

Maintaining the Menstruating Body:
Feminist Interventions on Care Resources

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Abstract

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This dissertation examines recent industry and policy initiatives aimed at extending menstrual resources, as well as participatory grassroots programs operating alongside these efforts. Drawing on ethnographic fieldwork across maintenance institutions, activist organizations, and social enterprise businesses, I first use the notion of *managerial vision* to describe how imaginaries of supervisory control figure sites of public hygiene such as restrooms. Through building Internet of Things (IoT) devices, I next interrogate the collective responsibility formed amongst different organizational actors who come together to revise the governance strategies that currently define them. Later fieldwork and public collaborative design workshops around the topic of menstrual access bare performative, sensorial encounters and collectivist interventions. Taken together, this research reveals what might appear mundane or instrumental—for instance, menstrual products, their public

distribution, and the care labor that sustains them—as integral to material and social innovation, providing conceptual scaffolding toward efforts to design adaptable, community supported, and collaboratively maintained resources.

For Ruth and Marge, who made this possible.

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Introduction

“It’s hit and miss with restrooms,” Tori stated. She and I were seated across from each other in a small conference room amongst the administrative offices of a Seattle day center. The center served as a dry place to dwell during the city’s many rainy days and offered a set of supports aimed at connecting their clients—often those experiencing homelessness or housing insecurity—with basic services such as transportation passes and healthcare. Tori was a regular of the center and visited throughout the week to access laundry machines, participate in support groups with other clients, and collect items such as soap, menstrual hygiene products, socks, and other necessities. These items and services were available at no cost to visitors, supported instead by state grants, individual donors, and—increasingly during my time there—large corporate sponsors such as the neighboring tech giant Amazon.

My conversation with Tori began by her sharing experiences locating menstrual products across the city, but quickly turned to broader questions of access to public and semi-public resources such as restrooms and the subtle, differential forms of governance in such spaces. “If [employees of retail shops] were going *by the book*,” Tori explained to me, then they might point to certain institutional policies that would allow them to turn people away. “Uh, we don’t...only customers allowed,” she acted out a retailer’s response to her recent request to use a local coffeeshop restroom. “Yeah, but I got to take a dump,” she imagined stating back, if it were to happen again. Turning to me she asked, “What do you do about that? You can’t tell me only customers are allowed when someone’s got to take an f-ing dump.” After a moment’s pause, she told me she defecated in the alleyway to the side of the coffeeshop, in both an act of necessity and protest.

Further conversations with others at day centers and social service agencies reflected similar senses of frustration and desperation. Advocates, for instance, frequently described public restrooms as both incredibly important and unreliable to those with unstable access to housing, a need intensified when those people also happened to be menstruating. Alongside these discussions, I also began to observe forms of activism, policy work, and enterprise emerging to address these discrepancies. Grassroots campaigns and startups alike seemed to simultaneously converge on the notion of free and distributed menstrual products, in particular. These conversations prompted me to question: What was behind decisions to extend or deny admission to hygiene resources? How had activists, entrepreneurs, and politicians come to direct

their attention to issues of menstrual resource accessibility? The dissertation that follows endeavors to respond to these questions by principally focusing on the following:

- (1) What social configurations, value structures, and labor practices give rise to menstrual resources (resources setup to support the menstruating public)?
- (2) What forms of material and political practice sustain menstrual resources?

Through fieldwork with maintenance institutions in Seattle, WA, activist organizations in sites across the country, and social enterprise businesses primarily on the West and East Coast of the United States, I begin address to these concerns at the points of intersection where political, commercial, and care practice meet. I start by developing an account of maintenance labor (cleaning, stocking, repairing) within public restrooms that reflects on the institutional and socio-political structures upon which the work depends. Within this account, I use the notion of managerial vision to describe how imaginaries of supervisory control figure these sites. I also examine the collective responsibility formed amongst different organizational actors who come together to revise the governance strategies that currently define these resources.

Building on this initial fieldwork, I examine the politics of menstruation at multiple registers, in the resistance practices of activists and in the production of “social business” models of emerging startups. In describing the efforts of those involved in these collectives, I examine how such activity takes on a partial character. No one site or solution travels across geographic, occupational, political, or class lines. Instead, the organizations and institutions setup to address menstrual resource accessibility approach it from their various angles (e.g. education, de-stigmatization, product distribution) and sometimes multiply at once. Despite this, menstruation is regularly treated by activist and entrepreneurs as a tractable problem, seemingly small enough (*partial* enough) that it is addressable as productive instantiation of actors’ feminist, egalitarian, or (social) capitalist ideals. Finally, I use discussion on partiality and tractability to develop design interventions meant to contend with enduring power relations within and around menstrual resource development. Through collaborative imagination (described later as “collective visioning”) across these sites, for instance, sets of activists, health workers, policymakers and others build toward multiplicitous visions of accessibility.

Concepts of care, within design and human-computer interaction (HCI) literatures, can at times be reduced to replicable or extractable forms of knowledge that might be

used to optimize the design of digital systems (e.g. for healthcare settings). Recent patient-centered design research approaches begin offer more a nuance view of the collaborative nature of medical settings by (Park and Chen 2016; Berry et al. 2017), for instance, drawing on anthropologist Annemarie Mol's (2008) formulation of the logic of care versus choice which argues that technology is embedded in a set of complex and contingent relations (rather than a transactional arrangement). Beyond sites traditionally associated with care labor, Austin Toombs and colleagues take up a lens of care to describe community formation within a hackerspace (Toombs, Bardzell, and Bardzell 2015). Ann Light and Yoko Akama identify a role for researchers as "custodians of care" within settings of participatory design, where the aim would be for the designer to create space for members of the public to join together and debate visions of the future (Light and Akama 2014). Later, arguing for an ethics in and of existing design practices, Colin Gray and colleagues describe a place for care to combat "dark patterns" of user experience design, which privilege stakeholder value (e.g. data extraction) over user autonomy or privacy (Gray et al. 2018). In recent science and technology scholarship, care takes on a "thick" character, emphasizing the relationality of the worlds we create through scholarly analysis (discussed further in Chapter 1) (Puig de la Bellacasa 2017, 2011). Finally, scholars push back on common tropes of the goodness of care to instead offer modes of "unsettling" (Murphy 2015) or "staying with the trouble" (Haraway 2016), which recognize and contend with regimes of care that contribute to politically, sociospatially, or environmentally exploitative arrangements.

Notions of solutionism also occupy design scholarship in different ways, both as a goal of design work and a site of critique. Methods famously popularized by institutions such as the Stanford d.school or IDEO tout the ability to sort through uncertain material and affective terrain to develop problem statements that can, in turn, lead to effective and appropriate design solutions (Brown 2009). Recent critiques of such methods argue that the formulas by which one comes to such ends are in fact efforts to rarify design expertise within shifting global economic landscapes (Irani 2018). Early critical engagement within HCI, focused on the translation loss between methods such as ethnography, emerging from the field of anthropology, as it was newly imported and incorporated into design-focused research. For instance, Paul Dourish argues the common impulse to evaluate such qualitative endeavors by their ability to form "implications for design," or project specifications for design and engineering, delimits the value and depth ethnographic study (Dourish 2006). More recent work within HCI seeks to toy with this dichotomy of solutionism and representational depth. Mark Blythe and colleagues, for example, acknowledge the field's solutions-focus as a limitation that can be interrogated and

questioned provocatively through approaches such as design fiction and absurdism or silliness (Blythe et al. 2016).

The goal of this dissertation is to take seriously the faceted and multiply invested character of the work setup around menstrual resource accessibility—work that revolves around notions of caring for less fortunate others (nearby or far away), building collisions across various sorts of change efforts, and developing collectives, products, or models of business that aim to rid the world of stigma and austerity credited with holding menstruators from their full (educational, economic, and democratic) potential. To do this, I borrow from Marcus (1995) to “follow the people” into manufacturing headquarters, on radical cycling tours, and in public restrooms. I assume the practices they take up in order to better understand their formations of care and social change. Doing so allows me to gain an understanding of and critically interrogate the hierarchical structures that sort and guide the work and its outcomes. I use forms of exploratory design research to further engage such questions on power and position, all the while, resisting the sometimes-pernicious underlying entrepreneurial spirit or managerial vision that circulate within these sites (and among prominent methods of design).

Menstrual Milieu

In March of 2015, popular Canadian poet and artist Rupi Kaur posted a series of images on the photo-sharing platform Instagram depicting her monthly experiences with menstruation (Kaur 2015). They were the result of a university visual rhetoric course project centered on the theme of taboo. In one such image, she is posed lying on a bed fully clothed with a spot of blood between her legs and on the sheets beneath her. Within a day, the post had landed on the front page of the discussion platform Reddit, garnered a slew of misogynistic comments (e.g. “come over here and let me make your vagina bleed” and “fuck your feminism”) including death threats, and had been removed from Instagram with little explanation other than the post had violated the platform’s “community standards” (Tsjeng 2015; Kestler-D’Amours 2015). Outraged, she reuploaded the image only for it to be removed a second time 8 hours later. She then took to the social networking site Facebook (owner of Instagram) to share her frustration with her 30,000 followers. “Their patriarchy is leaking. Their misogyny is leaking. We will not be censored,” she stated, as she called on others to join in protest. Soon after, with widespread support from fans and media attention, both of the deleted photos were restored to her Instagram profile. It had been a mistake, a representative from Instagram later told Keur: “a member of our team

accidentally removed something you posted on Instagram. This was a mistake, and we sincerely apologize for this error” (Tsjeng 2015).

Whether or not the Instagram representative was being truthful in this claim did not matter, Kaur had accomplished her aim of promoting dialogue around the stigmatized topic of menstruation. This incident was one among several high-profile acts of “menstrual activism” that catapulted periods into the public consciousness that year. Menstrual activism or “radical menstruation” describes efforts to push back against dominant narratives that project a view of menstruation as stigmatized or taboo. A month after Kaur’s public struggle with Instagram, musician Kiran Gandhi (a.k.a. Madame Gandhi) free-bled while she ran the London Marathon “for sisters who don’t have access to tampons” (Gandhi 2015). In the summer, Canadian activists led a successful bid to end government tax on menstrual products (Watters 2015). In the United States, the social media campaign Periods for Pence invited members of the public to share details of their menstrual flow with the now Vice President Mike Pence who at the time, as Indiana Governor, had recently signed legislation requiring state residents to seek burial services for all unborn fetuses. Around half miscarriages happen shortly after an egg is implanted and are largely indistinguishable from menses for those who experience regular periods, so organizers elected to protest the legislation by offering the Pence a glimpse of theirs for good measure (Bivens and Cole 2018).¹

Alongside these campaigns, businesses like Thinx and Conscious Period designed and marketed alternatives to common menstrual product options (absorbent underwear and subscription based organic cotton tampons, respectively), while developing business models that incorporated a social mission predicated on offering menstrual resources to those who could not easily afford them. As Gandhi

¹ Political periods do not start and end with Pence. Former George W Bush administration White House communications director Nicolle Wallace, announced on the *Nightly Show with Larry Wilmore*, “Yes, I worked in the White House, and yes, every 28 days I bled, but the country went on,” in response to concerns over the physical fitness of a potential women president (McDonald 2015). Presidential nominee Donald Trump famously lashed out at political commentator Megyn Kelly after a 2015 GOP debate by suggesting her line of questioning was due to, “blood coming out of her wherever,” which many took as an accusation she questioning him because she was on her period (Rucker 2015). In her book *Who Thought This Was a Good Idea?: And Other Questions You Should Have Answers to When You Work in the White House*, former deputy chief of staff for operations during the Obama administration Alyssa Mastromonaco describes her role in advocating for the installation of the White House's first menstrual product dispenser: “If we were truly serious about running a diverse operation and bringing more women into politics, we should give the office a basic level of comfort for them. Even if you had to pay a quarter, it would be better than menstruating all over the Oval” (Mastromonaco 2017).

explained it, connecting social progress with product innovation, the commercial space saw relative stasis in terms of product or organizational development prior to these recent moves: "In America we have a new iPhone every year, but in the past two centuries there have only been three innovations in menstrual care. It's baffling" (Gharib 2015). Following these efforts, wide attention was newly focused on menstruation as mentions in mainstream media accounts tripled from years prior, with the National Public Radio (NPR) and *Cosmopolitan* Magazine, for instance, naming 2015 the "The Year of The Period" and the "year the period went public" respectively (Maltby 2015; Gharib 2015).

Since 2015, 14 states and three major cities in the United States have followed the lead of these menstrual activists and social entrepreneurs to introduce legislation to end tax on menstrual products or ensure free products in schools, shelters and correctional facilities. Jennifer Weiss-Wolf, director of special programs for the Brennan Center for Justice at NYU School of Law and advocate for the legislative turn, describes the significance of such legal accomplishment, "It is that raw intersection of poverty and reproduction that touches America's misogynistic nerve: fear of the welfare queen - having her period, having her birth control, having abortions, having babies - having it all" (Weiss-Wolf 2015). Prior to these recent legislative initiatives, only five states between the 1975-2005 removed the tax. Across these sites of investigation are various approaches to care and different means of affecting change. Kaur's artistic intervention, for instance, set out to raise awareness and concern for the mundane experiences of those who menstruate, highlighting through its reception persistent cultural stigma. With performative tactics, the aims may be to enhance sensitivity for those who regularly go without access to menstrual products (as with Gandhi) or to confront a sexualizing gaze. Each leveraged a developed media literacy to cast new light on a long-hushed topic, but toward unique ends. With activists, health workers, politicians, entrepreneurs, and others, the techniques of change making take different forms and are often directed at distinct goals (e.g. education, product donation, policy change). Rather than smooth away such multiplicity, I seek to instead reflect it—not only in the ethnographic accounts I offer, but also in the design encounters I facilitate and circulate.

Coming to the Research Plan

I first encountered questions of menstrual accessibility as I was concluding research on feminist hackerspaces—collaborative workspaces developed to support women's

creative and professional pursuits. Drawing on interviews and participant observation with members of a set of hackerspaces along the West Coast of the US, I worked with Rachel Rose Ulgado and Daniela Rosner to develop an account of their aims, ideals, motivations, and activities (Fox, Ulgado, and Rosner 2015). Through hackerspace members' work to design how the space should look, feel, and run, we argued, members shifted concerns for women in technology from questions of access (who is included) to questions of recognition (who is visible) while grappling with productive ambiguities in between. At the time of publishing this work, there remained concerns amongst members around the class, gender, and racial dynamics of these sites, with many occupying positions of relative privilege as tech workers and CIS white or Asian women. As my interlocutors grappled with questions of access and inclusion, my colleagues and I sought to extend the conversation further, where critique might be shared amongst the group rather than in far off conference halls or journal articles.

In effort to circulate this research and continue our dialogue with these groups, Rosner and I later drew on a collaboration with feminist hackerspace member Amy Burek and artist Emily Alden Foster to create and distribute a zine — a self-published magazine produced with a photocopier — that knit together content of the paper we published on this research with local histories of feminist print production (Fox and Rosner 2016). A rich tradition of zine making pervaded the group, with members hosting regular workshops to collectively produce their own publications and some members having constructed zines since childhood. A part of the process of designing the research-inspired zine involved me reviewing existing publications circulating amongst the group to that point. It was at this time that I encountered “Period Zine,” edited by hackerspace founder Amelia Greenhall and member Sarah Godfrey. Within the collected volume, a number of contributors detailed their experiences with menstruation through poetry or personal stories. One author described experiments tracking their period along with that of their roommate to investigate if and when their cycles might sync, and another offered critique of a 1946 Disney-Kotex short film on menstruation. Critical perspectives on contemporary self-tracking movements and startup cultures came through with entries such as the “Hipster Period App” and monthly menstrual subscription boxes. Reading through the zine raised questions for me on the varied nature of menstruation for these contributors. I was familiar at this point with the work of Judy Chicago and other feminist artists from decades past who had used menstrual blood in their work to push back on the art establishment or to comment on sexist stigma. Yet, this read as different—less formal and suggestive of multiple impressions. Here, a small sampling

of people exhibited such a range of interpretations on their own menstrual experiences and the industry build up to attend to them.

During this time, there were also regular reports in the news media of various attempts across the country to repeal the “Tampon Tax,” or sales or luxury tax on menstrual products which legal advocates argued should be exempt either by their status as necessity or re-designation as a medical device. Alongside this, through my friend network in Seattle, I learned of a local grassroots organization called All Cycles who collected and redistributed menstrual products to the city’s growing population of people experiencing housing insecurity (Hwang 2015). In particular, they focused on those who might ordinarily be overlooked in campaigns of this kind—namely, queer, non-binary, and transgender people who menstruate. Taking up issues of class and gender in their work, All Cycles organizers raised some of the same concerns of Godfrey and other members of the feminist hackerspaces on access, belong, and intersecting forms of oppression.

All the while, I was receiving an increasing number of targeted advertising for a set of menstrual products newly introduced to the online marketplace. Notably, absorbent menstrual underwear Thinx seemed to follow me wherever I went online. Eventually, I clicked. On theirs and other menstrual product e-commerce sites, I found a wealth of things to engage with and investigate. What prompted their formation? Why were most of these companies, if not all, involved in social enterprise endeavors? What was their relationship to the activist organizations such as All Cycles who were also forming or already in place?

Each of these encounters, from the zine to the targeted ads, planted seeds for what would become the project at hand—a project investigating work loosely falling into three strands of activity (often overlapping and in conversation with one another) across activism, enterprise, and state or politics. Over the course of the following section, I will describe how these sparks of interest developed into a formalized research agenda that spanned several years.

Following the Thread of Menstrual Resources

To study the development and circulation of menstrual resources, I structured my research through ethnographic study (Marcus 1995) and design inquiry (Lindström and Ståhl 2014; Lury and Wakeford 2013; Rosner 2018;). I was guided by multi-sited ethnographic approaches to research where one “stitches together at the interface”

(Garsten et al. 2012) of various sites of activity, associations, and relationships. My interest in bodies of feminist science studies theory also helped me attend to the nuances of my position as I moved through and accessed these shifting arrangements. Drawing on Donna Haraway's (1988) notion of "positioning," for instance, the multiply situated roles I occupied within the sites I researched informed how I traced these complex cultural phenomenon and diverse settings. This perspective recognizes the contingency and malleability of defining one's object of study, how different kinds of presence afford different ways of knowing. In public restrooms, for instance, performing different procedures of maintenance in day centers and parks led me to see varying regimes of governance, while attending to the dispensing mechanisms installed in particular locales suggested recognizing sociospatial elements of access. Thus, I sought to recognize the ways in which oversights or absences are formed when assuming particular points of view.

Anthropologist George Marcus describes "mobile" or multi-sited ethnography as a move away from geographically defined sites of study, occupying much of anthropology's roots, toward "transformed locations of cultural production" or the flows of people, things, and metaphors between sites (Marcus 1995, p.97). "Following the thread of cultural [processes]" such as capitalism, globalism, or nation building, Marcus argues, calls for attention to objects of study not only spatially defined, but newly attuned to diffuse circulation of cultural meanings (ibid). The goal is not holistic representation of a world system in its totality, but rather meditation on the conditions of a particular set of subjects.

This concern for relationality runs through the methods of design inquiry that informed later stages of my research. Building on ethnographic accounts, I drew on approaches that "enable *the happening* of the social world - its ongoingness, relationality, contingency and sensuousness - to be investigated" (Lury and Wakeford 2013, p.2). This generative mode of engagement with empirical research takes up material and technical interventions not just a site of study, but a means to think with and through specific activities and practices. Drawing on the work of design scholars Lindström and Ståhl, I explored modes of making as "co-articulations," or forms of problem definition that rely upon the everyday sociomaterial entanglements of my interlocutors—entanglements that shift as they travel, accumulate, assemble, and reassemble over temporal scales (Lindström and Ståhl 2014, p.252). This understanding of design is participatory and thus multiple, "rather than narrowed down to one or more core issues to be passed on to a designer or any other pre-defined institution" (ibid, p.331). Taking up these approaches in my research, for example, I offer participatory reclamation of IoT devices in public

restrooms, sites I found through ethnographic study to be at the same time long contested and easily ignored (discussed further in Chapter 2 and 3). The intervention developed throughout my dissertation provided a means to engage in continued critique of the conditions I observed, while offering partial and contingent responses (that, in turn, offered further insight into the organizational workings of those sites).

Sites: Enterprise, Activism, and the State

Looking into and across sites of menstrual resource development involved studying three key domains: enterprise, activism, and the state. These investigations brought me to an Ohio office park, rural Alabama woods, Seattle homeless shelters, a New York penthouse gallery space, and the United States Capitol (and many more that came between), to gain a sense of the material, political, and social conditions that have given rise to recent efforts to extend menstrual care. Specifically, I examined the practices of custodians and maintenance workers in sites of public restrooms, members of local and national activist organizations, business owners and social entrepreneurs in the space of menstrual product sales, and policy advocates and governmental representatives pushing for change in legislation regarding sales tax on and public access to menstrual products.

Over two years (for a total duration of 6 months), I visited two day centers (spaces offering free access to restrooms, showers, and laundry) in the city of Seattle, WA for weekly volunteer sessions, where I performed tasks such as offering hygiene products (e.g. soap, deodorant, tampons) to visitors and cleaning and restocking the restroom facilities alongside other custodial and maintenance staff and volunteers. I also observed staff of the Seattle public parks and recreational facilities, as well as my home institution's facilities organization, including visiting 46 restrooms. At each restroom site I documented the sorts of objects, resources, and infrastructure (paper towel dispensers, hand dryers, sink) found inside. I used a range of materials to record my interactions, including written jottings and memos, photos (when appropriate) and collected materials (organizational pamphlets and training materials). I also charted this initial fieldwork on a city map, beginning to note the spatial relationships to access. Building on my public restroom facilities observations, I conducted 15 semi-structured interviews (ranging from 45 minutes to 2 hours) with members of the municipal maintenance staff, learning about the processes and political structures that guide their labor and define public hygiene accessibility. In addition, I conducted short interviews (roughly 10-25 minutes) with 35 patrons of several of these sites, during which we discussed the sorts of hygiene

services they sought out when in public, forms inaccessibility they faced, and modes of making due in circumstances when they were without the resources they needed.

Among activist organizations, I observed three Seattle-based groups dedicated to offering menstrual products to those unable to afford them. Over a course of roughly a year, I participated in activities such as assembling kits to distribute (filled with tampons, pads, wipes, and so on), riding along during distribution runs where organizers offered bags to those in shelters or on the streets, hosting two product collection drives, and observing public fundraising events. With an additional group, I took part in advocacy efforts which involved drafting institutional legislation and delivering testimony based on my maintenance observation to the Washington State Senate Ways and Means committee (Washington States' Public Affairs Network 2017). Lastly, I conducted observation with another group (with no single geographic home) over the course of week where I traveled with the organization as they made their way from Birmingham to Atlanta via bicycle, with stops along the way for educational workshops on the adoption and use of reusable menstrual products (e.g. menstrual cups, cloth pads). This involved me driving a support and gear vehicle alongside the cyclists with their video documentarian (also of the group), stopping at designated rest areas to join breaks and meals, and sharing tents and floors with members during the evenings. During each encounter, I recorded my interactions with written jottings, memos, and photos. Building on these observations, I conducted 16 semi-structured interviews (ranging from 1 to 2.5 hours) with these and other organizers from across the United States, learning about their various efforts to affect change and join with others to facilitate the dissemination of educational and material resources related to menstrual health. During later stages of the research, two of these organizations acted as collaborators for the facilitation of a set of design workshops, one in Seattle and the other in Atlanta.

Extending this politically oriented activity, I met with five Congressmembers and two aides of state and US governments, over two visits to the capital in Olympia, WA and one to the US House of Representatives in Washington, DC. With each I jotted notes and drafted memos (I was asked to refrain from taking audio or video recordings). The trip to the DC area also involved a site visit to the now defunct Museum of Menstruation, in the basement of the home of a longtime menstrual product enthusiast and collector in nearby New Carrollton, Maryland. There, I took photo documentation, jotted notes and have since followed up with over 8 hours of interviews with the founder (partially discussed in chapter 7, but which has further evolved into the form of an archival project separate from this dissertation).

Turning to entrepreneurial activity, I observed one Los Angeles, CA based menstrual product social enterprise over the course of a week, which involved me joining meetings (e.g. with marketing consultants), assisting packaging and mailing orders of the company's products, visiting a future manufacturing facility, meeting and working with the company's "giving partner" (a beneficiary of the company's philanthropic mission; described further in Chapter 5), and offering product samples with an employee of the company to shoppers at several local organic grocery stores. Alongside this observation, I conducted 17 interviews (ranging from 35 minutes to 1.5 hours) with social entrepreneurs whose work focused on promoting change to the treatment of menstrual resource accessibility through enterprise-based initiatives. Finally, I visited the headquarters of the largest manufacturer of menstrual product dispensers in the country, where I was given a tour of dispenser models (old and new) and conducted interviews two of its employees (each roughly 1 hour)—one a 35-year veteran, the other a newly hired marketing specialist extending the company's outreach to menstrual activist communities.

To further understand the intersections of these sites, I conducted observation at 4 conferences and trade shows across the US. One was the biennial Society for Menstrual Cycle Research, which draws together an interdisciplinary set of scholars from disciplines such as psychology, anthropology, gender studies, and public health, as well as menstrual product representatives and activists from across the country. In Fall of 2016, I attended the San Francisco stop of the "Taboo Tour," a multi-city panel series organized by the absorbent menstrual underwear company Thinx. I later attended Cycles + Sex Los Angeles, a marketplace and day-long set of workshops, panels, and performances on the topic of reproductive and menstrual health. Finally, I observed Period Conference (Period Con) 2017, a youth menstrual activism meeting in New York City organized by the campus chapter network Period. At Period Con, I also served as a vendor (an experience I discuss in Chapter 8) and a "mentor," which involved me meeting with set of college aged students to discuss reproductive justice and their menstrual activism aims. At each event, I took handwritten jottings, photos, audio recordings, and later formulated memos on my observations.

To contextualize my fieldwork, I collected archival material across each of my field sites, by tracking industry related publications and conferences focused on menstrual health, activism, and facilities management. The items I analyzed included articles and news circulated through popular trade press venues, public social media communications, video recordings of interviews at industry expositions and conferences, crowdfunding pitch materials (e.g. video demonstrations, startup

narratives, and business plan outlines), and “vision videos”—or, “corporate research videos that represent possible future sociotechnical worlds” (Wong and Mulligan 2016).

I analyzed this data thematically using inductive techniques of contextualized grounded theory (Charmaz 2014). This work allowed for me to foreground the emergent forms of menstrual resource accessibility and the public character of its production and circulation (e.g. managerial oversight within public restrooms and the role of maintenance labor). I developed reflexive memos based on my field notes and other empirical materials, iteratively revisiting and refining my interpretations over time. Across later rounds of analysis, emergent foci developed such as my interest in managerial vision, collective care, and “trickle down” or entrepreneurial access.

Dissertation Outline

Through examination of various contemporary menstrual resources, I discuss how social enterprise entrepreneurs, consumers, service workers, and activists become related to one another not only through overlapping aims of improving forms of menstrual care, but also through their evolving roles as beneficiaries, benefactors, proponents, or employees. I then describe how these relationships define the forms of labor celebrated or invisibilized, the resources made available and to whom, and the politics espoused. The first two empirical chapters (Chapters 2 and 3) address governance, responsibility, and IoT in public restrooms, the following two chapters (Chapters 4 and 5) focus on menstrual accessibility through activist and enterprise endeavors, and the final two chapters (Chapters 6 and 7) translate these concerns for collectivist-capitalist relations into lessons on developing and circulating design outputs.

Chapter 1 draws together strands of literature in design and science and technology studies that inform my later empirical analysis, surveying scholarship on entrepreneurialism and care and related themes of commodity and governance. Historical discussions of menstrual product development help highlight middle class ideals on cleanliness, class mobility, and tropes of the self-managed individual that open up discussion of contemporary startup entrepreneurs as elite enterprising users. Design and science and technology studies literature regarding projects of neoliberal enterprise, allow for me to discuss related notions of how social business clients and customers have taken on dual roles as early funders or benefactors

through their associations with menstrual product companies. In drawing together approaches to thinking about and thinking with care, I additionally setup for later discussion on how hygiene resources are negotiated across sites of public restrooms, startups, and activist organizations.

Chapter 2 examines public restroom facilities and the practices of their managers and the manufacturers who develop products to outfit them. I show how hidden moral sensibilities and market logics define and drive these seemingly free and public facilities, including menstrual resources in the form of product dispensers. I follow the rise of internet of things (IoT) technologies in such sites to develop the notion of *managerial visions* wherein forms of governance get produced and reified through these technical artifacts. I find these technologies are poised to meaningfully impact the working conditions of those who care for and maintain public restrooms. I then show how this awareness of the unintended consequences of such technological developments suggests for those within the design community to consider what it would take to combat such market pressures and the inequities they perpetuate (in this case, with the potential to disproportionately affect those who perform service work).

Chapter 3 explores the potential to develop IoT technologies in support of menstrual accessibility. Through the study of restroom maintenance engaging a range of care workers and advocates, I discuss how a functioning menstrual infrastructure is contingent upon on partnerships across different organizational actors. Through the deployment of a device I designed to engage these various sites (and pull back a tight focus from managerial vision), I begin to explore class hierarchies embedded within the maintenance of existing menstrual infrastructure and reframe access as solely a material problem to one that occupies political concern and engages forms of collective responsibility.

Chapter 4 examines participation in menstrual activism—collective efforts to ensure all menstruators have the resources they need regardless of class, race or gender identification—and how different concepts of access get produced and circulated through the programs and initiatives organizers pursue. Among these groups, I find menstrual activism often reflects the empowered cultural status of its organizers. I then discuss how menstrual activism shapes a politics of representation (and a representation of politics).

Chapter 5 broadens the discussion of menstrual resources by considering how a group of entrepreneurs has emerged within the last several years to address some of

menstrual activism's core concerns—from ingredient transparency and the reduction of waste to providing menstrual products to those unable to afford them. Reflecting on their various business practices, I revisit notions of entrepreneurial citizenship and social business to show how these elite actors have begun to redefine the marketplace to promote a sense of “heroism” through profit-making and impose their own notions of menstrual accessibility (here called “*trickle down access*”), in ways that reify existing class hierarchies and subtly avoid oversight or accountability on the promises made in their mission statements or promotional materials.

Chapter 6 asks how collective imagination around the topic of menstrual access might bare different sorts of outcomes than those ordinarily pursued (e.g. delivery of products to those seen to be in need, through collection drives organized by grassroots organizations or corporate donations). To explore this possibility, I organized a series of collaborative design workshops across four sites, from Atlanta to Seattle. Through a series of exercises, attendees took on broader definitions of access and put forth design concepts focusing on performative, sensorial encounters and collectivist interventions. Through this discussion, I identify alternative methodological pathways that involve new ways of convening design engagements, gathering people together to think with and through design and making practices.

Chapter 7 describes experimentation with the circulation of concepts that emerged from the workshop series. Leveraging the commercial format of the catalogue, I sought to create a set of encounters beyond these site-specific and time bounded events to encourage further discussion and idea generation through a dynamic booklet. In thinking with and through the catalogue, those who engaged with it read its *pericapitalist* position, a notion put forth by anthropologist Anna Tsing to describe efforts on the periphery of capitalist ventures (Tsing 2017). They also recognized the partiality of the proposals it featured by imagining extensions and revisions and introducing altogether new rhythms to the process of design.

Chapter 8 concludes the dissertation by discussing what might appear mundane or instrumental—for instance, menstrual products, their public distribution, and the care labor that sustains them—as integral to material and social innovation. By looking at the periphery of IoT usage, for instance, my work pushes back on an inclination to propose single technological solutions for all, to instead offer partial responses (both in the variety of ideas put forth and the methods taken up). Together these contributions provide conceptual scaffolding toward efforts to design adaptable, community supported, and collaboratively maintained resources.

