created by and accountable to the people it serves.

Keywords: *Design Justice, Co-Design, Equity, Public Infrastructure, Homelessness*

THE COMPASS PROJECT: CREATING EQUITABLE ACCESS THROUGH KIOSKS AND CO-DESIGN

In Savannah, Georgia, and the broader Chatham County, nearly 600 people experience homelessness on any given night, many being left without clear paths to shelter, support, or stability. Access to these basic needs is not just about resources; it is about navigating a fragmented system that was not designed for everyone. The Compass Project emerged in response to these challenges through a collaboration between students at the Savannah College of Art and Design (SCAD) and the Chatham Savannah Authority for the Homeless (CSAH). Our goal was to co-design a network of digital kiosks that deliver real-time, location-specific information on where people experiencing homelessness could have their basic human needs met.

Rather than applying a purely technical or user-centered lens, our team grounded our work in the Design Justice Network Principles[1] and co-design. Design Justice is a framework that facilitates a power shift away from designers and institutions and toward those most impacted by design outcomes. We prioritized lived experience as expertise, honoring the knowledge of people navigating homelessness daily through three workshops. These workshops were with people currently living the experience of homelessness. We facilitated activities ranging from journals to live-prototyping in order to center the voices of those we aimed to serve, encouraging community accountability and long-term impact.

Figure 1: SCAD students and community co-designers discuss current experience in workshop 1

This paper will explore our design process as we dismantle dominant narratives surrounding homelessness and instead highlight marginalized individuals' agency, dignity, and needs. Drawing from local needs assessments and lived experience focus groups, we argue that participatory, justice-centered design is most ethical and effective in building systems. We position this work within a broader call to reimagine public infrastructure as relational, inclusive, and shaped by the communities it exists to serve.

Understanding Barriers to Services

People experiencing homelessness in Chatham County face difficulty accessing essential services, including unclear pathways and limited real-time information on resources. According to the 2024 Comprehensive Needs Assessment[3], 74% of unhoused respondents reported making less than $5,000 annually, with many citing that even subsidized housing remains financially far out of reach. Focus groups with shelter residents and unsheltered individuals revealed widespread confusion around the coordinated entry process, lack of access to updated resource information, and frustration with being "left out" of systems meant to support them[4]. These gaps in communication, accessibility, and trust formed our project's foundation. Our goal was to co-design a kiosk that meets people where they are and accurately provides the information they need.

Visual Language as a Tool for Dignity

When approaching the design of public technology, the symbolic order plays a decisive role in whether information is inclusive or exclusionary. For the Compass Project, we knew the signs and symbols in our design would be foundational to access and could not be an afterthought. If a user could not comprehend the visual language of our interface, they would not be able to access the services they need. We treated clear symbolic communication not as a box to check but as an act of justice, an opportunity to reduce cognitive burden, and affirm trust through clarity.

In our co-design workshops, participants consistently voiced that many public-facing interfaces feel crowded, overwhelming, or inaccessible. We knew this would be magnified given that users would often approach our kiosks in times of crisis or fatigue. We introduced rounded buttons, simple layouts, and generous spacing to invite a calm interaction and reduce visual noise.

Cultural and linguistic inclusion was another key area of our attention. Sitting around our table of just ten co-designers there was an incredibly broad range in age, visual ability, educational background, native language, and more. Recognizing the diversity of Savannah's unhoused residents, we chose software to support multilingual abilities and user-tested our icons to ensure universal recognition. For instance, icons representing food, restrooms, or shelters were not chosen by designers alone but validated in interactive sessions with community members. This participatory vetting ensures visual communication without confusion or stigma; in alignment with Design Justice Principle 2[1], we centered the lived experiences of those most impacted as a source of authority, not simply a point of feedback.

Another approach to reducing cognitive load was to refer to our users' mental models. Many workshop participants mentioned a Google-style search structure, expressing that it was intuitive and empowering. As a result, the kiosk's interface contains a large search bar on every page.

It is important to note that symbolic design was not a static set of decisions and requirements in our process. It was a dynamic exercise in developing shared meaning. Participants co-created page structure and iconography and defined the hierarchy. This approach reframed our role as designers; as articulated in Principle #5, we shifted from being experts to tools. Our purpose was not to impose clarity but to create a collaborative space for it to emerge from. We were not just making things more "readable"; instead, we asked who needed to read it and what readability meant to them. Our signs and symbols became not just tools of communication but a moment of equity-building that was relational, respectful, and community-created

Physical Access and Environmental Reality

For the Compass Project, our object was pre-defined as an outdoor kiosk. We knew that the structure and materials of this artifact were equally important to its function and design. For our kiosks to be agents of public service, we felt a commitment to equitable presence, permanence, and respect. These manifested in conscious, research-backed decisions about height, interface technology, durability, and multisensory access.

Stemming from conversations around independence, mobility, and dignity, we examined ways in which access was currently limited. Starting at a fundamental level, we chose an ADA-compliant kiosk model with height and reach accessible to standing or seated users. Due to the public setting of our service, environmental resilience was our next challenge. Kiosks were intended to be placed in high-traffic, high-exposure public environments like libraries, transit stops, and emergency shelters. For reliability, it needed to be weather resistant and secure enough to withstand Savannah climates often hit with hurricanes and many tropical storms. Our chosen unit includes an outdoor-grade touchscreen and securable, durable encasement. These features reduce dependency on nearby infrastructure and ensure reliable function. If the kiosk fails in rainstorms, a time of peak need so does our mission of aiding in these pivotal moments.

Meeting all of these criteria on paper was not enough, we knew we needed to see users interact with the model for complete confidence in our choice. We created an exact replica that was exactly to scale in order for participants to test what the real size, shape and height of the kiosk would be.

Figure 2: Community member interacts with early prototype

We also integrated accessibility through multisensory interaction. The kiosk includes integrated audio output via a headphone jack. By enabling auditory navigation, we aim to extend access beyond the visual channel for users with low vision or print disabilities. We designed beyond compliance, with care for various human needs. We accounted for the variability of human bodies, the physical realities of public spaces, and the need for systems that affirm the presence of all.

Co-Creating Interaction Experience

As we approached forming our interactions and user experience, we included community members in building every layer of interaction. We did not wait for usability testing but co-authored the experience from the ground up. Our interface began with conversations. In our first co-design workshop, participants completed journals that helped us map their daily journeys when accessing resources and identify friction points. These insights defined our priorities to be simplicity, speed, and clarity.

Figure 3: CSAH employee reviews needs identification journal that workshop participants filled out.

With these in mind, we co-developed wireframes that reflected our participants' navigation instincts. They worked one-on-one with a designer, using a premade UI component kit to create a functional flow of interaction and screens. These contained clear search functions, large buttons, and minimal nested menus.

Figure 4: Sitting side by side, SCAD student live prototypes community member's early design.

At every phase, we iterated based on direct feedback from our users. Their feedback, such as "I'd like to see the weather on the homepage" or preferring blue for calmness, was directly translated into design updates and integrated before final usability testing and validation. We were collaborators, working in service of bringing this community's vision to life rather than authoring it ourselves.

Embedding Sustainability Through Local Stewardship

Once design and development were over, our project was not. We recognized that no matter how inclusive our kiosk was, this equity only went as far as the system we embedded it in. A system of development, implementation, and long-term stewardship. Our partnership with the Chatham Savannah Authority for the Homeless (CSAH) was pivotal. We kept their staff clued into every step and design decision so they would know the basis for their product and the intention behind each feature.

Figure 5: CSAH staff member interacts with final prototype.

One of our most important outcomes was a roadmap for the project's ongoing community governance. Rather than a tool that would degrade over time, we proposed a community-led maintenance and content strategy by creating a shareable how-to guide. We placed the updates, moderation, and evolution required of this maintenance in the hands of trusted local organizations and support networks. We answered questions like: Who continues the work after the design team leaves? Who has the authority to change, adapt, or dismantle the system? We knew the structure of our system needed to be inclusive and enduring to facilitate impact.

A Unified Framework for Justice-Oriented Design

In the compass project, each of Buchanan's Four Orders of Design[2] informed and reinforced each other. What emerged was an entangled process of clarity in symbolism, material accessibility, simple interaction, and systemic justice, all co-created and rooted in community care.

Our signs and symbols were created from participant insights rather than designer intuition. We brought this symbolic layer to life through accessible material hardware choices: weatherproof enclosure, ADA-compliance, durable screens and audio outputs. Interactionally, the experience was informed by community members' lived experiences and realities like time constraints, trauma, fatigue, and literacy variabilities. The systemic order ensured the kiosk was not a pilot but a long-term asset to the community through local agency commitment.

When aligned, these four orders make inclusion operational, not just an outcome. Design Justice Principles[1] helped us integrate ethical, practical, sustainable, and scalable practices. These four orders and ten principles transformed us from designers into tools working to bring this marginalized community closer to being seen and served.

Conclusion

The Compass Project demonstrates that equitable access is not simply a matter of providing information but of how, where, and with whom that information delivery is designed. By aligning Buchanan's Four Orders of Design[2] with the Design Justice [1], we co-created a kiosk system that reflects the dignity and expertise of people experiencing homelessness in Savannah. This project reframed the designers role from experts delivering solutions to facilitators integrating collective knowledge into inclusive systems. Our collaboration with community members embedded inclusion from the start, resulting in a more functional, trusted, and enduring impact. As we form the future of public infrastructure, this project invites designers, institutions, and policymakers to work beyond compliance and toward co-creation in order to build equitable communities. Equitable solutions must not be designed for marginalized communities but with them.

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ORDER THREE:

CRAFTING INTERFACES FOR COMMUNITY RESOURCE DATABASES THROUGH CO-DESIGN

Fozzie Kretschmer and Rachel Prado

EMILY "FOZZIE"
KRETSCHMER

Emily "Fozzie" Kretschmer is an award-winning product designer with a passion for building innovative solutions through data-driven strategy, creative visuals, and dynamic stories. She is a proactive, curious problem solver proficient in driving culture, navigating ambiguity, and collaborating with product and engineering partners. Her designs have been recognized by the Red Dot Design Award, International Design Award, Indigo Design Award, and European Product Design Award. A recent magna cum laude graduate of the Savannah College of Art and Design, her experience includes internships with Rocket Mortgage and UAS Cluster Initiative as well as collaborations with Mayo Clinic and the Chatham Savannah Authority for the Homeless via SCADpro and SCAD SERVE.

RACHEL
PRADO

Rachel Prado is a visual designer and current BFA student at the Savannah College of Art and Design, where she is studying Graphic Design with a minor in User Experience. She is passionate about designing impactful, accessible solutions that address real-world challenges. With nine years of experience across the tech, government, and nonprofit sectors, she brings a user-centered approach grounded in research, collaboration, and storytelling. Her recent work includes collaborations with SCADpro x Microsoft and SCAD SERVE x Chatham-Savannah Authority for the Homeless.

ABSTRACT

The Compass Project is a community-focused initiative designed to enhance access to resources for individuals experiencing homelessness in Chatham County, Georgia. In collaboration with the Chatham-Savannah Authority for the Homeless (CSAH), a student team from the Savannah College of Art and Design (SCAD) developed a digital kiosk prototype that provides real-time access to resource information. The project employed Design Justice Network Principles, involving community members in three co-design workshops to ensure their lived experiences shaped the design process across Richard Buchanan's four orders of design: graphic, industrial, interaction, and systemic. Feedback from participants influenced the layout, visuals, and content of the kiosk. The final prototype prioritized accessibility, clarity, and community preferences, demonstrating dignity and usability for underserved populations. This article will analyze how the four orders intersected with participatory design practices, influenced the project's direction, and the final product.

Keywords: *Design system, participatory design, co-design workshops, homelessness*

# CRAFTING INTERFACES FOR COMMUNITY RESOURCE DATABASES THROUGH CO-DESIGN

Introduction

In Chatham County, Georgia, the Interagency Council on Homelessness (ICH), a board consisting of key organizations supporting unhoused members of the community, work collaboratively to develop strategies for an effective and sustainable system responding to the challenges and complexities around the experience of homelessness. [1] The Chatham-Savannah Authority for the Homeless (CSAH), the Lead Agency coordinating the ICH, recognized a "critical need for centralized coordination of homeless services" [2] and approached the Savannah College of Art and Design (SCAD) for a project called the Compass Project to develop digital kiosks with real-time information on resources available to the unhoused.

Executed through SCAD SERVE's Design for Good initiative, which are ten-week courses collaborations between SCAD SERVE and selected nonprofit organizations who have an innovative design challenge that they cannot effectively solve themselves [3], the Compass Project was grounded in participatory design, or co-design, which brings together lived experience and expertise with professional experience to facilitate inclusive design that integrates many ways of knowing, being, and doing. [4]

The Compass Project interacted with each of the four orders of design as described by Richard Buchanan: graphic, industrial, interaction, and systemic. [5] This article will analyze how the four orders intersected with participatory design practices influenced the project's direction and final product.

Co-Design Workshops: Designing With, Not For

The Compass Project aimed to meet the real needs of people experiencing homelessness in the community. To achieve this, a participatory design approach was employed that follows the Design Justice Network Principles, which center on people who are marginalized by design and utilize collaboration to find solutions to the problems their communities face [7]. The design approach included three co-design workshops. The workshops consisted of individuals with lived experience in the community, who shared their insights and guided the development of our solution. Throughout the sessions, participants had a significant influence on every aspect of the project. Each workshop was intentionally designed, building on the previous one to create a feedback loop that guided the design choices.
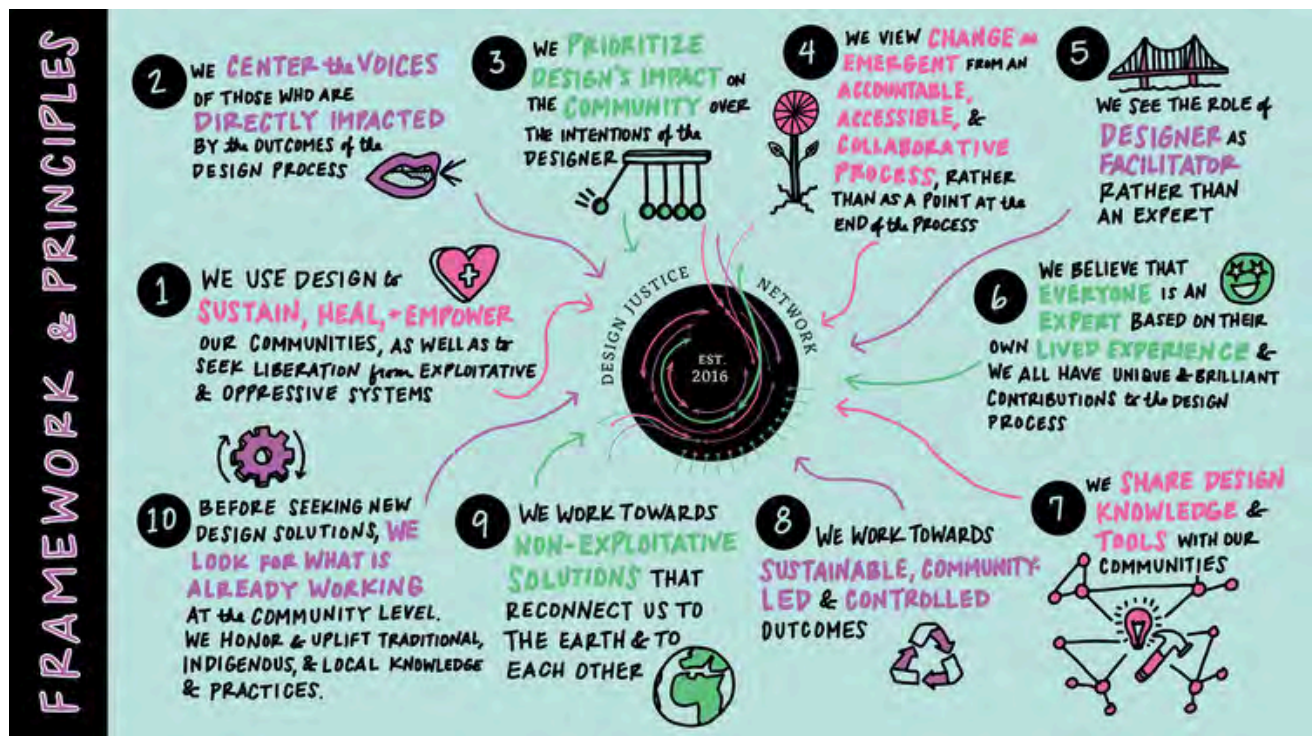
Figure 1: Design Justice Network Principles, Tamra Carhart 2021, designjustice.org

Workshop 1: Mapping Resources

The first workshop focused on building rapport among participants and facilitators, understanding how participants categorize various resources, which resources they prefer, and the reasons behind their choices. The first workshop was conducted with the goal of including participants at the initial stages of design. This approach aimed to prevent the development of a preemptive solution that may not align with the participants' needs. [8] The session started with a mural activity where everyone collaborated to create illustrations of essential places and sources of joy in Savannah. Participants then filled out resource journals, ranking key services like day centers, shelters, meals, and healthcare facilities. One key finding was that word of mouth served as a primary means of communication within the community, as participants highlighted gaps in the current list of resources compiled from secondary research. The session concluded with an activity where participants sorted puzzle pieces representing various resources into groups based on their urgency and importance.

A common piece of feedback received was the need for clarification regarding service eligibility and program requirements for resources, such as shelters. Participants voiced frustration over traveling long distances only to discover that the service was unavailable. Participants also expressed a need for employment opportunities, education, and affordable housing, in addition to short-term resources such as food and showers. The participants' feedback challenged pre-existing ideas on vital community resources by suggesting that long-term support is equally important.
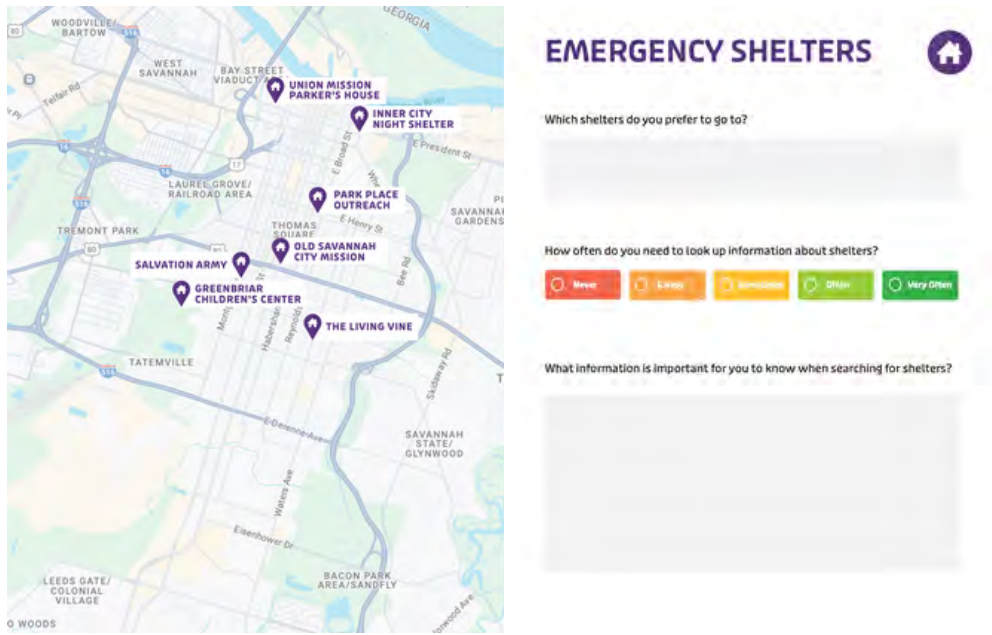
Figure 2: Resource Journal Layout from Workshop 1

Workshop 2: Interface Design

The second workshop focused on designing the interface and visual identity of the Compass Project. For the first activity, participants worked in small groups using iPads preloaded with a component-based design kit in Figma to construct digital wireframes of the kiosk screens. Each group was assigned two facilitators: one to assist with the design process and another to document participants' decisions and reactions. Participants were asked to design mobile screens that would help them access services like shelters, food, showers, or healthcare, based on real-life scenarios.

The session also included a visual design exploration during which participants discussed their emotional associations with different colors, icons, typography, and shapes. They chose blue colors that conveyed a sense of calmness and trust and shades of red to signify urgency. Participants expressed a preference for familiar interfaces, like those of Google, and specifically requested a search function that matches their current habits for finding information. Accessibility was a top priority within the design, with participants stressing the need for bold text, clear labels and icons, and high-contrast visuals. All of these insights informed a visual system that focuses on simplicity, legibility, and user familiarity.
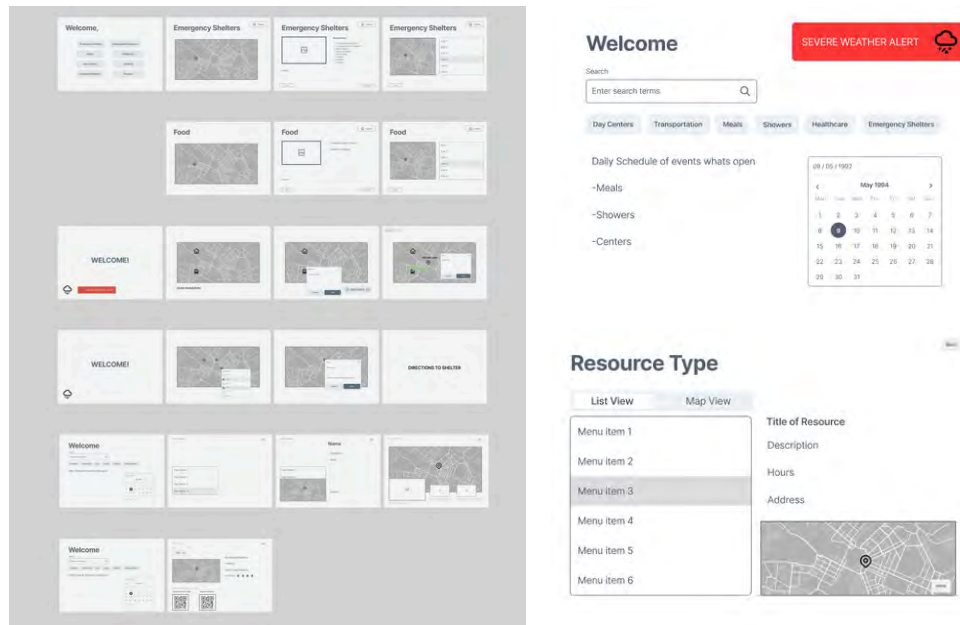
Figure 3: Figma Prototyping Workspace for Workshop 2

Workshop 3: User Testing and Refinement

The last workshop focused on evaluating the prototype's functionality, layout, and readability on iPads and when displayed on a kiosk screen. Participants walked through real-life scenarios, such as finding nearby shelters, while facilitators took notes and prompted open discussions on user preferences. One common piece of feedback that was reiterated was the need for higher-contrast visuals. This was especially important for outdoor kiosks with unpredictable lighting and weather conditions, as well as for users with varying levels of vision.

Participants also responded positively to larger text and icons, which supported users with limited eyesight or literacy barriers. Participants reiterated the need for long-term benefits, such as employment, housing, and case management. Although this was outside the project's scope due to limitations in information and time, we included basic information on how to get assigned a caseworker and how to obtain government IDs. This addition lays the groundwork for a comprehensive library of long-term resources for the community in future iterations. This feedback reinforced that the interface should not only address immediate survival needs but also include tools that support pathways out of homelessness.
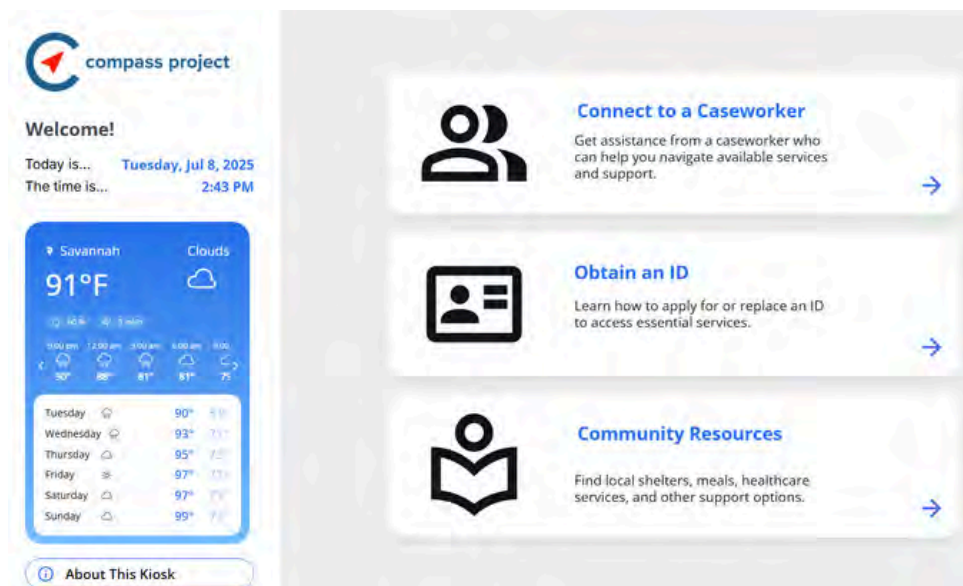
Figure 4: Kiosk Home Page Prototype

Structuring Resources for Ease of Navigation

The information architecture and page layouts were a synthesis of discussions and wireframed ideation between community members and the student team during the interface design workshop. These activities shaped the website through centering the need for maps and directions to resources and narrowing down what each resource category should be and how it should be displayed.