Chapter 1

Enterprising Care

In the chapter that follows, I bring together strands of literature from design and science and technology studies that inform my later empirical analysis. Specifically, I survey scholarship on entrepreneurialism and care and related themes of commodity and governance. I start by outlining historical discussions of modern menstrual product development and how US women were convinced by a series of advertising and outreach campaigns to take up the new items and devices into their daily practice. This literature highlights middle-class ideals on cleanliness, class mobility, and tropes of the self-managed individual, which relate to later discussion of contemporary entrepreneurs as elite subjects who leverage continued menstrual inconvenience to form startups. Design and science and technology studies literature regarding projects of neoliberal enterprise, allow for me to discuss related notions of the social business and how clients or customers of such companies have taken on dual roles as early funders and benefactors. In drawing together approaches to thinking about and thinking with care, I setup for later discussion on hygiene resources across sites of public restrooms, startups, and activist organizations with a lens of “unsettling” (a concept I return in more detail in the final section of this chapter), or efforts to contend with hegemonic relations of care regimes through both critical and interventionist engagement (Murphy 2015, 2012).

Becoming Modern through Industrial Menstruation

Scholarship on the cultural aspects of menstruation in the US has largely focused on the ways in which stigma and shame around the bodily process has been perpetuated by ‘menstrual etiquette’ (Laws 1991; Delaney, Lupton, and Toth 1988) and advertising and packaging of sanitary napkins (Ginsburg 1996). Sociologist Sophie Laws describes ‘menstrual etiquette’ as “a set of social practices which express and reinforce the distinctions between people of different social statuses” (Laws 1991, p.16). These are the processes people undertake to hide, what design historian Rebecca Ginsburg calls, “the fact of their periods” (Ginsburg 1996, p.365) from others, especially those who do not menstruate. Similarly, she notes, typical packaging does little to indicate the physicality of the objects inside or the reality of having a period.

Instead, these practices and the surrounding artifacts support obfuscation. Ginsburg thus suggests when studying menstruation, or with practices of marginalized groups more generally, it is often important to study that which might at first be invisible, in addition to other more evident sources of information.

According to historian Lara Freidenfelds (2009), Progressive values helped shape current menstrual management attitudes and practices in the United States. In *The Modern Period*, she weaves archival research with oral histories from women and men during this period to argue that the adoption of industrialized menstrual products became a means to cultivate a middle-class identity. She explains the technology was meant to support a “well-controlled body that would not leak, smell, hurt, cause anxiety, appear unfashionable or lose efficiency (productive or reproductive) at inopportune moments” (Freidenfelds 2009, p.2). New “experts” of the progressive era—sex education programs, menstrual product advertisement, and free menstrual health pamphlets—heralded in these ideas of self-presentation and control. Particular scrutiny was placed on women who were entering the workforce for the first time. These new methods of management “allowed them to work, study, and play as efficiently all month as they and their bosses, teachers, friends, and partners hoped” (Freidenfelds 2009, p.7). In support of efficiency and control, these new products contributed to efforts of ‘passing’ as a non-menstruating person, according to historian of technology Sharra Vostral (2005), and assimilating more easily into settings that had not welcomed them previously.

Freidenfelds notes these new disposable products were in many ways more practical and convenient than the methods used before (sewing, washing and reusing cloth), given changing expectations about which activities could be performed during menstruation. But in adopting these new technologies, women took on different management practices. For instance, working class families had to refigure their budgets to include the added monthly cost and ‘become modern’ in their willingness to throw things away. Efficiency was the goal here, but this did not mean that products were perfect to use off the shelf. In their study of industrial engineer Lillian Gilbreth’s 1927 survey for Johnson & Johnson, historians of technology Fouché and Vostral (2011) note few women reported being satisfied with the products on the market at the time. Instead, they often modified or ‘hacked’ pads to fit their own bodies. Repurposing instructions on disassembling pads for flushing, they shortened the tabs, cut corners, thinned the filler, or applied cold cream or Vaseline to the edges of the gauze. Here again new practices of maintenance were developed around the use of these new products.

Eventually, with findings like Gilbreth's, products were redesigned to be worn more comfortably and tampons became a popular option among women in the US. According to Freidenfelds, these new approaches to menstrual management became so widely accepted by the 1960s that even countercultural movements of the time did not disrupt them. Frank conversations around the body, use of birth control pills, and the sexual revolution only enhanced ideas of the well-maintained modern body.

This body of historical research accounts for the practices of those both marketing and using industrial menstrual products. This discussion covers corporate maneuvers to convince a nation of consumers to adopt these new products and revise management practices to align with their use. However, one central difficulty remains: what lies beyond an individual's relationship to a particular product? As STS scholar Puig de la Bellacasa describes, "neoliberal governance has made of caring for *the self* a pervasive order of individualized biopolitical morality. People are summoned to care for everything but, first and foremost, for 'our' selves, our lifestyle, our bodies, our physical and mental fitness" (Puig de la Bellacasa 2017, p.9). Over the following section I ask, how do practices of menstrual care relate to broader questions of governance and citizenship? And how, in turn, are those relationships mediate by notions of class hierarchy?

Redesigning the menstruating body

Today, notions of the liberated body through use of industrial menstrual products are still promoted through the communication strategies of contemporary startups. During crowdfunding pitches for the absorbent menstrual underwear Thinx, for instance, CEO Miki Agrawal describes the need for products that fit within "active" lifestyle. Charting the origin of the product as stemming from her own experience staining a white skirt while in a business meeting (presumably in one of her former positions as a financial analyst or restaurateur), she identifies the menstrual process as a disruption to her otherwise advantaged, fully functional work life. Founder of Flex, Lauren Schulte, touts for the ability of the company's menstrual disc to be worn during intercourse, revolutionizing women's lives by enabling "mess free period sex" in a manner undetectable by one's partner(s). The liberated body, in these cases, is one that can invisibly manage its fluids to achieve pleasure or professional fulfillment. Both products propose material enhancements that create better, more convenient "techno-bodies," in the words of media studies scholar Anne Balsamo—or, those made "more real than real" through technical extension (Balsamo 1995, p.216). These technologies reinforce a fixation on practices of personal hygiene and allow for their users to be cleanly living, docile creatures.

Not immediately evident in this refinement of the menstruating body and its care are the disciplinary and surveillant consequences of these technologies, or the "biopolitics" they extend (Foucault 2010). What is to be made of the body that leaks, when there are so many products that promise to guard against such circumstance or when the body is made to appear so easy to manage? A recent American Civil Liberties Union suit described a case in which Alisha Coleman was dismissed from her decade long position as a 911 call taker in Fort Benning, Georgia for her supposed inability to "practice high standards of personal hygiene" (Chandler 2017) after experiencing two incidents of sudden-onset heavy menstrual flow (for her, a symptom of perimenopause), which resulted in stains to an office chair. Andrea Young, ACLU of Georgia executive director, citing unlawful workplace discrimination legislation,² argued instead, "employers have no business policing women's bodies or their menstrual cycles" (American Civil Liberties Union 2017). In a related case, model Rachel Rickert reported being dismissed from her role representing the car manufacturer Hyundai at the New York International Auto Show after asking for time to clean her stained uniform. She was told to instead leave the hourly position early to deal with her "period situation" and later let go from the job entirely (Marsh 2017). Across these examples, we see how these visions of the perfectly managed body through menstrual technology become differently issued across class lines, with some having more latitude to address breakdowns when they occur. For Agrawal and Schulte leaks were an opportunity to disrupt a \$15 billion menstrual care marketplace, for Coleman and Rickert they were grounds for firing—celebrated when they help realize an enterprising subjectivity in elite subjects, punished when they are the result of a perceived lack of self-governance.

Managing the self, Managing the Nation

This notion of individual responsibility resonates with discussions on governance and a neoliberal logic that promotes visions of the "self-enterprising citizen-subject" (Ong 2006, p.14), or one who abides by an ethic that populations should be free, self-managing, and self-enterprising. Building on the work of historian Michel Foucault anthropologist Aihwa Ong (2006) argues that the proliferation of techniques to remake the citizen-subject through neoliberal governmentality runs through different spheres of everyday life and involves a range of practices that "constitute, define, organize, and instrumentalize the strategies that individuals in their freedom

² The suit cites Title VII of the Civil Rights Act, which prohibits workplace discrimination on the basis of sex.

can use in dealing with each other” (Foucault 1984, p.130). These practices are the outcome of market driven philosophies and policies that emphasize the role of private enterprise in society through the promotion of free market trade, austerity, and governmental deregulation. Within this milieu, practices of maintaining the self and adherence to normative ideas of self-care become of particular importance.

Ong describes neoliberalism as a malleable technology of governing that is taken up in different ways by different regimes (e.g. authoritarian, democratic, or communist) and among socio-political circumstance.³ In these settings, “governing activities are recast as nonpolitical and nonideological problems that need technical solutions” (Ong 2006, p.3). Ong argues for tracing these neoliberal technologies to a Foucauldian biopolitical mode of governing that centers on the capacity and potential of individuals as living resources to be harnessed and managed by governing regimes. Ong outlines two such technologies: technologies of subjectivity and technologies of subjection. The first relies on expert knowledge systems to encourage self-government among citizens who optimize their own individual choices and competitiveness in uncertain market conditions (e.g. adherence to health regimes, individual skill-building, and development of entrepreneurial ventures). The second, technologies of subjection, inform state strategies that regulate populations to encourage what they deem optimal productivity (e.g. control of travel, recruitment of certain kinds of skilled actors to “growth hubs”).

Gender studies scholar Carla Freeman further describes entrepreneurialism as a project of self-making, rather than simply a means of self-employment (i.e. a mechanism for income generation) (C. Freeman 2014). Through ethnographic study⁴ among middle-class entrepreneurs from various sectors of the Caribbean economy, she finds a “manner of life” where individuals not only embody neoliberal ideals in business pursuits (e.g. mobility, flexibility), but also through the formulation of their entrepreneurial selves – an affective position in which one passionately pursues economic endeavors and bears individual responsibility for any hardship or failure. Freeman argues the success of neoliberal capitalism lies in its ability to be made “local” in the contexts where it takes root.

³ This position is set in contrast to early critiques in which Ong suggests these ideas are wholly applied in various contexts (see also (Harvey 2007)).

⁴ Similar to Ong, Freeman notes the thickness of cultural specificity available by means of ethnographic study allows for examinations of neoliberalism as felt differently across spatially, politically, and culturally disparate contexts.

Discussing precarity and the development of entrepreneurial subjects, communication scholar Gina Neff highlights the celebration of entrepreneurial attitudes such as flexibility and risk among workers around the dot-com boom era United States (Neff 2012). Silvia Lindtner further illustrates how contemporary promises around “making” in the city of Shenzhen, offer a means to intervene on precarious labor conditions and to open up innovation thinking beyond the realm of an elite few—in turn, promoting forms of “entrepreneurial living” (Lindtner 2017).

Individual responsibility realized through commercial engagement is a phenomenon not solely in realm of entrepreneurship. Consumption too has increasingly become an important site of political activity, embraced as a platform for progressive projects and embodying its own form of governance through marketing logics. Historian Joshua Clark Davis charts the development and lifespan of activist businesses setup to support countercultural movements of the late 1960s and 70s (e.g. feminist businesses, African American book stores, headshops, and organic grocery stores) (J. C. Davis 2017). He describes a sort of experimental relationship between social movements and capitalism by showing how activists took up certain practices of commercialism—such as small businesses, shared ownership, limited growth, and democratic workplaces—and offered alternatives to conventional profit-driven corporate business models. He describes these companies as being formed to fund their respective political organizations and causes, pursuing capital accumulation as a mode of coalition building and sustainment. Through the products they advertised and sold, they built upon the radical impulses of the counterculture to market political dissent and make it newly available to an audience of consumers. The feminist mail-order business Liberation Enterprises, for instance, printed slogans such as “Fuck Housework” and “Susan B. Lives” on aprons and t-shirts. The role of the consumer was then to finance movements and spread their messages far and wide. Though many of the sites Davis describes are now closed, he argues the “most enduring legacy [of these businesses] is the language of liberation and social change they passed on” (Davis 2017, p.5), now seen in the rhetoric of social enterprise or mission-driven business promoted today.⁵

In their introduction to the edited volume *Commodity Activism*, communication scholars Sarah Banet-Weisser and Roopali Mukherjee (2012) argue that this form of commercially driven activity is both symptomatic of and responsive to a political and historical moment in which the pull of neoliberalism occupies radical imaginaries

⁵ An argument also put forth by communication scholar Fred Turner (2006) with his analysis of the enduring legacy of Whole Earth Catalog, discussed further in Chapter 8.

(what they term a “commodity creep”). Within this context, citizen-consumers are called to “act politically but through their consumer behavior” (Mukherjee and Banet-Weiser 2012, p.39)—for instance, through buying particular products or expressing loyalty through engagement with brand platforms or social media campaigns. The role of the brand is to build a culture around it, to broker affective relationships with consumers. Within this milieu, ideologies such as feminism are emptied of their political valence and offered to consumers as commodities (Goldman, Heath, and Smith 1991)—while once women’s empowerment, for instance, might have been seen as antagonist to consumer capital, it is now viewed as representing new market opportunities or an opening for further capital accumulation.

Discussions on neoliberal governmentality and citizenship have more recently emerged within the fields of interaction design, spearheaded by communication and human-computer interaction scholars Lilly Irani (Irani, Dourish, and Mazmanian 2010; Irani 2018, 2015), Seyram Avle (Avle, Lindtner, and Williams 2017; Lindtner and Avle 2017; Avle and Lindtner 2016), Silvia Lindtner (Lindtner 2017; Lindtner and Lin 2017; Lindtner, Bardzell, and Bardzell 2016), and colleagues. Through years of ethnographic research in Ghana and China, Avle and Lindtner argue in addition to technology as a tool of governance used to shape how nation-states control populations and resources, proximity to technology development is also used to cultivate citizens as technology entrepreneurs and innovators (Avle, Lindtner, and Williams 2017). Through their capacity to contribute to economic growth by means of technology development, design and innovation are deployed as forms of nation building, contributing to global aspirations, desires for reputation, and legitimacy (Avle and Lindtner 2016). Avle, Lindtner, and Williams further describe how the use of popular design methods originating in the U.S. are viewed as replicable modes of empowerment across entrepreneurial efforts in Ghana, China, and Jamaica, impacting individual and collective identity, reputation, and access to financial resources. An aspirational positioning can also be seen in Irani’s account of the efforts of members of an Indian design firm to act as their international clients expect, through material and infrastructural practices (e.g. taking up legible tools such as sharpies or post-it notes) in ways that contribute to their negotiation, access, and participation in transnational design communities (Irani, Dourish, and Mazmanian 2010).

The methods of design are used also as a means for addressing issues of civic concern, in Irani’s account of middle-class efforts to promote social process through

software development during a Delhi-based hackathon⁶ on “open governance” (Irani 2015). Manufacturing a sense of urgency and cultivating optimism, the event encouraged the production of ‘demos’ or discreet executable products through “quick and forceful action with socially similar collaborators” (ibid, p.801). Rather than supporting the slow, careful, or contestational work that might be representative of mass democratic engagement or coalition building, the hackathon elevated the role of the “entrepreneurial citizen” who moves past such activity toward experimental design projects (that may or may not come to fruition).

Menstrual Development as Nation Building

Tales around the Indian inventor Arunachalam Muruganatham, a celebrated figure within the contemporary menstrual space (activist, entrepreneurial, and political activity around menstruation), resemble these characterizations. When newly wed to his wife, Muruganatham was surprised and disappointed to learn that she used rags to collect menstrual blood each month to avoid imposing the cost of industrially produced pads on the family budget. Determined to develop cheaper alternatives, Muruganatham set out on a multi-year mission that cost him personal relationships and professional reputation. Yet, he prevailed to build a low-cost sanitary napkin machine that became widely used across the region. His story on empathy-driven ingenuity and individual will through this social enterprise became widely celebrated, shared in the format of a TEDx talk given by Muruganatham himself (Muruganatham 2012), the 2014 TIME Magazine’s 100 Most Influential People list (Hoeweler 2014), and later adapted for screen through the big budget Bollywood production *Padman*. Within these narratives, Muruganatham embodies the entrepreneurial citizen as a driver of social change with the role of lessening the financial burden of menstruation, while taking on the long held societal stigma. These stories traveled to other countries, inspiring social entrepreneurs who sought to recreate his success elsewhere. For example, Conscious Period founder Annie Lascoe and policy advocate Jennifer Weiss-Wolfe (both based in the U.S.) chronicled their visit to Muruganatham in a 2015 New York Times op-ed (Weiss-Wolf 2015), describing Lascoe’s desire to import the technology, in order to set up a manufacturing operation that would provide pads to homeless women in Los Angeles. This account partly shifts commonly held notions on the flow of innovation—typically, from the West to elsewhere—though the origins of the design genius still rest with an individual inventor.

⁶ A hackathon can be defined as a rapid and voluntary production sprint enrolling the labor of designers and technologists, increasingly read as a “transnationally legible [emblem] of innovation” (Irani 2015, p.801).

IoT and Algorithmic Governance

Within communities of design and HCI, discussions of the array of interconnected devices known as internet of things (IoT)—networked objects embedded with computational capacity—have recently foregrounded the range of practices such devices mediate, support, and extend. Design investigations of IoT propose figuring digitally-mediated collaboration as situationally tied to emerging forms of data collection, analysis, and codification. Robertson and Wagner (2015), for example, examined the potential for cooperation between objects, space, and human actors, they sought to shift discussions from a narrow focus on smart objects to a wider examination of objects that contribute to collaborative action. Fischer, et al. (2017) used their deployment of an IoT system for the monitoring of energy consumption to examine how energy advisors with a sustainability center in the UK and their clients collaboratively perform data work. The authors argue developers and designers, "cannot simply install a bunch of sensors, collect and process the data, and produce a situationally relevant and actionable answer" (ibid, p.619) instead the social and relational qualities of the IoT data must be considered at the onset.

A related body of design scholarship has built on these insights, looking inside and beyond the technologies employed. Among personal devices, regulatory questions have begun to take root in work by Houston, Jackson and others around the right to repair movement where new regulatory structures may support the need for consumers to take apart and fix an escalating number of devices (without violating their warranties) (Houston and Jackson 2016; Houston et al. 2016; Jackson, Steinhardt, and Buyuktur 2013). The concern for market logics encoded within technologies pervades recent literature within communication and science and technology studies that highlight the potentially pernicious consequences of algorithmic platforms. Scholars such as Safiya Umoja Noble (2018, 2013), Brendesha Tynes (Noble and Tynes 2016), Anna Lauren Hoffman (2018), Kate Crawford (Crawford 2016; Crawford and Calo 2016) and others have surfaced ongoing tensions between the systems that artificial intelligence firms produce and the inequalities they may inadvertently obscure and deepen. Far from "neutral," Google search algorithms, Nobel shows, further marginalize oppressed groups such as women of color (returning a search for "black girls" with pornographic content, for example) (Noble 2013). As researchers and designers, these scholars argue, we face new obligations around subverting market logics in order to protect those whose data on which they draw and profit.

In a parallel body of scholarship, design researchers have increasingly helped articulate and imagine the possibility of a civic internet of things (IoT) – connected devices distributed throughout a city that contribute to public engagement, governance, and coordinated action. A range of recent work explores the incorporation of IoT devices and infrastructures into the fabric of public life— from pollution sensing (Kuznetsov et al. 2011) to foraging (DiSalvo and Jenkins 2017)— giving new momentum to the phrase “smart cities.” Carl DiSalvo and Tom Jenkins, for example, adopt feminist scholars J.K. Gibson-Graham’s notion of “communing” to challenge the narrow positioning of IoT and other sensing devices within diverse economies such as foraging (Gibson-Graham 2006). Instead of reject sensing devices around communing, they write, “what is needed is careful attention to how they configure experience and agency, and perhaps, imagine ways they might in fact contribute to an even richer understanding of nonhumans in diverse economies” (DiSalvo and Jenkins 2017, p.550). With this work, they point to the responsibility involved in such design interventions.

Menstrual Accounting

Operating alongside such concerns, researchers have long highlighted activism for the here and now of technology development. Susan Leigh Star famously highlighted the concept of invisible work after doing what she terms “feminist activist work,” unpaid housework that puts laborers, often women, into the role of an “unseeable” domestic servant (Star and Strauss 1999). For HCI, this concept draws attention to expropriations and power discrepancies that design researchers may help expose (Irani and Silberman 2013), resonating with early participatory design orientations focusing on re-centering devalued forms of labor practice in the face of authority and power differentials (Ehn 1990). Embodying this commitment, designers Epstein et al. offered an analysis of the motivations and methods behind the use of period tracking applications and put forth several key design considerations, from improving the app’s accuracy to avoiding gender stereotypes within interface design (Epstein et al. 2017). Søndergaard and Hansen moved this conversation to the realm of the speculative with PeriodShare, a connected menstrual cup that quantifies and shares menstrual data automatically, reflecting on the contemporary and near future politics of intimate forms of self-tracking (Søndergaard and Hansen 2016). Together these works have offered a glimpse into the range of considerations that design research on menstruation might take up—from those oriented toward the whimsical, to the sociocultural, to the practical.

Thinking about Care, Thinking with Care

“Care” is a topic of perennial interest to fields of anthropology, science and technology studies (STS), design, and human-computer interaction (HCI). Within recent STS and design studies literatures, discussions of care and maintenance have challenged the inherent goodness that such terms tend to imply. For instance, scholars have used the concept of care to argue that people cannot overlook the impacts of our (socially or materially) consumptive or exploitative practices (Puig de la Bellacasa 2017). By examining caring labor or engaging in theoretical debates on “thick caring” as a means of addressing a critical distance in scholarly discourse, researchers take up concerns for care as a means to take seriously entanglements of political, sociospatial, and environmental relations (Puig de la Bellacasa 2017; Murphy 2015; Ticktin 2011).

Design scholars have long examined the collaborative practices surrounding both emergent and aging systems and the power relationships in which such systems intervene. Early studies of digital maintenance include Julian Orr’s (1996) rich accounts of Xerox machine technicians and the skilled, improvisational nature of their expertise. Lucy Suchman later outlined the tradeoffs of rendering certain aspects of work practices visible to others within organizations (Suchman 1995). Star and Strauss (Star and Strauss 1999) expanded this argument, elaborating the circumstances surrounding different labor conditions and describing how increased invisibility may also come with potential burdens of communication and opportunities for surveillance. For example, the challenges of trying to make nurses’ work demonstrable while retaining important aspects of its ambiguity and the use of discretion (Bowker and Star 2000). More recently, Raval and Dourish describe how ridesharing platforms such as Uber or Lyft—platforms purportedly offering workers more freedom and autonomy than traditional work environments—transform driver’s working relations by invisibly calling on them to make use of their own bodies, own possessions, as well as emotional and affective resources in order to earn a living (Raval and Dourish 2016).

The growing interdisciplinary field of maintenance and repair studies broadens these lessons by upholding a commitment to thinking of design as only one moment within the long-term lifecycle of computational goods. Daniela Rosner and Morgan Ames describe breakdown and subsequent repair as emergent and shaped by its social, material, and political conditions. “Negotiated endurance,” as they describe it characterizes the, “processes by which different actors – including consumers,

community organizers, and others – drive the ongoing use, maintenance, and repair of a given technology through the sociocultural and socioeconomic infrastructures they inhabit and produce” (Rosner and Ames 2014, p.319). Important for my later discussion on the work of maintenance labor, Jérôme Denis and David Pontille recently enumerate the regimes of practice that make up repair, including mending, repairing, fixing, restoring, preserving, cleaning, recycling, and up-keeping. Turning to the regime of things, they write, “maintenance enacts what we might think of as two-sided objects, fragile in the eyes and hands of maintainers, reliable in the eyes of users” (Denis and Pontille 2017, p.2).

Within science and technology studies (STS), the social and political conditions of care have garnered renewed critical attention over the last several years, notably with the work of Michelle Murphy, Maria Puig de la Bellacasa, and a recent edited volume (Martin, Myers, and Viseu 2015). Puig de la Bellacasa argues care is not confined to settings historically observable to STS, such as healthcare or the maintenance of technological artefacts, but rather care can potentially be found in any context (Puig de la Bellacasa 2011). These positions move away from earlier definitions such as that of political theorist Joan Tronto, who describes care as including “everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible” (Tronto 1993, p.103). Instead, this recent conversation aligns with perspectives that push against holistic characterization. STS scholar Maria Puig de la Bellacasa questions, “Is [care] an affection? A moral obligation? Work? A burden? A Joy? Something we can learn or practice? Something we just do? Care means all of these things and different things to different people, in different situations. So while ways of caring can be identified, researched, and understood concretely and empirically, care remains ambivalent in significance and ontology” (Puig de la Bellacasa 2017, p.1). This ambivalence is further reflected in theoretical debate that takes on a reflexive character:

What is the caring work of criticism, of historicizing and situating, of tracking non-innocent genealogies, of making uneasy, of troubling, of unsettling? By picking out unsettling as a generative task within the politics of matters of care in technoscience, I hope to introduce into the conversation the following: (1) the urgencies of transnational, postcolonial, and anti-racist analytics, for which to unsettle is a disruption to non-innocent narratives of belonging and a challenge to gestures of rescue, sympathy, and occupation that too often recapitulate colonial legacies, and (2) the work of disturbing and setting into motion sedimented arrangements of valuation and devaluation.

(Murphy 2015, p. 721-722)

Murphy's comments set investigations of care within a backdrop of historical entanglements among complex terrain of empire and capital. This approach can be contrasted with a focus on the actualization of care-work, from Tronto and others, wherein care might be focused on care-giving and -receiving practices. Rather than seeing care as inherently oriented toward good, Murphy argues "itineraries of care" can service or be driven by colonial projects. Through a method she terms "biopolitical topology" (reformulating Foucault's genealogy), Murphy offers a textured re-reading of the work of 1970s feminist health activists as forms of technoscience and biopolitics in action. In the movements' outgrowths and the circulation of the do-it-yourself health interventions they produced, their project become entangled with Cold War politics (e.g. the militarization of fertility, or fighting the "population bomb"), US imperialism, the rise of NGOs, and industrialized medicine. Similarly, Mariam Ticktin describes an "anti-politics of care" along the French border the late 20th century, where humanitarian efforts functioned as a transnational system of governance, regulating immigration while proclaiming to be apolitical (Ticktin 2011). Particular sorts of conditions (e.g. medical conditions such as AIDS) invoked compassion and later legal residency status, while others (i.e. insecure labor conditions) were denied—highlighting geopolitical implications of care.

In an effort to unsettle a critical distance typical of scholarly work, Puig de la Bellacasa calls for a turn from Bruno Latour's notion of "matters of concern" to "matters of care" (Puig de la Bellacasa 2011; Latour 2004). Latour's approach seeks refocus analytical attention from matters of fact—described as "run out of steam" through endless cycles of debunking—to matters of concern, which center on contestable, social, and political assemblages. Drawing on Haraway's work on situated knowledges (1988), Puig de la Bellacasa identifies care as an ontological requirement of relational worlds and advocates for "thick, non-moralistic ways of caring" to be folded into engagements with technoscience as world-making practice—or, the doings of thinking and knowing. Rather than the application of established theory, this approach involves active rethinking and unsettling.

"Matters of care," according to Puig de la Bellacasa, are attuned to the affective conditions through which things come to matter and to invisibilized or marginalized relations (Puig de la Bellacasa 2011). A caring account is not composed of critical cuts meant solely to promote contestation, but also to foster a transformative ethos, with material implications for human and more than human worlds. To demonstrate, Puig de la Bellacasa reads Lucy Suchman's (2007) critical engagement with AI as a matter of care by highlighting the ways she calls attention to and creates concern for

how emergent human-machine arrangements could further dismiss already uncounted relations. The meaning of care, in this context, is a commitment of political significance involving an attempt on Suchman's part to "share the burden of stratified worlds" (Puig de la Bellacasa 2011, p.94) where speculative ethics on caring labor relations are brought to bear—not simply for scholarly fodder, but to affect some sort of change.

Building on these traditions of thinking about and thinking with care, in Chapters 2 and 3, I offer a discussion of restroom maintenance practice as it plays out on the ground among municipal workers across the city of Seattle. I also chart the close by and sometimes far off regimes that guide such work. In looking to emergent sociotechnical arrangements around internet of things (IoT) technologies in the space of public restrooms, I examine how the managerial gaze is extended and certain maintenance practices are poised to be invisibilized or made further precarious by this turn toward data governance.

Drawing on this critique, I use forms of participatory methodology (Lindström and Ståhl 2014; Rosner 2018) to recuperate design and technology in these settings in attempt to generate more collective, partial responses from those who assemble them. In doing so, I ask the following question: If we view menstrual resources as living things, being constituted and reconstituted through use and maintenance, what opportunities might we find for intervening on how they currently operate? This experimentation is described throughout chapters 3, 6, and 7, in the form of prototyping new sorts of devices, facilitation of collaborative design workshops, and the production and circulation of a catalogue to prompt further dialogue, debate, and organization.

Enterprising Menstrual Care

In summary, this chapter has surveyed literature on modern menstrual practices, entrepreneurialism, care—related to themes of citizenship, commodity, governance—and methodological reclamation in design and science and technology studies. I found that discussions of menstrual product adoption surface middle class ideals on cleanliness and class mobility and tropes of the self-managed individual. Across Chapters 2,3, 4 and 5, I build on and complement these discussions by charting the linguistic maneuvers of contemporary entrepreneurs with aims to "disrupt" the marketplace with new products and among of activist seeking to redistribute to existing resources. Through my examination of these collectives, I investigate how in

taking up these missions they reshape menstruation and reinforce notions of hygiene as civic duty. I further discussed design and science and technology studies literature on entrepreneurialism and the neoliberal enterprise. In Chapters 4 and 5, I show entrepreneurial modes of change making and care are not only contained within the work of those who lead or are employed by these companies, but also in activities of consumers who crowdfund campaigns or enroll in subscription services sight unseen (or tampon untried) in an effort to broad social causes (e.g. destigmatization, tax reform, and international development).⁷ Finally, in chapters 6 and 7, I built on notions of care regimes and “thick” caring to identify forms of design-based interrogation that hold potential for pushing back on dominance structures. The following chapter discusses how ideas of governance and access are negotiated in practice among those who use and maintain public restrooms.

⁷ Critique of the politics of foundations and multi-national nonprofits include discussion of how the funding of large-scale aid projects is defined by the beliefs and desires of wealthy individuals, rather than democratic processes (Aschoff 2015; INCITE! 2017).

Chapter 3

Managerial Visions

Early on in my research, activists and advocates frequently described public restrooms as both incredibly important and unreliable to those with unstable access to housing. During one conversation, a volunteer at a local day center recalled her own attempts to gain access to restroom facilities while she herself was experiencing homelessness. It was particularly difficult when the weather turned, she told me. Starting in the late fall for the length of several months, a large portion of Seattle public parks were blocked off or locked to prevent use. This process was called “winterization.” Facilities managers I spoke with told me they did this to turn off the water supply, in order to avoid replacing pipes that might burst due to freezing. Several custodians contradicted this description, saying instead it was a way to cut down labor costs by hiring only a few maintenance workers full time and supplementing with seasonal workers during the summer months. Further conversations only complicated the facilities managers’ narrative, prompting me to question: Why were restrooms difficult to access? What was behind decisions to extend or deny such admission? Why were certain items like toilet seat covers frequently featured within restroom stalls, while tampons and menstrual pads were rarely present?

In this chapter, I begin to respond to these questions by turning attention to the forms of governance that propagate public restroom facilities through the practices of those who manage and maintain these sites and the manufacturers who develop products to outfit them. This research draws on ethnographic fieldwork spanning several years, including a wide range of interviews and observations with members of facilities staff at parks, community centers, and homeless shelters, as well as representatives of industrial restroom product distribution firms. To contextualize this empirical work within wider media narratives, I complement interviews and ethnographic material with the collection and analyzing of marketing materials and promotional videos from multi-national “personal care” infrastructure corporations.