The homepage design is a hub to pages for three different sections: Connect to a Caseworker, Obtain an ID, and Community Resources. The first two sections are services that are outside of the scope of the ten-week project, but community members expressed a need for easy access to services like them, so a simple page explaining what these resources are and who to get into contact with to access them was added, to be expanded on in future iterations. The sidebar of the homepage displays the current date, time, and weekly weather, along with a button that leads to a separate About the Kiosk page.

The Community Resources section contains a separate page for each of the six resources: meal services, day centers, shelters, showers, healthcare, and transportation services. Each page contains a map with a sidebar listing each provider for a given resource. Clicking on a provider displays a pin of the provider's location along with the street address, hours of operation, website, phone number, services offered, and eligibility requirements. Users can also click a button to get directions to the location, which opens a separate Google Maps tab. The CSAH phone number is also listed on the page for further transportation assistance, if needed.

In the event of inclement weather, or if the need arises for any other kind of alert, a floating button will open an overlay page that contains relevant information and resources to help those in need.
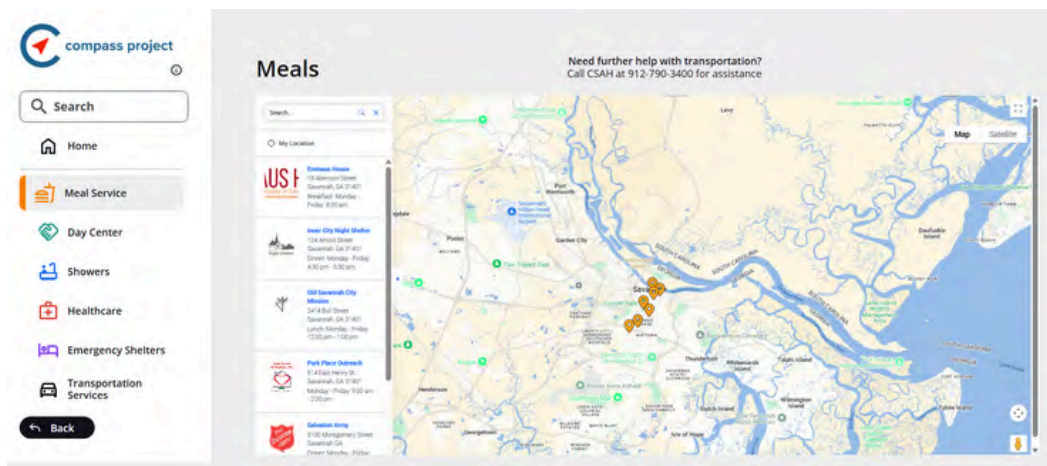
Figure 5: Prototyped Interface Design (Map View)

Bringing the Interface to Life

To actualize the interactive order of design while integrating the ideas and insights that were brought forth from the mapping resources and interface design co-design workshops, the student design team dipped into the second order of design to support them—the industrial order.

The kiosk unit selected was an I&E Kiosk, chosen for meeting ADA height and reach requirements to accommodate wheelchair users and designed to withstand outdoor conditions and provide durability for long-term public use. Both were critical needs to be met, as The kiosk utilized KioWare, a specialized kiosk software that secures public-facing devices by creating a controlled environment. It locks down web browsers to prevent users from accessing the operating system, restricts browsing to specific websites, and protects against tampering.

Along with the kiosk hardware and software, the student team sought to understand how existing products can be leveraged that both provided the various kinds of information community members expressed needing and allowed for CSAH to access analytic data to measure how often and in what ways the kiosks were actually being utilized. They strategized that using a custom website-building software along with customized widgets would be the most cost-effective and easy-to-maintain approach. This led to the selection of Framer for building the visual interface along with Common Ninja for widget implementation, both of which were customizable with analytic capabilities.

Widgets were a key component to making the kiosk function. They allowed the team to create lists of resources based on categories that doubled as interactive maps that showcased the location, hours, contact information, services, and eligibility requirements for each resource, along with the ability to find directions to the resource via Google Maps. Widgets also allowed the kiosk to display the date and time and weather as well as let users fill out feedback forms and change the language of the kiosk's text. Additionally, drawing from community desire for familiar, Google-like interfaces, the team initially utilized Material Design, Google's open-source design system for building beautiful, usable products. [9] While the user testing workshop proved the kiosk needed a visual system that was in higher contrast with larger-scale components, the open-source design system was useful in translating community members' wireframes into initial prototypes. All of these products were used in tandem to create an effective interactive experience that fulfilled the needs of both the community members accessing the kiosk and the organization managing it. To ease kiosk maintenance, the student team designed documentation explaining how to navigate and update the three softwares used for the kiosk.

Visual Design Guided by Co-Design Insights

The name Compass Project was coined by the Chatham-Savannah Authority for the Homeless. It symbolizes navigation for accessing resources within the community, as well as a guide out of homelessness and a source of hope for the future. During the workshops, participants shared how a strong sense of neighborhood had been lost over time as Savannah grew and evolved. The Compass Project brand aims to strengthen participants' community among themselves and with all Savannah community members, serving as a resource tool and also as a reminder of a supportive network. The logo, featuring a "C" with a compass needle pointing up and to the right, communicates a sense of direction and hope within the community. The brand's color palette was chosen based on participants' preferences, with blue representing calmness and red emphasizing urgency. The brand colors are accessible and represent a balance of finding resources in crisis.

The Compass Project's visual system was built upon the insights generated through the co-design workshops. The visual design prioritized accessibility, clarity, and trust for use by individuals who often navigate stressful situations. Rather than designing based on aesthetics and assumptions, the design team based decisions on color, typography, and layout on the direct feedback and preferences expressed by participants during the co-design workshops. Community members selected their preferred icon styles, button styles, and sizes. They also influenced layout choices by the resources they would need most urgently and where they would expect to find them on and within the screens. These insights were translated into a cohesive visual system using elements based on the user's familiarity with Google interfaces. The final interface incorporated high-contrast elements, bold typography, and clearly labeled buttons with icons to assist users with limited vision, literacy challenges, or cognitive overload.

Figure 6: Compass Project Logo

Conclusion

The Compass Project represents how intentional participatory design can not only create a short-term solution but also provide the opportunity for lasting systemic change. By working closely with community members who have lived experience, the solution was more than just a kiosk; it is a representation of a tool designed with dignity and usability for underserved populations at the forefront. With time and systemic constraints in mind, the project is not an end-all solution for centralized coordination between the ICH and service providers, but rather a foundation to build upon for long-term change.

By grounding the design process with the Design Justice Principles [7] and Buchanan's Four Orders of Design [4], the co-design workshops ensured the final product was rooted in the lived experiences of its users. The co-design workshops created a space where facilitators and participants could collaborate to refine concepts, challenge assumptions, and refine the design through immediate feedback. The Compass Project reflects more than a product; it represents how institutions and communities can come together to create equitable solutions designed with the expertise of marginalized members.

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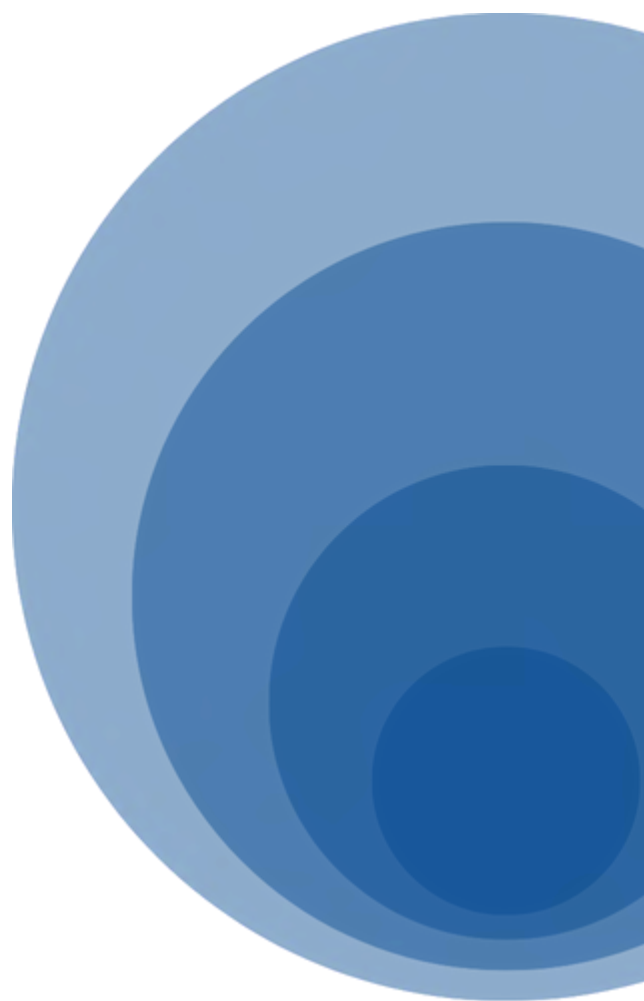[8] "Community-Led Co-design Kit", Inclusive Design Research Centre, https://co-design.inclusivedesign.ca/

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ORDER FOUR:

A BICYCLE PLATFORM FOR DIFFERENTLY ABLED USERS

Phil Caridi

PHIL
CARIDI

Phil Caridi is a Brooklyn-based artist, industrial designer, and educator with a specialty in both digital and traditional fabrication. Phil has a BFA in industrial design from the Savannah College of Art and Design (SCAD) and an MPS from ITP at NYU. Phil is currently the Manager at the ITP/IMA Makerspace Lab and Adjunct faculty at ITP, where he workes with faculty to introduce students to the equipment and methodology used in prototyping and fabrication. Phil worked as a contract industrial designer for over a decade. His artistic work focuses on the abstraction of time, the transformation of physical movements into digital inputs, and kinetic installations. Phil has been developing a concept he calls long-form/short-duration installation work. Phil is a cyclist, an avid action figure collector, a lover of comics, and a fan of all things musically heavy and slow.

ABSTRACT

Project Mjolnir is an open-source adaptive mountain bike (aMTB) platform designed to address critical barriers faced by differently abled users, namely, cost, customization, and repairability. Mjolnir surpasses conventional assistive devices by positioning itself not just as a bike but as a system of inclusion, empowerment, and co-design. Grounded in the C.A.R.E. framework—Customizable, Affordable, Right-to-repair, and Evolving—the platform encourages community participation in its ongoing development, allowing for rapid adaptation to individual needs such as quad grips and modular seating. Compared to commercial options costing up to $20,000 USD, Mjolnir can be built for approximately $6,500 USD using widely available parts. All design files are freely distributed, enabling global access and faster repair. Pilot programs in Ireland and New York City further explore the integration of solar-powered, roll-in/roll-out trailhead storage into urban infrastructure. Beyond physical design, Mjolnir functions as a catalyst for redefining mobility and inclusion, supporting an aging and diverse population with evolving abilities. By inviting users into the design process, Mjolnir challenges the boundaries of what a product can be, reclaiming mobility, independence, and joy for all who wish to ride.

Keywords: *Bicycle, inclusive, open source, mobility*

A BICYCLE PLATFORM FOR DIFFERENTLY ABLED USERS

I want to ride my bicycle

Do you remember when you first learned to ride a bike? Do you remember that first taste of freedom and independence while riding? Now, picture that taken away from you. How does that make you feel? For more than 15 million people globally [1] with spinal cord injuries (SCI), this is their reality. If we expand the pool of differing ability levels to include both physical and cognitive abilities, that number balloons exponentially.

One of those fifteen million is Noel Joyce, who suffered a T8 injury in 2006 that left him paralyzed from the mid-torso down. In 2021, he purchased an adaptive mountain bike for approximately $15,000 USD, which broke easily and frequently. Replacement parts came at both a monetary and time premium, with wait times often reaching six months.

Richard Buchanan's Four Orders of Design can be summed up in one sentence: "The future is accessible." Inspired and invigorated by the challenges he and thousands of others face, Noel and I set out to change the way adaptive mountain bikes are designed, used, and viewed by the public.

Enter Project Mjolnir (Mjolnir), a first-of-its-kind open-source adaptive mountain bike (aMTB). Mjolnir is a platform for imagining creative solutions for varying ability levels. Buchanan says, "a chair is not a thing, but a place of activity" [3]. This would clearly define Mjolnir as being in the Third order of Design, "Actions", but I challenge that notion and believe Mjolnir sits in the Fourth order of Design, "Thoughts"

Figure 1: Noel Joyce riding Mjolnir FS V18

It's a platform

Returning to the idea that this bike serves as a platform, we utilize a system we call C.A.R.E:customizable, affordable, right-to-repair, evolving. This aligns well with the Design for All ethos, as all people should have access to everything society offers. Realizing Mjolnir as a platform that embraces input from all is one way it leans towards the Fourth Order of Design.

Customizable: Mjolnir is customizable, allowing each user to control how they interact with the bike. One of Mjolnir's greatest strengths is that it is open source, meaning anyone can contribute. Feedback from the adaptive mountain bike community is incorporated into future iterations to help it evolve and grow. Some users contribute designs that are integrated into the next official version. Others provide valuable insights into specific needs, such as the quad-grip for riders with limited mobility in their fingers and hands, or the requirement for fenders on both the front and rear to protect the rider and their co-pilot. Adaptive rides typically use a co-pilot, another able-bodied rider, to assist with reading the trail from a different angle, overcoming trail obstacles, and providing emergency help in the event of mechanical failure.

Affordable: One of the most significant barriers to entry to adaptive mountain biking is the cost. A typical aMTB can cost upwards of $20,000 USD for a stock, off-the-shelf bike. This is at least double, if not triple, the price of an upright bicycle. By making Mjolnir open-source and self-built, we have reduced the cost to roughly $6,500 USD. While this is still a significant amount, it maintains parity with the current market pricing of an upright bike. We pay close attention to the design and fabrication methods used to produce Mjolnir, ensuring the cost remains competitive.

Right to Repair: The next barrier to entry for the aMTB segment is the cost of repair, in terms of both time and money. Since many of the companies that produce aMTBs are small, their production timeline can be measured in months. So, breaking a model or brand-specific part can mean the customer can't ride their bike for half a year. Replacement parts are costly, which, when paired with long lead times, means some riders would rather do without the upkeep than invest in a bike. To combat this, all fabrication files for Mjolnir are free to download, which means users can take them to a local machine shop or an online service bureau and have the part made to order, generally delivered to their door within two weeks.

Evolving: Mjolnir is designed as a system that can evolve with input from the community. We don't have all the design solutions, and we don't even know all the problems that need to be addressed. However, by leveraging the community and individual users, we can continue to develop the design of Mjolnir to ensure that everyone who wants to ride a bike can do so. We look to new manufacturing techniques and companies to further reduce costs.

THE BASICS OF
PROJECT MJOLNIR

Mjolnir consists of three main modular sub-assemblies. The front assembly is shown in magenta, the seat assembly is shown in CYAN, and the rear assembly is shown in green (Fig. 2). All parts shown in grey are standard off-the-shelf bicycle components. This was paramount to the design; we wanted to reduce the number of custom parts on the bike to allow for faster repairs, lower costs, and the ability to make repairs at any local bike shop. The main frame members are 50mm aluminium tubes, which are ubiquitous worldwide. All of the choices of materials, standard parts, and manufacturing processes were chosen to ensure availability and cost reduction. Digital part files, Bill of Materials, and manufacturing resources are all available on our website, and users can download and self-build any of the parts.
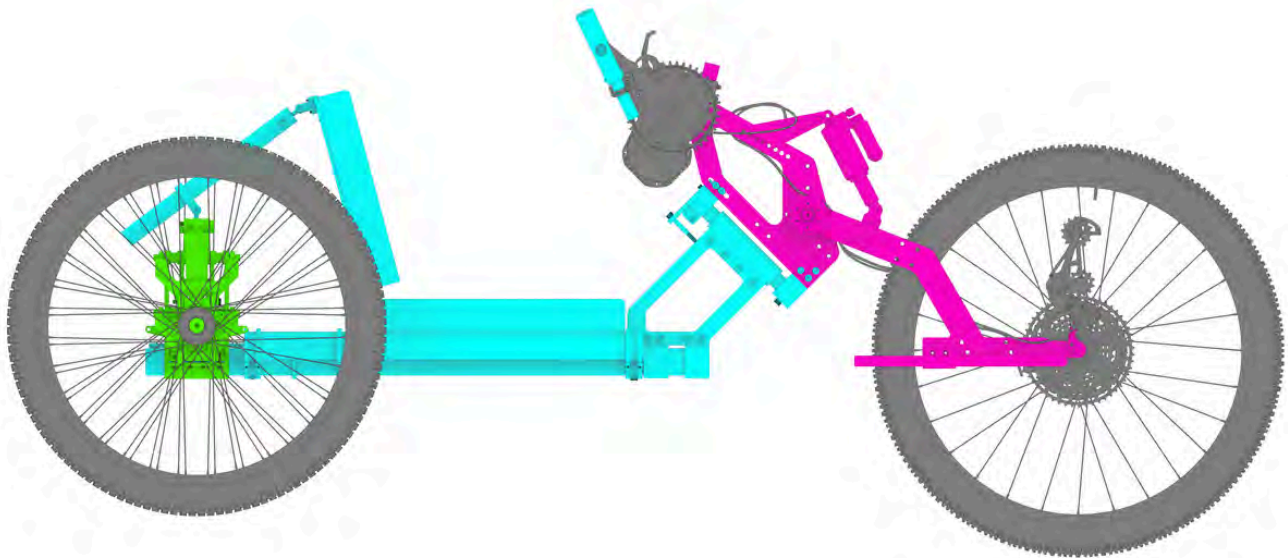
Figure 2: Orthographic view of Mjolnir FS V18, showing the sub-assemblies by color

Triangle of Doom

In Greek mythology, Mjolnir, Thor's hammer, was created to break down barriers. Mjolnir, the bike, achieves this customizability, reducing costs and time spent waiting for repairs.

In his lecture at IxD 2011, Buchanan spoke of the "Triangle of Doom" [3]. The three points of the triangle define what a product is:

- It must be useful or, as Buchanan puts it, have intellectual content.
- It must be usable, physically or otherwise.
- It must be desirable, put in other terms, can we identify with it?

Mjolnir fundamentally rests on these three points:

1. Is it Useful?

Mjolnir provides differently abled users with the ability to regain freedom of movement and independence by offering them a new method of mobility. Previously, being away from the built environment was challenging due to high barriers to entry in terms of cost and access. It also increases the opportunity to remain active despite physical or cognitive limitations, and could potentially help boost self-confidence and happiness.

2. Is it Usable?

We have designed Mjolnir to act as a platform for each individual user, with the focus on usability. Components can be adjusted, redesigned, and adapted to all needs. One area we focused on this year was a quad grip. Designed for users with limited dexterity in their hands and arms, the quad grip allows for breaking with the lateral movement of the forearm. Seat position, foot placement, and body position are all easily adjustable in the core platform configuration. We view usability on an individual basis.

3. Is it desirable? Can we identify with it?

Mjolnir takes the familiar look and feel of an adaptive bike and enhances it by reflecting the true user base—a community of members with diverse individual needs. It fits in our mind like a bike does. The placement of the wheels and tires, the use of pedals, and the visual weight suggest that it is indeed a bike. The bicycle holds a special place for many, memories of childhood freedom and self-reliance.

Add a Voice

The Triangle of Doom is a method for determining what the product is saying, where it fits in our lives, and its unique voice. The mission of Mjolnir clearly states that it belongs to all of us, regardless of our ability level and individual needs. A good friend once told me, "One day we will all be disabled," which profoundly affected me. We don't generally think that way, but it is the truth, as we age, our bodies and minds change. Mjolnir, among other differently abled users, can help an aging society stay active and healthy. Mjolnir's voice is one of inclusion and honesty, of collective effort and partnership.

A Bike, Accessible for All

I met Noel while I was a research resident at NYU's Interactive Telecommunications Program, an interdisciplinary master's degree program that interrogates the use of emerging technology through the lens of art. New York City, and the challenges it can pose, were integral to our design process. Apartments in NYC can be small and cramped, often lack access to elevators, and rarely meet ADA compliance standards. This poses a non-unique problem for riders of aMTBs: how does one store a large bike in a small apartment? And secondly, how does one transport it to the trail?

Maybe the answer to those questions is not to store the bike in individual apartments? Or to eliminate the need to travel with and transport the bike? Perhaps the solution is to make them publicly available through the infrastructure of government departments, NGOs, and public spaces. This is where we are headed with Project Mjolnir.

We are currently working on a pilot program that utilizes the urban park network of NYC to make these bikes available at the trailhead, exploring the use of half-land/sea containers to create a secure roll-in/roll-out storage unit. We launched a similar program in Ireland in the summer of 2024, with the assistance of Cycle Ireland, which funded the construction of five bikes and deployed them to five localities in Ireland, making them available for riders to use. Here again, we aim to reduce the barrier to entry for users to get back on the bike.

We are working with Fresh Kills Park to identify a permanent location for testing the roll-in/roll-out unit. The unit will be self-sustaining, featuring solar panels to charge the pedal-assist system on the aMTBs, and security cables for users to lock their valuables and wheelchairs while riding in the park. This system addresses one of the most significant issues with getting differently abled users on the trails: cost and access.

Return to the Fourth Order

Mjolnir surpasses the definition and category of the Third Order of Design, "Activities, Services, and Processes." It is truly a system that creates broad access for a group of users who have traditionally been marginalized. Mjolnir relies heavily on a system design that incorporates the user into the design process and reduces the barriers of entry. The complexity, strategy, and impact are on a scale much larger than that of an individual. Utilizing large entities, such as government organizations and diverse user groups with multifaceted needs, the spiderweb of Project Mjolnir continues to grow and expand.

Buchanan asks, "How can the orders of design align to do the most good, for the most people"? [3] The answer is clear: as designers, we must embrace the decentralization of knowledge by inviting users, organizations, and all people to the design process, using a shared common vocabulary, giving a voice to each individual user.

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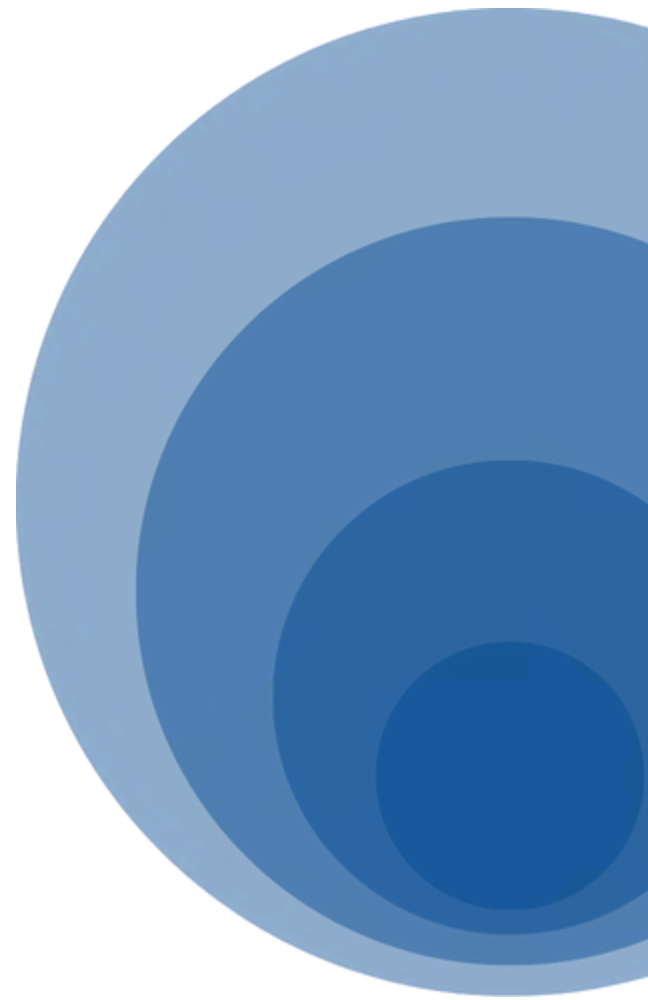[2] N. Joyce, "A New Design Ride: Designing an Open-Source Adaptive Mountain Bike", In proceedings of Autodesk University, 2023

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ORDER FOUR:

COLLABORATIVE SYSTEM DESIGN BUILDING: PERPETUAL

Clöe Lemaire

CLÖE
LEMAIRE

Clöe Lemaire comes from Jacksonville, Florida, where she got her Bachelor's in Coastal Biology and French from the University of North Florida. She moved to Savannah in 2021 to pursue her Masters in Marine Science at Savannah State University. She studied estuarine water chemistry and how it impacts Eastern oyster growth. Clöe joined the Savannah Riverkeeper team for the lower Savannah River watershed in 2024. She is the project manager responsible for phasing out single-use packaging in Savannah by working with local and national nonprofits to introduce a city-wide reusable foodware system as an upstream solution to pollution. When not working she loves to read, thrift, spend time outdoors, play with her two cats, Monkey and Pearl, and sew as a way to give secondhand clothes a new life.