Over the course of research, I found internet of things technologies (IoT)—or, connected devices imbued with computational capacity—at first seemed distant and fantastic within these sites, but became increasingly close to hand through the

imaginings of far off hygiene product manufacturers that guide local care efforts. By detailing how corporate and municipal bodies co-opt such technology, I show how different actors (e.g. managers, custodians, corporate actors) work out the classed nature of restroom labor. These observations offer a glimpse into the coordinated work of facilities care, suggesting that managerial visions at different levels of influence and at different degrees of proximity guide local care efforts and define access to public resources. I also detail how actors produce new computational fixtures and functionalities designed to propagate forms of compliance. For instance, I found a tendency for newly implemented systems such as Internet of Things (IoT) technologies to perpetuate middle class ideals of cleanliness and promote a workplace order aligned with managerial concerns. Through their intermingling, actors adapt such computational systems and use them to articulate the importance of efficiency in a changing labor market, ultimately reinforcing existing class hierarchies. In examining these transformations, I expose the ideals that develop in these sites through service work, uncovering a technological vision of labor management that has begun to consume it.

A Closer Look at the Public Restroom

“[...] a lavatory is not simply a technological response to a physical need, but a cultural product shaped by complex and often competing discourses on the body, sexuality, morality and hygiene. In other words, far from being neutral or self-evident, the planning of conveniences is informed by a set of historically and culturally specific notions that are loaded in gender and class terms”
(Penner 2001, p.36)

To understand the emerging role of IoT in restroom facilities, I first put the study in historical context. As design historian Barbara Penner explains, the configuration of public amenities is not self-evident. It reflects historically specific assumptions, expectations, and moral codes. Far below the surface, legacies of development among government municipalities and corporations often invisibly shape the prospects of technical intervention. In what follows, I briefly trace this entanglement of public restrooms with wider sociopolitical and economic forces, discussing the nature and depth of these shifts over the last century. In doing so, I surface the underlying logics that guide restroom development and briefly discuss how activists recognizing inequitable power relations have challenged the naturalization of this order.

Public Restrooms and Their Weighted History

Dating back to the end of the 19th century, political actors in the United States have used legislation regulating the design of public restrooms to promote certain moral ideology around hygiene and define the movement of bodies through society. At the turn of the century, a series of coinciding factors—the centralization of factory labor and associated waste, the emergence of new plumbing technology, and the proliferation of the microorganism-centered “germ theory” around the Cholera panic—prompted U.S. regulators to push for improved sanitation throughout professional sectors. Where factories once offered temporary restroom facilities or none at all, such worksites now installed permanent restrooms (Kogan 2007). Envisioned as fixtures of a newly industrialized society (a workplace culture that liberated women’s labor from the domestic sphere), restroom developers separated women’s restrooms from those of men in order to explicitly preserve a veil of decency and modesty on the factory floor. Buttressed by “separate sphere” laws restricting work hours and requiring rest periods for women, the construction of public restrooms became a means of extending gendered divisions of labor and upholding values newly troubled by the movement of women out of the home.

During the Jim Crow era, legislative measures again worked in concert with facilities design to delimit public restroom use. Driven by racist fears—imagining white women would contract syphilis by sharing toilets with black women or that the congregation of white and black residents in public restrooms would eventually lead to interracial marriage (and thus threaten “whiteness”) (Godfrey 2003)—state laws required buildings to feature “reasonably accessible and separate toilet facilities” (U.S. National Park Service 2015). Municipal actors imposed architectural limits to access through isolation and partitioning: constructing inferior and segregated facilities for black residents and implementing subversive techniques such as the “basement solution,” the placement of restrooms in out of sight locations such as basements or next to janitor supply rooms (Weyeneth 2005). Here, the design and management of restroom facilities supported efforts of segregation under the guise of protecting of privacy, disease prevention, and care for particular bodies (namely, those of white women).

Differential Access by Design

This historical entanglement of restroom facilities with uneven access pervades the design of restroom facilities themselves. Up until the 1970s, many public restroom facilities in the U.S. required payment of a fee (a practice still prevalent in countries around the world). Companies such as Nik-O-Lok manufactures locks for toilet stall doors and distributes the locks through contracts with municipal governments and

small business owners. Trade advertisements for the lock service make known the industry's stance on the accessibility of these sites, guaranteeing "coin locks keep out the trash" (Wiggins 1973), and insisting (as stated by Nik-O-Lok's competitor Rowse's), "[...] a toilet is not a right, but a privilege offered by a locality [...] Sure, it's a necessity. But that doesn't make it free. There's nowhere you can get free food, nowhere you can get free burial expenses, nowhere you can get free clothing" (Franckling 2974). Despite this claim, some restroom resources such as urinals remain free and open for use. Then-California Assemblywoman March Fong Eu made this observation when she successfully argued that fee-based restrictions on toilet use constituted gender discrimination (Gershenson and Penner 2009). In an early push toward the allotment of equitable resources across gendered restrooms (what she called "potty parity"), the politician worked with other representatives and "free the flush" activists across the country to institute bans on pay toilets in public buildings (Anthony and Dufresne 2007). Here, a bit of hardware in the form of a simple lock produced varied prohibitions based on socially imposed notions of belonging and righteousness. It was only under substantial organized public pressure that these restrictions eventually dissolved.

Running in parallel to such interventions, other coalitions have put public pressure on the municipal bodies governing restrooms through a range of grassroots tactics. Within the United Kingdom, for example, the feminist architecture collective Women's Design Service focused their efforts on revisions to public accommodation, noting, "poor toilets are symptomatic of the ways in which women's needs are inadequately considered by planners, architects and all those others responsible for the design and shaping of towns and cities" (Cavanagh and Ware 1990). In a handbook released post hoc, the group outlines design specifications for sites across public and private sectors, describing everything from flushing handle design, ventilation, signposting, to toilet paper quality. The Women's Design Service also advocate for the role of the restroom attendant in determining upkeep, including demands they have access to support beyond a supervisory network that dictate and define their daily job performance. Public pressure again served as a catalyst for the passage of American with Disabilities Act (ADA) in 1990, which was born of the efforts of disability rights activists through the prior three decades (L. J. Davis 2016). Within this legislation, regulators enforced lower sink and counter heights as well as the installation of wheelchair accessible toilet stalls. In a contemporary effort of restroom activism, disability studies scholar Allison Kafer and her colleagues (working with the Santa Barbara-based PISSAR organization) call for safe and accessible spaces with "restroom checklists" (Kafer 2013; West 2010). In leading "patrols" of area restrooms, PISSAR joins the efforts of local genderqueer, disability

rights, and menstrual accessibility activists to take stock of the environment around them: mapping safe and accessible restrooms and pushing for change where the group finds insufficient resources. These detailed discussions on outfitting, sustaining, and reworking the public restroom offer seeds of the maintenance-focused interrogation we take up next.

Regimes at different degrees of proximity, realization

To understand the restroom settings in which networked technologies intervene, I now turn to the processes and political structures guiding restroom design and what amenities exist within them. I focus first on the story of Jean, a community facilities manager whose statements exemplified some of the moral judgments we heard expressed again and again among municipal maintenance staff. I then use this story to show how those ideas become encoded in the structure of the spaces that facilities staff run. I explore how judgments around managerial agency show up not only in mundane amenities such as the condom dispenser but also architectural aspects of restroom design, highlighting the subtle existing forms regulatory activity the facilities make possible.

Before IoT: Encountering Stratified Amenities

At a community center in a Northern Seattle neighborhood I had gotten word that a community manager named Jean sought to personally extend the hygiene amenities within Seattle public restrooms. Despite the fact that her colleagues from the management team dissuaded her, Jean regularly offered menstrual products to visitors, suggesting this practice was not “something [her colleagues considered] a standard responsibility.” According to them, Jean offered more than what they considered to be sufficient in terms of care resources. In response, we were eager to find out how and why she began this practice.

Jean and I met in a large meeting room at the well-equipped community center she oversaw. From its floor to ceiling windows, we looked on as groups of children played on the indoor basketball court and several more rushed through the halls on their way to the pool. Jean described the center as the ideal place for families to congregate with small children during the week and to host weddings or graduation parties on the weekends. As we continued talking, Jean admitted she had reluctantly come to the parks department after a vibrant career coordinating special events under famed Seattle restaurateur Aldo Lombardi. Stepping away from work in fine food, she took a temporary position in the parks department, while looking for work

in event planning at a local university. But she quickly warmed up to overseeing the daily happenings of the Center, finding the logistics of managing a team of custodial and maintenance staff familiar to her old duties of careful, organizational work. She told me of the center's custodian Deborah, a 25-year veteran of the community center who was set to retire in the coming weeks. Deborah was well suited to work for her, Jean told me—picky in ways that resembled her own attention to detail and fast in servicing the restrooms. Jean expected the newly hired custodian who was set to replace Deborah would take twice as long to go through the tri-daily rounds, and perhaps would not even last under her scrutinous eye.

As we watched the children practice free throws, Jean recalled her first experience addressing menstrual inaccessibility. About a year into her new role as manager of the center, a visitor asked Jean for a pad. From that point on, she became determined to stock menstrual products behind the front desk, paying for them with funds from a small petty cash budget and giving them out “mostly to teens” who visited after school. “Every now and then a mom,” she added, “but not very often because, you know, moms are prepared.” Here, Jean expressed a particular set of ideas on who was deemed worthy of menstrual access—perhaps a lack of products is expected of those new to menstruating, but after a certain point in age or maturity (marked here by motherhood) one should be expected to fend for themselves. In making this point, she also made an implicit statement about who she expected to visit the community center (children and their mothers with regular access to housing) and who has the right to forget a pad or tampon (children).

Those who expressly did not have a right to the space, according to Jean, took up the center's lawn for resting. Seattle, like many other major cities on the West Coast of the US, faces a housing crisis with surges in rental costs increasing over the last decade and the rates of homelessness and displacement along with it (Hwang 2015). A phenomenon Jean saw evidenced through the number of people who had begun sleeping around the community center. “They've got 10 minutes or I'm calling the police,” Jean insisted. “The grounds people will come in and clean up their mess if they leave it, you know, like their clothing and needles, you name it, it's out there. Very sad!” There was no room, in Jean's mind, for accommodating those being served by the center along the outside. To her, they were improperly using the space and needed to be removed immediately—treated as criminals and later their belongings as “mess” to be discarded by the grounds crew.

Jean led me to the restrooms and took time to describe each object installed. Soap dispenser, it was there affixed to the wall next to the sink. Toilet seat covers, they

were in there as well in each stall. Toilet paper was there too, in a mid-grade dispensing mechanism made of plastic. She paused after naming the condom dispenser (featured exclusively in the men's restroom), telling me she had fought the health department "tooth and nail" when a top-down directive from the city required their installation throughout parks and community centers around Seattle. "These people just came in and said these are going in and they were already fed up with me over them because I said, we really don't need them here, we can give the kids a condom if they want one," she stated with lingering frustration. Seeing condom dispensers as an unnecessary and inappropriate addition to the space, she instead voiced support for "sanitary napkin dispensers." This stance set up a dichotomy between the two—that access to one would necessitate a loss of the other—despite the fact that separate funding bodies administered the two kinds of dispensers. Subtly, she was also bargaining for the right to regain her role as arbiter of access to reproductive health resources in the space, saying she could provide condoms for "kids" who ask her or her staff directly. When I asked how she saw people making use of the condom dispensers, she stated, "upon installation somebody broke into the boys [restroom] and took the money" and every now and then "some kid will buy one [condom] and fill it with water." According to Jean, the condom dispensers then promoted activity that disrupted how the center was intended to operate, as a place for families or perhaps, more specifically, housed mothers and their well-behaved children.

Over the coming months, I learned how these forms of moral arbitration operated unevenly across public sites. Prior to widespread installation of soap dispensers in Seattle public park restrooms, for example, district managers labeled soap a "courtesy," a product that the city could offer differentially based on their preferences. Library staff offered programs on job readiness and financial literacy and had a social worker on staff in order to connect patrons with social services across the city, which were expressly meant to support the homeless population who spend time there. And yet, when it came to hygiene resources, staff expected visitors to come in having already addressed that need. In fact, during our fieldwork, the library put in place a set of rules on the level of hygiene expected of visitors (e.g. cannot have a foul odor). If violated, the rules specified that visitors would be asked to leave one of the few places in the city where people could still congregate and spend the day without the expectation of making a purchase or paying a fee.

Within a local public library, we saw particular visions of appropriate behavior materialize in the development of physical amenities. In one interview, a public services coordinator at a local library named Dana described a widely held suspicion

among the staff that when the library restrooms underwent construction, architects worked with its administration to dissuade certain kinds of behavior. The installations included the placement of blue cast lighting (rather than white or yellow, as might be typical in commercial buildings), which she described as making it more difficult to locate veins under one's skin and thus dissuading intravenous drug use. She described the installation of abnormally short bathroom stall doors designed to give library staff and maintenance workers the ability to quickly register (without bending over) whether someone occupied the restroom stall "properly"—in other words, not lingering for long periods of time, lying down to sleep, and so on. She further described customized sinks with a depth too shallow to bath in. All of these design decisions within the space of the restrooms acted as a means of extending the control of managers of the space, she described, and regulating the behaviors of those who used this space. Despite stated support for the city's growing population of people experiencing housing insecurity, the library's newly constructed bathrooms seemed to focus regulatory attention predominantly on the (real or perceived) behavior of those groups, people who relied on sites like the library as safe and dry places to dwell throughout the day.

Through these encounters, we see a negotiation over the types of resources made available across public sites and how each space is designed to accommodate people differently. This differential accommodation happens even as municipal actors house public resources within the same department or as they setup to serve ostensibly the same mission of "building community" (Seattle Parks and Recreation n.d.; The Seattle Public Library n.d.). Each unit within the facilities organizations we observed had their own way of determining the types of resources made available to the public and the quality of the experience of gaining access to them—in turn, scoping the types of communities these spaces are open to support. In the case above, we see Jean, like other managers we observed, played the role of gatekeeper, maintaining social order along familial lines in an opaque, sometimes moral campaign (through determining when and how one might gain access to a pad, condom, or the center itself). For example, the condom dispensers she opposed were funded and installed by the public health department (a separate entity to the parks department with its own funding) and administered through an outside vendor (not the parks facilities maintenance crew). The presence of condom dispensers then had no real bearing on the absence of menstrual product dispensers, as she and other managers suggested to us. Instead, the public health department had simply not deemed menstrual access a priority, and neither had the parks department. This is not to say that the inaccessibility of menstrual products was not a problem, but rather that their scarcity had little to do with the prevalence of prophylactics. Yet, this observation represented

a larger issue concerning the allowance for some sorts of forgetfulness (on the part of newly menstruating teens), but not others (those with the intention of pursuing forms of sexual intercourse). These sensibilities around moral codes emerge readily and repeatedly among maintenance staff, showing how public amenities such as access to hygiene products get differently defined—stratifying across gender, class, and spatial arrangements. As a result, notions of hygiene appear in the form of enforceable rules, infrastructural elements, and individual or organizational policies. Through these various forms, giving access to hygiene resources can reify a normative agenda, shaping the sorts of bodies imagined to be in need of maintaining.

Why Reinvent the Public Restroom?

Having explored how particular perspectives get encoded in restroom facilities, let us now consider the broader motivations for installing IoT technology within public restrooms and examine how managerial judgments continue to guide its use. Restroom managers cast financial profit and socioeconomic necessity as fuel for design innovation, justifying the integration of novel computational systems. I saw these concerns first emerge around the financial cost of attaining and maintaining public restroom facilities. Through my engagements with facilities managers, I learned that devices such as the menstrual product dispenser run upwards of \$300 for even older models. Sometimes manufacturers who produce the products to fill the dispensers offered educational or enterprise organizations a set of machines to install for free, with the expectation that they will enter into long term and lucrative contracts with their company. Other times, manufacturers charged organizations for the machines as well as the items meant to go inside. An organization's ability to negotiate for low or no cost machines became a defining factor in their administration of hygiene resources. The cost of facilities such as hygiene product dispensers meaningfully shaped what municipal staff felt they could achieve in the spaces they oversaw.

Such financial constraints often fueled reflections on additional challenges around dispenser use and repair. Almost every time I discussed menstrual resources with public restroom visitors, for example, facilities crew members and visitors to public restrooms expressed a deep frustration with the machines. Often an opaque box, the dispenser could make it impossible to see how many items are left—making any engagement with them then a bit of a gamble. Typically, visitors described dispensers as a last resort before make-shifting something out of other materials available in the space (i.e. toilet paper or paper towels). The facilities managers I interviewed described a similar dissatisfaction—spending hours maintaining their

menstrual product infrastructure, struggling to keep track of the single, unique key for each machine, or troubleshooting broken devices. Machines often featured signs of struggle, where someone may have tried a hand at breaking in after a failed attempt at buying a tampon or pad. This would occur because someone did not have any cash, or in order to take the handful of coins that might be inside. The dispenser was a brittle object, both restroom goers and custodial staff described. Reparability here proved difficult, with small, indispensable parts and few options other than replacing coin mechanisms or installing entirely new units.

These reflections on the difficulty of both use and repair raised new questions. If these machines don't work for the restroom goer or maintainer, why have them at all? Why be bound to infrastructure that fails everyone? The entities responsible for designing, building, and distributing this infrastructure (the dispensers and appliances that outfit the public restroom) gave some initial clues.

Later in fieldwork, a student activist at my home institution introduced me to an organization named Clinic Quality. At 100 years old, Clinic Quality was one of the largest US manufacturers and distributors of menstrual hygiene products for the "away from home market." Along with toilet seat covers, "air care," gloves, and sorbents, they manufactured the products in their plant in rural Arkansas. But some of the newest dispensers took this tracking a step further. Clinics Choice's soap dispenser, in particular, recorded counts of usage alongside information about employee restroom usage to verify "compliance," or whether one washed one's hands in accordance with company policy or health standards. Through my introduction to Clinic Quality, I met Hank, an almost 40-year veteran of the Clinic Quality (and now served as their VP of Sales) who described the future of restrooms as "going to IoT," a process he called "self-governance."

This notion that public resources would be responsible for overseeing themselves reflected longstanding historical narratives around hygiene product innovation. Standing behind his desk at corporate headquarters in a secluded office park just outside Pittsburgh, Hank told me about the invention of the CQ-67, an 11-inch strip of gauze with 4-inch tabs on two sides—what he says was the first sanitary napkin. "It was Woodrow Wilson's wife," Hank stated, continuing his story of the CQ-67. By the end of WWI, he claimed, the large multi-national "personal care" corporation Kimberly-Clark had amassed a large surplus of bandages that they had manufactured for wounded soldiers. When the war ended, the Department of Defense refused to pay for the surplus supplies—asserting that the overproduction was not their problem. Then first lady Edith Wilson stepped in, forming a committee and

paying \$100,000 to find an alternative use for the bandages. That's when the CQ-67 was invented, or rather rebranded, Hank claimed. They turned it into one of the most common disposable menstrual resources still used today (and in a form largely unchanged). After a few beats, Hank continued. "I heard it from someone I believe," he assured me.

Hank's story reflects a wider understanding of innovation as partially tied to mechanisms for managerial oversight, exposing the role of emerging infrastructure in wider visions of restroom maintenance and regulation. As I heard over and over again among corporate hygiene product managers I talked to, Hank attributed an important product innovation to the minds of an elite, hand-selected set of American patriots squeezing out the last bit of wartime economic prosperity. Government spending was avoided, industry was invented, and American consumers covered the cost.

Rather than support reparability or address the brittleness of existing facilities, new restrooms would be "going to IoT." In this vision, networked objects imbued with computational capacity would allow for "self-governance." Touch free toilet seat covers and aerosol dispensers already tracked the number of releases between maintenance visits and soap dispensers could do more. Assuring cleanliness, modesty, and efficiency, the infrastructure Hank and others described seemed to enable hygiene product manufacturers to foster particular social values such as the need for surveilling employee activity. When they described self-governance, the "self" referred not to the employees (people overseeing themselves) but to the IoT (networked sensing technology taking on employee oversight). The aerosol and toilet seat cover dispensers could keep count of product levels and switch an indicator light on when they were empty, avoiding some of the maintenance effort of unnecessarily filling machines. Perceptions of machine's capability shifted with the example of the soap dispenser. The soap dispenser extended managerial monitoring of employees' hygiene practices. Notions of compliance comprised hardwired interventions, enfolded with technology from the start.

Thinking back to the story of the First Lady's post-war committee and the \$100,000 prize, a bit of digging uncovers a slightly different origin for the disposable pad. The Museum of Menstruation archives have a record of a German version sold by 1880s, several decades before WWI. Lister's Towels, named for Joseph Lister—proponent of antiseptic surgery and other applications of germ theory—was the first American version of the pad coming some 10 years later in the mid 1890s, also pre-dating the war. Kimberly-Clark's relationship to the disposable pad did start with WWI, but it

was not Edith Wilson's commission that spurred the innovation. It came from those performing caring labor. Nurses in WWI made do, using bandages as a form of dispensable menstrual rag when they were short on traditional supplies or busy too pause to care for their own needs. Kimberly-Clark only pursued the idea after the war when they had excess. Part of the story then is true, but crucially it wasn't early 20th century business incubation, K-C or Clinic Quality that made this industry; it was care work. Why was a Sales rep at a major hygiene product manufacturing corporation so interested in sharing this story? What did he gain from repeating it? Well, for one, this story projected a top-down, managerial perspective on menstrual infrastructure. His perspective started and ended with people like him.

With this example of Clinic Quality, we see how the installation of IoT may allow the interests of employers to come before the privacy interests of those visiting or maintaining restrooms. Although imagined as employees within the story above, those visitors include anyone who might happen to stop in. A device meant to evidence employee compliance with hand washing requirements also belongs to the visitor off the street, extending the gaze of the manager into one of the most private spaces available throughout the day. Data produced in and around public restrooms ultimately directs and defines managers' understandings of the performance of their employees, customers, and members of the public. In this proposed future, managers' notions of necessity and modes of profit-seeking get refigured as central forms of innovation around public restrooms.

Marketing the IoT Restroom

If managerial vision can be found in the speculative stories of those working at hygiene product manufacturers, it is equally visible in the marketing discourse around the working IoT systems they produce. Marketing efforts expose how IoT products come to embody the ambitions of hygiene product manufacturers such as Clinic Quality above, but also emphasize the wider collective hopes, values, and expectations shared by corporate and municipal actors around public sites. To understand this point, let us turn to one such IoT platform called Onvation that helps explain where these visions of a perfectly managed future get produced.

In collaboration with IBM, Kimberly-Clark developed Onvation to address two key issues in the management of restrooms. The first issue concerned the efficiency of restroom care. Through expanding the network of sensors embedded in the objects installed within restrooms, Onvation promised to enlarge managers' gaze: enabling them to gauge from anywhere, anytime the levels of products inside of restroom dispensers (e.g. paper towels, soap, menstrual products). The second issue concerned

the increased usage of public restrooms. By revealing consumption rates of hygiene products over time, Onvation could help managers learn of any malfunctioning devices and understand the overall traffic within the restroom.

These concerns took center stage at 2017 Worldwide Cleaning Industry Association's North American (ISSA, for its former name International Sanitary Supply Association) annual conference where Onvation sat on the showroom floor. Seated in a semi-circle around a camera, IBM Client Manager Bob Warpinski introduced the technology along with two Kimberly-Clark representatives, Senior Manager of Global Innovation Kelly Earhart and Associate Director of Innovation Commercialization Excellence Lori Shaffer. The group presented a dual pitch around the modern restroom experience (IBM Industries n.d.). On the one hand, shrinking facilities budgets and patrons' concerns on restroom cleanliness and upkeep put more stress on managers to optimize the material and labor available to them. On the other hand, for the public or those who use the restrooms, spaces are becoming more and more crowded with people (what Shaffer called "densification") – thus affecting the quality and experience of restrooms cared for with traditional maintenance procedures in affect for the "last 100 years" (ibid). Kimberly-Clark had toyed with the idea of the networked washroom for almost two decades, Earhart noted, pointing to a patent filed on sensing toilet paper usage in 1999 (McConnell, Oyler, and Winder 2002). Due to "cultural and logistical" constraints, the patent argues, there was little knowledge on tissue habits such as the amount of paper used, the duration of time when the paper is used (or, how long someone is using the restroom), and the number of discreet pulls on a toilet paper roll. To address this, the filing introduced a sensor system that would record and analyze this information in a manner undetectable by the restroom user. With their most recent design process, Earhart explained, Kimberly-Clark adopted what might sound like a user-centered approach. She described interviewing stakeholders about their "pain points," defining the problem into solvable chunks and designing for optimal customer experience (IBM Industries n.d.). While doing so, Earhart pushed the "fail fast" ethos, suggesting that one ought "prototype early, prototype often [...] It doesn't always have to work it just has to deliver an experience, some semblance of where you want to go" (ibid). Through their collaboration with IBM, she continued, they were able to take the seeds of the ideas illustrated their patents over the past two decades and realize them, using both their technical material offerings (e.g. Watson IoT and Bluemix platform) as well as cultural cache (a tech company a century in the making). "We're not an IoT company," she admitted, but "with IBM behind us that gives us credibility in the market" (ibid). A bathroom company breaking into the technology sector, disruptive indeed.

In highlighting disruption, the Onvation product recalls longstanding industries such as travel that have undergone dramatic shifts in recent years as technology startups such as Airbnb and Uber use streamlined software services to organize discrete labor and offload material responsibilities and liabilities onto the worker. These “disruptive” new services do not produce entirely new working conditions, but rather introduce systems in which particular forms of worker effort can be tracked and reviewed by company representatives (see (Raval and Dourish 2016) for more on the care and emotional labor taken for granted). In the case of Onvation, this disruptive technique is invited by corporate representatives who see value in associations with technology culture, rather than imposed from outside firms.

As if sitting between two worlds—one of the now and one of the future—the group on stage at ISSA offered a compelling image for managers. Shaffer insisted managers currently have “no data,” no way to know when and how often supplies run low. Integrating Onvation into the mix of the maintenance infrastructure would “[provide] information to create that exceptional experience” (IBM Industries n.d.). Within their solution sat a proposal to “[put] people when and where they’re needed,” or to redesign the work routines of custodians and maintenance staff through forms of shift work and irregular scheduling.

According to Shaffer, Earhart, and other Onvation advocates, IoT systems provided the link that joins together the densification and efficiency concerns while solving them at the same time. Automated software could assign individual workers their schedules based on analysis of this always-on tracking data, folding in aspects of the gig economy into traditional work environments. While this intervention might speak to the concerns raised by Shaffer on efficiency or cost reduction, numerous historical and contemporary examples (Kantor 2014b, 2014a) have proven this practice to be one that is harsh for the worker (a custodian or maintenance staff member, in this case). This form of “responsive” scheduling creates an erratic working condition where hours can shift dramatically from week to week. One might receive their schedule with just a few days’ notice and have little room to arrange for childcare, for example. The system might also send workers home early when it seems there is a lull in restroom usage, producing a situation in which people have a difficult time determining how much they might get paid during a particular month. This practice has come under recent scrutiny as employees of the coffee company Starbucks and other prominent American chains detail the effects of such policies on their daily lives (Kantor 2014a). To Shaffer and the rest of the K-C team, instead of promoting precarity, the new scheduling approach makes custodians feel

“empowered” (IBM Industries n.d.). Having an iPad dashboard on hand or installing sensors in the dispensers they maintain makes “them feel like more of a service technician” (ibid). Where custodians were once little valued within contemporary culture, proximate technology offers prestige.

Marketing materials later released by Kimberly-Clark reaffirmed the managerial futures presented at ISSA. According to their website, Onvation represented a critical transition away from isolated, in situ signage toward connected, proactive nudges promoting workplace pride (Kimberly-Clark Professional n.d.). Contemporary dispenser models typically offered simple signals in the form of LED lights indicating when a dispenser might be empty or full. The new system would instead collate product-oriented information with information about visits to the restroom to produce “actionable data, analytics and insights that can help building managers better manage their businesses by gaining control of the restroom” (Kimberly-Clark Professional n.d.). The company promised that monitoring enabled by the system would “cut costs, reduce waste, boost sustainability, optimize labor, and enhance your tenant satisfaction” (ibid).

I first learned of this technology during interviews with members of a Seattle facilities organization. Two members of the organization explained that representatives from Kimberly-Clark had recently delivered their group a sales pitch detailing the ways in which Onvation might improve the day-to-day logistics of their maintenance work. Over the last decade, Seattle restroom building managers and the like had gained access to tools for monitoring energy and water consumption through intelligent lighting devices and dashboards depicting various breakdowns of the data. The sales pitch claimed that important information had been overlooked in this process. Additional data—from water and waste accumulation to flows of customers or employees through the building—could be gleaned from the restroom with new tools. “Bad restroom equals poor management,” Kimberly-Clark warned (Kimberly-Clark Professional n.d.).

In IoT technology, corporations like Kimberly-Clark see an opportunity to extend an existing practice within public restrooms to seek out efficiencies and limit financial expenses by spinning the solution as a technology innovation. With terms such as “cut costs,” “boost sustainability” and “enhance satisfaction,” they frame the outfitting of restrooms with sensing technology as the solution to a variety of problems vexing wider contemporary systems of industrial capitalism—from environmental sustainability to the reduction of product and labor costs to

improving customer experience. Taken collectively, the examples above point to how a managerial gaze underpins wider efforts at organizing workplace practice.

Conclusion

Reflecting on questions of access to these sites, I have described that the use and maintenance of public restrooms unfolds in relation to the managerial visions that shape and constrain them. Engineering firms and facilities organizations increasingly work together to extend that managerial gaze across public sites. They have begun to use IoT devices to capture in situ data on hygiene product usage and use data analytics software to highlight inconsistencies or aberrations. They monitor visitors to the restroom in much the same way that they monitor machines and dispensers that hang on the bathroom walls. If the levels of toilet paper run low or if someone fails to wash their hands, an alert shows up on the system's dashboard. The resulting managerial vision subtly dictates where people and things move within those public spaces.

The above accounts have illustrated how IoT figures this managerial vision in multiple ways. Within public restrooms, managers seek out networked technology to guard against public liabilities, whether through monitoring the work of office staff (the cleanliness of employees' hands, for example) or by sustaining the functionality of public facilities (battling the vandalism and failure of dispensers, for example). Within hygiene product manufactures such as Clinics Choice, we saw that the incorporation of digital systems for monitoring employee activity may reinforce particular ideas of cleanliness and subtly strengthen managerial control. Our final example of Onvation exposed how the shift from mechanical dispensers to networked devices within restrooms may introduce new hierarchies of maintenance that further the precarity of service work by making scheduled hours harder to depend on.

Much like the handbooks produced by the Women's Design Service, design researchers have sought to inform system specifications that take stock of technological environments in relation to the forms of labor that sustain them. However, as Jackson et al explain, the field has comparatively few examples of work that seeks to change policy-level regulatory structures (see (Jackson, Steinhardt, and Buyuktur 2013; Jackson, Gillespie, and Payette 2014) for a useful summary). This case study of public restrooms suggests the need for deeper reflection on how technology

regulation occurs, particularly regarding the increasing granularity of managerial oversight.

Managerial vision also foregrounds the often-hidden moral sensibilities undergirding the design of workplace settings. Complimenting studies of invisible work, I have used these experiences in public restrooms to describe, in ethnographic detail, the impending role of networked technology in efforts to build, maintain and enforce moral codes—a process that Hank, the hygiene product manufacturer Sales VP, called self-governance. Managerial visions anchor the approaches corporate and municipal actors take to define and contend with perceived workplace challenges (e.g., waste, financial costs, increased usage). They drive the placement of responsibility for sustaining public access to public resources in networked devices and data analysis tools. In this translation, networked tools sharpen managers' moral sensibilities, but also allow them to govern through and with such systems. From condom and soap dispensers to wristbands, IoT opens possibilities for exploring the streamlining of worker actions, what Sheila Jasanoff has called “a legal and material hybrid” (Jasanoff 2016, p.9). Like for the red traffic light Jasanoff describes, regulatory control may hinge on an enforceable rule that associates a material situation (e.g., a lack of soap use) with a disciplinary action (e.g., improving worker cleanliness).

Finally, managerial vision foregrounds the sometimes-subtle capitalist underpinnings of IoT technology. As desires for profit fuel technological interventions, which themselves circumscribe the efficiencies produced. As Lindtner and Avle recently assert, profits and technologically-enabled efficiencies go hand in hand. The assumption that capturing more data equates to more efficient outcomes—and thus produces a common good—overlooks forms of oppression that may result while reinforcing capitalist ideals, recalling Safiya Umoja Noble's (2018) discussion of Google search algorithms and the profit margins that drive them. This awareness of unintended consequences that disproportionately effect service workers suggests that the design and HCI communities consider what it would take to combat such market pressures and the inequities they perpetuate. If public sites such as restrooms get constituted and reconstituted through technological interventions, designers and technologists may need new ways of examining how as well as for whom they operate.

Chapter 3 Riot

To further contend with restroom technologies and governance strategies they are set up to reinforce (described in Chapter 2), over the course of this chapter, I describe my efforts to reconsider the place of IoT in the distribution of public resources—namely, menstrual products. In embarking on this research, I asked the following questions: 1) What does access to menstrual resources mean to those maintaining public restrooms? 2) What forms of menstrual accessibility could IoT encourage or engender? My interrogation of these questions involved a process of outfitting restroom menstrual product dispensers with networked sensors, a project I call Riot—or, the reparative Internet of Things. The sensors collect data on product levels in the dispenser and publicly share that information on an online map so that the machines might be more easily stocked by maintenance and custodial staff and accessed by members of the public. To inform this design process, I drew on interviews and field visits with facilities organizations across Seattle, WA, a process that unfolded over three years, from 2015-2018. I took up approaches of ethnographic observation and interviewing, while drawing on traditions of participatory and speculative design (Bjögvinsson, Ehn, and Hillgren 2012; Le Dantec 2016; de O. Martins and de Oliveira 2016; Dunne and Raby 2013). In doing so, I set out to build collaborative encounters that grasp for a vision of feminist internet of things, while offering repairs to the systems already in place.

In developing Riot, my goal was not to suggest the device as the core solution to problems of menstrual resource accessibility. Nor I was it to produce a generalizable technical intervention that might move to other contexts unchanged. Rather, Riot was meant to foster continued sensitivity to the political and social dimensions of sites of public resource maintenance and to explore the textures and dependencies of the partnerships that emerged through the Riot design and installation. In doing so, I focus new attention on role of IoT devices, revealing their capacity to cultivate and maintain forms of collective responsibility.

Building Toward Riot

The Riot design process included two main phases: ethnographic fieldwork within sites of menstrual resource distribution and design and ethnographic engagements around the Riot intervention. To understand ongoing activity in Seattle public

restrooms, for example, I drew from ethnographic field visits at the Seattle public parks & recreational facilities' restrooms, spaces meant for public use and open without a fee or an implicit expectation of consumer exchange. I also observed my home institution's facilities organization, a group made up of 10 departments (e.g. building services, maintenance and construction, and transportation), each serving the university community by performing repairs, maintenance, and cleaning for campus buildings and grounds. Finally, to understand local feminist activist work around these sites, I conducted fieldwork with the Womxn's Action Commission (WAC), an organization that has worked since the 1960s to promote gender equity on the university campus and amongst the broader Seattle community by hosting events and advocating for institutional and regional policy shifts. By engaging these sites, I began to deepen my understanding of menstrual resource accessibility across the Seattle community writ large (from maintenance to advocacy), while also forming partnerships across various concerns, contingencies, and ideological commitments.

My design research methods drew on this ethnographic fieldwork and collaborations, including a wide range of interviews and observations with custodial professionals (at parks, community centers, and homeless shelters) and members of activist and advocacy organizations such as WAC. Through this initial research, I began to learn about the limitations of access throughout the city. For instance, though day centers offered menstrual products to visitors, they were closed in the evenings and on weekends. This meant clients needed to stockpile products or go without for times when centers were inaccessible. I also learned about individual preferences when it came to particular products, noting that many gravitated toward pads and high absorbency tampons in order to avoid regular changing when without easy access to restrooms.

Laying the groundwork for Riot

To help set the stage for later discussion of Riot, I begin by introducing the alliances I built with members of WAC and other key organizations to collectively direct the project's outcomes. In doing so, I emphasize the nature of the collaborative process, which involved not only enrolling individual stakeholders (as is common in other prevailing design methods (Friedman Batya, Kahn Peter H., and Borning Alan 2009)), but also understanding what is required for producing and maintaining those connections. I sought to examine the integral role that policy, media, and organizational structures play in the development and, crucially, the sustainability of our collective work. The second reason for emphasizing these partnerships has to do with the recognition that despite developing novel IoT infrastructure, like many others digital designs, the broader initiative was not wholly new. Indeed, it built on

many existing menstrual advocacy efforts (outlined below). This project thus required charting the WAC's evolution and the emergence of central advocacy concerns over the years leading up to the Riot intervention.

Public Restrooms Maintenance

I began the project with site visits to public parks and community centers where we later conducted interviews and observations with members of the municipal maintenance staff, learning about the processes and political structures that guide their labor and define public hygiene accessibility. In one interview with custodial staff, an administrator to a district head named Debra described how the city introduced soap to restrooms in municipal parks, a relatively new addition from the 1990s. It was one "very adamant" resident, she told me, who "gathered the forces, communicated to all layers of government," and convinced those at the head of the parks department to revise their policy on this form of hygiene infrastructure. Prior to this advocacy, Debra told me, soap was considered a "courtesy" and was thus left for individual area supervisors to decide if it was worth the cost and additional labor to upkeep. From a maintenance lead named Linda, I later learned that it was not just any adamant resident, it was the spouse of a city councilmember. Linda claimed he also took up the cause, advocating to his colleagues in city government who, in turn, put pressure "back down" on the department. Those who tended get their voices heard and their needs met, Linda told me, were the ones who had "time on their hands" or "know the system"—likely those already in positions of prominence, as the case of the soap illustrates.

Those unlikely to have a seat at the table were members of the city's homeless population who spent time in the parks (as previously described in Chapter 2), and who many of the maintenance staff described as perpetrators of "vandalism," the name they gave to perceived malicious destruction or defacement of the restroom infrastructure that they were left to fix. Lead maintenance crew member Robert explained that his district had to deal with the remains of bathrooms burned to the ground in what he described as "arson." As the conversation continued, he described an idea for why this arson was happening with such frequency. He had spent time sleeping outside while deployed in the military, he said, and, "used do a lot of things to keep warm." "If this is the only paper [referring to toilet paper] you had, then this is what you burn to stay warm," he continued.

In this recollection, experiences of the maintenance staff such as Robert and others resembled the circumstances of people they accused of vandalism and arson. But rather than form a sense of connection with these residents, crew members

instantiated programs to limit homeless people's access to the sites—locking the restrooms in the early evening and calling the police or service workers when maintenance staff spotted people they believed to be “campers.” Across the areas and districts I observed, maintenance crews took up similar approaches to deter the homeless population from spending time in public parks, with an express preference for the “good people” (middle class families or those with regular access to housing). Maintenance staff like Deborah, Linda, and Robert could sympathize with people using restrooms but ultimately couldn't see past their own assumptions about the types of inhabitations they saw as fit for these sites. Some kind of connection between the homeless lived experience and restroom maintenance seemed missing.

Seeds of an intervention

Early in fieldwork, I noticed that when discussions with city maintenance staff turned to menstrual hygiene infrastructure, maintenance staff often expressed ignorance or apathy. Most staff did not know where someone might go to find menstrual resources, much less determine who was responsible for them. One maintenance crew member suggested that dispensers were only available at community centers, while community center staff told me they were not required to install them and thus many did not have them. Much like I observed with the councilmember-led soap dispenser campaign, the lack of institutionalized policies created uneven access across districts.

With this new understanding of the city's public restroom landscape, I gained new sensitivities to what access meant in these sites. This sensitivity involved better understanding the maintenance labor involved in sustaining the present infrastructure and the political will that would likely be needed to shift or expand it. I proceeded puzzling the question: how might we design an intervention to probe at this space, while recognizing the crucial work of those already there?

University Facilities Organization Staff

To answer this question, I turned back to my own institutional context to see what existing initiatives I might contribute to or partner with locally. Following city-wide efforts, I organized a drive out of my university lab, collecting items such as pads, tampons, and menstrual cups (often under-donated to shelters and day centers (Goldberg 2015)), as well as other products like lotion, toothpaste, and denture cream to be donated to youth and emergency shelters in the area. As I circulated an email announcement for the drive, I was met with messages expressing support and questions on how best to contribute. In one of these emails, I was connected with a representative from my university union (representing both graduate student

workers and staff) who inquired about the research and suggested I get in touch with fellow members from our home institution's facilities organization. With this introduction, I met an institution plumber who contributed to initiatives such as the implementation of lactation stations and all-gender restrooms. The plumber eventually connected me with the members of the broader university facilities organization.

Echoing prior fieldwork with municipal facilities staff, the university custodians described a tedious process of maintaining existing menstrual infrastructure, alongside their other duties. A group of facilities managers told me about struggling to keep track of the single, unique key for each dispenser and a constant need to troubleshoot broken devices. Machines often featured signs of struggle attributed to what the managers called "vandalism" where a visitor might have tried to break in after a failed attempt at buying a tampon or pad—either because they did not have cash or they wanted to take the handful of coins inside.

Reparability here was difficult to establish. The machines held small, indispensable parts and staff had few options for their repair other than replacing coin mechanisms or installing entirely new units, which a Facilities Manager told me ran upwards of \$300 for even older models. To deal with the labor and financial costs associated with keeping up the dispensers, the organization opted to divvy up access. Rather than installing the machines in every restroom, they selected a subset of buildings that would feature them (determined by "building use, traffic, and accessibility"). The staff then put in their absence a piece of paper listing the sites where dispensers were placed (not a map that might show how to navigate to them, but a text-based list). I later learned that this practice had first come under scrutiny by the WAC about two decades earlier.

Local Histories and the Womxn's Action Commission

Looking across these first two sites—the Seattle public restrooms and the university facilities organization—I found tensions played out over decades, sometimes in productive ways and other times recursively. In the early 1980s, the university facilities organization made the decisive move to remove all menstrual product dispensers "due to vandalism and maintenance costs," the then director told the campus newspaper (Telles 2010). For almost a decade, the university community did without the dispensers. Yet, due to student pressure throughout the 1990s, maintenance crews incrementally reintroduced them, with an initial installation of 55 devices across campus.

By 1998, the WAC, the main student organization concerned with women's issues, had secured more than 1,000 signatures on a petition lobbying for an additional 19 dispensers. Successful with this push, they moved on campus menstrual infrastructure once again in 2010, scrutinizing what they took to be the uneven upkeep of machines and a lack of revisions to the list meant to guide visitors to available dispensers (which purportedly had not been updated for the decade following the WAC's last effort). The then director of WAC pleaded to the university newspaper, "If you're going to have those machines, you need to fill them" (Yi 2011). Following this attention, the university facilities organization formed a committee to review the dispensers, repairing broken and jammed machines and adding a half dozen more.

Upon learning of this history, I knew that familiarizing myself with the WAC should be the next step. As I interviewed those currently working for the university facilities organization I found similar maintenance issues emerging again (about 6 years on from WAC's last push). For instance, a plumber detailed the ways in which the placement of machines and the rapidness of repair was unevenly distributed amongst the units of the same institution. She described services being relayed more quickly to larger, more resource-rich departments. Those departments already had dedicated maintenance staff (rather than employees covering multiple buildings, as with most) and could afford preventative infrastructural care such as checking for leaks.

It was at this point that the building manager for my department emailed me with the WAC's appeal for support in their latest campaign to seek permanent menstrual infrastructure through the institutional and state legislature. She suggested that I connect with the group directly, seeing productive overlaps between my design research and their aims of policy revision.

In the coming weeks I learned that the WAC planned for a suite of three legislative proposals that would guarantee residents of the area the same resources. The first proposal, introduced to the student government in the fall of 2016, codified the installation of dispensers in the newly built all gender restrooms. This bill gained quick, sweeping approval in the student senate and acknowledged the need for private spaces of menstrual management for the community's transgender and gender non-conforming members. The second piece of legislation, a measure also introduced to the student government in late fall of 2016, proposed enforcing access to menstrual products in the campus' 15 busiest buildings. The third and final measure, planned for introduction to the Washington state government during the

2018 legislative session, would propose policy requiring all public schools (from elementary to university) to stock these items. In control of their own budgets, the student government was seen by members of the WAC as providing a uniquely rapid path to institutional change (with a board of some 65 people to convince, rather than with city- or state-wide bills that would likely require bipartisan negotiation). Together, these initiatives became a part of a longer legislative trajectory that began with the hyperlocal (just a few restrooms) and moved incrementally toward broader access for more and more (expanding with each level of government).

In my first meeting with both the university facilities organization and the WAC, their political astuteness became clear as members discussed shared goals for improving menstrual accessibility and how each group might aid the other toward this end. For instance, a member of the WAC touted the press coverage fellow institutions received after the launch of similar programs, such as initiatives at Brown University and University of Wisconsin, Madison. Meanwhile, the university facilities organization lent legitimacy to this effort by giving their support, stating they would explore options for funding the program themselves if the legislation did not pass. Here, a conversation at the intersection of maintenance, policy, and design set in motion a partnership that would later scaffold menstrual access.

Designing Riot

Throughout my engagements with these key sites—the public restrooms, the university facilities organization, and the WAC— I worked with a small design team of HCDE graduate students which first included Ankur Agrawal and Allie Deford, and later Rafael Silva. Together, we sketched and imagined ideas for menstrual hygiene access. Initial concepts focused on developing a sensing technique capable of integrating within pre-existing dispenser models already in place in the public bathrooms we surveyed. We settled on the idea of counting product levels after exploring various sensing options and abandoned ideas that might compromise the privacy and security of those visiting the restroom (e.g. computer vision).

Designing for Reproducibility and Sustainable Maintenance

The first prototypes mobilized the gap inside the typical dispenser's cache, which becomes wider as tampons and pads are discharged. A set of two distance sensors (one for pads and the other for tampons) monitors this gap, prompting the system to calculate the number of remaining items. During this proof-of-concept phase, the team created an off-the-shelf Arduino-based structure to collect the field data as well

as a web-platform for registering new restrooms and providing public-facing records of product counts from across the city. We used an Arduino Uno as the baseboard, ultrasonic sensors, a power management circuit integrated with a LiPo battery, and a Wi-Fi shield. The setup allowed us to explore this approach, with it capturing and sending data during a limited period of time (a few hours to several days). Yet, as we attempted to extend our trial beyond our design lab or a couple of targeted sites, we faced challenges around scalability and maintainability.

As I learned more about maintenance labor and the potential for a broad, public deployment within my field sites, we focused our next iteration on emerging issues of adaptability. Specifically, we worked on longer power operation, more consistent internet connectivity, better precision in product count, and lowering the cost of the unit. Each of these factors reflected concerns for how the device would be taken up in the field sites—from staying powered on for long periods in spaces constructed of cinderblock (power and connectivity) to ensuring the output was useful and reliable to those who look to the data (product count). Toward this end, we replaced the Arduino Uno, Wi-Fi shield, and power boost board with a newly released DIY toolkit

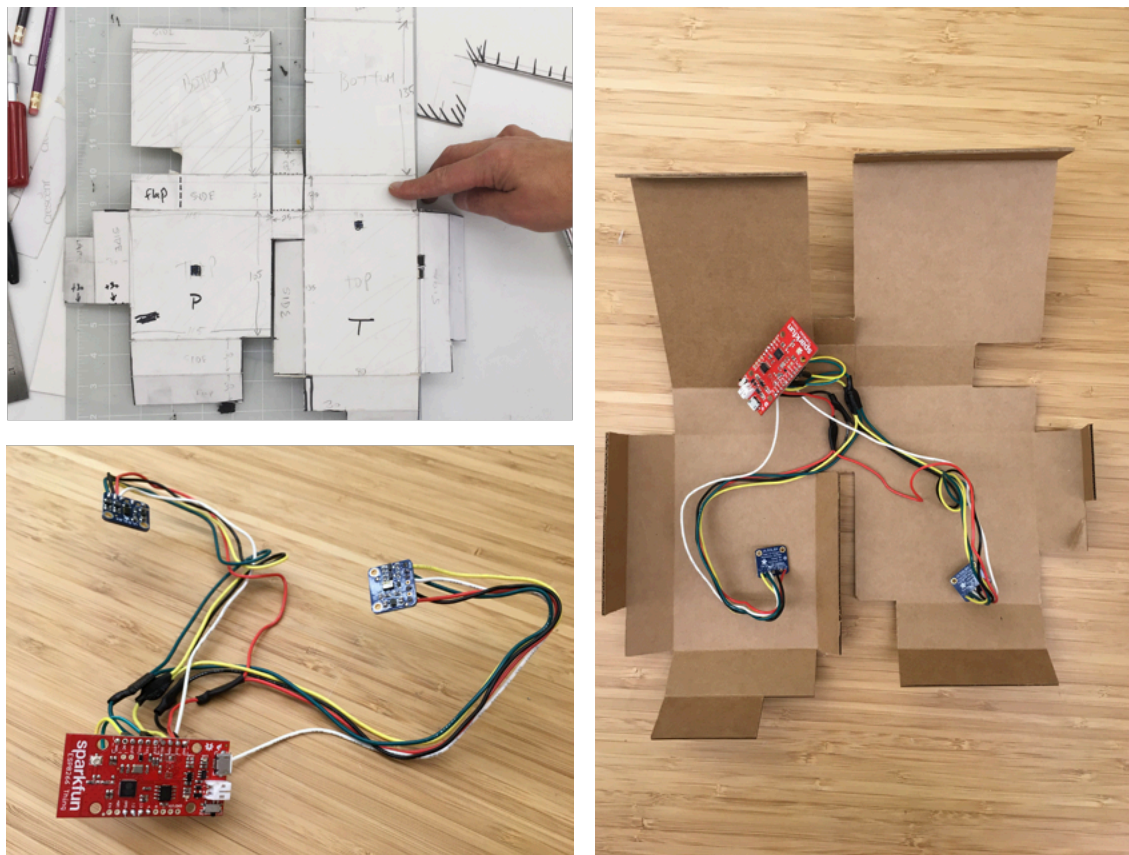


Figure 1 The Riot design is comprised of two distance sensors, a low-cost microcontroller with Wi-Fi capability, and a simple, portable power bank—all housed in a custom-made cardboard box.

the ESP8266. This reduced the overall cost (by \$50, from about \$95 to \$45) and lessened power consumption and the physical dimensions of the insert. We also replaced the sonic sensors with laser-based ranging sensors, allowing more accurate distance measurements. To address concerns for electrical power, we used a disassembled portable charger, connecting the microcontroller directly to its internal 18650 battery cells (a practice growing within the DIY community to produce projects such as domestic power walls for “off the grid” houses).

Mixed (Initial) Reactions

When I introduced the concept of Riot to members of key field sites I received mixed reactions, from curiosity to ambivalence to annoyance. Two crew members of a Seattle Parks maintenance crew told me that the device would likely end up being just one more thing to be vandalized and in need of repair. They advocated instead for “minimalism,” or fewer rather than more restroom artifacts, thinking it would reduce maintenance demands. Yet, the device occupied the imagination of members of my home institution’s facilities organization, who viewed it as a connective link to the student body and as a means of contributing to research on campus. As the design work continued, they also saw links to the state of the art of bathroom design—later entertaining a pitch from the multi-national “personal hygiene” corporation Kimberly-Clark on smart restrooms during the week of the first deployment (a technology discussed in more detail in Chapter 2).

Members of the WAC saw utility for the Riot dispenser design beyond my own understanding of it as a maintenance tool. When holding discussions with building managers, for instance, they heard a concern first and foremost for funding the proposed shift to free products: how much would it cost? With many comparable programs across the country still in their infancy, they could not point to an agreed upon average amount. Instead, they needed to estimate through current usage patterns and viewed the dispenser inserts as a source of data to gauge the potential cost of the proposed legislation, with plans to also use it as a means of tracking the program’s uptake if the law were to pass. In doing so, they invited me to view Riot as a form of data advocacy, or as data gathering object to be used in support of their cause. This effort became particularly potent as one of the earliest campus campaigns from Columbia University came to a quick halt after administrators suggested there was a lack of interest on the part of students (Holt 2016). Even when passed, these initiatives were vulnerable to swift rollbacks.

Deployment

Together with Silva, I conducted two deployments of the sensor system over several months, from September to December 2017. In both cases, we deployed the sensor system at our home institution with members of the facilities organization who assisted in identifying the restrooms to use for testing and advised us on how to hang the sensor system within the dispensers. With each, I affixed the device to the top interior portion of the dispenser with the support of a removable adhesive Velcro strip. This allowed for the sensor insert to be both secured in place and also easily detached for regular maintenance by members of the facilities team, for the replacement of batteries by the research team, and for the eventual removal of the insert at the end of the deployment term. The use of the Velcro also ensured that no lasting alteration to the dispenser was made (for instance, avoiding drilling holes or stronger glue that might have left a mark), for this would impact the maintenance of the machine in the longer term. The sensor platforms operated for about a month at a time without interruption, sending data to a web server hosted by our home institution.⁸

Installing Riot, uncovering existing entanglements

The installation invited additional opportunities to understand the way access developed across the university restrooms. Consider, for example, an episode during field engagements when I met building manager Felicia to implement a long-term deployment in the restroom of a heavily trafficked campus building.

Though Felicia had volunteered to be a part of the research, and although she was at first curious about the device, when we met her at the campus building she appeared to oscillate between excitement and skepticism over the course of the installation. As I told her how the system worked, for example, Felicia said under her breath, “just bring [the tampon] from home,” referring to students in need of menstrual products. She seemed disappointed, pointing to individual accountability as the answer to the problem of too few public menstrual resources. After a moment of reflection, however, she shifted tone; “although, I guess it comes in handy sometimes,” she said. Her view of responsibility seemed to change over the course of our conversation—from institutional to individual and back again.

⁸ Based on continued development of power handling over the course of the deployment period, I estimate that our design could support between 7 to 8 weeks of monitoring. Silva and I are currently testing this progress in further sites of installation, such as the Seattle Public Library system.

This tension between individual and collective responsibility reemerged as we turned to the machine itself. When Felicia opened the door of a dispenser we noticed there was nothing inside. I asked if she had any menstrual products to fill the machine, and she responded, “Oh, you need those?” To her, the device was the solution to the problem—the technological standalone that would ease the burden of upkeep and make certain visitors had the menstrual resources they needed. It seemed tales of design solutionism had preceded me. Yet, Riot was no such thing. Instead, the IoT device relied on a web of connections between maintenance, advocacy, and design intervention—interdependent, much like the relationships that gave rise to it.

Without products already in place, I was unable to calibrate the device. Without calibration, the device was unable to count the products. And without the count, we were left facing an empty, under-considered machine once again. This revelation exposed something about the design I had not yet considered: the machines had to be filled for the system to work. It highlighted an assumption I was making about the types of enrollment I assumed from my collaborators—namely, I expected them to know where to locate the products. But this insight also represented an immediate intervention into the way maintenance practice worked. The machines had to be filled, right then and there.

After calling a crew member to locate the products, Felicia found pads in a nearby supply closet, but the tampons were “all the way at the tower,” a building easily a half-mile away or more from where we stood. As she went to retrieve them, I waited by the open machine, with visitors to the restroom commenting, “thank you” and “Finally!” Continuing to stand there, I found a tiny, ripped post-it note stuck to the door next to the lever for the tampons with a handwritten message. It read, “Empty July 2017 :(”. The dispenser had been unfilled for months, but not without notice from the menstruating public.

As my fieldwork continued, I noticed that custodians passed by the dispenser as well, peaking into the restrooms when they saw me standing there. “Are we going to do that again?” one woman asked as she passed by on her way through the hall, referring to stocking the machine. “We just had to do it a long time ago. Are we starting again this year?” she continued. When I described the Riot project and its installation the woman nodded and continued walking. Minutes later, from another custodial professional, “Are we supposed to do that?”

Marked by my presence, the dispenser gained new attention and prompted questions of responsibility. Whose duty was it to maintain these machines? For the visitors who moved through the space during the installation, there seemed to be a quiet desire that dispensers be kept by university staff, but when that job was left undone there was only small evidence of resistance (in the form of a post-it note). Custodial staff, on the other hand, expressed curiosity, asking if it was something that might be under their authority to do.

When Felicia returned from her mile-long journey, she had two large trash bags full of individually wrapped tampons and pads. She began filling the dispenser and asked how the system works. Walking through the different IoT components, I described what each part did and how it communicated with the online system. In response, Felicia's face relaxed a bit. She said that she hoped this platform would help facilities see how difficult it is for building managers to keep the machines up. Custodians aren't allowed to fill the dispensers, she told me. Instead, building managers or their superiors have to travel between the areas under their supervision, empty the coins, and fill the machines with more products. This work currently sits outside of their regular tasks of managing schedules and it involves overseeing the



Figure 2 From left to right, the Riot installation process, a filled machine, and a set of keys for a product dispenser.

facilities of many buildings at once, which means the work often goes undone, she admitted. Those closest to and with arguably greater knowledge of individual restrooms and their care, the custodians who maintain them, were not entrusted with the replenishment of the machines because of the money handling involved. Felicia laughed at the thought of this and offered to count the money inside of the machine in front of me. Pulling out a separate, and even smaller key she opened a small metal box in the interior of the dispenser and counted the coins there, “\$2.25.” She counted again just to be sure, “Yeah, \$2.25,” and laughing again.

Through this encounter with Felicia I gained a deeper appreciation of the forms of labor enacted (and made invisible) in public sites such as university restrooms. My presence during the installation prompted reflection on the varied responsibilities expected of and entrusted to those maintaining the restrooms. It also surfaced larger questions of individual accountability and collective responsibility in regard to public resources. What is and is not considered vital to sustaining a healthy public? Who is expected to supply the material to support it? In some ways these questions were made more fascinating by the fact that I only discovered them at what might be considered the end of a traditional design encounter: the deployment.

Reflecting back, I find it interesting to contemplate what the project might have looked like had I learned about these conditions and questions sooner. Would the project have shifted to reflect these power differentials—focusing further on class or labor relations? Or, could it have confronted more directly the fact that the responsibility of resource distribution is unevenly assigned? Without the slow-collaborative design process and installation, it seems unlikely that I would have uncovered these complexities at all.

Conclusion

With Riot, I was able to further reveal the kinds managerial and service labor hidden away and deeply intertwined with IoT (forms of labor also discussed in Chapter 2). The project exposed the value of frequent and repeated engagements with key community allies, but also the way I built those alliances across multiple sites in parallel, and not in isolation. Where typical community-based design projects partner with local groups to develop design solutions, Riot required understanding the numerous histories of advocacy and maintenance the deployments operated within. This understanding developed as part of iteratively refining the Riot platform and, in particular, re-defining what it meant to build a robust technology. The project

necessitated a robustness from “two sides,” as Denis and Pontille (2017) might say. It examined the dispenser’s fragility from the perspective of the custodians who care for them and their reliability from the perspective of the people who look to them for access and support.

Adopting this dual attention to care, Riot illustrates a design approach that in some ways contrasts with typical IoT design. For the IoT dispenser to live in public, it had to enroll a variety of actors, each with numerous influences, concerns, and interdependencies. From limited power supplies to uneven authority, I found that defining discrete stakeholders and identifying their needs or desires could not capture or do justice to the web of relationships the design inhabited. Even from a small glimpse at these arrangements, I began to see how the Riot platform demanded multiple scales of engagement. At the device-level, Riot opened possibilities for extending menstrual resource accessibility. At the infrastructural-level, it showed how prototyping was insufficient for understanding the range of dependencies and interests at play. At the policy level, it occupied the imagination of grassroots organizers and facilities staff, offering opportunities for advocacy. Rather than ground its design in the interests and desires of individual actors, each with the perceived ability to take up the designed solutions and feel empowered by them, the Riot project began to show what it might look like for designers to take seriously the broader political, economic, and historical forces shaping IoT design as well as the collective concerns of those implicated in accessibility (here, custodial staff and menstruating peoples, for example).

This work suggests that the responsibility for design interventions in the long term—the care and attention required for sustained engagement—needs further examination in the now. For me, this meant understanding how community partners may take up and continue to use, service, mend, and rework IoT infrastructure, work that may be as important or challenging as devising the initial design concept. As I saw throughout my fieldwork, some of the steadiest figures of the menstrual movement have been community activists running product drives and sewing circles—filling gaps of access using the tactics of grassroots organizing. Although the WAC’s recent push for legislation has helped advance the codification of menstrual policy, their ongoing advocacy for product transparency—over 25 years of work—has produced a proposed bill that has yet to appear in the state congress. This slow and unpredictable process offers lessons on flexibility, posing collective adaptability as a key concern for the development of any community resource or product design effort. With this concern in mind, I ask: what might a flexible IoT look like, one that is adaptable and community supported? To start with, designing for such IoT may not

only mean attending to the particulars of component selection or environmental surroundings (in this case, building menstrual resources), but also the regimes of maintenance and advocacy (in this case, WAC advocacy efforts and the facilities organization policies and practices) that envelope and define it.

Connected to concerns for maintenance, this investigation into menstrual resource distribution also holds lessons for the shared authorship and responsibility of public IoT. When the WAC was not able to get their second proposal for broad ranging menstrual equity through the appropriate channels of the student government, the directors of the university facilities organization took up the proposal anyhow. They installed the sensors in university restrooms and piloted a program that made free products available in select restrooms across campus. Thus, my partners reconceptualized the maintenance of menstrual resources as a collective rather than an individual burden.

This case suggests that the design of public IoT takes not only work, but certain kinds of work that meaningfully extend IoT design methods through collective responsibility. The Riot intervention reveals the types of obligations held by different organizational actors, and the classed nature of those commitments. In the case of the installation, custodial staff were not interested in the \$2.25 worth of coins sitting in each dispenser, yet the organization shifted the responsibility for emptying the coins away from such staff – ultimately making the majority of machines unusable. Here, the rules and policies guiding the practices of those attending to the restrooms reflected deeply entrenched power differentials and forestalled forms of collective responsibility that could exist, highlighting again the importance of attending to the conditions of one's deployment or field site.

Riot was not able to fully solve the problem of access on its own, as perhaps Felicia had imagined, nor did it capture the imagination of all who encountered it (as was the case with the Seattle Parks crew members). Instead, the platform affected change in other ways. For example, it served as an object for gathering around, for forming partnerships that had long elided the facilities organization and the WAC. Rather than merely focus on particular utilitarian gains, Riot exposes how IoT can also work as what Sherry Turkle might call an “evocative object” contributing to wider debates on access, resource distribution, and public health (Turkle 2011). Even as the technology itself became less central, it produced something larger, a connection that might live on beyond the tenure of the device.

Chapter 4

Beyond Convenience

Curbed by an impending downpour, I searched my phone for somewhere the group of 8 cyclists could lock up their bikes and rest until the weather passed. I quickly located something listed a few miles up on the map: Motorsports Research Library. Figuring it might be open to the public, we quickly gathered our things and headed in that direction along a rural Alabama highway, flat and hazy through the rain (Sean and I in the “sag wagon” or support and gear car, and the others on their bikes). As we approached the dot on the map, a sign greeted us, “Talladega Superspeedway.” I held my breath realizing we were not making our way to a community public library, but instead to the internationally known motorsports complex made famous to a general audience by a 2006 comedy film lampooning car racing culture.⁹ A security guard waved us into a small parking lot next to an office building immediately off the road and a long stretch away from the track. I parked the car and met the cyclists at the entrance. We hesitated for a moment, but a rip of thunder sounded and the decision was made. Here we were, days without a shower and loaded with the food and gear to sustain what for some in the group constituted a cross-country tour.