ABSTRACT

As cities grapple with mounting waste from single-use foodware, reusable systems are emerging as a scalable, sustainable solution. However, achieving meaningful impact requires more than swapping disposables for reusables: it demands thoughtful, collaborative system design rooted in community, context, and equity. This article explores the collaborative methods behind the implementation of city-scale reusable foodware systems, with a focus on the work of Perpetual, an innovative organization building reusable systems. Perpetual has begun this nationwide initiative by partnering with four U.S. cities: Hilo (HI), Galveston (TX), Savannah (GA), and Ann Arbor (MI). Through a deeply participatory approach, Perpetual works with local nonprofit partners, universities, and community members to co-design systems that are operationally viable and culturally resonant. Methods include ecosystem mapping, community design workshops, behavioral research, financial and life cycle modeling, and ongoing public-private engagement. These efforts aim to create reuse systems that are not only effective and scalable but also equitable, accessible, and reflective of local needs and values.. By highlighting the collaborative infrastructure behind these programs, this article offers a practical and replicable framework for other municipalities looking to transition from single-use to reuse. The success of these initiatives illustrates how investing in inclusive system design can transform reuse into a shared civic practice, supported by public infrastructure, to lay the foundation for circular economies nationwide.

Keywords: *Reusable, disposable, system design*

COLLABORATIVE SYSTEM — DESIGN BUILDING: PERPETUAL

The Plastic Problem

Nearly one trillion individual pieces of disposable foodware and packaging are used by U.S. restaurants and food service businesses each year, becoming at least five million tons of waste [1, 2]. Single-use foodware also contributes to plastic and other materials entering waterways and the ocean. Food-related products dominate the International Coastal Cleanups' Top 10, representing eight of the top categories in terms of number of items collected [3]. Disposable foodware also imposes costs on local governments. In 2016, conservative estimates indicate that it cost over $1 billion to manage the waste from food service disposables. Improperly managed disposables further confer a significant economic, social, and environmental cost [1].

What is a City-scale reusable foodware system?

City-scale reusable foodware systems allow consumers to borrow reusable cups and/or containers from anywhere they normally purchase food and drinks, such as restaurants, cafeterias, gas stations, convenience stores, and music venues, and return them when they are done, either in the same location or at one of many collection bins around the the city. These systems operate within participating food service establishments and can be found globally, most notably across Europe and Asia. In North America, these systems are less common, however not nonexistent. Canada hosts a number of reusable cup and container programs; while in the states, the reusable cup and container programs are mostly concentrated in the Northeast and West Coast regions.

Once customers are finished with their cups and containers, they return them to the appropriate collection bin and a third party collects, cleans, and redistributes the reusable items to local businesses to ensure the system is efficient, hygienic, and convenient. In order to cover the costs of operating the system, many programs use different business models (i.e., customer subscription model, business pay-per-use model, utility service model).

Customer subscription model: Customers pay a monthly fee, often in the range of $20/mo, to be able to use reusable takeout cups and containers, typically limiting the consumer to a max number of items checked out at any one time

Business pay-per-use model: Businesses pay a per reuse cost each time they use a reusable item

Utility service model: Similar to a municipal recycling service, the government uses taxpayer funding (either in general or through a fee for service) to pay for the reuse service.

*Figure 1: Business models for reusable container systems*

Each of these models are referred to as 'foodware-as-a-service' models. This means that local restaurants or other foodservice businesses can access reusables the same way they might use a linen service. In all except for the customer subscription model, customers do not incur any fees as long as they return the items in an agreed amount of time. Reusable foodware systems track and retain their reusable items with any of the above options (subscription, deposit or penalty). Subscriptions require the customers to pay a monthly fee to checkout items. In a deposit system, customers pay a small deposit (~$1-$5) at the point of check out then receive the deposit back once the reusable item is returned. In a penalty system, customers would check the item out for free and only get charged the penalty fee (~$1-$5) if they do not return the reusable item.

As reuse scales, systems can expand to include other types of packaging, initially expanding into locally produced food items such as milk, juice, salsa, yogurt, and hummus, and eventually expanding to connect with broader reuse systems for packaged goods including food, personal care, and household care products. These systems could also be expanded to wash, sanitize, and redistribute secondary and tertiary packaging (packaging used for bulk shipping).

What is missing from current reuse systems?

Reusable foodware programs for take-out food and beverages have the potential to be better for the environment than single-use plastics, create good local jobs, be economically sustainable over time, help cities manage their waste generation and collection, and be cost competitive with disposables for local businesses.

However, it is only possible to achieve these benefits when systems are operating at scale. There needs to be a sufficient volume of reusable items moving through the system to achieve economic and environmental benefits. Additionally, there needs to be enough market saturation that reusable items are widely available and enough collection bins around the city so that returning a reusable item is almost as easy as throwing something in the trash. Reuse pilots have demonstrated that this immersive availability and convenience are key to align user behavior with reuse. The convenience of a reusable foodware system increases as the adoption rate increases and supportive infrastructure is built out, which is to say that as more businesses choose to offer reusable items and more customers choose to use the reusable items, the system becomes more ubiquitous. When reuse is available throughout a city, it can become the new norm and can become an 'automatic' behavior for community members.
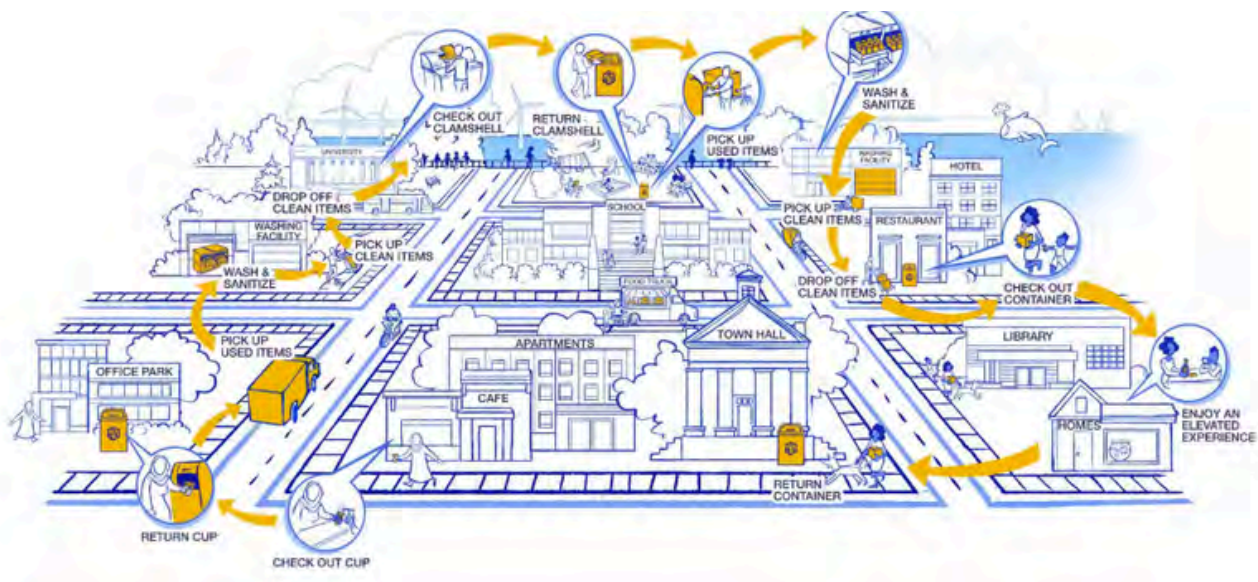
Figure 2: The Reusable Foodware Ecosystem

Perpetual has been developing city-scale reusable foodware systems for the last four years by working with four smaller U.S. cities to design and implement city-scale open-loop reusable foodware systems:

- **Hilo, Hawai'i**
- **Galveston, Texas**
- **Savannah, Georgia**
- **Ann Arbor, Michigan**

Perpetual is a team of reuse experts and innovators, cofounded by Ellie Moss and Dagny Tucker in 2021. After having worked in diverse roles in the reuse sector, from mapping reuse solutions around the world to building and operating a reusable cup service system , the team recognized several challenges with launching sub-scale reuse systems. Through their observations, they identified the following elements to be the most critical challenges reuse stems face: system scalability, operational economics, and collaboration between reuse service providers, local government, and partners across regions.

Across each city, Perpetual prioritizes four major focal points to ensure reuse systems will have long-term success and high-positive impact to the communities:

1. **Community Accessibility**
2. **Economic and Environmental Sustainability**
3. **Health and Safety, and**
4. **Immersiveness.**

These priorities are critical to building reuse systems founded in lasting sustainability and maximized community benefits rather than short-term pilot experiences.

Community Connection

The local partners have strong ties to the community positioning them well to lead the on-the-ground work and take co-responsibility for local stakeholder and community engagement. In order to design reuse systems that can both represent and work for the communities in which they operate, they must be locally grown and designed with local input. Although there are best practices that should be deployed across all reuse systems, system design should represent the values of the community and be optimized for its local context. This is where the partnership between Perpetual and the local partner is critical to building a locally-driven initiative founded in technical expertise. Perpetual and its local partners conduct a series of participatory design workshops in each city with community members, businesses, local mission-driven organizations, and other interested stakeholders to inform the reuse system design for that municipality.

Once local partners are established, the team conducts an Ecosystem Assessment, mapping the key characteristics of the city/county, the local geography, tourism flows, climate and weather, key languages, community assets, and more. Additionally, Perpetual's partners at the University of Georgia's Circularity Informatics Lab conduct their Circularity Assessment Protocol, which provides information about the current material and waste flows, existing systems for managing them, and recommendations to increase circularity.

Design Phase

The Design Phase involves designating specific recommendations for each of the following design elements:
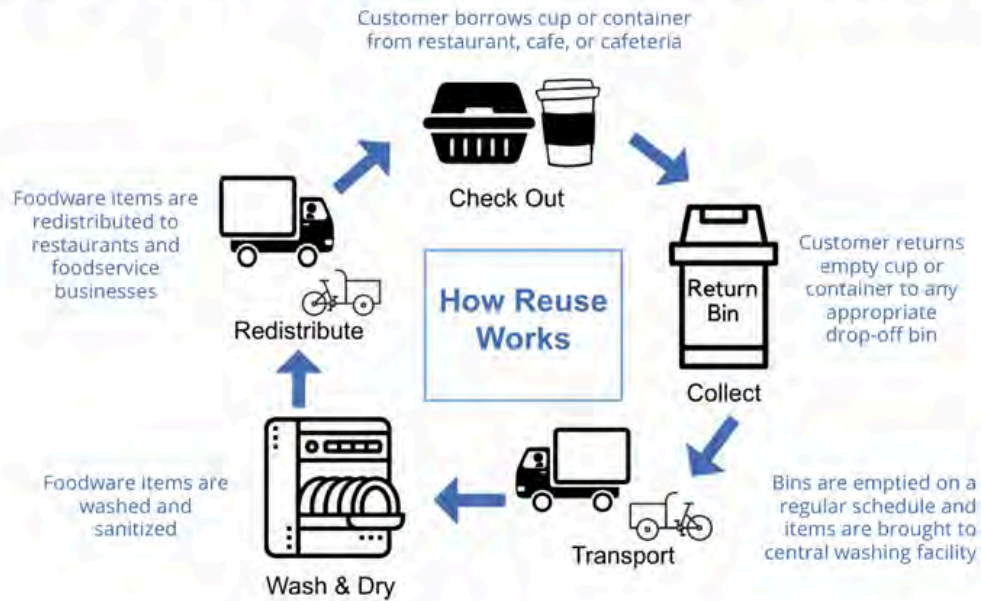
1. *Revenue models*
2. *Scope*
3. *Reusable assets*
4. *Technology (front- and back-end technology)*
5. *Return incentives*
6. *Collection bins: design, management, and locations*
7. *Washing*
8. *Reverse and forward logistics*
9. *Governance*
10. *Labor*
11. *Surge event planning*

The Design Phase begins with a series of interactive Community Design Workshops, offered in person and virtually, and including food and drink, child care and participation stipends for people who need them. During the Design Phase, the insights from local community engagement are synthesized with learnings from corporate engagement on requirements for reuse systems, identification of local assets, such as underutilized dishwashing facilities or transport vehicles, optimization of asset location and vehicle routing, in partnership with the Data Science Institute at the University of Chicago, and testing different design configurations through their Life Cycle Assessment (LCA) parametric model, developed by independent academic LCA experts at the University of Michigan's Center for Sustainable Systems. Life cycle assessments show that reusable foodware systems outperform disposables on greenhouse gas (GHG) emissions, waste generation, water use, energy demand, and pollution [4]. The system design is developed to align with behavioral science learnings and to align with emerging reuse standards such as those being established by standards organization PR3. The governance model determined through the Design Phase structures the framework for long-term decision making, management and other important details such as asset ownership, how reuse service providers will collaborate within the system, the pricing model for participating businesses, and the mechanism by which the community will continue to have a voice in how the system is operated – all foundational to long-term system success and critical early to mobilize funding from public and private sources for reuse infrastructure and assets.

In the Pre-Launch Phase we set the stage for a successful system launch through educational campaigns, community outreach, staff training, and extensive system testing. The system is then publicly launched with hands-on support mobilized through local partners and Perpetual to ensure the first few weeks run smoothly and help everyone learn about the new system. Following the launch of the system, Perpetual and the local partners will continue to support the success of the system as it gains adoption and grows. This will include identifying operational improvements as well as regularly reviewing economic and impact reporting. Perpetual intends for these four city/county reuse systems to provide models for establishing reuse systems in other cities and counties as well. To this end, Perpetual has created templates, tools and other resources, including a Community Workshop Toolkit in 7 languages, sample Request for Proposals, and more tools for other communities to replicate the process.
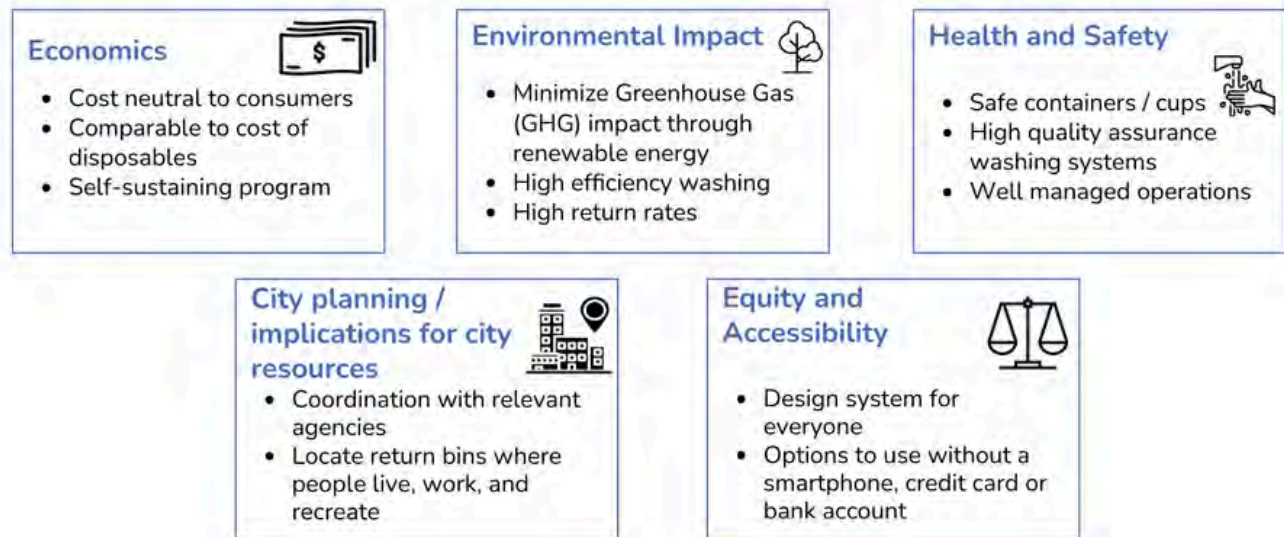
HOW REUSABLE FOODWARE WORKS

Customer borrows cup or container from restaurant, cafe, or cafeteria

Check Out

Foodware items are redistributed to restaurants and foodservice businesses

Redistribute

How Reuse Works

Customer returns empty cup or container to any appropriate drop-off bin

Return Bin

Collect

Foodware items are washed and sanitized

Wash & Dry

Transport

Bins are emptied on a regular schedule and items are brought to central washing facility

SYSTEM DESIGN CRITERIA

Expert design that deeply considers all interrelated elements both of the physical system and the community itself is essential for success and scalability.

Economics
- Cost neutral to consumers
- Comparable to cost of disposables
- Self-sustaining program

Environmental Impact
- Minimize Greenhouse Gas (GHG) impact through renewable energy
- High efficiency washing
- High return rates

Health and Safety
- Safe containers / cups
- High quality assurance washing systems
- Well managed operations

City planning / implications for city resources
- Coordination with relevant agencies
- Locate return bins where people live, work, and recreate

Equity and Accessibility
- Design system for everyone
- Options to use without a smartphone, credit card or bank account

Figure 3: System Design Criteria

Collaborative Methods

Figure 4: Reusable Foodware Community Workshop

Participatory Community Design Process

Working closely with local partners, the team crafts and conducts a series of in-person and virtual opportunities for community members to come together to provide feedback, with special attention to ensuring that these workshops and meetings are accessible to all members of the community by providing food, child care and participation stipends for those who need them. These opportunities include going to existing group meetings as well as holding dedicated workshops and discussion sessions.

Financial Modeling: Drawing on the best data available, Perpetual is using a custom-built financial model to explore the economics of reuse systems, including up-front investment costs, unit economics for the reuse system at different levels of scale and volume, the impact of adoption and return rates on profitability, and what needs to be true to ensure the long-term economic sustainability for the system.

Reuse Capabilities Landscape: Perpetual closely tracks the progress of existing reuse service providers to stay up to date on the status of emerging technology and asset tracking solutions, cup and container designs, washing capabilities, and other relevant developments in the frontier of reuse solutions. This ensures that the System Design builds on the best available solutions and does not specify requirements for a system that is not able to be built today.

Behavioral Research: **Perpetual is conducting rigorous behavioral studies to understand attitudes and behaviors about reuse. This research will be used to inform messaging towards both consumers and businesses to ensure program adoption and uptake. Research will be conducted prior to and following system launch to measure how attitudes towards reuse and the circular economy may have shifted due to exposure to a city-scale reusable foodware system.**

Corporate Engagement: **Ideally, reusable foodware systems would serve all restaurant and foodservice businesses in a community, including local, regional and corporate. In order to understand the needs of corporate and institutional food and beverage companies so that the system design can accommodate them as well, Perpetual is engaging with beverage companies; food service providers for campuses and cafeterias; grocery and retail chains; convenience store chains, hotels and resorts; and quick service restaurants (QSR).**

Mobilizing Public and Private Funding: **Establishing reuse systems requires significant capital. In addition to raising philanthropic funding for local partners, Perpetual is working to mobilize both public and private funding to support this transition. Reuse infrastructure such as high through-put dishwashing machines, indoor and outdoor collection bins, and transport vehicles, is investable and can be funded by investment capital or grants. To support adoption of reuse, Perpetual is also working to provide funding to local businesses, local community organizations such as Meals on Wheels and other food access programs, and schools to cover their costs of transitioning to the reuse system.**

Governance: **System Governance refers to how the oversight and management of the reuse system is supported long-term, including ensuring environmental and economic viability, equitable access and responsiveness to community needs. Perpetual is exploring governance models to ensure that communities have input into how local reuse systems operate while allowing for multiplayer, technically advanced and integrated systems to flourish and grow.**

Conclusion

City-scale reusable foodware systems represent a transformative opportunity to reduce waste, create sustainable local jobs, and make reuse an everyday behavior rather than the exception. By providing the infrastructure, partnerships, and community-driven design necessary to implement these systems, Perpetual is demonstrating how reuse can be embedded into the fabric of everyday life. Central to this approach is collaboration—bringing together local communities, nonprofits, businesses, and technical experts to co-design systems that are not only effective but also reflective of local needs and values. When diverse stakeholders work together from the outset, the resulting systems are more resilient, inclusive, and likely to succeed. The projects spanned across the four cities—Hilo, Galveston, Savannah, and Ann Arbor—are proving grounds for scalable, equitable, and efficient reuse systems that reflect local values while building toward a broader vision of circularity. As these systems grow and evolve, they provide a roadmap for other municipalities to follow, ensuring that reuse becomes a practical, accessible, and sustainable solution for communities across the country.

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Letter from the Chairman's Desk
By Sunil Bhatia PhD

It is the human being who declares what is absurd and what is meaningful. Nature makes no such distinction. Entanglement is part of nature, and it has been central to human progress. In other words, entanglement is a form of randomness that helps us understand the universe in a better way. Imagine a world without entanglement, without randomness—would we have achieved the same intellectual progress? Randomness is nature's exercise: it provides the problems, and we attempt to solve them through the randomness of our own minds.

'(There is even a theory that the neurons in our brain are nothing but tiny bubbles of water that keep crackling with randomness.)'

One day, I was flying a kite and the threads got entangled. Patiently, by pulling one end, I succeeded in disentangling them and rolling the thread back onto my pulley. While doing this, I faced many challenges. I realized that patience and focus made my mind more active when it was calm, not excited. When we are overly excited, much of our energy is consumed in the restless movement of neurons, leaving little space for pathways to form between them. It is these neuronal pathways that determine human progress. When a solution follows the shortest path that no one has thought of before, we call it creativity (a new way). And when the solution is known, but we invent a method that saves resources, we call it innovation.

Where we are and take one step further is called progress and if it proves not better of with existing situation we called degradation.

This incident reminded me of the way creeper plants entangle themselves around the branches of trees to reach sunlight and create space for their fruits to grow. When a plant chooses a branch and clings to it through its own mechanism, it may not be called creativity, but it is certainly an innovative strategy for survival. They know following zigzag path makes them to remain live.

We are so obsessed with structure that the first job of our mapped mind is to look for patterns. The moment we recognize a pattern, it gives us satisfaction—and often, our curiosity ends there. But nature does not always work according to our sense of structure. Structure has indeed played a vital role in building civilizations, but we cannot ignore the absurdities of design that have also driven our progress. What may appear structured at first glance is often rooted in absurdity.

Take fibers, for example. A single strand is weak, but when twisted together—clockwise or anticlockwise—they gain immense strength. Entanglement and disentanglement with rotation led to the concept of torque. No one could have imagined that twisting fibers would inspire the conversion of linear motion into rotational motion, giving birth to modern vehicles and transforming human transportation. Absurdity, in this way, crowned us with the title of "modern, advanced man."

It was through observation that humans designed the knot. The art of entanglement in the form of knots revolutionized progress. Mastery in tying and untying knots—entangling when needed, disentangling when the purpose was served—opened new

dimensions of life. Different kinds of knots were designed to serve different purposes.

From this came the ladder, which later evolved into the elevator with new technologies. It began with knots tied at intervals in a rope, enabling people to climb up and down. Similarly, weaving—horizontal and vertical entanglement of threads—gave birth to clothes, replacing animal skins as protection against the vagaries of weather. This became humanity's second skin.

Entanglement also underlies the universe itself. Quantum mechanics is essentially the study of disentangling fundamental particles through designed experiments. Water, for example, is an entanglement of hydrogen and oxygen; experiments of disentanglement help us study its constituents. Step by step, this leads to the study of even more basic particles.

In social life, maintaining relationships is the most delicate form of entanglement. Unlike language, it has no written grammar; it works on anticipation. Once misjudged, that very moment an entanglement is formed, which can grow so intense that it may end in conflict—sometimes in fighting, sometimes in divorce, and at its most violent, even in murder.

Even our inventions of security depend on entanglement. Locks and latches were designed as entangled mechanisms to protect ownership, while keys serve as tools of disentanglement for authorized persons. Breaking a lock by force is nothing but social theft—an attempt to violate protected wealth.

Buttons and unbuttoning, zips and unzipping—these too are nothing more than simple forms of entanglement and disentanglement.

I am glad that Prof Shannon Iacino has done extremely great justice with her role of Guest Editor and her special issue is complete with creative knowledge and well researched papers selected by her

I feel like to stand and salute for her great contributions.

With Regards

Dr. Sunil Bhatia

Design for All Institute of India

www.designforall.in

dr_subha@yahoo.com

Tel:91-11-45793470(R)

    91-11-27853470®

Forthcoming Issues

Year 2025 declared as Women's Designer Septembre 2025 Vol-20 No-9

Jani Nayar
She found it in the Society for Accessible Travel & Hospitality (SATH), an organization dedicated to making the world more welcoming for travelers with disabilities. Since 2024, the name was changed to Society for Accessible Tourism& Hospitality, keeping the acronym SATH.
What began as a role in tour operations quickly grew into a deep, lifelong commitment. Jani served as SATH's Executive Coordinator before becoming its Executive Director, a role in which she now serves as the organization's voice, advocate, and bridge between communities, governments, and industry leaders. Her mission: to ensure that travel is a right, not a privilege, for people of all abilities.

Her work has taken her to some of the world's most significant platforms for accessible travel. She has spoken and led workshops at events including the World Summit Destinations for All in Montreal, the Adventure Travel World Summit, the Africa Travel Association, the New York Travel Show, the Caribbean Tourism Conference, the Abilities Expo, the World Congress on Disabilities, the International Institute on Peace through Tourism, the Adventure Tour Operators' Association of India, SATTE in India, ReaTech and the World Tourism Forum in Brazil, and the First Symposium on Accessible Tourism in Ecuador—among many others.