Sustainable Cycles, as they are called, is a group of “cycling advocates” offering education on bicycling and menstruation in the form of regular workshops along their route which started during the summer of 2017 in Los Angeles, went down Mexico City, up again to Austin, and on to Atlanta (with many stops along the way). The crew had landed in what some might call the heart of the American south (or at least a potent version of it) from cities or liberal college towns across the country¹⁰ on a mission to attend the Society for Menstrual Cycle Research conference, a biennial

⁹ Talladega Superspeedway is a motorsports complex located between Birmingham, Alabama and Atlanta, Georgia, where NASCAR races are regularly held: <http://www.talladegasuperspeedway.com>. The 2006 film *Talladega Nights: The Ballad of Ricky Bobby* made the track known to a broad audience.

¹⁰ Though many of us grew up in rural areas, as adults we chose large cities or liberal college towns within which to dwell: Tempe, Davis, Berkeley, Los Angeles, Chicago, Seattle, Brooklyn, Philadelphia.



Figure 3 Sustainable Cycles riding along a rural Alabama highway during their 2017 tour.

gathering of various company representatives, nonprofit professionals, scholars, and activists in the menstrual space.¹¹

This chapter considers concepts of representation and politics within modes of menstrual activism, further developing the notion of access from Chapter 3. Among groups such as Sustainable Cycles, access took the form of a distributed, cross-country campaign centering on sharing alternative menstrual products and reproductive health education. Others engaged with their local communities to collect and distribute products to those among them who could not afford such resources. Still more focused on legislative initiatives that might codify menstrual access. Across my sites of study, I further interrogate by asking simply, what does menstrual activism mean within the groups who promote it? What sorts of change do members enact and maintain? Based on interviews and observations with a range of activists and advocates, I show how their campaigns not only reshape access to

¹¹ Scholarly participation includes an interdisciplinary group spanning public health, gender studies, anthropology and others. Read more about the group and the conference, here: <http://www.menstruationresearch.org>.

menstrual resources, but in enacting forms of protest and resistance they also reform menstruation itself—opening it up for debate on bodily autonomy and individual and collective identity formation. Later in this chapter, I discuss how we managed to find ourselves at the headquarters of the nation’s largest racetrack (the seeming antithesis of a radical cycling collective) and describe the coalitions we formed along the way.

Seeds of a Contemporary Movement

Before focusing in on the particular sites I examined, I first offer a brief overview of the sorts of menstrual activism that have preceded this contemporary turn, a history that assumes several forms and factions inextricably tied to the concerns interwoven throughout present debates.

Menstrual activism—known also as “radical menstruation,” “menstrual anarchy,” “anti-tampon activism,” “alternative menstruation” and “menarchy”—is loosely defined as effort to push back against dominant narratives that project a view of menstruation as stigmatized or taboo, to instead reconstruct it as a healthy bodily process experienced by many. The work that constitutes menstrual activism has historically included activity as wide-ranging as policy making, art, and direct action (e.g. street protests or coordinated online campaigns). Design historian Barbara Penner (2001) describes early suffragette campaigns to advocate for public restrooms for a newly mobile and working population of women out of the home for long periods and in need of sites to relieve themselves, as well as perform acts of menstrual care and express milk.

According to gender studies scholar Chris Bobel, early concerted efforts in menstrual activism were spearheaded by feminist-spiritualists who viewed menstruation as an under recognized source of female power (Bobel 2010). This arm saw theirs as a body centered movement and took up essentialized notions of gender. Geographers Bell and Valentine chart the activities of rural lesbian separatist groups of the 1970s who held menstrual festivals and collective meditation to celebrate what they perceived to be a closeness to nature through their access to childbearing (Bell and Valentine 1995). In the mid-1960s and early 1970s, with feminist run clinics and public education campaigns like *Our Bodies, Ourselves* (first titled *Women and Their Bodies*) by the Boston Women’s Health Collective, there was newfound support for open conversation about menstruation and alternatives to popular consumer options like menstrual cups and sponges. Self-help techniques such as menstrual extraction, boasted the ability to alleviate oneself from the burden of an extended period—a

practice of technoscience “done differently,” as described by STS scholar Michelle Murphy.

In 1972, artists Judy Chicago and Miriam Shapiro led a group of students of the Feminist Art Program at the California Institute of the Arts in refashioning a condemned house in Los Angeles, meant to create space away from the male-dominated art institution for developing work reflective of their own experiences as women. It was here that Chicago built the now famous “Menstruation Bathroom,” a white washed restroom with menstrual products lining a shelf and sitting atop the toilet, cloth pads drying overhead, spots of blood on the tile floor, and a bin overflowing with used pads and tampons. The way women felt upon entering the space was how they felt about their own menstruation, Chicago suggested. Not the first time Chicago dealt with subject matter, an earlier photolithograph entitled “Red Flag” depicted a closeup of the artist removing a bloody tampon. A few years later in 1974, divinity student Emily Culpepper produced the short film *Period Piece*, showing period imagery such as Culpepper’s own vaginal self-exam while menstruating. Experimental queer filmmaker Barbara Hammer later directed *Menses*, a short depicting a group of women acting out their own fantasies of the bodily process. With each piece, artists across these various artistic scenes sought to unsettle viewers’ relationships with the experience of menses and bring practices involved in maintaining the menstruating body to the fore for a broader audience. In a sense, consciousness raising was moved from the intimate space of a closed circle and transformed into a more public experience.

Later, on the heels of the women’s liberation movement and with an uptick in reported cases of Toxic Shock Syndrome (TSS),¹² feminists and health advocates of the mid-1970s and 1980s began to organize movements of resistance to the now mainstream views on modern hygiene maintenance and the industry that supported these practices. The movement had two fronts during this time: one focused on health issues, pushing the government and industry for product safety and labeling, and the other was concerned with promoting more sustainable options like all-cotton and unbleached pads and tampons. Efforts included consumer rights focused work that appealed to corporations and government entities to impose regulation over the contents of menstrual hygiene products, research on their long-term usage, and labeling packages with the items’ ingredients. Yet, even with such effort, no policy on

¹² According to the Center for Disease Control (CDC), during this timeframe, there were 813 reported cases and 38 deaths resulting from TSS. To date, the CDC indicates there have been 2,200 cases of TSS in the United States.

menstrual product research or ingredient disclosure was introduced to the US Congress during this time.¹³

Set against this backdrop of decades of activism, contemporary concerns around health advocacy and corporate resistance read as recurrent. Yet, burgeoning menstrual activism initiatives offer glimpses of new trajectories taking form through organizing on college campuses, distributed grassroots initiatives (such as Sustainable Cycles), and efforts to queer menstruation or to question its gendered treatment.

Examining Menstrual Activism

Rather than making attempts to work with the FDA or industry, like their Second-Wave processors, menstrual activists of the contemporary turn moved away from these groups to further circulate period themed art (Bystrom 2012), organize protest actions (O’Keefe 2006), or stage comic performances. Included within this work are the performative techniques of activists who have recently focused public attention on menstrual stigma through acts of free bleeding (going without cloth or products to collect menstrual blood), such as Madame Gandhi as she ran the London Marathon (described in the Introduction) (Gandhi 2015) or Cass Clemmer on a Washington DC park bench (Gharib 2015). Communication scholars Kristin Biven and Kristi Cole and Sociologist Theresa O’Keefe describe the use of menstrual blood as a tool of resistance throughout North America and Ireland respectively, in acts Biven and Cole term “grotesque protest” (Bivens and Cole 2018). Such activity has gained increased attention in recent years, demonstrated by a hoax led by members of the anonymous imageboard 4Chan, entitled “Operation Freebleeding,” which sought to manipulate feminists into joining in menstrual activism. 4Chan members established a hashtag of the same name and created fake social media feeds promoting the act of bleeding without the use of menstrual products. Through their use of the hashtag, feminists could be identified by the group for ridicule and online harassment (Goggin 2015). Though the campaign briefly captured internet attention, outlets such as the *Daily Dot* and others were quick to reveal it as a hoax (Alfonso

¹³ In more recent efforts, Congressmember Carolyn Maloney has sponsored legislation since 1997 calling for research and regulation of menstrual products on the part of institutions such as the National Institutes of Health the Food and Drug Administration (e.g. The Tampon Safety and Research Act of 1997). The latest piece of legislation authored by Congressmember Maloney, Robin Danielson Feminine Hygiene Product Safety Act of 2017, would amend the Public Health Service Act to institute a program for researching the potential risks posed by dioxin, synthetic fibers, fragrances, and other elements currently common in menstrual hygiene products.

2014). The wide media attention—and later ridicule from 4Chan and conservative outlets such as Brietbart—garnered by Clemmer, Gandhi, and others who took on such “grotesque” means for probing dialogue indicate the potency of such tactics and the prolonged stigma around the topic of menstruation.

Contemporary activists have also shown continued concern for the environmental and health impacts of industrially produced tampons and pads, while incorporating traditions of a “do-it-yourself” punk ethic and third-wave feminist ideals that emphasize anti-essentialism, inclusion, and appropriation (Bobel 2006). Zines and blogs feature instructions on how to make use of blood as fertilizer or facial exfoliant, offered information on alternative products (e.g. sponges, menstrual cups), and featured sewing patterns or knitting instructions for making one’s own reusable pads and tampons. Led by transgender and genderqueer menstrual activists, a small but growing set of people push companies and the wider movement itself to contend with the gender normativity present within messaging such as advertising or promotional campaigns which essentialize sex and gender (e.g. the Portland Menstrual Society and Toni the Tampon, both discussed later in this chapter).

These recent efforts additionally include the formation of grassroots organizations such as Homeless Period Project and Period (formerly Camions of Care), among dozens of others, on college campuses and cities across the country with missions to collect pads, tampons, and other menstrual resources through product drives and later distribute them to people unable to afford them. Some of these organizations welcome corporate sponsorships and endorsements, while others eschew such association and instead leave bins in public sites across their respective cities, from Phoenix to Providence. Whatever the mode of collection, each aim to provide wider access to tampons, pads, underwear, and other items they consider necessities to all.

Over the past several years, advocates have reintroduced the technique of drafting governmental policy proposals, but now focus largely on bettering affordability or access to menstrual products in public sites (though US Congressmember Carolyn Maloney has consistently proposed legislation on research and regulation of menstrual products for the past 20 years). Jennifer-Weiss Wolf of the Brennan Center for Justice at New York University has acted as one of the most visible policy advocates within this space, writing a book entitled *Periods Gone Public* on her mission to make menstruation a national talking point through op-eds and policy shifts (Weiss-Wolf 2017). Within the past year alone, two major federal level bills have been introduced to the House and Senate respectively. One sponsored by Representative Grace Meng of New York would require sweeping regulation across

governmental institutions, encoding affordability through changes to labor and tax code, as well as FEMA and Department of Justice funding (Meng 2015). Responding to a series of reports and lawsuits uncovering abuse of or disregard for existing regulation (Bozelko 2015; Kraft-Stolar 2015),¹⁴ Senators Corey Booker, Elizabeth Warren, Richard Durbin, and Kamala Harris later introduced the Dignity for Incarcerated Women Act, which would, in part, formalize requirements to provide those in prison with menstrual products (Booker 2017).

Through such varied activity, modern menstrual activists push back on a dominant paradigm defined by an industrial marketplace that leverages gender essentialism, harmful materials (to individual health and sustainability), and shame to sell products. These newly enlivened foci on the cost burden of products and critiques of essentialized notions of those who menstruate open up concerns to those who have been largely absent from prior incarnations of the movement, which had been dominated by middle-class, well-educated white women. In the sections that follow, I further interrogate these most recent strands of activism by drawing on interviews and participant observation with a range of activists and advocates from across the US, spanning 2015 to 2017. I describe the forms these modes of engagement took, the empowered status of its organizers, and how menstrual activism informs a politics of representation.

Aligning Individual and Collective Aims

Turning back to the case of Sustainable Cycles (SC), we find an organization in the mold of generations of activism described above, with a focus on environmental sustainability and bodily autonomy. Yet, members also built upon these legacies by incorporating concerns for rural populations of menstruators who less-often have ready reproductive health resources. Riding across the country, SC members offered 2-hour workshop workshops along their route centering what one organizer called “female-bodied people” and advocating for mobility and self-sufficiency through the use of reusable menstrual products (e.g. sponges, cups, and cloth pads) and cycling as a primary mode of transportation. SC members gathered together with variably sized groups (from 1 to over a dozen) made up of anyone from “earthly crunchy,

¹⁴ 2016 footage of a Kentucky courtroom showed a judge stunned at the sight of a defendant appearing arraignment menstruating without pants. Despite repeated requests, the defendant claimed, the correctional officers had refused her menstrual products or clothes (Bever 2016). In New York state, inmates were reportedly required to show their used menstrual products to receive a new supply (Greenberg 2017). Across US correctional facilities commissaries, menstrual products are set at prohibitively expensive prices, with tampons costing nearly a week’s wages for example.

hippy people,” cycling enthusiasts, curious community members, and reproductive health advocates in spaces as wide ranging as local art centers, homes, high schools, bike shops, and so on.

To start off the workshop, members of SC facilitated discussion on personal bodily experiences, offering prompts such as “share a menstrual memory” to spark conversation amongst the group. As one member explained, “we’re not professional health educators, nurses, OBGYNs” so the event was centered on discussion, rather than formal recommendation. Later portions of the workshop focused on developing “informed choice,” or familiarizing attendees with reusable product options. SC facilitators outlined “5 reasons to make the switch,” which they identify as cost, waste reduction, health, convenience, and women’s empowerment (arguing that direct contact with one’s menstrual fluids and the body is empowering). At this point in the workshop a “show and tell kit” was circulated containing items such as menstrual cups, cloth pads, sea sponges, and absorbent underwear, in order for attendees to see and interact with the products as facilitators talked in depth about how to use each one. “We’re not trying to force anyone to switch exclusively to cups,” one member said, arguing instead that traditional modes of health education, “never told that there are these better options that are better for you.” The goal, according to members, was to widen the purview of potential menstrual care options that they believed to be less productive of industrial waste and to promote bodily knowledge.

Despite the seemingly concise mission, SC members described having different goals for the work. For one member, involvement in SC combined two key interests—in sexual health education and cycling. The former was a topic that occupied increasing importance in her life as she enrolled in a master’s program on the subject and the latter was a recently formed interest in which she was becoming more steadily active through regular bike commuting. Another member described coming to the work of Sustainable Cycles after reading about an earlier instantiation of the tour. She already possessed a desire to ride cross-country herself and saw the organization as a platform for fundraising the means to do so, while leveraging her existing advocacy network focused on empowering women and non-traditional cyclists. Another member was filmmaker, actor, and active volunteer with no cycling experience, but a desire to attend to the SMCR conference, which she saw as a venue for learning from experts in “menstrual equity,” or contemporary efforts to ensure products are safe and freely available.

In terms of intellectual or political legacy, there were also departing ideas. One member drew connections to earlier traditions of ecofeminism, citing work such as

Carol Adams' *The Sexual Politics of Meat* (Adams 2015), which argued that patriarchal and capitalist societies enable the exploitation of both women and the environment. When I asked the member about how these perspectives—regularly critiqued as essentialist (Biehl 1999; Hamilton 2016)—sat in relation to recent efforts to broaden gendered perspectives on menstruation, she suggested ecofeminism was a “means to getting there.” It was not without its flaws, but not to be disregarded either. For many more in the group, Sustainable Cycle's concerns for reproductive rights were deeply connected to legacies of feminist health movements. Members, for instance, regularly referenced consciousness raising groups or outputs such as *Our Bodies Ourselves* when describing the workshop series.

Through this brief slice focused on the ideals and aims of SC's membership, we begin to see how recent efforts rarely center on a single goal, but rather a constellation of concerns that require alignment in order to move forward. No two members or organizations possess precisely the same view, but rather align just enough around concepts such as access to constitute recognizable initiatives.

Dignity through drives

Across the groups I observed the majority described forming around the aim of collecting and redistributing menstrual resources for those unable to afford them, often in the form of product drives. Often small initiatives, many were led by one or a few individuals who were compelled to action by either personal experience or an encounter with those in need of menstrual products (frequently described by founders as a sort of “ah-ha” moment because they had not previously considered the need as a wide issue). The Seattle project All Cycles, for instance, was established after co-founder Liz Andrade read a series of stories in the weekly progressive street newspaper *Real Change* (Hidalgo 2015) chronicling the difficulties of acquiring menstrual products and reproductive health resources for Seattle's residents experiencing homelessness. The article shares the experiences of one woman who contracted a uterine infection after a miscarriage which caused constant bleeding, and with shelters and day centers often low on menstrual supplies, she found herself making due with diapers. Others interviewed noted a sense of low self-worth that comes along with uncertain access to hygiene resources, such as Miss Quinett who states simply, “It all boils down to dignity, pride and well-being” (Hidalgo 2015). Dignity, for Quinett, was about the ability to take part in personal hygiene practices that are deemed common and necessary within society, in order to participate in

facets of civic life¹⁵ or avoid infection or forms of discomfort that may come along with a lack of or the prolonged use of menstrual products.¹⁶ Motivated by these stories, Andrade and her colleagues Hannah Stover and Jessica Olson held their first menstrual product drive at the feminist sex toy boutique Babeland, and later at the 2015 Geek Girl Con, a gathering of thousands of people celebrating women's contributions to science and technology. After successful collections at these events, the group began hosting regular month-long drives over several years at businesses across the city of Seattle and welcomed others like Alex Noble, a former maintenance worker who serviced menstrual product dispensers, to host events and collect products on their behalf. With a small group of volunteers, they then distributed the items to various shelters around the city, with a focus on spaces serving youth and LGBTQA residents. At the time of writing, after a little less than 3 years of operation, the group reported that they have collected over 56,000 menstrual products.

Like Andrade, Atlanta-based Peach Coven founder Sarah Belle Miles came to grassroots organizing and the format of the drive by encountering a popular press article in early 2016 describing the toll of menstrual management on those already dealing with housing insecurity. "I never thought of that," she admitted to me in an interview. For Miles, the Peach Coven was a particularly Atlanta response to an Atlanta problem. Gentrification was rapid, and by her account the city and state governments did little to provide basic resources to its residents dwelling on the streets or in shelters: "I think they really just view homelessness as something in their way on their way to [real estate development]." To illustrate this point, she described a homeless taskforce setup to regulate who would be offered beds each evening, with many shelters requiring visitors to present a certificate from the taskforce proving that they are indeed homeless in order to be admitted. "In my opinion, that is political. Why does someone have to prove they're homeless to get resources to survive," Miles questioned. Other shelters let in only the "perfect recipe" resident ("this type of person, this type of identifying, this type of orientation") who would align with or resemble the ideals of certain moral or religious affiliation. Miles saw Peach Coven as one among many small organizations "combatting strange and uncaring aspects of the city," and filling in the gaps of municipal? resource distribution. To do this work, rather than enrolling formal non-profit organizations or institutional partners, she called on others in the arts community to play benefit

¹⁵ At the time of the study, the Seattle Public Library instituted a policy barring patronage from residents who possessed a "foul odor," effectively banning those without regular access to hygiene resources. Read about this and other regulatory activity in restrooms in Chapters 2 and 3.

¹⁶ The use of hyberabsorbent tampons or menstrual cups for prolonged timeframes pose the threat of infestation of Toxic Shock Syndrome.

shows to attract people to learn about the cause and donate or to help organize and host drives at local DIY music venues and community galleries. Seeing few existing models that could be applied locally, the organization instead responded to particular, local constraints by drawing on local resources.

Collecting and delivering products to support forms of dignity also served to extend the mission of existing organizations. The Sissy Collective, a Seattle-based group interested in supporting local arts practice among those who identify as, “sissies, nerds, geeks, outcasts, wimps, weaklings, survivors, gender deviants, People of Color, queer folks, trans folks, and anyone who has ever felt on the outside or oppressed” by developing codes of conduct and hosting theme nights at local community spaces. They had previously been a part of women-only spaces in Bellingham WA while many of the founding members attended Fairhaven, a small interdisciplinary college at Western Washington University. After school, many of them moved to Seattle to take jobs in social work, employee owned coops, or attend graduate school. When gathering together again to reform the group they chose to explore a more open membership format that better reflected their current feminist values, with a concerted effort to be more inclusive of trans and gender non-binary people.

When I met the organizers in 2016, they were in the process of running what they called the Body Basics drive, their first event back together as a group. This was a month-long initiative to collect hygiene supplies at partner businesses and organizations across the city “to benefit homeless and low-income women and trans folks,” meant to meet the lack availability of such items of public spaces. They specifically named pads, tampons, and menstrual cups as difficult to attain items, but also included other suggested donations like lotion, nail polish, toothpaste, denture cream, condoms, lube, and dental dams. Like All Cycles and Peach Coven, their aim was to support feelings of dignity amongst Seattle residents who were experiencing housing or income insecurity. Seeing items like menstrual cups and condoms as necessities contrasted sharply to how the state currently designated the products through tax law for instance (subjecting them to sales tax and in many states an additional luxury tax (Larimer 2016)). By not weighing one care product more heavily than the other, the Sissy Collective chose to refrain from defining too strictly how forms of dignity might be upheld or achieved by the individuals they aimed to support. Here, the collection and distribution of hygiene resources became a means of expressing an evolving group identity. Moving away from previous practices and categories that they now deemed exclusionary in light of their newly invigorated intersectional feminist ideals (e.g. hosting “women only” events or spaces), the

collective found it important to lean toward openness in the items collected, the spaces donated to, and the members they aimed receive.

Across these geographically distributed groups the collection drive became a venue for exploring and enacting activism. Each sought to cultivate particular forms of dignity, where personal care was seen as a basic necessity. Organizers contributed to local shelter stock, responded to city government austerity measures, and embodied an evolving collective feminist identity, all through the format of the drive. Yet, what motivated the production of this as the core initiative, over others? To begin with, the format represented for members and organizers a means to immediately act upon a newly discovered need, the need for menstrual products among those in the community who were experiencing income insecurity. The drive additionally required relatively few resources to startup, compared to costlier initiatives such as benefit dinners or emergency relief. All organizers really needed were a few trash cans or boxes, a vehicle to drop off and pick up supplies, and relationships with local vendors. The venue of the drive was also fairly visible, with the capacity to captivate or activate community. Distributed throughout a city in marketplaces and at local community centers, the bins served a dual purpose of raising awareness and drawing donations (e.g. several members described first coming into contact with the groups after seeing drives underway in their communities). Finally, the drives and subsequent donation were materially impactful. They provided a fairly immediate response to a need identified in the community.

Hygiene and “empowerment”

This notion of dignity carried through across sites. Nadya Okamoto, founder of the multi-national nonprofit Period (formerly, Camions of Care) urged the audience of her TEDx Portland talk to recognize the importance of menstrual accessibility by invoking personal fulfillment and economic empowerment: “If this need isn’t addressed, women and girls will not be provided with the confidence and dignity that every human deserves to discover and reach their full potential” (Okamoto 2016). At 16, Okamoto established Period after her own experiences with homelessness put her in conversation with women who described using discarded paper bags, pillow cases, and socks to collect menstrual blood. In the talk and interviews, she connects the lack of access to menstrual resources to stalled global development, citing the number of missed school days amongst girls in “developing” countries due to menstruation (See Chapter 5 for more on the “girl effect”). She argued, women’s empowerment—defined here as improved education and employment opportunity—cannot be fully

realized until period resources are made freely available, a benchmark chapters of the Period organization have set out to achieve. Dignity here is not only about an individual's hygiene practices, but rather it is connected to wealth of a nation-state. Women are unable to "take advantage" of existing programs and services offered by multinational nonprofits and foundations, she continues, due to basic sanitary needs. Their periods are standing in the way of economic progress.

This argument is one espoused by international organizations such as the United Nations (Tellier and Hyttel 2018) and UNICEF (Lihemo and Arnott 2018) and largely draws from the work of Marni Sommer (Sommer 2010b, 2010a; Sommer, Hirsch, et al. 2015; Sommer, Ackatia-Armah, et al. 2015), a Public Health scholar whose doctoral research investigated the ways in which the onset of puberty disrupted girls' education in Tanzania. She argues the lack of accessible toilets and absorbent materials for collecting menstrual blood causes children to miss almost 5 days of school each month, and dramatically impacts their likelihood of completing education. Here, water and sanitation research, education policy, and global health initiatives are all implicated in providing infrastructure for menstrual resources and uphold the health of the state.

Similar arguments have also been used to galvanize domestic policy initiatives. Jennifer Weiss-Wolf of the NYU Brennan Center for Justice, contends, for instance, "The inability to access sanitary menstrual products affects a person's freedom to work and study, to be healthy and to participate in daily life and society with dignity" (Weiss-Wolf and Maeve 2018). She connects issues of menstrual resource distribution with realizing "a fully impartial and participatory society," calling on lawmakers to remove tax on menstrual products (luxury and sales), for Food and Drug Administration oversight of product ingredients, and the provision of free products in schools, correctional facilities, and shelters (Weiss-Wolf 2017).

These notions of fulfillment and individual empowerment were not solely cast on recipients of collection drives or education policy, but rather extended also to the organizers who prompted these calls to action. In recalling her motivation for founding the LA-based organization Happy Period, Chelsea VonChaz Warner recounts driving through the Skid Row district of Los Angeles and seeing a woman with blood seeping through her clothing. As Warner tells it, after this encounter, she swiftly departed from a freelance career as a clothing stylist to form the non-profit with her mother. Leveraging her own status as founder and a healthy relationship with popular press outlets, Okamoto entered into a deal with Simon & Schuster to publish a book, set to be part memoir and part "menstrual manifesto" (Okamoto

2016). She also put in a bid for a city council seat in Cambridge, Massachusetts, where she is currently pursuing university education. Here, association with efforts to affect menstrual resource distribution meant changes in professional and financial circumstance for those involved.

Degendering Menstruation

Building on conversations on identity and the politics of menstruation, calls for gender inclusivity within menstrual activism have grown over the past several years. Trans activist Cass Clemmer, for instance, urges those within menstrual activism to recognize the differential experiences of those who menstruate—not only around the prohibitive cost of such items, but also the danger that might be incurred from “bleeding while trans.” Clemmer points to the “candy bar dilemma” or the phenomenon of using the restroom that one identifies with only to be confronted with shouts from neighboring stalls or urinals on the crinkling sound of a tampon wrapper. To avoid harassment, Clemmer describes a tactic of responding “Oh, it’s just a kit Kat!”¹⁷ On the institutional level, once a chapter of Period, Portland Menstrual Society (PMS) disassociated from the group to establish their own organization over concerns about Period’s lack of trans inclusivity. Even with express interest in gender inclusion from organization leaders, how this concern translates into shifts in menstrual movement politics around the needs and concerns of trans and gender non-binary members is still an open question. Peach coven, for example, noted a desire to serve trans women in Atlanta, but at the time of the study she was still unsure of which programs to pursue. To further understand these pursuits and how they unfold, let us turn to a discussion that brought together some of the movement’s most vocal queer and non-binary leaders.

In a top floor gallery in the middle of Manhattan, a panel featuring queer activists Jax J. Gonzalez, Cass Clemmer, and PMS cofounder Mason Pierce took the stage. They were there to discuss gender inclusivity at the inaugural meeting of Period Con, a gathering of campus activists and representatives from social enterprise, menstrual product manufacturing, and politics. Early presentations, such as a keynote from DivaCup International cofounder Carinne Chambers-Saini and New York Assemblymember Linda Rosenthal, focused on the ways in which the movement had become more prominent in public discourse over the past several years and had led to wins in the form of menstrual cup market shares or policy

¹⁷ See “Talking Periods in Public” NPR (Washington, DC: National Public Radio, 2018): <https://www.youtube.com/watch?v=b6Cl4KZlXjQ>.

encoded into state law. Rather than a celebratory account, within the first few minutes of the gender inclusivity panel, it became clear that the discussion would take a reflexive turn.

Power is found in the deconstruction of menstruation, Gonzalez urged. A move that would involve decoupling the bodily process from its tight association with womanhood and femininity. “I think there are very interesting queer and forward-thinking directions that we can go when we stop using the gender binary as a way to orient our movement,” they continued. Clemmer built on this call by suggesting that “breaking down menstruation” could lead to seeing the process as a shared, collective experience and a lens to critique companies who market their merchandise with the “color pink and flowers and purple or use ‘she,’ and ‘women,’ and ‘feminine hygiene products.’”

These gendered terms constitute violence, Gonzalez and Clemmer argued. To illustrate, Clemmer described a recent social media post in which they paired an image of themselves seated on a park bench in bloodstained pants with a poem describing their first period. It was “a moment I felt part of me died,” Clemmer recalled, when their body had betrayed them and their mother demanded they relinquish the relative freedom in gender expression they had experienced during childhood to enter into “womanhood.” Now, as an adult, Clemmer confronted this memory when searching for products or services that affirmed their gender identity: “Are they using language that includes people like me, that humanizes people like me? When I’m looking at organizations, are their services accessible to people like me?” In recalling these experiences, Clemmer began to open up the discourse around menstruation beyond the narrow terms that had defined it up until this point in the conference.

The panelists called on the attendees to recognize trans and gender non-binary inclusion as shared responsibility, one that would not only protect those amongst them who identified as such, but that would also open up the “magic of menstruation” to be defined beyond market-based directives. “My experience is not marketable or profitable so therefore it doesn’t matter,” Pierce stated bluntly. Appealing to the college activists in the room, he urged them to confront the very sponsors who had made the event possible to design and build products that serve those who menstruate, rather promote items exclusively to “white, CIS women who are middle class or above.” In the Q&A session at an earlier keynote, Pierce’s PMS colleague Lynn Hager stepped forward to ask this very question of menstrual cup company DivaCup cofounder Carinne Chambers-Saini who relied on market logics

to avoid responsibility for the exclusion—simply, according to Chambers-Saini, trans menstruators made up too little of the market for DivaCup to pursue rebranding. She seemed to express a belief that the market would drive equitable decisions, a move that involved relinquishing responsibility (a fundamentally capitalist argument that we will return in the next chapter). The push for change within marketplace would be a slow one it seemed, even amongst companies who touted themselves as progressive in other domains such as environmental sustainability.

Across these calls for shifts in thinking about menstruation and gender, activists such as the Portland Menstrual Society, Clemmer, and Gonzalez suggested that there is collectivist value, not only for those most vulnerable amongst the population. This notion contradicts the market-based logics touted by Chambers-Saini, for example, who argued that those in the menstruating majority are those who should be designed for and marketed to—any focus on those at the periphery would mean too few returns. Through relinquishing the feminized promotional techniques around menstruation, the activists argued instead, we might come to know menstruation differently, as a collective experiential phenomenon not exclusively tied to “woman-” or “sisterhood.”

Hygienics: Race and Menstruation

We pulled over along the side of an empty highway to rest, something we did every couple of hours or so. Beside a metal gate at what looked like the entrance of someone’s property, we laid a tarp and spread out snacks to share—peanut butter (the most crucial item in anyone’s panniers, I soon learned), tortillas, cucumbers, hot sauce, and a tragically under-ripe peach. We each made a concoction from what was there. As we ate, we discussed the ride so far. Spirits were high; a couple of riders had just joined the tour creating a newly energetic dynamic. As we chatted, I began to notice out of the corner of my eye a car circling the side road we had taken to reach the resting spot. On the third or so time the truck drove by, I walked a short path to get a glimpse of who was inside. The windows were tinted. Maybe the driver was just curious? Maybe they were looking for a bit of excitement? There was only one way to find out so took a chance at waving. The window rolled down to reveal a middle-aged white man. I shouted, “Hi,” forcing a neighborly tone. “Hey,” he responded, “I saw a gang on the side here, so I thought I’d check it out.” He seemed relieved to see me as he smiled and drove away slowly. When I walked back the group, the

tour leader shifted the conversation to race. There was a quiet resignation, as if implicitly we knew that our whiteness had gotten us off easy.

Critiques of menstrual activism did not end with reductive treatments of gender. To illustrate, we turn again to Sustainable Cycles who, through their tour across the county, members of Sustainable Cycles described regularly encountering those whose views departed from their own. Sometimes, as with the case of Talladega, the results were surprising with the group being met with open arms and offered a place to stay during the storm and a bag of chips to eat. Other times, members of the group masked the purpose of the ride in order to avoid questions about their work when they sensed a possibility the conversation might end in confusion or pushback. Still in other circumstances, community concern for the group (made up of mostly white women) played out in deeply troubling ways for members. At a gas station stop in predominantly black neighborhood of rural Louisiana, for instance, several group members recalled a set of white locals warning them not to leave their belongings unattended for fear they would be robbed. When I asked how the group responded, one member told me they politely left the store and rode away to avoid further discussion. Recognizing the complicated nature of this encounter, she posited their relative proximity to whiteness garnered them careful treatment from those they encountered along their route (e.g. warnings from passersby, general concern for their safety). Another added, rather than viewing racist behavior as monstrous, it was important to recognize that those who espouse such beliefs come from particular circumstance; those at the gas station were exhibiting learned behavior, after all. With this conversation, we see members of the group contending with racist reactions to their presence, and their own varied responses—from avoidance to sympathy—to those around them as they moved through unfamiliar terrain.

The relative whiteness of the wider movement has also garnered critical attention. In early coverage of this modern menstrual turn, the widely listened to feminist podcast *Call Your Girlfriend* featured a segment entitled “This Week in Menstruation,” charting what seemed to be a rush of commercial and political activity in the space (Sow and Friedman, n.d.). During one particular episode in the summer of 2015, co-host Aminatou Sow referenced a blog post “White Women X Period Blood,” from cultural critic and film writer Fanta Sylla. In it, Sylla describes the limits of “period feminism,” as tied to the context within which many of its advocates sit. To them, perhaps representing the menstruating body freely through art or protest means adopting an unruliness seen as subversive or radical to those around them. But for women of color, Sylla argues, simply the act of “walking in the streets, exposing our vulnerable, repulsive, bodies is subversive and radical” (Sylla 2016). Black and brown

bodies are transgressive by virtue of being non-white. “Maybe consider this before making it seem like eating period blood cupcake is the next civil right issue,” Sylla concludes. To the hosts of the podcast, the critique offered a new perspective on the work of menstrual activists, one that began to point to the limits of single-issue politics.

During the opening keynote at Cycles and Sex Los Angeles 2017 (an expo offering sexual and menstrual health resources), this conversation on race and gender reemerged as black queer femme activist Ericka Hart called on a mostly white audience to respond to the question, “Who are Lucy, Anarcha, and Betsy?” One person who claimed to have an African American Studies degree offered a guess: “strong powerful slaves?” Others fell silent. They were indeed slaves, Hart replied, but not those who might be celebrated leading rebellion or for forging paths on the underground railroad. They were they were subject to unanesthetized surgical experimentation at the hands of the “father of modern gynecology” J. Marion Sims (Washington 2008), Hart explained. His legacy within the field is simultaneously celebrated and shunned as a perennial example of medical research ethics and notions consent (Wall 2006). What were we to make of a field of medicine built upon the violent subjugation of black women? Were the techniques Sims put forth valid or venerable? There are all questions of ongoing debate amongst those in medicine and reproductive justice. Hart concluded her talk with a series of call and response exercises, “we cannot talk about gender without talking about race,” as if urging attendees to stay with their proclaimed intersectional commitment. She called on those in the room to not only recognize the long histories of subjugation of black and brown bodies within domains of reproductive health, but to remember them (a move that proved difficult for the group to this point, as the example of Lucy, Anarcha, and Betsy shows).

Debate on Marion Sims was recounted again for those in menstrual activism, through a series of Instagram posts from Chelsea Warner of Happy Period. She used the platform to chronicle for followers recent protests surrounding a statue of Sims in Central Park and highlighted the need for further understanding of the historical trajectories of reproductive health. Toward this end, in a separate post, she recognized the work of black inventor Mary Beatrice Davidson Kenner who first developed the sanitary belt in the 1920s. In doing so, Warner set into motion new narratives of attribution and recognition. By highlighting the work of Davidson Kenner, she recognized the often-overlooked contributions women of color have made to science and technology. Through surfacing resistance to the long-invisibilized suffering of enslaved research subjects and the complicated nature of

the US medical establishment, she called for fellow menstrual activists to not only celebrate their work but to contend with the entangled nature of upon which the domain of gynecology and health movements rest.

The critiques of Hart, Warner, and Sylla place “period feminism” into wider socio-political contexts, each calling on their peers to engage with the variable histories of the movement. The notion of access here then had as much to do with the distribution of material goods in the present as it did fuller understandings of the lives involved in creating the resources and faculties (e.g. products, gynecological knowledge and procedures) that make up modern menstrual resources.

Conclusion

Across the sites I observed, menstrual activism took on different meanings within the groups who promoted it. In some cases, these organizations formed due to a leaders’ own desire to give back to the communities of which they were once a part (as was the case with Period or Happy Period, for example). Other times, members took on such initiatives to respond to a lack of resources in their communities, highlighted by articles in local and national press outlets. Through these campaigns, many groups focused on the collection and distribution of existing menstrual products such as tampons or pads. Others suggested new ways of engaging with one’s cycle—for instance, by making use of menses for gardening or making and cleaning reusable resources (e.g. cloth pads, knitted tampons). Still others developed educational campaigns for young audiences and adults alike to learn about menstrual health beyond what is featured in school curriculum. The public nature of menstruation was highlighted by defiant performances and art pieces, attracting international attention that represented both protest and distain. Across these group, there was an interest in elevating the topic of menstruation through advocacy and shifting personal and public relationships to foster forms of dignity and access to resources.

Prevalent also amongst members of these groups was an empowered cultural status. With the case of Sustainable Cycles, for example, riders were able to leave their day-to-day responsibilities (e.g. income generating jobs, caretaking) for days, weeks, and sometimes months at a time to participant in the tour. Others, such as Andrade or Miles, followed their respective “a-ha moments” to take on substantial responsibility and personal cost such as forming and leading community grassroots organizations and nonprofits. Some also leveraged existing status alongside newly granted exposure through these initiatives to jettison professional evolution. Several

organizers such as Okamoto and Weiss-Wolf, for example, were offered book deals account for the menstrual movement. Others regularly secured lecture invitations at universities and organizations across the country or were supported by partnerships with corporate menstrual product manufacturers (e.g. U by Kotex).

Breaking from an access-to-products focus that occupies many menstrual activists, other organizers called on their peers to reflect on historical moves and injustices that underlie the current moment. Across the critiques of Sow, Sylla, Hart, and Warner, for example, larger, more expansive trajectories are outlined—ones not rooted in US-centered health movements of the 70s, but further back and less celebratory (e.g. violent exploitation of American slaves). In making this move, these activists, recognize the limits of ahistorical, single issue politics. Calling on others to contending with their political selves, as Hart's call-and-response attests—"we can't talk about gender without talking about race." This never was and never will be *only* about periods. Yet, within this context, the burden falls upon those on the periphery of the movement to account and advocate for this recognition and redemption of these histories. In doing the hard work of intersectionality, the wider menstrual activist community might be well served to more readily attend to this chasm between simple acknowledgement and working through the contradictions and entanglements present in their work (e.g. as the Sissy Collective has begun to do through their own internal revisions). In a sense, working toward menstrual equity might mean working out their own activist selves first.

Chapter 5

Entrepreneurial Access

Empowerment is the thing that you can commodify and something that you can commercialize. Empowerment is the Virginia Slims ad that tells you you've come a long way baby. Feminism is fighting for a \$15 minimum wage. It is fighting for child care for women. It is rooted in politics. [...] If your idea of what feminism is is just feeling good about yourself you are missing the entire point. You're missing the boat and you're excluding people. And you're not going to build things that last because that's not what it is.

(Aminatou Sow, August 24, 2016)

In a converted iron factory turned co-working space on the industrial north edge of San Francisco's Mission district, a room full of people intently listened on as a panel of five women debated definitions of feminism. Billed as fostering "open conversations about the things that 'we're not supposed to talk about' – i.e. taboos around periods, pee, poop, transgender rights, sex, self-help, breast and ovarian health and everything in between" (She-E-O 2016), the panel was one leg of a multi-city "Taboo Tour" hosted by Thinx, a brand of absorbent menstrual underwear. The group was made up of Thinx's then CEO Miki Agrawal who acted as moderator; Aminatou Sow, a digital strategist and co-host of the popular feminist podcast *Call Your Girlfriend*; Stephanie Snyder, a lululemon Global Yogi; Kiki Federico, a "feminine leadership coach" and consultant; and Melissa Howey, a former client partner at Facebook turned California Institute of Integral Studies PhD student researching therapeutic uses of MDMA.¹⁸ Prompted by an audience question, this discussion on feminism signaled a deeper quandary for the group. What was it exactly that drew them together? How were they to relate to one another when they seemed to possess starkly different views on what constituted radical power and social change? Up to this point in the evening, most of the panelists (aside from Sow, whose take is featured above) talked around the term feminism, discussing instead

¹⁸ A topic that occupied a fair portion of the discussion that evening, to the surprise of some audience members. Agrawal, for instance, described how she aimed to have a hand in legalizing MDMA with some of her closest friends and colleagues. "They can't put everybody in jail [...] because everyone's running these incredibly powerful companies and they're all part of this collective," she insisted in response to questions on the legality of the endeavor.

“empowerment” through workplace sexuality, an inherent “sisterhood” connecting all women, or quoting statistics on the low number of women in venture capital firms or assuming C-level positions within corporations. Set against this backdrop, one could read Sow’s comment as a rebuke of these positions, contrasting with the “trickle down” approach or essentialist view that others on the panel seemed to possess.

The moderator of the panel, Agrawal, was at the time a widely celebrated millennial entrepreneur who had developed a series of brands centered on “disrupting” consumer markets in overlooked areas of everyday life such as menstruation (Thinx), urinary incontinence (Icon, underwear for light bladder leakage) and defecation (Tushy, a bidet toilet attachment). She was at the height of her career, having recently been featured on the cover of *Entrepreneur* magazine (Editorial Staff 2016) and awarded Social Entrepreneur of the Year at the 2015 World Technology Summit (WTN Staff 2015). To achieve such recognition, she openly relied on a particular brand of business making, blending Whole Foods Market cofounder John Mackey-style libertarianism or “Conscious Capitalism” with self-described “feminist marketing.” Agrawal told New York Magazine’s Noreen Malone, for instance, that she had taken it upon herself to make feminism “accessible” through the brand’s marketing (Malone 2016), with messages proclaiming theirs “patriarchy proof” underwear and offering mailing list subscribers a weekly briefing entitled “This Week in Feminism,” featuring reposted headlines on reproductive health and politics.

But within 6 months of the panel, employee complaints about Agrawal and the less than feminist workplace culture of Thinx would surface. Popular press reports detailed under-market wages, sexist negotiation practices, the absence of parental leave policies, and sexual harassment claims against Agrawal (George-Parkin 2017). With this news made public, the self-proclaimed “SHE-E-O” quickly fell from grace, ousted as the company’s chief executive officer and made the subject of dozens of articles on the failures of the ideals of “feminist business,” a notion that had been gaining traction through the success of modern “have it all” business memoirs from the likes of Facebook COO Sheryl Sandberg (2013), Huffington Post’s Arianna Huffington (2007), and Nasty Gal CEO Sophia Amoruso (2015). Might feminism and entrepreneurialism not so seamlessly cohere?

Over the course of this chapter, I will take up where this panel debate on feminism left off by discussing questions of social change as commodified across the menstrual marketplace. Drawing on a mix of interviews with founders and employees of period product companies from across North America and ethnographic study at

three conferences and expositions in Los Angeles, New York City, and Atlanta, I investigate the role of ideology and idealism in the development of companies like Think. Such businesses have set out to change this product landscape by not only offering merchandise that looks and is delivered differently than those of their large corporate competitors, but that also often incorporates a socially oriented mission as part of their work. This discussion will be used as a catalyst to examine the complicated nature of what I call “altruistic capitalism,” or efforts to fold philanthropy into day-to-day business practice.

Ongoing Debates

Capitalistic pursuits within and around feminist movements are not new. The National American Woman Suffrage Association and Women’s Political Union, for instance, opened “suffrage shops” at the beginning of the 20th century which offered for purchase movement publications and souvenirs (J. C. Davis 2017). Lesbian bars starting in midcentury long offered queer women a space within which to congregate socially and politically. Later in the 1970s, amid the era now known as the second wave, Liberation Enterprises and the National Organization for Women (NOW) produced mail-order businesses that sold items like clothing, postcards or jewelry featuring feminist slogans such as “Susan B. Lives!” or “Liberte, Egalite, Sororite.” These outposts were meant to circulate movement messaging past the confines of meeting rooms or consciousness-raising circles by “making the feminist spirit more visual” (J. C. Davis 2017), while providing funds for the company founders and the vendors who supplied retailers with product.

Notably, at the 1973 convention for National Organization for Women (NOW), a debate broke out on the role of entrepreneurialism and profit making among those in the feminist movement, which later led to the formation of the Feminist Business Alliance and a 13-piece essay collection entitled, *Dealing with the Real World: 13 Papers by Feminist Entrepreneurs*. Inside, authors offered their own defenses for the application of business practice in the name of feminism. Some argued that enterprise was simply a tool that could be wielded well or poorly depending on the intent of those who gave form to it: “like a camera they have no sex but take on their meaning from the consciousness of the user” (Birkby 1973, p.3). Others, such as Marjory Collins of the publication *Prime Time*, suggested that feminist business might allow for more equitable exchange and labor relations, describing their initiatives as “the cutting edge of economic independence for all women” (ibid, p.5).

Unapologetically, Lorraine Allen of The Equation Collection, Inc., stated simply, “I hope to drive to our next meeting in a Rolls Royce” (ibid, p.8).

These concerns and debates have lingered on through decades, reverberating through academic circles and public fora alike (such as the discussion that opened this chapter). Wide recognition of the social and environmental harms generated by consumer capitalism, reinforced within the modern consciousness by large scale disasters such as the Exxon Valdez oil spill and or the Savar building collapse, has introduced a new era around business making wherein corporate entities have been called on to assume a more active role in ensuring they avoid pollution or exploitative labor practices. In the wake of the 2008 financial crisis in the US, the conversation has become newly enlivened as the role of the flexible, enterprising subject has become highly celebrated for generating profit for not only oneself and others, but also and addressing social ills at the same time. Stanford, the University of Southern California, Harvard, and dozens of other prominent institutions have invested in such models to offer academic programs meant to train burgeoning social entrepreneurs. Now, there is an institutional robustness to defend this intermixing of social change and business making.

Making Money/Change

Across the sites I studied, there was a commitment to various socially conscious brands of business making. These forms of enterprise set out to push back on shareholder primacy, or the commonly held notion that the first priority of a business is to maximize financial gains for shareholders, and to instead also focus on non-financial, stakeholder interests such as a corporately defined social commitment (R. E. Freeman et al. 2010). Across the business sector, demonstration of this might take the form of a B Corp affiliation (or “benefit corporation”), which requires specific actions in order to attain certification (e.g. an annual benefit report outlining the achievement of social impact goals) (Stecker 2016), or it might mean more loosely defined alignments such as deeming oneself a social entrepreneur (Leadbeater 1997) or one’s company a mission-driven business (Drucker 1989).

Despite initial hesitancy amongst the business community to take up such models (Friedman 1970), a series of recent surveys and studies on the topic of corporate social responsibility and social enterprise have helped foster broader support and interest. The widely cited 2015 Cone Communications “Millennial Corporate Social Responsibility” study, for instance, found younger adults in the US are far more likely

to support companies that incorporate a social or environmental mission in their work, including being willing paying more for products or taking a pay cut to work for a company considered “responsible” (Cone Communications 2015). These results offered further motivation and justification amongst those who were already interested in forming companies like these, while changing the minds of those who thought that incorporating a “purpose” would cut into profit making potentials. In effect, contrary to popular understanding, such companies framed the choice to market a firm as a social business as a good financial decision.

It was within this school of thought that many of the organizations I observed came into business making. Companies with “One for One” models—with one item sold, the company gives to a comparable product to someone perceived to be in need—such as the apparel company TOMS Shoes and eyewear retailer Warby Parker had been prominent for more than half a decade leading up to the establishment of these firms in the early to mid-2010s. These new companies were then ready to build on, critique, and experiment with such giving models—some having read criticisms, and others having worked for these early companies themselves.¹⁹ Over the course of my research, Thinx, for instance, moved from a more traditional social enterprise approach that incorporated a giving model (donating a percentage of their proceeds to a charitable organization) toward the establishment of their own foundation for which they designed particular educational programs meant to address the “girl effect,” or the belief that the lack of “productive employment” among women and girls represents a dire opportunity cost in developing countries. Through investment in the education and health of adolescent girls, the company could raise the standard of living for not only the children for whom their programs were designed, but they could also by spur increase in national income through training or providing social services for an underutilized labor force (Chaaban and Cunningham 2011). Critics have argued that programs such as these do little to address structural or systemic inequalities such as labor extraction or financial crisis and instead perpetuate ideals of individual responsibility and freedom central to both a western liberal tradition and a conscious capitalistic perspective (Bernstein 2016).

Over the course of the following sections, I’ll describe the models of business upon which these menstrual product companies relied in more detail. In doing so, I set up for conversation on the forms of action and profit making made available to these

¹⁹ Menstrual product subscription services such as Tampon tribe, Easy both offered a particular percentage of their proceeds to “giving partners,” in a manner similar to earlier social enterprise companies.

groups, and later in the chapter move toward a discussion of how this work sits in relation to past and ongoing feminist debates.

Ideological entrepreneurialism

In discussing Thinx, Agrawal often espoused a strong dependence on the ideas outlined by John Mackey on conscious capitalism: “It’s not charity that’s going to change the world’s business, but consciousness and social enterprise. Call me an activist, call me a feminist, call me an entrepreneur, call me whatever you want, but I believe in elevating humanity using conscious consumerism” (Nelson 2016).²⁰

Agrawal’s embrace of Mackey and his business ideals have been widely documented. Her social media feeds regularly feature images of the two meeting and since 2016 she has served on the board of the organization he founded, Conscious Capitalism. In 2017, proceeding her ouster from Thinx, she also acted as a keynote speaker at the Conscious Capitalism Summit, a yearly gathering of those interested in this brand of free enterprise capitalism.

In their book, John Mackey and business professor Raj Sisodia describe the “heroic” potential of business, which has to now been stifled by “crony capitalism,” or what the authors describe as the regulation of competition that preferences politically-connected firms. Conscious Capitalism, instead, exhibits a devotion to libertarian ideals on the wisdom of the free market and suggests exponential growth beneficial to everyone in the absence of governmental oversight: “the poor can become wealthier without requiring the well-off to become poorer. The pie grows, and there is more for everyone” (Mackey, Sisodia, and George 2014, p.61). Toward achieving such heroism, the authors suggest entrepreneurs establish a set of core values and a higher mission, integrate stakeholders (rather than simply shareholders) into the goal of achieving such a mission, make way for “conscious leadership” that possesses both emotional and systems intelligence, and cultivate a “conscious culture” around values such as trust, transparency, egalitarianism, loyalty, love, care, and so on. Core to this agenda is the goal of leveraging the impulse of employees and community members to “volunteer” labor or funds for institutions whose missions they believe in. Telling the story of an early flood that nearly ended the first incarnation of Whole Foods, Mackey describes the volunteer cleanup crew of neighbors and customers,

²⁰ If Mackey is a prophet of (conscious) capitalism, as Aschoff (2015) describes, then Agrawal is a ready disciple. Storying telling is used by both as a resource to proselytize for the “heroic” capacity of free market enterprise. Agrawal and colleagues, for instance, rehearsed three different origin stories for Thinx: one involved her staining a skirt during an important meeting, another was to do with a three-legged race during a family reunion, and the last was set in South Africa during the Women’s World Cup Finals of 2010. The final of these stories began to motivate the social enterprise component of the business.

employees who worked for free, investors who contributed more funds despite great material loss the company experienced, and distributors who resupplied the store's stock on credit—in a massive effort that allowed for them to reopen. Now proselytizing the Conscious Capitalism approach Mackey and Sisodia suggest similarly redirecting efforts employees might extend to community organizations to instead support the “purposeful” company. Even in economic downturn when employees would presumably receive dwindling economic incentives from employers, the authors promise, they will be loyal because of their desire to contribute to the higher aims of the company. Here, Mackey and Sisodia promote a combination of commodity activism and aspirational labor, where business leaders are told to tap into the desires of their customers and employees—called here the “volunteer army”— to contribute to social change by contributing to company interests.

For other menstrual product companies, such as the “unapologetically feminist for-profit business” (Shaw and Siemens 2017) Lunapads (a Vancouver-based reusable cloth pad company), Conscious Capitalism presented inspiration, while the B Corp—or Benefit Corporation—structure offered a means to demonstrate their commitment to particular practices meant to mark responsible business. For instance, ratings on employee pay, the materials used to produce their supply, and the sustainability of production techniques could be accessed by the convening B Institute. To founders Madeleine Shaw and Suzanne Siemens the Conscious Capitalism “movement” made the best out of constraints facing both private business and the nonprofit sector. Businesses were increasingly facing ethical questions on environmental degradation and labor relations, while non-profits and charities experienced perpetual difficulties raising funds. In the B Corp, Shaw found a means to “[...] finance the revolution that I want to see through making [pads] and selling them” (Le Lam 2014) Siemens suggested such structures offered a path to be “disruptive around your generosity,” where companies would not have to wait until they had generated a surplus of revenue to begin giving to particular causes. Instead, they could launch their philanthropic activity from the very beginning. Making money and making change were baked in from the start.

LA-based organic tampon subscription service Conscious Period built on early social enterprise companies such as TOMS Shoes and their “One for One” approach to form giving partnerships. Cofounder Annie Lascoe, a social worker by training and professional experience, moved to business after meeting her future partner Margot through a mutual friend. They had each independently expressed a desire to develop a social business that sold organic menstrual products. Yet, they had differing ideas on

how best to develop the philanthropic arm of the company. Lascoe was originally interested in forming relationships with nonprofits in Cambodia in order to make donations in the form of menstrual pads. Margo Lang, who had recently finished her MBA at University of Southern California's school of business (just as the institution's Social Entrepreneurship program was forming), convinced Lascoe to instead focus on domestic philanthropy. Lang had shifted from volunteering efforts during her undergraduate education to a career at various startups after graduation—one of which was TOMS Shoes. Together, Lang and Lascoe set their eyes on importing the celebrated pad manufacturing machine fashioned by Indian inventor Arunachalam Muruganatham (discussed in Chapter 1). They eventually abandoned this approach too—at first, telling me that they faced regulatory issues concerning the importation of the design, but later Lascoe admitted it was rather a “quality issue.” They were concerned US women would not accept the standard of pad the machine produced. In their third iteration, they pursued a distribution scheme in which would employ formerly homeless women to box and ship the company's tampon orders. When I last spoke with them, they were renovating an office space in southern California to house this operation and serve as a co-working space for women-owned businesses (whose missions align with their own company values) to work alongside each other and tap into this distribution labor as a part of their membership.

Returning to the notion of ideological entrepreneurialism, we see founders assume the outlooks and ideals promoted and circulated through contemporary business culture, taking up particular concepts such as the “purposeful” workplace or “higher purpose” to embed their businesses with different sorts of socially oriented missions. For the founders of Lunapads, Conscious Capitalism provided inspiration and frame for associating with ideas of changemaking business, but for structures of accountancy they turned to another social enterprise, the B Corp. With Lascoe and Lang at Conscious Period, they tested multiple options—from giving partnerships to distributed manufacturing machinery to apprenticeship-like programs—running through and shifting as their partnership evolved. For Agrawal and Thinx there was a strong connection to Mackey-style capitalism, a link she pronounced widely through public speaking engagements and her social media posts. Through later sections of this of chapter, I will describe how the tenets of this business philosophy were further cultivated within the day-to-day business practice of Thinx and others.

Guiding Mission

Important to the each of the companies I observed was a guiding mission, which defined their aims in terms of both marketing and altruistic activity. Common among

the groups were goals to address the lack of menstrual products available to people unable to afford them and to chip away at social stigma associated with periods. This dual purpose can be seen in statements on company websites and in popular press interviews with founders. For instance, Thinx is “committed to breaking the taboo around menstruation,” while subscription menstrual product companies Cora and LOLA describe a dedication to “empower[ing] women” and offering “transparency” on product ingredients respectively. Other groups outlined a commitment to environmental sustainability through the promotion of reusable menstrual products (e.g. menstrual underwear, cups) or those made of biodegradable materials (e.g. organic tampons or pads). Frequently within these statements was also an assurance around product ingredients and the safety of such items from a health perspective, responding largely to consumer concerns around Toxic Shock Syndrome.²¹ With organic tampons, for example, companies regularly described their avoidance of bleach or dioxins in the production of the products, distinctions meant to contrast to practices of their large corporate competitors such as Kotex or Playtex.

Toward loosening stigma associated with menstruation, several companies turned to public marketing campaigns in sites such as restrooms and subway trains. The Toronto-based period product subscription service *easy period*, for instance, developed a series of advertisements entitled “No Shame” with a local marketing firm. The posters featured images of women in different scenarios such as skinny dipping with a tampon string visible and removing stained bed sheets with a male partner. Each image was placed on the on the doors of restroom stalls (regardless of the gender designation) throughout the city. As the company’s founder Alyssa Bertram, describes, the campaign was meant as, “a provocative way to get people talking about [periods].” In a similar move that garnered much attention for Thinx, the startup created a set of ads for the New York City subway featuring imagery such as a cracked egg (meant to suggest unfertilized ovum shed during menstruation) and a grapefruit (associated here with the vulva). After objection from the Metropolitan Transportation Authority (MTA) and its communication firm Outfront Media, Agrawal went public, reaching out to popular press outlets with screenshots of the email exchanges. The company used the pushback from the MTA to create controversy and galvanize support from a broad audience (Rogers 2015). The newly

²¹ Though it should be noted, a recent study from medical researchers at Western University in Ontario documented the first case of Toxic Shock Syndrome associated with menstrual cup use (Mitchell et al. 2015) and another study found menstrual cups promote growth of *staphylococcus aureus*—the bacteria behind most cases of toxic shock syndrome—due to the introduction of oxygen to the vaginal canal (Nonfoux et al. 2018). This stands in contrast to common marketing materials that position cups as a safe internal alternative to the tampon.

heighted status of the company attracted broad media attention, would be employees, and new customers.

In order to achieve goals of providing menstrual access, companies often partnered with existing organizations to offer domestic donations or pursue international intervention programs. Vancouver-based cloth pad company Lunapads (formed in 1993), for instance, had a long running partnership with the Ghana-based social business Afripads (led by two Canadian founders), who used the sewing patterns developed by the Canadian company to manufacture and sell their own reusable menstrual pads locally. The aim was to create employment for women and girls in the region to manufacture and sell reusable pads and for them to ultimately lift themselves and their families out of poverty. Conscious Period opted to form a domestic “giving partnership” with LavaMae, a California organization that repurposed old buses to be used as mobile hygiene stations for homeless residents. This relationship was established at the suggestion of a mutual contact at IndieGoGo, a crowdfunding platform that both organizations used to launch their respective initiatives.

This process of partnering with other organizations was one not taken lightly according to those I spoke with over the course of my research. Easy period founder Alyssa Bertram, for instance, described a mutual vetting process between her business and their giving partner ZanaAfrica, “They weren’t just, ‘Oh, you want to give us money. Sure!’” Instead, representatives from both met to ensure that their ideals aligned and that they were entering into a mutually beneficial business partnership. Aunt Flow, a tampon subscription service based in Columbus, Ohio, described establishing a rolling partnership model, which involved non-profit organizations writing in applications for a chance to be chosen as a “beneficiary.” Grassroots organizations such as the Atlanta based Peach Coven (from chapter 4) understood the importance of reading as legitimate to these menstrual product companies and sought 501c3 status, in part, to enter into such giving arrangements.

Menstrual access, in this formulation, was defined by entrepreneurial activity. Business selected the amount and to whom products were available. For instance, a company may have specified a particular percentage of their product or revenue to be channeled to partnering non-profit intuitions who in turn distributed products to their clients (as is the case with easy period, for instance). Access was then contingent upon entrepreneurial prosperity. How much the company was able to produce and sell to their customers defined the amount that will be distributed through these giving campaigns. If the company was unable to convince customers

to buy from them, then those who were set to receive donations or be enrolled in their education or job programs would go without.

While partner non-profits stand to benefit in terms of product donations, such generosity is not guaranteed. On the commercial side, companies who publicly claim a guiding mission gain cachet, in the form of consumer support (91% millennials report they would be more likely to purchase from companies who have a giving component (Cone Communications 2015)) and by attracting potential employees who may be willing to work for less (as was the case with Thinx) or for longer than they would for companies with more traditional business models. By attaching to themselves to social causes companies are able to sit between worlds of non-profit organization and for-profit company, benefiting in terms of good will and product differentiation.

Generating a Product

In examining the sorts of material production that took shape across these sites, a particular consistency could be found. Rather than developing entirely new products, many companies focused on distribution or marketing as means to generate interest. Absorbent underwear companies such as Thinx and Dear Kate refashioned existing concepts like cloth pads clipped in as inserts to instead be imbedded into undergarments. The innovation was arguably less about the “patented leak-fighting technology” (Thinx staff n.d.) it featured and more about the milieu of empowerment surrounding it. Dear Kate, for instance, produced a set of imagery for an early look book featuring women in tech wearing the company’s “Ada Collection.” These women may have made up a small portion of their workplace,²² but across the spread they sat in spotlight and offered advice to other women on corporate and computing cultures. Agrawal described Thinx as “a content company disguised as a period company” (Nelson 2016), where their creative department produced compelling visuals in the name of “artful expression.” The emphasis was on the experience of the brand, rather than simply the product. After the attention of the subway campaign, for example, Thinx put out series of print and video advertisements with a trans model Sawyer DeVuyst, who described previously having a regular period and noted the potential he saw in, “a product like Thinx [to make] people feel secure. And that’s regardless, if you’re a woman or a trans man, or a nonbinary trans person who gets their period.” The respective underwear lines tied themselves in with experiences of

²² According to the National Center for Women in Technology (NCWIT), women make up only 25% of professional computing roles. For more, see the Ashcraft et al.’s (2016) report for the NCWIT.

safety, affirmation, and empowerment—from fighting workplace sexism to living as one’s authentic self.

Uncovering an existing patent, Flex reintroduced the menstrual disc with sleek gold and black packaging and a call for users to enjoy “mess free” period sex while wearing the device. The cup resembled in form, size, and texture the offering of their main competitor Softcup, whose branding was instead pink and flowery and made no mention of the potential for it to be worn during intercourse (though an article by Jessica M. Kormos preceding the launch of Flex on the blog xoJane did make this connection (Kormos 2015)). After fundraising, Flex purchased the parallel company and assumed ownership of the entire menstrual disc market. Complaints of the dwindling distribution of Softcup from existing devotees who rejected the comparatively steep cost of the new incarnation were met with a revamp of the older version, though renamed Softdisc (to disassociate with menstrual cups). In early 2018, parent company Flex differentiated between the two by offering one online through a subscription service (Flex) and the other in retail stores such as Target and Walmart (Softdisc).

With subscription services such as Cora, LOLA, Tampon Tribe, and others, the tampons sold were “white-label” or organic products rebranded and sold under other names. This was a practice Tampon Tribe founder Jennifer Eden was very comfortable detailing to me. When researching where to source Tampon Tribe offerings, for instance, Eden found much of the organic manufacturing based in “old Eastern Bloc countries,” Germany, Spain, and Slavonia, which imposed “strict rules” on water and chemical use. Other manufacturing hubs were deemed insufficient by Eden because their organic certification process was considered untrustworthy (China) or she claimed there was no one producing organic options (United States). She told me she knew she had found her vendor when she noticed employees drove a fleet of electric cars around the facility, a signal to Eden that her company was “partnering with someone who’s aligned with [our own] philosophy.” Commodity activism recognized commodity activism, it seemed.