October 2025 Vol-20 No-10 (250th issue)

Dr Dolly Daou
Dr Dolly is an internationally recognised design researcher, educator, and leader. She founded the DRS Food Design Research Studio and the Cumulus Food Think Tank. With 25+ years of global experience, numerous high ranking academic publications, she has received multiple awards and serves on the Advisory Board of Cindrebay University, Dubai.

November 2025 Vol-20 No-11

Josyane FRANC
JF- International Design Networks Expert, independent consultant, Knight of French National Order of Merit / Chevalier de l'Ordre National du Mérite de France

Ms. Josyane Franc is an international expert with over 35 years of experience in the field of international cultural relations, art and design project conception, management and coordination, co-curating exhibitions, jury design competitions, mentor etc. She is a Design networks Expert and independent consultant since 2019 involved in European and international projects. In 2021, for her career and commitment to culture with outstanding contributions, she was awarded Chevalier de l'Ordre National du Mérite /Knight of the National Order of Merit, one the highest French National civilian awards.

Her career includes the roles of Director of international affairs for the Cité du Design and Saint-Etienne School of Art and Design (ESADSE)- France 1989-2019, member of the founding committee of the Biennale Internationale Design Saint-Étienne in 1998 till 2019, Human Cities Challenging the city scale leader 2014-2018 and focal point for Saint-Etienne UNESCO creative city of design 2010-2019.

New Books

Sunil Bhatia

Design for All.
Volume-II

Drivers of Design

LAP LAMBERT
Academic Publishing

https://www.morebooks.shop/shop-ui/shop/book-launch-offer/74414a1df61c3d2ea8bf46ae7e3c0cf31769f261

Sunil Bhatia

Design for All

Drivers of Design

Expression of gratitude to unknown, unsung, unacknowledged, unmirrored and selfless millions of heroes who have contributed immensely in making our society worth living, their design of comb, kite, fireworks, glass, mirror even thread concept have revolutionized the thought process of human minds and prepared blueprint of future. Modern people may take for granted but its beyond imagination the hardships and how these innovative ideas could strike their minds. Discovery of fire was possible because of its presence in nature but management of fire through manmade designs was a significant attempt of thinking beyond survival and not

doubt this contributed in establishing our supremacy over other living beings. Somewhere in journey of progress we lost the legacy of ancestors in shaping minds of future generations and completely ignored their philosophy and established a society that was beyond their imagination. I picked up such drivers that have contributed in our progress and continue guiding but we failed to recognize its role and functions. Even tears, confusion in designing products was marvelous attempt and design of ladder and many more helped in sustainable, inclusive growth.

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it is available on www.morebooks.de **one of the largest online bookstores.** Here's the link to it: https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1

HOW WE LIVE: Through the Products that We Use

Authored by : Sugandh Malhotra,

Professor, IDC School of Design, IIT Bombay (INDIA)

Sugandh(at)iitb.ac.in
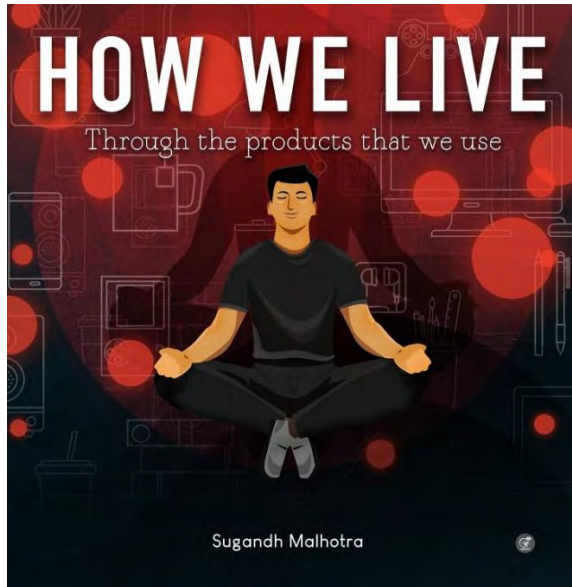
Products tell stories about their users, their likes, tastes and journeys. 'How We Live' book aims to outlay, document and study the used products and create a persona of the users through a brief narrative. This visual documentation book is an excellent resource to observe and acknowledge the subtle differences in choices that are driven by nuances other than personal preferences.

Available at: [Amazon.in](#), [Amazon.com](#), [Astitva Prakashan](#)

MOVE MUMBAI: Kaali Peeli and Beyond

Authored by : Vivek Kant, Sugandh Malhotra, Angshuman Das, Tekhenutso Theriah

IDC School of Design, IIT Bombay (INDIA)

Sugandh(at)iitb.ac.in
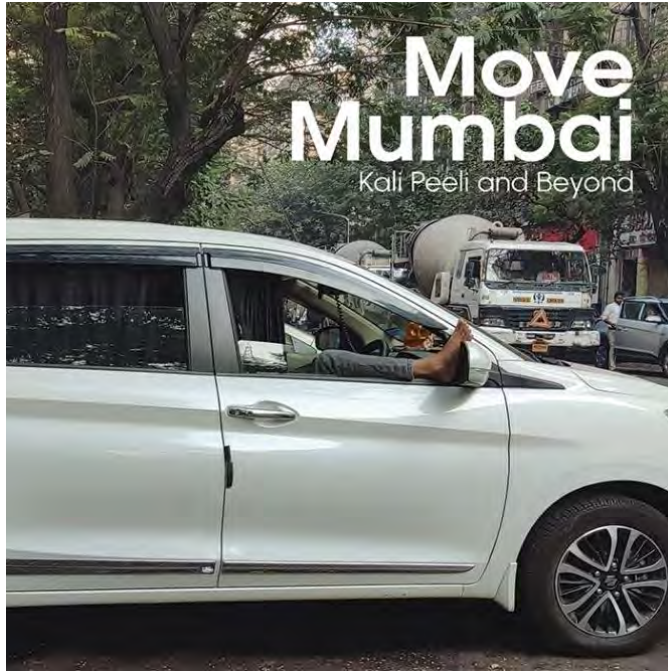
Move Mumbai" is an incredulous yet everyday traffic story from the streets of Mumbai captured through a series of photographs. We closely observe how Mumbaikars use their vehicles, and live with and around them. From cab drivers to bus passengers, from goods carriers to bikers, to children, and pedestrians, Mumbaikars encounter hundreds of vehicles daily while commuting between any two places whether they may or may not be in one themselves. While a two-wheeler motorbike is designed to carry two people. Mumbaikars still manage to fit multiple, especially younger children, in ways that a designer would typically not envision. This reflects in certain ways the economic constraints faced by many Indian families, the cultural value placed on integrated family living, and their resourcefulness. This is one of the many ways in which the city dwellers have appropriated vehicles. We hope that the readers relook at these everyday images with a new pair of eyes to understand the seemingly mundane yet incredulous images of the mobility of Mumbaikars.

Available at: Amazon.in, Amazon.com, Astitva Prakashan

Universal Design in Architecture

On enabling and empowering a diverse population

Camilla Ryhl

The Danish Architectural Press

MEANINGFUL, SUSTAINABLE, HUMANITY CENTERED

DESIGN
FOR A
BETTER WORLD

DON NORMAN

Author of *The Design of Everyday Things*
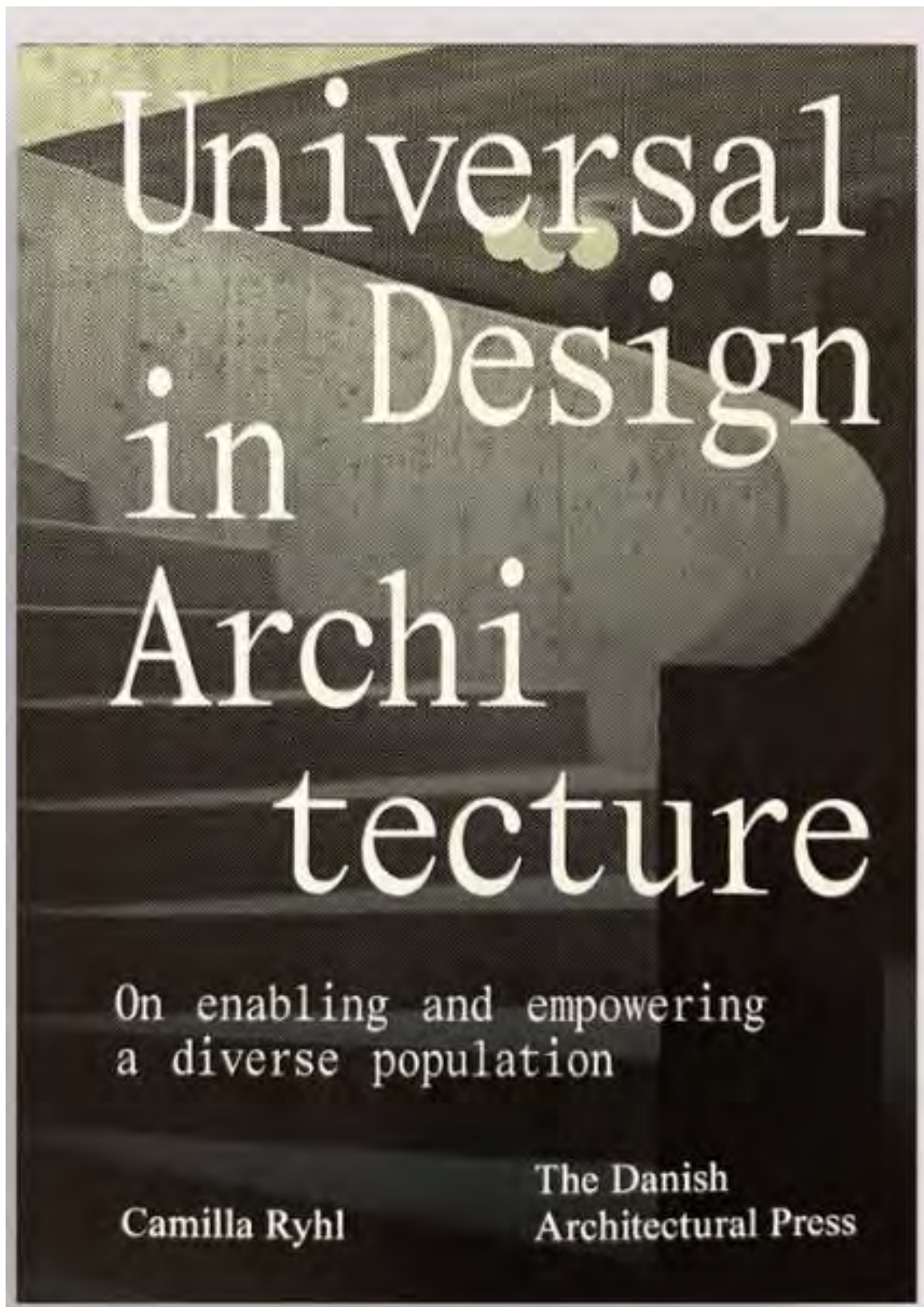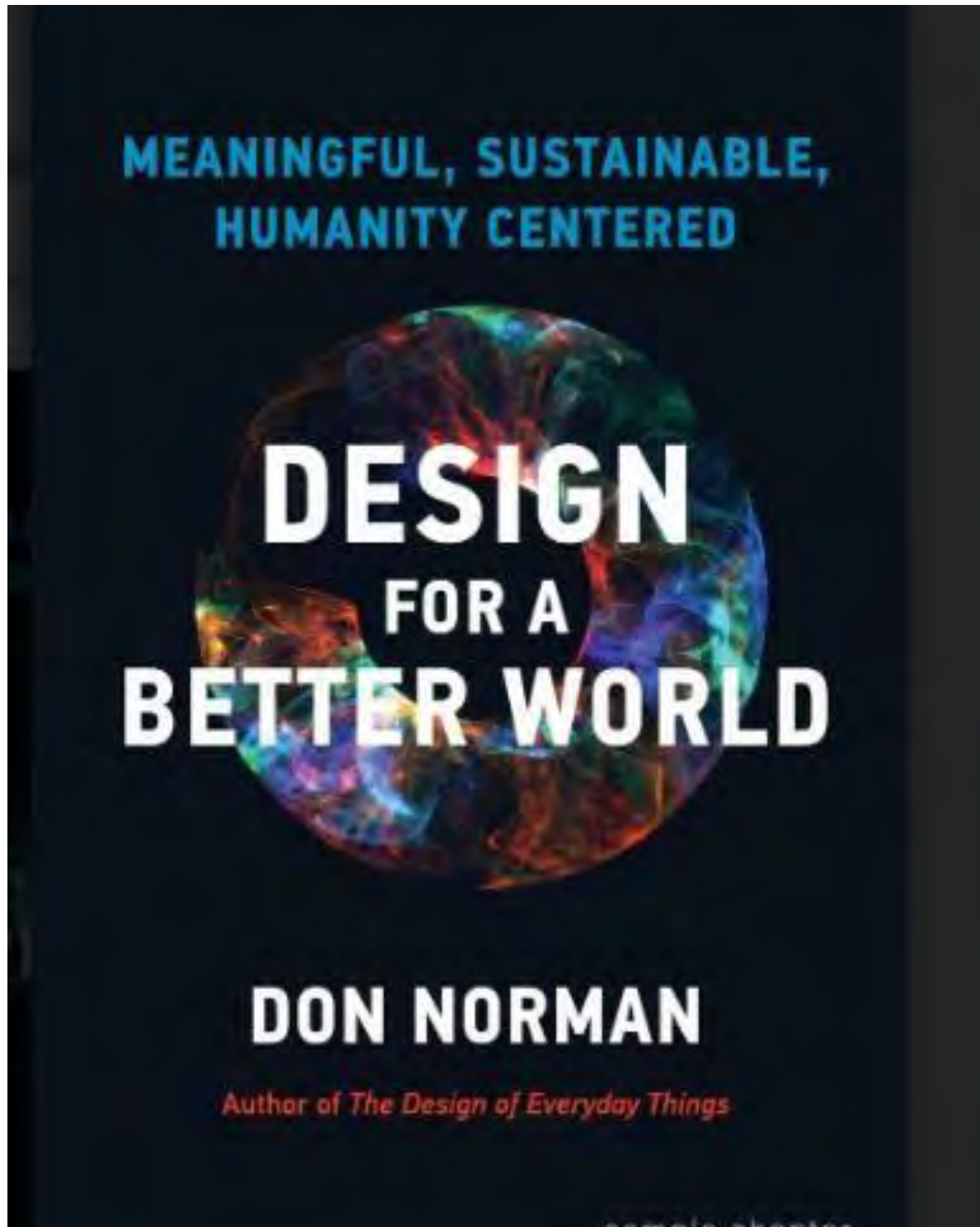
Emilio Rossi (Editor)