Rather than crafting an altogether new tampon or pad, the on-demand, subscription-based approach to delivery of organic items is what interviewees acknowledged as notable about their companies. Bertram of easy period described the appeal as one to do with empowerment: “It’s empowering to have something run automatically for you. Once you get good enough at something that it just kind of runs itself that’s an empowering feeling. That feels good. And I think that’s kind of what the service does for people. You sign up, you choose what you need, and you don’t ever have to worry

about it again.” This pairing of convenience and health is one LOLA fostered through co-branding with established lifestyle brands such as the Gwyneth Paltrow-led Goop.

Over the course of my research, Miki Agrawal held a heavy presence in the minds of other entrepreneurs and grassroots organizers alike. Through the subway advertising campaign and subsequent MTA controversy, she gained even more attention, and videos of her speaking engagements and press interviews with business outlets circulated regularly. At the time of writing, Agrawal’s website featured a video reel, highlighting her services as a motivational speaker delivering talks at organizations and colleges campuses on topics such as “Empowered Entrepreneurship turning world challenges into compelling opportunities” and “Disruptive innovation and the power of positive change” among others. Effectively, Agrawal herself had become a product for consumption.

She had begun her career in finance as investment banker in New York with the Deutsche Bank (which she later referred to as “douche bank”). After 9/11, she had an awakening that led her first to professional soccer, next to the film industry, the restaurant business with farm-to-table gluten free pizza, and finally to menstrual product development. She had lived 5 lives before 35. To chronicle it—just before the launch of Thinx—she wrote a book, entitled *Do Cool Sh*t: Quit Your Day Job, Start Your Own Business, and Live Happily Ever After*. Part memoir, part business how-to, the book describes how Agrawal managed to move between careers and offers bullet pointed advice on how one might go about living the “most authentic, actualized life you always dreamed of” (Agrawal 2015). A *Conscious Capitalism* volume for the millennial set.²³ The years following the release of the book, Agrawal marketed a series of 5-day business bootcamps for attendees “to disrupt their knowledge and pursue their ideas” in major cities such as New York and Toronto, with tuition fees of around \$2000 which the site encouraged applicants to crowdfund (scholarships were offered to a select few, but awardees were expected to offer work services in exchange for the break on tuition).

Since her departure from Thinx, Agrawal’s website now features the description for a new book, billed as “Lean In 2.0,” “the New Bible for Womanism (the new feminism)”—a manifesto on “making it” as a woman in business, while avoiding

²³ Reviews for the book were mixed. Many suggested that Agrawal’s business success was largely the result of her position as well-educated and middle class and had less to do with her seeds of business wisdom. Yet, it did not quite matter. Many reviewees noted also how compelling her story was and how they had felt motivated while reading through the pages to pursue their respective aims.

“feminism potholes” (Agrawal 2017). Information on a release date has yet to be posted and the description sits now without a title, but one wonders whether her notions of feminism have shifted or if her views on enterprise will still include collective nods.

Across the sites I studied, the products marketed and sold were less about the material about the offerings (as many replicated items already on the market), but the feeling invoked in consumers. The brands sought to present their products (or themselves) as empowering—whether that be self-actualization, professional fulfillment, or contributing to some greater good. Through their purchasing power, consumers would be able to make the world better for themselves and others.

Enlisting funders as friends

The companies’ missions became important in times of differentiation and fundraising. Many relied on forms of crowdfunding through services like IndieGoGo or Kickstarter and galvanized their social mission to generate interest in the form of small, incremental contributions. Subscription tampon services easy period, Conscious Period, and Tampon Tribe all used crowdfunding as the primary source for covering startup costs and as a means to enroll early customer signups. Conscious Period later went on to take additional funding from angel and family investors, which allowed them to launch in the spring of 2016. Bertram of easy period stated that much of the crowdfunded \$10,000 accumulated from their own campaign came in from her own family and friends.

Conscious Period described pulling in upwards of \$40,000 during their campaign, and along the way generating more value in terms of press coverage and early service subscriptions. In the video for the campaign, the company’s two founders opened by describing the absence of FDA oversight on the ingredients of menstrual products, the lack of sales tax exemption on such items, and call for a “menstrual revolution” (Lang and Lascoe 2015). In doing so, they tied their entrepreneurial activity to political efforts, in a move that seemed to work. Paired with angel investing, they were able to launch some 5 months later, in early 2016.

After a stint with the Mass Challenge Incubator, Thinx pursued multiple crowdfunding campaigns simultaneously on sites such as IndieGoGo and Kickstarter where the pages triumphantly declared, “Change Your Underwear, Change the World” (SheTHINX 2013). They used these platforms as a kind of testing ground to both validate their idea as marketable and attract investors: “We sold \$65,000 worth of products on Kickstarter, another \$20,000 on Indiegogo, we won a

cash prize of \$25,000, and then launched a crappy website and sold another \$25,000. We had about \$130,000 to put into the world to get the first units made and prove the concept” (Rae 2016). Agrawal described having difficulties convincing men, who often occupied the role of venture capitalists, of the products potential. In detailing the techniques of persuasion she espoused, Agrawal recalled instructing a non-menstruating man to go to the bathroom and place a pad in his underwear to get a sense for the experience of using common menstrual product options. After the awareness exercise, he purportedly invested in the company. By 2015, Thinx had run a Series A round led by Strategic Investment Partners which garnered additional capital “in the millions” (Fuscaldo 2016). Since that time, Agrawal claimed over 100 VCs approached Thinx offering additional funds.

“Why don’t we just show you how it works?” Jordana Kier Cofounder LOLA asked, as recalled her experiences pitching the business to potential investors (Beier and Kaulbach 2017). They were overwhelmingly men with no direct experiences with menstruation, she further explained. After she would illustrate how blood absorbs inside a menstruator’s body with a tampon and a glass of water, Kier claimed, investors would walk away with convinced, “this category needed to be disrupted and why [LOLA] were the ones to do it” (ibid). Rather than pursue crowdfunding, LOLA pulled in \$1.2 million from a friends and family round in January 2015, a seed round garnered another \$3 million in March 2016, and they later amassed an additional \$7 million through high profile investments, including Warby Parker cofounders Neil Blumenthal and David Gilboa and celebrities such as writer and actor Lena Dunham and supermodel Karlie Kloss (which they advertised on their Instagram page). Such interest landed founder Kier on the *Forbes 30 under 30* list later that year.

The disposable menstrual disc company Flex was selected for the summer 2016 cohort at the Silicon Valley business incubator Y Combinator, with later fundraising led by Better Ventures (Y Combinator 2016). Leveraging the West Coast tech scene, early investors included venture capitalist Cyan Banister and diversity consultant Ellen Pao (known to many for pursuing a high-profile gender discrimination suit against her former employer Kleiner Perkins). Their closing pitch for Y Combinator touted theirs the first innovation to the menstrual hygiene market in 80 years and emphasized Flex as a mechanism for addressing the sexual inconvenience of periods (arguing one loses 25% possible sex, if they avoid the practice during menstruation).

Across these approaches to fundraising, company representatives used sympathy and aspiration to pull in early subscriptions or contributions of various sizes. Messaging changed with various audiences, representing a range of compelling and

sophisticated appeals which suggest high degrees of media literacy. In conference rooms and meetings with investors, founders drew on empathetic sensitization exercises to create an environment in which the investor was made vulnerable (coming in with no or little experience with menstruation and learning from the interactive pitch). When the fundraising platform was IndieGoGo or Kickstarter, many pitches emphasized the social mission of the business, toward inciting a “menstrual revolution” (Lang and Lascoe 2015). When discussing work with potential investors, companies such as Thinx or Flex highlighted the lack of innovation in the product space for a nearly a century (a claim that is debatable). They also described the possibility of invisibilizing one’s period by, for instance, the ability to wear underwear that is lacy and beautiful as well as absorbent. Other such as Flex spoke to their Silicon Valley audience about optimizing the body, using the perceived sexual inconvenience of periods to generate interest.

Aspirations and Affectations

Agrawal described Thinx as espousing “radical authenticity,” centering on making the brand read as true as possible to its customers. To this end, she instructed employees to avoid austere medical language, and instead leverage the relative youth of the staff by making the copy of the website, company email, and advertisements seem as though they were text messages from a friend. Anna Merlan, a writer for the feminist blog *Jezebel*, took notice of this very practice in an August 2016 article, calling the messages of Public Relations Head Chelsea Leibow, “Girl Power Empowerment Feminism Yass Queen, but as if it were generated by a Twitter bot that only follows Lena Dunham and BuzzFeed” (Merlan 2016). For those not familiar with all the references, Merlan seemed to be saying that Leibow’s rhetoric embodied contemporary middle-class internet feminism, with its focus on empowerment and individual affirmation, all while in a highly clickable format. Here, the PR tactics involved grooming the friendship of consumers and press contacts alike, or “squirrelfrands” as Leibow might say.

Later reports would describe instances of Agrawal accusing employees of being “ungrateful” or “selfish” when they requested more in terms of pay or medical coverage.²⁴ The then CEO argued employees should have been satisfied by their ability to work for a company with a mission, their ability to live out the aspirational

²⁴ Mackey’s own anti-labor beliefs are well documented. When CEO of Whole Foods, he was known to make attempts to discredit unions in meetings with employees (convincing employees in a X store to turn away from unionization efforts already underway), claiming the company was, “beyond unions” (Nathans 2003; Editorial Staff 2005). He also famously claimed the Affordable Care Act was a form of facism and wrote an OpEd in the Wall Street Journal outlining alternatives (Mackey 2009).

career they had desired to be affiliated with. Yet, the public humiliation that came with wide media coverage and the immediate loss of customers (competitor Knix Wear reported a jump in sales the month of the Agrawal controversy), labor discipline prevailed and management gave ground by making concessions such as granting office employees more in terms of pay and benefits.

Largely missing from the conversation that pervaded media accounts of this controversy though was acknowledgement of the labor conditions of those who produce the underwear that the office workers marketed. According to the company's own website, they contract their production to MAS Holdings, a Sri Lankan manufacturing corporation touting its generous wages and benefits. Yet, interviews with factory workers in these sites contradict such claims, asserting instead that workers endure long hours for poverty wages (Nissen 2016). Because they do not directly oversee the manufacturing facilities, there is no recourse or legal action that could be taken against firms such as Thinx in cases of such maltreatment.

In reflecting on the role of labor among sites such as Thinx, we can see how altruistic capitalism can be slippery. Through their mission orientation, the company attracted employees who were initially willing to take positions that paid them less than market wages because they were compelled to be a part of a social campaign that encouraged them to be playful and creative. But this jovial context shifted (to disingenuous or at worst manipulative) when they were met with hostility and pushback from leadership when they requested additional compensation and benefits. All the while, there were workers in Sri Lanka whose stories, though printed, did not travel as far and whose labor conditions did not incite boycott or discipline. These parallel stories suggest the reach and regulatory capacity of a system based on consumer choice plays out unevenly based on collective sympathies (e.g. some bodies and forms of work are seen as more valuable and more worth fighting for than others).

Conclusion

Though Agrawal and Thinx have occupied a fair portion of the discussion to this point, the arguments made here are less about a single, problematic individual or company than they are about pitfalls of altruistic capitalism. This is not to discount the abusive behavior exhibited or harsh workplace environment fostered by Agrawal, but rather to focus in on the relations these systems represent. In perpetuating the belief that “conscious businesses will change the world,” these companies set up a

scenario in which they were the only solution to problems of sustainability, harmful materials laced in existing products (e.g. dioxins), menstrual access and education in developing countries, and so on. Perhaps on the surface this might seem appealing. After all, isn't it about time that companies do more to rectify the harms generated by consumer capitalism? But important to recognize is the continuation of what some have critiqued as foundation culture, where wealthy individuals alone decide what is deemed an issue worth taking up and addressing through economic support and "innovative," entrepreneurial thinking (INCITE! 2017; Aschoff 2015).

"Trickle Down Access"

The programs these companies put forth do little to contest the disappearance of welfare initiatives that might have once offered more longstanding support. Instead, they subtly maintain and sediment existing class hierarchies where people who are already of particular means and occupy positions of power remain at the top, making the decisions around who and what are worth supporting. But it is worth noting that making systemic change is not really the goal of these giving programs, instead, in the words of Bertram, the idea is to, "make it easy for women here in North America to consistently donate to a worthwhile cause that we've vetted for them." The goal is to make making change easy, to make it a part of an automated purchasing process. It becomes about a feeling, achieving an aspiration of affecting social change. Resting in this comment is a notion that empowerment is found in off-loading emotional and economic investment in particular causes or organizations. The company handles the burden of remembering to both care for your period, but also all the periods that might have been to now unaccounted for. It's this care-ful value add that pushes their programs beyond a monthly Amazon or Target product subscription. It is also what pulls attendees into companies' traveling promotional events or attracts employees to work for them.

Empowerment for whom

Perhaps more troubling than this notion of easy change is that there exist few structures of accountability for meeting the programs' promises. What are actual ramifications of such activity? What happens if donations never get delivered? How, in this system of "trickle down access," can customers (as the benefactors) be sure their contributions are being distributed as advertised? How might that distribution relate to the living conditions of those receiving donation of such products? How do sheer numbers of products given correlate to long term change? Perhaps in the case that things were not as they seemed, a longform exposé would condemn the company's exploitative marketing techniques and a resultant boycott would take place (think here of Agrawal's ouster from Thinx)? As it stands now, there are few

other means for recourse. Through the guise of the social enterprise or the B Corp, what the companies have ostensibly setup is a situation in which regulation is deemed unnecessary and outside oversight of commercial activity is argued to be redundant.

Little evidence has actually indicated “success” of social entrepreneurship programs in terms of their philanthropic or change missions (Stecker 2016). What they have been proven quite proficient at, on the other hand, is garnering funds. We see that with some of the most prominent of the menstrual entrepreneurs, who use their marketing expertise to galvanize crowdfunding, venture capital investment, and recurring subscriptions from customers. Thinking back to the opening quote from Aminatou Sow, one might be compelled to ask: whose empowerment are these companies really concerned with? If it is with the beneficiaries (those who receive product donation), creating systems of care where change is dependent solely upon those in positions of power might not feel very revolutionary. Many of these social change programs also rely on a notion of empowerment that places the burden on the individual to pull themselves and those around them out of poverty (e.g. “girl effect” centered initiatives), through education or employment. Effectively, saddling women with the role of caring for those around them, a kind of essentialized position that feminists might ordinarily be presumed to reject.

Placing these discussions on sites of menstrual resource entrepreneurialism again in conversation with movements past allows for an understanding of how concerns reverberate and compound. Perhaps there will always be debates such as the one that opened this chapter on individual, economic empowerment vs. feminisms as collectivist political movement? It seems reasonable to assume for now that there will long be characters who are defiant and unapologetic such as Allen (with the Rolls Royce) or Agrawal, who responded to her own critics with a call to “quit telling me how to *do* feminism” (emphasis hers) (Agrawal 2016). More may describe their journey to business as a pragmatic move to affect change such as Collins and Lascoe. Perhaps others will continue to tie economic empowerment closely to the equal treatment within a capitalist society (i.e. securing loans shows progress), which had long regarded women as the property and responsibility of men. And even more still who might continue to make modest claims about what their entrepreneurialism is seeking to achieve (i.e. as a way to generate income or provide a living wage for a handful of employees). One thing can be sure, as long as systems of public resource distribution are lacking or perceived to be sub-standard (where austerity prevails), the social enterprise will hold appeal. Menstruation and the products and services

around it offer one case for this developing altruistic economy, where care is fashioned in the image of founder's ideals, ahead of democratic processes.

Chapter 6

Collective Visioning

The preceding chapters offered accounts of enterprise and activist environments in which I uncovered a range of political and collaborative activity. Taking lessons from these first-hand encounters and early design experimentation, this chapter asks how insights drawn from collective responsibility and managerial vision can be used to interrogate new forms of access. To address this question, I turn to a series of design workshops entitled “Maintaining the Menstruating Body.” Over the course of 6 months, I iteratively designed and facilitated this series to prompt responses on the infrastructure of access for people with limited resources. During these meetings, several groups of policy makers, activists, and community members worked together to investigate limitations to current products, services and systems in ways that were meant to reveal paths to providing more ready and reliable menstrual resources. Over the course of this chapter, I will discuss how this activity unfolded across four workshops, taking place in cities such as Atlanta and Seattle.

Using design workshops as means to engage in discussions on public care, I focus on the following questions: 1) What does access to menstrual resources mean across distinct sites and groups? 2) What forms of menstrual accessibility emerge through collective imagination? Questions of access, to this point in the dissertation, have focused on approaches already in place—from product collection drives, corporate donations, menstrual health workshops, and so on. Yet, here I seek to open up interrogation by engaging with initiatives not yet in motion. Through each encounter, attendees grappled with these questions and with concerns on the politics involved in fashioning public interventions. During the third workshop in Seattle, for instance, a group discussed how an intervention as simple as a periodic pamphlet series would involve a multidisciplinary team to design, distribute and maintain, as well as buy in from local institutions that would host the materials. The result of the workshops comprised a collection of perspectives brought to bear on relationships between public resources and technological intervention. Not only did participants suggest a vast set of distinct ideas for extending menstrual infrastructure, but these workshop encounters also raised important considerations that can more broadly inform conversations on notions of access.

Developing the Workshop

In taking up the workshop format, I draw on traditions within and just beyond design, including programs of participatory action research, participatory design, and future workshops. Design scholars Jungk and Mullert first described the future workshop as a format for social engagement which involved the organization of events with members of the public meant to better address issues of democratic concern (Jungk and Mullert 1996). Similar in its political roots, participatory design is a method focused on more actively including members of the public or other under-represented stakeholders in the processes of design. Early examples of this work, from the 1980s, aimed to support worker autonomy and appreciation of traditional expertise in light of the introduction of digitized work practices and, in some cases, automation of labor. For example, Pelle Ehn, a design scholar and longtime proponent of participatory design, collaborated with a Scandinavian graphic designers' union to produce a software system meant to better incorporate their skilled practices, compared with management-initiated programs (Ehn 1990). Within the context of contemporary design research, workshop approaches often seek to invite members of the public to engage with practices of design while exploring topics of mutual concern, positing alternative techniques and outcomes.

Noting the collaborative and situated nature of the approach, Rosner et al. describe the design workshop as inviting “a treatment of collaboration and interdisciplinarity as a localized and imaginative practice” (Rosner et al. 2016). These engagements rely on careful collaboration between researcher and subject/partner, across sites like academic or industrial research centers and community groups, each with their own goals for the work. Taking this perspective, my relationship with workshop attendees began by acknowledging their status as experts of their own experience and the cultural and political atmosphere of their local communities.

Here, I build on this legacy of participatory programs by reporting on the use of the workshop format as research instrument toward understanding not only how access exists amongst these groups currently, but also how they might elect to collectively build alternative arrangements.

Workshop format

The development of the workshop itself involved working with a set of interdisciplinary students to design and pilot the activities over the course of 3 months. Each with their own expertise, these students came to together with

backgrounds in feminist studies, design, and community organizing. We met weekly to discuss the workshop design, prepare flyers and other branded materials, organize event logistics (e.g. food, event space), and reach out to potential attendees and partners. Before facilitating the workshops with community members, we first held two pilot programs with members of our social groups and academic community. This process allowed us to refine the activities to ensure time was kept and that the agenda served the aims of discussing menstrual accessibility and public resources.

Across the four workshops, a 5-part workshop procedure organized our activities: (1) reflect on attendee's definitions of access, (2) recall resources already available, (3) pair up with another participant(s), (4) brainstorm ideas for reimagined resources, and (5) present the new resources to the group and discuss their relation to current political and infrastructural situations. Prior to each workshop, we asked people to consider the forms of access that they would be willing to explore or believed to be in need of revision. We planned for each workshop to last approximately two hours, yet several ran long due to the larger size of the groups.

I recorded each workshop through detailed field notes, images and audio recording. I transcribed selections of the audio recordings and inductively analyzed these materials, iteratively developing analytic memos alongside theoretical engagements with related literatures. Moving on from here, I detail the collaborative practices of the members of these groups.

Enrolling partners

For the first, third and fourth workshops, I worked with organizers of existing grassroots organizations to recruit interested parties through their listservs and social media pages. I also reached out to staff of each state representative and city councilmember, as well as area organizations that focused on domains of reproductive justice, public health, and advocacy for homeless residents. The second workshop was held at the biennial Society for Menstrual Cycle Research Conference, which attracted attendees with academic, industrial, and activist affiliations. In order to host the workshop at the event, I submitted a proposal to the conference committee at the start of 2017, along with authors of papers and panel presentations. I learned of the program's acceptance in the spring as I convened the group of students to design the series.

I facilitated the workshops with four groups: (1) university students, grassroots organizers, reproductive health advocates, and policy analysts; (2) attendees of the Society for Menstrual Cycle Research Conference at Kennesaw State University,

including non-profit professionals, social science scholars, and grassroots organizers, and members of the menstrual product industry; (3) members of a local feminist group, a nursing student, teacher, daycare worker, doula, policy analyst, designer, software engineering, and two non-profit professionals; (4) graduate students, designer, non-profit professional. In total, the workshops had over 40 participants across Atlanta, Kennesaw, and two sites in Seattle.

Coming Together Around Access

Over the sound of humming fans, Peach Coven founder Sarah Belle Miles welcomed the group of 12 to a community gallery in the middle of downtown Atlanta. We were there a week before the start of the Society for Menstrual Cycle Research to discuss means of intervening on public space to provide more ready and reliable access to menstrual resources. Each of those in attendance had some lingering interest in the topic. For Sarah (whom you meet in Chapter 4), it was that she was the founder and executive director of a grassroots organization dedicated to collecting and redistributing products to those who could not afford them. Janet was there because she was the program coordinator for a local feminist health organization and they were beginning to recognize the importance of organizing around the issue. Andie was there because she also headed up an organization in a city some 2 hours away



Figure 4 The collaborative workshops brought together activists, policymakers, designers, and others to imagine alternative menstrual resources.

but was largely focused in her graduate studies on issues of policy—she saw this workshop as a means to exercise that thinking with others.

Across the subsequent workshops, attendees joined around similar concerns for access to cultivate alternatives and exercise what many described as a rare opportunity to reflect on these issues with those already or preparing to work in this space.

Shifting Accountabilities

Concerns raised by participants over the uneven distribution of resources to transgender residents became opportunities for troubling established infrastructures of access throughout the city of Atlanta during the first workshop. Holding up a small tin foil cube with several vibrant pipe cleaners stemming from the sides, grassroots organizers Sarah and Kristen volunteered to discuss the design they had imagined together. Rooted in concerns over gatekeeping behaviors they had witnessed (from simple refusal of service to violence) in established sites of public resource distribution (e.g. homeless shelters and food banks), the two detailed a “little free library, non-library” designed to hold hygiene products, along with books and information on local health resources. It would sit within a network of Little Menstrual Boxes, in the style of Little Free Libraries, they continued. The goal, according to the pair, was to place the boxes in areas of the city where people were most in need of menstrual resources.

In order to accomplish the Little Menstrual Box idea, the two proposed reaching out to municipal organizations, neighborhood groups, local businesses, the public transit authority, libraries, and “anywhere that we think they’d be willing to let a box get put out front.” After a moment, Kristen revised her request, “anywhere that we think that they might be willing to actually even check on that box from time to time and refill it.” But the two waffled on their expectation of the role of community and state actors in their intervention, “we were trying to create some kind of concept that would include keeping the city accountable for these, but we kind of feel pretty strongly that a third-party non-profit or organization would have to take this on as far as implementation is concerned.” Despite a desire to enroll others in the upkeep of the boxes, Sarah and Kristen’s experience community organizing in the area tempered their expectations. In discussing the idea with one another through the presentation, they projected that the responsibility of extending access to menstrual resources would continue to rest with organizations like theirs, even in this moment of imagining alternatives:

I definitely feel within our organization, we have very little to no support from the city so that's why I feel like these really creative, kind of out of the box so-to-speak ideas that are addressing these issues are not a priority for the city of Atlanta [...] I don't see city organizers taking the time to actually create something like this and implement it and regulate it. But I wouldn't know how to address that either to try to make accountability for them.

Through this discussion, questions on ownership and accountability began to take hold of the entire group. Sarah imagined out loud the work involved in maintaining the box network, plotting out a scenario that might take place during the summer months, “it rained a bunch and [...] something's wrong with [the boxes] now. So we have to go fix it or we need to go make sure that there's products being replenished, etcetera.” She speculated about the responsiveness required to keep the network going, not only replenish them when they were in need of product, but also to check on them after harsh weather and so on. “Once there's an object, then there's maintenance of that object,” Jessica, a PhD student in media studies, stated definitely. “Aren't little free libraries maintained by the communities that they're in. That's how it works, right?” another participant asked in an effort to suggest a more distributed endeavor.

These questions on accountability and access continued as graduate students Jessica and Andie (studying media studies and public policy, respectively) shared their idea. “Basically, our idea is a button”, the two began. They held up a pencil drawing of a tree with a large elastic ring around its trunk. It would be modeled in the style of an Amazon Dash Button, placed in local areas such as public areas like parks, libraries and so on. When living without menstrual resources, resident could press the button to ping city officials. To the pair, it held a twofold purpose: 1) to geographically track where residents signal a need, and 2) to produce a list for each inquiring resident based on their location of where they could access menstrual hygiene resources in their immediate vicinity. Pointing to the drawing, Andie elaborated on the design, “On the corner of this street and this street, there's a donation box. On the corner of this and this street—or at this specific library—, you get kits, get whatever resources you need.” She emphasized that the button was meant to indicate to those searching for resources, where they might go to find them in as specific terms as possible.

The device was also meant to interject on discourses of public care that pervaded the community. By placing it in public spaces, Sarah and Kristen intended to materialize a pushback against local and state governments, “to say that this is something you

need to get involved in.” Attaching the buttons on objects common in the urban landscape, such as light posts and stop signs, would indicate a kind of metaphoric connection. Just like these infrastructural elements outfitting the city streets, menstrual infrastructure too should be deemed a task of governmental care and keeping.

The entire group became animated by the button design for it collected concerns on distribution, while incorporating technological elements that could be leveraged toward multiple aims. Rachel, an urban planner, imagined the device as feeding into larger scale spatial analyses, which could be used by both the city and advocacy groups to identify and address gaps in access. GIS technology could offer precision, she explained to the group: “you can put a circle in the map and it shows you where things actually line up or where they don’t.” More than a set of discreet devices, the buttons could funnel into a “whole app,” art student Lucia imagined after hearing the idea. “Yeah, it would encourage people to be a part of a larger conversation about what areas are going to be covered by which organizations and stuff. And to have access to the data that’s tracking need,” added Jessica. For the group, the networked button began to fit within a larger proposal for ensuring governmental accountability.

Jessica told me at the end of the workshop that she had come to learn about the disconnectedness of local agencies through her partner, a social worker. Through these accounts, she discovered many institutions did little in terms of communicating with other groups while administering their programs, which she stated could cause confusion among clients or redundancy in organizations’ agendas. Part of the goal of the design for Jessica was to incentivize making menstrual resources more robust through the blustering the connection of different organizations and governmental institutions.

Conversations on amending public sites extended to other workshops as well. During an engagement in Seattle, a team made up of graduate student Donna and architect Nora discussed adding onto common public restroom artifacts. Donna introduced the design as “an improved box.” Nora added on, it was “a dispenser of things commonly dispensed in bathrooms, and things not yet commonly dispensed in public bathrooms.” In early discussions during the workshop, they had found themselves questioning why there were discrepancies between items found in dispensers of sex segregated restrooms—condoms in men’s and menstrual products in women’s bathrooms. They proposed instead, a modular system that would have a variable supply of items such as emergency contraception, Advil, lubricant, yeast

infection cream, or other “things that people might suddenly realize they need in the bathroom” via an expandable set of dispensing units. The idea was to offer more rather than less in terms of service provision, and to do so without regard for gendered understandings of bodily care.

A technological imaginary held the attention of those in Seattle during the final workshop who reimagined desk work to be inclusive of menstrual experiences. In presenting their design, a development director at a local nonprofit and a psychologist described Schmoogle, a fictional Google-like company, that would offer pads and tampons for free at on-boarding and throughout the company’s all-gender restrooms. To the pair, instituting the program at a site of elite technology making would set the standard for the rest of the business world that would seek to follow in their lead. Change would be made from the top and trickle down, they proposed.

Across geographic boundaries and disparate city conditions, the desire for more robust menstrual infrastructure remained. In Atlanta, concerns on accountability and responsibility for public health resources such as menstrual hygiene occupied the group. There was little confidence that the ideas for a constellation of Little Menstrual Boxes, for instance, could be maintained within the organizational and



Figure 5 Many workshop attendees used craft materials to quickly give form to their early concepts.

municipal climate of today. Attendees discussed a perceived lack of cohesion between existing social services and described receiving little interest or support from the government for the programs already underway (led by attendees and their associates). Instead, systems would need to be instituted to subtly indicate need and make transparent to the broader public the responsiveness of state actors, as illustrated by the case of the Amazon Dash Button. In Seattle, group members pushed for more care resources from the start and expanded the range of who might be served at the moment of restroom use, suggesting a different expectation of state responsibility with regards to hygiene resources. Others in the same city potential for particularly industries of prominence such as technology firms to lead by example in terms of providing menstrual resources. These initial ideas on infrastructural additions to the urban landscapes offer a glimpse into the political climate of the respective cities—a view that will be widened across the next section.

Political Maneuvers, Operating at Scale

Other groups sought to examine the ways in which menstrual access might be expanded through policy making. During the first workshop in Atlanta, a group made up of a grassroots organizer Liz, urban planner Martina, and health worker Jean, collaborated to imagine a suite of bills to introduce to the state legislature. They began by looking at successful bids in other cities and states across the country, requiring the distribution of products in schools and shelters and instituting oversight in sites already set up to offer them such as correctional facilities. A recent ACLU lawsuit and a Correctional Association of New York investigation uncovered consistent and at times coordinated denial of menstrual products from inmates across US facilities, withholding such resources as an additional, unlawful form of punishment (Kraft-Stolar 2015; Bozelko 2015). The group imagined replicating the law in Georgia to ensure protection against such treatment among local facilities.

Their conversation took another turn as they looked out upon the city that surrounded them. From inside, the group noticed about half a dozen people gathered around an architectural model. Jean speculated that they were location scouting for the next movie to be filmed in the area. There had been countless films and television shows produced in Atlanta over the last two decades, for tax incentives had drawn parts of the big budget entertainment industry from California to the Southeast. Perhaps it would have seemed unlikely some 30 years ago, but it was a different story now, she described.

These powerful tax law incentives became seeds of inspiration for the group. They decided if it was enough to bring production crews from New York and California

then tax breaks were certainly enough of a motivation to move local businesses to provide menstrual products for free in their restrooms. It would be written for “people who wouldn’t necessarily be interested in the cause...who do stuff just for write-offs,” Jean declared to others in the workshop. “I love the idea of them tax write off,” Andie exclaimed. “I know that my boss probably he has never experienced anything like this and probably couldn’t care less about menstrual hygiene access, but if he could get a tax write-off, I guarantee you he would let somebody put a box in his store year-round,” she continued. The surrounding political climate and pro-business tax law then became a resource for design.

During the second workshop a week later at the Society for Menstrual Cycle Research in Kennesaw, Georgia, a team of scholars and activists from the United States, Hong Kong, and India thought together about ways political change could be instated across national boundaries. Rather than focus on access exclusively, they posed the question, “access to what?” In early discussion, each found they were unsettled by what they described as a lack of regulation of menstrual product ingredients in their home territories. To address this, they introduced a plan for long term research in the area of what constitutes “safe” tampons, pads, menstrual cups, and other items used for the internal or external collection of menses. Later, they planned to establish a system for regulating menstrual product manufacturers based on the research findings and to impose a labeling scheme to convey this information to consumers, in the style of “FDA approval or organic symbols on products in grocery stores.” A grassroots organizer from another group chimed in to add, “if you’re traveling and you can’t read the language, but you can find that stamp!” Janet, a sustainability advocate, confirmed this suggestion and added to the reach of the intended program, “the soil association does regulations and vegan society—so anyone who sees them would know that that’s the one they could buy wherever they were in the world.” The group decided, whether those who encountered it could read did not matter, if they could identify the stamp they would be assured of the item’s contents.