Innovation Design for Social Inclusion and Sustainability

Design Cultures and Creative Practices for Urban Natural Heritage

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Design for all

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News

Building a Course from Scratch: When Time is Not on Your Side

Kristen Portner-Lauerman, MHA, RDH, and Dr. Julia VanderMolen, CHES®

Exam concept, exam paper with timer and hourglass, Exam, Survey, Checklist, Test, Assignment deadline, exam preparation, subject learning course, education concept. flat vector illustration.

Irecently found myself in a the all-too-familiar situation where I was handed a course at the last minute. The course consisted of a catalog description and course outcomes with no teaching materials. There was very little time to develop a student-ready course while also trying to manage my workload and protect my mental well-being. What steps can you take if you find yourself in a similar scenario? Focus on the non-negotiables: accessibility, effectiveness, and alignment with key learning outcomes by applying core principles of course design, including Universal Design for Learning, backward design, and Bloom's Taxonomy.

When facing rapid course creation, begin by setting your mindset regarding the expectations for developing a last-minute course. Even without the bells and whistles typically found in a fully designed course, a basic course can be accessible, inclusive, and high-quality. The goal is to create a student-ready course with appropriate

content and assessments that align with the course learning outcomes and description. Aim for completion over perfection, prioritizing the non-negotiables.

Establish Your Course Framework and Weekly Structure

Most existing courses already have an approved catalog course description, a set number of credits, and established course outcomes. Based on this information, the first step is to identify any essential content and the timeframe, based on the number of weeks the course runs and the credit hours. Doing so will help ensure alignment with the expected student and faculty workload. Once this is established, you can begin the course design by building the course framework. The core of the framework is the syllabus. The syllabus should include your contact information, grading policies, course schedule, and course expectations. Then use the schedule to organize the required content into weekly modules.

Stick to simple technology tools and avoid adding extras that could take time away from the non-negotiables. This includes curriculum creep. Focus only on the essential content that aligns with the course learning objectives. To save time, use a consistent structure for each weekly module, such as an overview or introduction, required reading and/or media, one active learning task, plus a low or medium-stakes formative assessment. Create a clear rubric for repeat assignments like discussions, reflection, or writing assignments. This will allow you to apply the same criteria across each module and reduce the time of making numerous rubrics.

Apply Instructional Design Frameworks for Accessible, Inclusive Learning

The next step in the process of course design is to apply proven instructional design frameworks such as backward design, Universal Design for Learning, and Bloom's Taxonomy. Utilizing backward design principles can help the instructor deliver a course with a clear vision of what students are expected to learn and achieve from each lesson, module, and the course overall (Stapleton-Corcoran, 2023). Universal Design for Learning is a "framework to improve and optimize teaching and learning for all people" (Casebolt & Humphrey, 2023, p. 2). This includes accessibility features such as headers, alt text, and captions. Keep presentation slides simple by using a white background, dark font, and avoiding unnecessary images. Not only will this make the slides more accessible, but it will also reduce the time required to create them. Throughout the course remain flexible, allow students multiple ways to express their learning, including multimedia options, and provide various means of engagement and representation (CAST, n.d.). As a time-saving option, if weekly videos are not feasible, add weekly micro-lecture audio recordings throughout the course. These do not need to be added at the start of the course but can be introduced week by week.

When developing the assessments, consider using Bloom's Taxonomy. Bloom's Taxonomy framework consists of six major categories of cognitive processes: remember, understand, apply, analyze, evaluate, and create. Bloom's Taxonomy can be applied across disciplines and helps ensure that assessments and activities progress in complexity and rigor, supporting student learning step-

by-step (Attia, 2021). Free online tools are available to help create assessments aligned with the desired level of Bloom's Taxonomy.

Efficiently Upload Your Course in the LMS

The final step is to upload the course into the learning management system such as Canvas or Blackboard. While it may be tempting to start building each module directly in the learning management system, doing so could lead to unnecessary revisions and time-consuming fixes. Instead, consider using backward course design to frame the entire course prior to uploading online. Once the framework is established using backward course design and the modules are formatted consistently, content can be uploaded efficiently by duplicating page templates for elements such as introductions, lectures or instructions, quizzes, and discussions.

After the course has begun, track any necessary revisions and gather early student feedback, such as through a check-in during week two or three. If the opportunity arises to teach the course again, these insights will allow for continuous improvement towards an ideal version. If this is not possible, the course shell can be passed on to another faculty member, thereby benefiting future students.

Reflecting on my experience of developing a course from scratch and minimal time I was reminded of the importance of focusing on the non-negotiables: accessibility, effectiveness, and alignment with key learning outcomes. By applying established course design frameworks of backward design, Universal Design for Learning, and Bloom's Taxonomy, I was able to deliver a high-quality, student-

ready course, despite the limited time available. If you find yourself in a similar situation or looking to refine an existing course, focusing on these core principles ensures that the course is not only functional but also effective in supporting student success. The lesson here is clear: even in the face of urgency, thoughtful course design can help you meet both immediate needs and long-term educational goals.

Kristen Pornter-Lauerman, MDA, RDH, is a doctoral student at the University of the Pacific in Health Science Education. She currently serves as a Program Director in Dental Hygiene, With a background in healthcare administration and dental hygiene, Kristen is dedicated to fostering growth and innovation within dental education.

Dr. Julia VanderMolen, CHES® is an Associate Professor for the Public Health program at Grand Valley State University. The contributions of her research are to examine the benefits of assistive technology, UD and UDL, and disabilities in public health. She is an active member of the Disability section of the American Public Health Association (APHA).

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(Courtesy: Faculty Focus)

Programme and Events

Integration, Design, and Innovation

World Design Congress
Design for Planet
London 2025
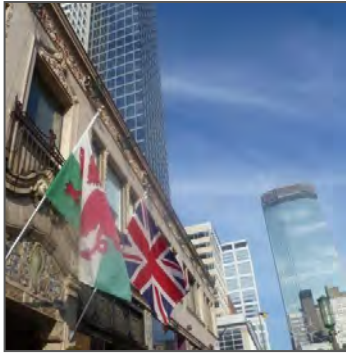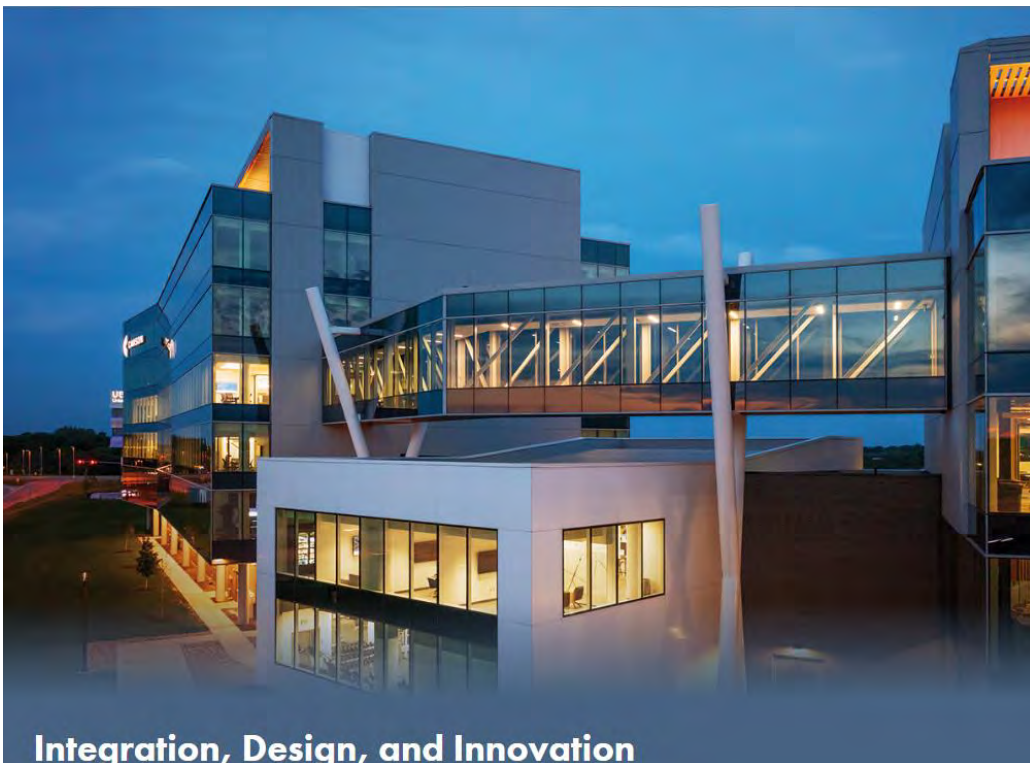
9-11 September 2025

STUDENT
SERVICE DESIGN
COMPETITION!

OBJECTIVE:

The competition aims to leverage students' creativity and service design skills to address real-world challenges faced by India's social sector. Solutions must be innovative, actionable, and culturally sensitive, motivating NGOs to implement them effectively.

ELIGIBILITY AND PARTICIPATION:

Open to undergraduate, postgraduate, and doctoral students enrolled in academic institutions during 2025.

KEY DATES:

Registration Deadline: **Feb 15, 2025**

Submission Deadline: **Jun 15, 2025**

Announcement of
finalist teams: **Aug 15, 2025**

Final Presentations: **Oct 6-8, 2025**,
at the ServDes25 Conference

Announcement of Winners: **Oct 8, 2025**,
at the ServDes25 Conference

serv
DES '25

భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

tcs Research   Department of Design

Scan to know more about the competition
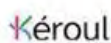
Are you curious about submitting a paper or poster to the World Design Congress in London this September? In line with the hashtag#DesignforPlanet theme, swipe to learn more about the first submission sub-theme of Shifting Paradigms — From Extractive to Regenerative Design, which aims to highlight work that showcases the transformative potential of design in addressing planetary health.

Don't miss out! Submissions are open globally until 31 May 2025.
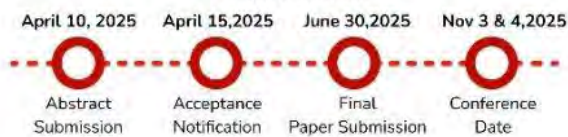
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Design For All Institute of India
www.designforall.in
dr_subha@yahoo.com
Tel:91-11-27853470(R)

Forthcoming Events and Programs:
Editor@designforall.in
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Chief-Editor:

Prof Dr. Sugandh Malhotra, Indian Institute of Technolgy, Mumbai, India
Email: sugandh@iitb.ac.in

Prof Dr Ravindra Singh, Delhi Technological University, India
Email: ravindra@dtu.ac.in

Special Correspondent:
Ms. Nemisha Sharma,
Mumbai, India
Nemisha98@gmail.com
Address for Correspondence:
13, Lodhi Institutional Area,
Lodhi Road, New Delhi-110 003India.

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