Across the ideas expressed by group members at each site, there was a collective interest in reinforcing menstrual accessibility through legal codes. Citing oversight or neglect on the part of self-regulating entities such as correctional facilities or product manufacturers, group members warned against relying on institutional level arrangements or mandates. Instead, they sought avenues for accountability through regulation, pushing for both local and international change in the form of broad medical research, product distribution, and consumer protections. This broad, societal lens continues in the ideas of the section that follows, where I describe how

groups sought to address cultural stigma they saw as precluding access before it could even be considered on the legislative stage.

Contending with Stigma

During the second workshop, a team of 3 activists and a comedian and educator gathered together to present their design: a uterus rattle. They had decided to focus on the common cultural stigma associated with menstruation and settled on “introducing it from the get go,” educating children early about the bodily process. They described a plan to break the curriculum into age groups beginning with infancy and then focusing on toddlers so the language for bodies and their goings on could be incorporated into conversation at an early age. They were sure this would take care of the taboo and the awkwardness that ordinarily might come later on in life. Pointing to a set of two balloons tied together with pipe cleaners, they described how the rattle would work: “The egg starts here and then it goes down through and then down— yeah. These are the eggs. These little balls. And this is the uterine lining.” They intended for this toy to sit alongside others like a wooden magnet game that would be used to incrementally instruct children as they aged with more detail on the menstrual process.

At the final workshop in Seattle, Donna and Nora described a perhaps more radical proposal for unsettling stigma. “Instead of a urinal cake or toilet sanitization blue

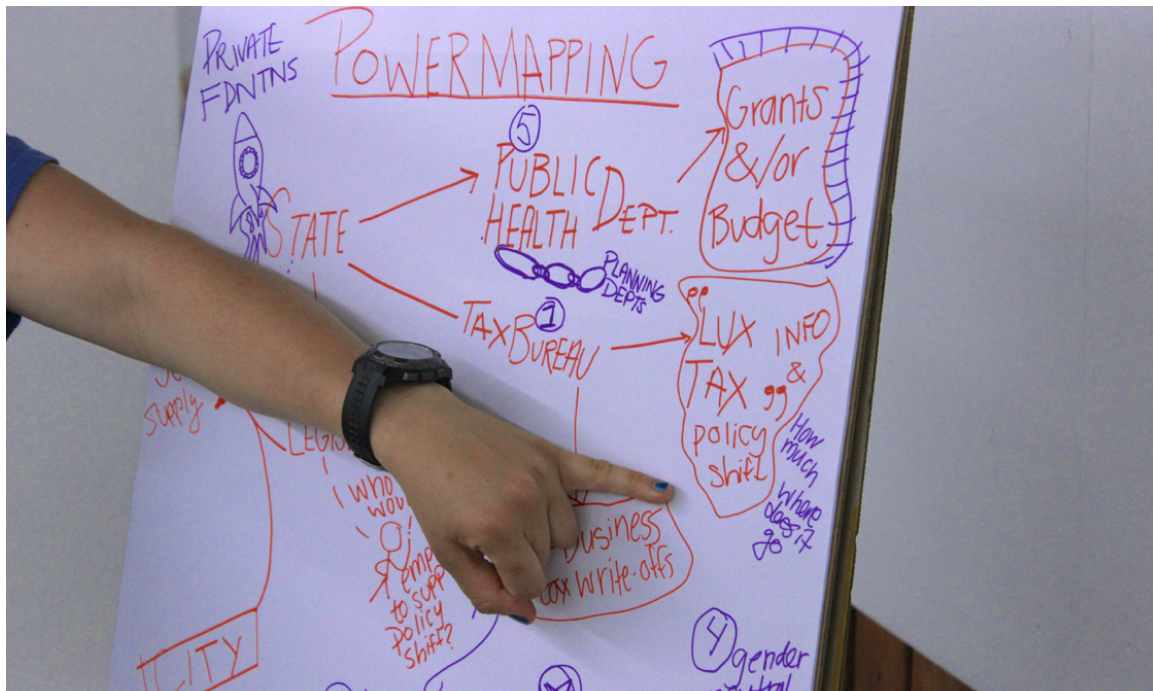


Figure 6 A group of attendees during the first workshop plotted a series of bills to be introduced to the local and state governments.

thing we would have an awareness campaign that would change toilet water red after it was cleaned,” introduced Donna. They imagined distributing a set of DIY instructions far and wide so that others could paint the town (or, toilets rather) red, playing on the trope of the otherworldly blue water featured in menstrual product advertisements. The idea behind the campaign would be to familiarize and regularize the sight of menstrual blood for those who do not ordinarily encounter it, imagining a world in which public toilets shared across gender are commonplace. “Oh, I can be sharing a bathroom with someone and see that and think it’s not that big of a deal,” demonstrated Nora. They suggested mass coloring of toilet water could be taken to be something of conceptual art piece, particularly if it were featured in sites of known gendered power such as the men’s restrooms in state capital or an NFL sports stadium.

Across these ideas toward ending menstrual stigma, workshop attendees prompted important discussions on information and understanding. With the red toilet campaign, participants sought to unsettle everyday public restroom encounters, to question the lack of menstrual blood visibility. They saw artistic and political potential in the discomfort they imagined it prompting, suggesting it might lead to more tolerance and compassion among non-menstruators and those who administer menstrual resources. Within other playful encounters, educational toys were designed to preclude taboo through early and often instruction. Within both groups, members imagined reformative strategies for addressing stigmatic treatment of menstruation, through jolts of aesthetic intervention. Each design saw potential for long term change through sensory rich engagements in regular sites of public life—from school to the stadium to the state house—where individuals might be compelled to learn more.

Structuring Menstrual Knowledge

For a group at the third workshop in Seattle—made up of nursing student Jen, childcare provider Patricia, and elementary school teacher Adrian—the question of multistage health education and how it should be administered came up again. In the place of reproductive education that might separate children based on their perceived gender, members of the group advocated for all students of similar ages to be taught the same material alongside one another. They imagined a program loosely designed after the experience of Patricia at the childcare center where she worked. Rather than “hoo ha’ or ‘coochie,’” she explained, they taught children to use anatomical terms for their body parts. With this sort of program extended and instituted across age groups and learning materials, Patricia imagined:

We wouldn't get these adult men being like, 'I don't know. It comes out of where you pee.' Those kinds of things. And then, also, you have girls who are like, 'Oh, so that's how...the penis, the balls and everything thing like that function.' So, yeah, hopefully by 5th, 6th grade they know what they have and how it works.

According to Patricia, a discomfort with frank or honest discussions on the body was rooted in early education. She, along with others in the group, saw potential to shift menstrual access in the long term by teaching those who are children now about their and others' health and wellbeing.

Rather than the “gym teacher approach” to reproductive health education, the group pinpointed the school nurse as best suited to teach this material to students. “They can go through with the unbiased medical approach to what is really happening in the body,” stated Jen. This focus on mediating subjective information occupied much of the groups' attention, as warned by Jen who recalled her experience growing up in a community where creationism was taught alongside theories of evolution. “I think the answer is stick to the science and the information and things will move through,” responded Adrian.



Figure 7 Attendees during the final workshop in Seattle imagined a subversive campaign.

Yet, questions of bias did not subside as the rest of the workshop attendees chimed in. “Just because somebody is a medical professional doesn’t mean that they’re unbiased,” said practicing doula Eunice. As an example, social worker and policy analyst Margie offered a scenario in a state with “trap laws,” where a doctor might be legally required to tell potential patients ahead of an abortion procedure “facts that are not accurate,” or information devoid of important contextual information. Rather than contend further with the issue of truth and certainty in sex education, the group decided to pursue a pilot program at a charter or Mansouri schools, “because you’re more likely to intercept adults who already understand this and are more acceptable to this,” concluded Jen. Here, questions of class come to the surface in the name of menstrual de-stigmatization. Who is entitled to “unbiased” education? Who might decide on the presence of bias? In what ways might different health curricula across the education landscape exacerbate existing stratifications? How might these discrepancies naturalize in the form of material resource distribution? These are all questions the group brought to the fore through their intervention.

Amongst other groups, discussion across conflicting interests and concerns smoothed away with the aid of dominant design rubrics. For instance, during the workshop in Kennesaw, an activist, a data scientist, and a non-profit professional joined together to brainstorm ideas. At first, they struggled to convene on a topic, but later landed on what seemed to be one of the few points of intersection—developing a fundraising plan, for an existing grassroots organization struggling to meet their operating costs. As I checked in with them over the course of the meeting, I noticed that they had taken up a process of idea formation that resembled the Stanford d.school’s design thinking framework (“empathize, define, ideate, prototype, test”). When I asked the team members about the approach, the non-profit professional spoke up indicating that it was a structure popular in her field, one that she had used in meetings and workshops many times before. The data scientist too had become familiar with the approach through her affiliation with high tech firms. What would have resulted had they experimented with techniques of activist organizing (as was familiar to the other group member)? Though it is impossible to know how their design would have developed differently had they used a different model, the structured knowledge practice they ultimately took up shaped the sorts of ideas that could result. That this conventional design logic became so difficult to overcome suggests a particular strength to the human-centered perspectives written into the practices and accounts of technology cultures.

Looking across the workshops, we can see how bringing together people from various backgrounds and professional affiliations could at times inspire fruitful and surprising results. For instance, the research and international regulation scheme proposed during the second workshop likely would not have happened had it not been for the national diversity of the group at that event. Other times, collaboration across different interests and concerns introduced constraints otherwise not present. Participants, for example, imagined “unbiased” education delivered by certified professionals with no religious or political stakes in the outcomes of that teaching, despite fielding questions and critique within the workshop. Still more used techniques of design to narrow in on a seemingly single point of connection (funding, in the case described above), rather than sitting with or wrestling through their various conflicting concerns. Through these examples, we get a sense for the ways in which the results of a particular design encounter are bound to the resources available, whether they are existing skillsets, professional experience, or methodological material at hand.

Conclusion

In facilitating a series of workshops, I set out to examine what access to menstrual resources meant across distinct sites and amongst groups dedicated to supporting it. For some, access was focused sharply on forms of material distribution. For instance, attendees imagined sets of interventions to outfit urban landscapes and ensure menstrual product distribution across the city. Others plotted legislative revisions that would incentivize or codify wider circulation of tampons and pads through tax codes or oversight of government institutions such as the Department of Justice. Many within the workshops drew on collective imagination and divergent expertise to develop their reformative strategies. For instance, access was also approached through sensitization or education campaigns that would instruct children from a young age about menstrual health or interrupt the daily goings on, through rich, sensory engagement, of those who currently have little motivation for engaging with the topic (e.g. non-menstruating State Representatives or professional football fans). Sometimes workshop responses led to incisive commentary on modes of changemaking within business-driven political contexts, as was the case with the tax break incentives in Atlanta. Other times, interventions could be read as reflective of less visible restrictive conditions. Sarah and Kristen of the first workshop, for instance, had a difficult time identifying who, if not them, would sustain the Little Menstrual Boxes they proposed. From these broad range of concepts, we begin to see

an expanded notion of access that recognizes various material and social resources (currently or speculatively) available to move toward wider menstrual accessibility.

Rather than read each idea as a standalone response, the proposals offered by participants of the workshops represent a collection of perspectives on the issue of menstrual accessibility. Although one could debate the merits of the individual proposals, I want to focus instead on how they came to be. They each come from a specific place, a particular political or governmental climate, and a finite vision of how change is initiated. They can each tell us something different about the conditions within which attendees sat—conditions that were progressive, or others that were not; communities with robust social services, others that had problems connecting the resources present; some that invited far off and radical intervention, and others that foreclosed such thinking. In setting our collective sights on avenues for making more available menstrual resources, it became important to grapple with the particularities of each situation. To let them flourish and collect, rather push them aside in service of some unifying vision. In drawing attention to these tensions, I seek to identify alternative methodological pathways from which to grow new design encounters.

Chapter 7 Partial Things

I have thus far discussed the ways in which different communities and institutional actors were enrolled in the work of menstrual resource distribution. Through observation, design experimentation, and collaborative workshops, I found forms of access to be differently defined across sites and moments of time. In public restrooms, for instance, resources were often regulated by guiding policies and technologies reinforcing forms of managerial vision. At the social enterprise, CEOs' approaches to social change tended to avoid forms of accountability or democratic decision making to instead embrace commerce-driven activity and responsibility (e.g. to consumer or shareholder). Within the workshop setting, the political and economic conditions surrounding attendees' everyday lives meaningfully informed what they ventured to imagine. At each encounter, my gaze shifted and settled on aspects differently, at variable distances and configurations. Where once regulatory regimes sat at the fore, for instance, they receded in other settings to allow for me to understand how notions of dignity compelled activists and advocates to act. These analytic cuts, to borrow from STS scholars Maria de la Bellacasa and Karen Barad, "[fostered] relationship, more than they [isolated] figures" (Puig de la Bellacasa 2011; Barad 2007), with patterns emerging from a web of relationalities that contributed to making them possible.

This chapter draws on this notion of the analytic cut by exploring differing rhythms of design work (Lindström and Ståhl 2014). Rather than taking on modes of practice that might smooth over differences and contingencies surfaced through field engagements, I took up methods of design that instead embraced this variability and allowed me and those within these sites to further grapple with questions of contingency and partiality. Specifically, I set out to build upon a set of design workshops—bringing together activists, entrepreneurs, health workers, and others to investigate new forms of menstrual accessibility (described in detail in Chapter 6)—by not simply deploying or repeating ideas that emerged from these contexts, but instead by taking up the “thick” communication device of the consumer mail order catalogue to further think through and accumulate proposals.

I call this device the “Catalog of Partial Things,” a booklet containing concepts that emerged from the workshops series, ranging from policy to product to infrastructural intervention. To produce the catalogue, I drew on a tradition of probes, which calls on

designers and researchers to develop conversational artifacts left open to interpretation (Dunne et al. 2001; Pierce and DiSalvo 2017). Such methods aim to extend in-person modes of engagement through the circulation of objects that might gather compelling social research insights or inspiration for the design of products. Rather than a static record of the workshop conversations or documentation of discrete products, the catalogue itself was a research object. Sent to other stakeholders unable to attend the workshops in person, the catalogue builds upon these brief encounters by enrolling others to comment, edit, revise and further develop the ideas. Taken together, the workshop series and the dynamic catalogue offer insight into what Marilyn Strathern (2004) calls ‘partial connections’ – or, the partnerships constituted across difference – by experimenting with the scale, form, and complexity of located interventions.

In the sections that follow, I discuss the development of the Catalogue of Partial Things and its later dissemination—focusing first on the forms of aesthetic practice its assembly involved and later the discussions it fostered through its circulation. Across this account, I seek to identify alternative methodological pathways from which to refigure design encounters, from dissemination to dialogue and to shared ideas.

What is a catalogue?

When one thinks of a catalogue perhaps they imagine a compilation of descriptions accompanying an art exhibition or trade show, or maybe they think of a collection of typeface specimen displaying how fonts appear through sample uses. Here, instead, I focus on the format of the seemingly mundane and ubiquitous mail order catalogue. The mail order or merchant catalogue is the popular mechanism of commercial marketing that allows consumers to engage in exchange without access to a physical store. Popularized at the end of the 1800s in the United States, this format altered the sales distribution chain at the time by avoiding the imposition of sales tax for companies lacking a physical presence in the state within which trade took place. The catalogue also operates as a sort of rhetorical resource for entrepreneurship, extending forms of promotion beyond where the manufacturer can physically set up shop. Through its ties to aspirational visions and to notions of making change through consumer engagement, I use the format of the catalogue as an object to promote the exchange of ideas and proposals, rather than products, through the venue of the Catalogue of Partial Things.

Often, pages of merchant catalogues feature aspirational notions of lifestyle, which consumers might want to emulate through purchase. The jeweler Tiffany's, for instance, began producing their long running *Blue Book* in 1845, which they used to highlight precious and rare stones (Harowitz 2017). They projected a vision of the future through the pages, putting their seasonal collections and concepts in conversation with legacies of famous gems. Even today, the highly identifiable blue featured on the original cover now graces their bags and jewelry boxes and is an evocative experience of sensory marketing for many (Krishna 2011).

LL Bean leveraged the aspirations of leisure hunters who desired to cultivate an outdoorsman identity and a newly formed US Postal Service to launch a recreation apparel company in 1912 (Gorman 2006). In an early form of targeted advertising, founder Leon Leonwood Bean requested the contact information for everyone possessing a hunting license in Maine, where the company was based. He then sent flyers for his now famous hunting boots to every licensee who resided out of state, figuring they might be less seasoned sportspersons than those based locally. Clearly successful in this bid, the corporation's sales jumped and sustained growth even through the depression. More contemporary analysis of the LL Bean catalogue (a fixture still in middle class homes across the United States), include gender studies scholar Priti Ramamurthy's critique of the notion that "buying Madras" constitutes a political act, as the company claims. Through performing what she terms "feminist commodity chain analysis," or the examination of "how gendering takes place within and through the process of production" (Ramamurthy 2004, p.741), she illustrates the ways in which advertising separates the product from the conditions of its manufacture.

The LL Bean catalogue, as well as others such as Allied Electronics, served as inspiration for the *Whole Earth Catalog*, a counterculture series produced by early internet proponent Stewart Brand and colleagues through the late 1960s and early 1970s (Turner 2010). The likes of Steve Jobs and other prominent leaders of contemporary technology companies heralded the collection, which featured an expanding list of products, literary recommendations and reviews. Jobs, for instance, described the catalogs as a search engine before the search engine was invented: "it was idealistic, and overflowing with neat tools and great notions" (Stanford University 2005). Communication scholar Fred Turner argues the series acted as a "network forum"—a site for coming together to exchange ideas and legitimacy, while creating new intellectual and social networks—bringing into conversation back-to-land communards with those affiliated with research and technology institutions in the San Francisco Bay Area (Turner 2010, p.73). In doing so, Turner argues, those

involved with the *Whole Earth Catalog*, either by creating or reading it, helped to manufacture a vision of technology as a countercultural force, shaping public technoutopic understandings of computing for decades to come. The catalog put forth a deeply consumerist vision in which the world could be changed by buying the right tools.

Building on these critiques, I sought to engage with questions of circulation and connection. Seeing the catalogue as a commercial form of exchange, I began with the desire examine how its contents might be reworked. Rather than for consumption, the catalogue and the ideas it contained would be offered for contemplation and revision. Using the catalogue aesthetic, I assumed the language of consumerism, but instead occupied the periphery of capitalist ventures—or, *pericapitalism*, in the words of anthropologist Anna Tsing (2017)—bringing in and incorporating mixed company.

Building the Catalogue

Over the course of several months, I worked closely with two design students at the University of Washington, Bonnie Tran and Lenna Choi, to build upon the ideas sketched within the workshop engagements (described in detail in Chapter 6). This process involved iterative rounds of development, focusing on realizing—to differing degrees of fidelity—the concepts described by attendees. To further explain, in the next section, I turn to the story of the catalogue’s preparation, which offers insights not only about giving form the workshop concepts, but also about the design ideas that arrived during the process of making itself (partial proposals) and methodological lessons for design research dissemination.

Giving form to ideas

As we began translating the workshop ideas, initial design work focused on identifying aspects of each concept that could be represented through the format of catalogue. An international research and corporate oversight scheme from workshop two (discussed in more detail in Chapter 6), for instance, was realized through the design of a label certifying products’ adherence to this new regulatory body’s specifications. To give this idea form, we superimposed a seal design onto an image of a person holding existing menstrual cup packaging while shopping in a grocery store. Later, the label was printed as a sticker in three different languages—Hindi, Cantonese, and English—as both a nod to the nationalities of the concept’s authors and the international approach to the plan. In the catalogue, the sticker could be removed and used by readers (there was an image of the label underneath so that it

could still be seen after the sticker was peeled away). Though the coordination of research and regulation had yet to happen, the label allowed for those who encountered it to imagine themselves within a near future world in which such protections were in place. We may not have been able to create the multi-national research and regulation infrastructure or succinctly illustrate how such shifts might be made possible, but we used renderings such as the label in situ to suggest a situation in which this structure existed. We offered a glimpse, or a partial view, of what this intervention might look like if played out in daily life.

A suite of bills conceptualized during the first workshop covering far ranging domains, such as business tax codes and local neighborhood association funding provisions, took the form of a visualization. At first, the design team sketched the elements of the plan on paper, organizing the details of a map drawn by attendees during the workshop. Later we refined the image, adding further detail and connections in the form of a landscape map. Reflecting on what it depicted, we elected to offer further context by creating a complementary spread with information on the forms of political action already accomplished or proposed. This extension allowed for newcomers to the conversation or those not privy to the design encounters to scan the existing work in the space of menstrual resource accessibility and see how the new proposals might fit in and build upon these efforts. It also allowed for us to reflect on the local discrepancies between sites. In preparing the initial landscape map, for instance, we noticed a portion of the plan which funneled funds from “neighborhood planning units,” or small, community scale governmental structures. This was a creative use of highly local political mechanisms, but one we later learned could only be applied in the city of Atlanta (as this a unique structure to this city). In turn, further engagement with the concepts through the process of design allowed us to learn more about the partiality of the proposal and likelihood for amendments that would be involved in pursuing them further, across additional sites.

Other concepts, such as the Periodical—a pamphlet plotting the sites across a city where one might retrieve menstrual resources, developed in the third meeting—were relatively straightforward to prototype. The format of the brochure was commonplace to those with a visual design background on the team, thus developing the design proceeded quickly. In working through the details of the layout (e.g. which organizations to list) though, we found ourselves returning to questions raised across the workshop encounters on sustainment and responsibility for these proposed menstrual resources. The list of service providers, for example, would need to be regularly reviewed to ensure up-to-date information for those seeking resources, which would likely rely on ongoing, coordinated activity of volunteers. With concepts such as the Periodical, the difficult task was not so much in giving initial form to the idea, but rather in recognizing and preparing to negotiate its ongoing maintenance over time.

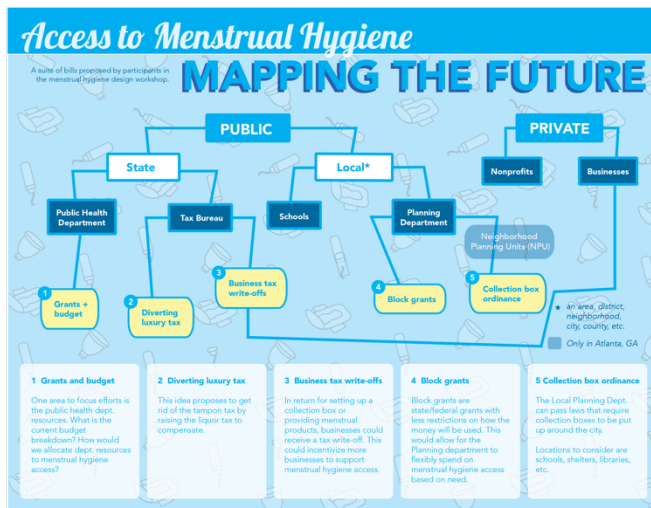
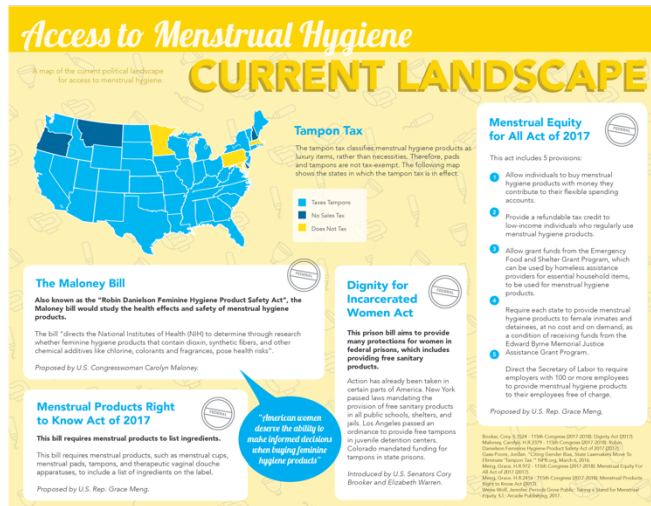


Figure 8 The suite of bills conceptualized during the first workshop was further fleshed out in a political landscape map.

Some ideas involved multi-platform imaginings, such as the awareness campaign Period Picnic, designed in the fourth gathering. The attendees chose the name to connote lightweight conversation and a relaxed atmosphere and they intended to inspire the sharing of personal stories via social media, in the style of the popular photo series *Humans of New York*.²⁵ The aim for the proposed campaign, according

²⁵ *Humans of New York* is a popular photo series on social media sites Instagram and Facebook (turned New York Times bestseller) from Brandon Stanton depicting portraits and interviews with people on the streets of New York Series.

to workshop attendees, was to go viral, or to gain increased in popularity through online likes and social media sharing. To help imagine this concept further, we created a set of materials including a website and Instagram feed for the campaign and a faux BuzzFeed article covering the site’s mission and the stories it circulated (simulating the virality through example media coverage). We made the project materials for Period Picnic (e.g. logo, social media accounts) available on our project website so that those interested in pursuing the concept could do so. In effect, the Period Picnic concept remained partial in that the campaign was a shell without followers or coordinators. Yet, it sat with the potential to be realized more fully through the assets made available online.

We also leveraged existing materials ourselves. For instance, with the Little Menstrual Box idea proposed during the first workshop, we began our design process by constructing a 3D model of the idea. But after the first couple of iterations, we realized that we could instead utilize the inspiration for the concept—the Little Free Library (LFL) network—for its implementation. After a bit of research, we learned the LBL organization publishes contact information for each library owner and images of the library design on their website in an effort to offer both acknowledgment and



Figure 9 The Little Menstrual Box coopted a Little Free Library, inspiring further public discussion.

accountability for the maintenance of the boxes. I located a set of boxes in the Seattle area that most resembled the Little Menstrual Box model we had developed and reached out to the owners to inquire if we could borrow the library to stage the design concept. After I was met with curiosity and support from one such community member, we traveled as a design team to a pocket neighborhood at the edge of a highway underpass install the intervention. As we replaced the books with menstrual products, passersby inquired about the prototype. Others paused after stopping to ask for directions or circled back to learn more after riding by in their cars or on their bicycles. Here, we found ourselves enrolling and engaging others beyond the workshop, even before the circulation of the catalogue began. Partial, chance encounters through public prototyping offered more opportunity for conversation and extension of the project.

For the connected Button concept detailed in the first workshop, the design team made the perhaps most logically move of purchasing a set of Amazon Dash buttons, lightweight internet of things devices that, upon being triggered, order more of a particular product on one's behalf (the company conveniently already developed one for a brand of pads and another for tampons). Examining these devices in the university lab, we took note of their small size and portability. We then drew on initial sketches from the workshop team and embedded the buttons them within a box we modified to securely house them. Drawing on additional resources online, we found that the buttons could be "hacked," or reprogrammed to function as a cheap, power efficient devices deployed toward a variety of ends—from baby monitoring to garage entry. This meant that we could fashion the button to work in the manner workshop attendees envisioned with few additional resources. Though we have thus far only produced the button structure as a proof-of concept, the design is ready to be appropriated by collaborators in other cities to collect data on need patterns across spatially disparate spots. Here, we were surprised to find through the development process that the idea was much less partial and less speculative than it originally seemed.

Through this process of giving form to ideas, we recognized their partial character. We saw across certain examples, such as the Periodical and or redirection of neighborhood planning unit funding, how the implementation and sustainment of these ideas could be crucially dependent on a certain set of actors or political circumstance. We also found partiality fruitful for prompting continued discussion and engagement along the way. The Little Menstrual Box, for example, sparked a sense of curiosity from those who happened to be around at the time of our public prototyping. We additionally found some ideas to be less partial than we initially

assumed—offering a sense of importance to the process of moving from concept development within a workshop toward various stages of realization.

Assembling partial things

Before distributing the catalogue broadly, we next invited an audience of local designers to view the object and offer feedback. I met with a fine artist and interaction designer, as well as a visual designer in one-on-one critique sessions that both lasted roughly 30-45 minutes. With my two students, I held a collective session with a master's student who had service and interaction design experience and a professor with a background in interaction and industrial design practice. They offered a variety of feedback such as moving particular pages for readability and flow, adjusting font size and leading, offering visual indication of speculative versus actionable concepts, and even offering additional ideas and extensions. They also provided insights into how we might encourage participation from readers, through visual cues and additional written material throughout the catalogue.

Building on this feedback, we combined simple fabrication techniques with hand assembly to craft the catalogue. To prepare the cover, we programmed a laser cutter to etch card stock in a particular typographic design that would reveal a pattern of line drawn menstrual products on the free-endpaper. Inside the catalogue, we included the printed book block, which we scored with a bone folder and bound together using a staple saddle stitch. For the workshop concepts that involved additional elements, such as the sticker, pamphlet, and accordion pullout, we then glued or tapped the paper artifacts on the corresponding spreads with craft glue or washy tape. Finally, we used bookbinding tools such as an owl and baker's twine to thread the political landscape map into the bind, allowing for it to fold in and out as the reader paged through the catalogue. In the introduction, we described details of the study and the ways readers might offer feedback, through mailing in comments or uploading them to a secure cloud-based folder. For the posted materials, we included with the catalogue a small booklet for providing feedback, printed on the same cardstock used for the cover with blank pages corresponding to each design. We also provided a postmarked pre-stamped envelope with our address for those who elected to send their ideas back to the design team, and a business card with contact details and the URL for the project website. Through this joining together of hand craft approaches and simple fabrication techniques, we sought to promote a sort of 'partial' aesthetic that would invite curiosity, intrigue, and might compel readers to offer their own thoughts and additions to what it contained (rather than view the object as overly polished and thus unamendable).



Figure 10 The Catalogue of Partial Things was itself a research object, circulated via mail and at public events.

Brokered Encounters

After assembling a set of over 100 catalogues, I distributed them in multiple ways. First, I hand delivered them at consumer expositions and conferences on the topic of menstrual health. I also reached out to those in the space of menstrual activism, enterprise, and politics who I had been in contact with through earlier interviews, observations, or public events, meeting them at sites of their choosing (e.g. coffee shops, offices, or homes) to offer the booklet and discuss the designs. Finally, I mailed catalogues to those who requested copies through the project website or via direct email.

In one such early engagement, I circulated the booklets alongside menstrual product vendors at the inaugural Period Con (briefly mentioned in Chapter 4), a gathering of college menstrual activists in New York City. The catalogue allowed me to gain a

unique sort of access into the space, as I struck up conversations with fellow exhibitors and engaged with those who passed by my display table. Through these conversations the catalogue took on a pericapitalist character, seen as by those in attendance as a contribution to this consumer-activist hybrid event.

How I became a business

“Tampons, tampons, tampons! I have this really, really great idea and I want to do something around periods. Let me tell you what it is.’ And after that, after I explained to him what a period was, he was really down.”

Nayda Okamoto, the cofounder of the nonprofit organization Period, began her opening speech with the anecdote above. She was describing for an audience of college activists and sponsoring exhibitors how she had approached her cofounder Vincent Forand several years earlier to start the organization dedicated to “distributing period products to people in need” (Period 2017). They were then sophomores in a high school in Portland, OR. Now, at 19 and the organization with over 150 campus chapters at universities and high schools around the United States, she was introducing their first conference, which was being hosted in a penthouse studio space overlooking the Hudson River in New York City’s Greenwich Village neighborhood.

There was a potent excitement in the air as young advocates mingled with their peers and took selfies in front of a press wall featuring a repeating pattern of the nonprofit’s logo. Lining the space were tables from exhibitors who were there to display their wares for the group. Companies such as Kotex provided products in the conference swag bags and Lunette offered free branded tote bags and menstrual cups to those who stopped by their booth. Diva Cup was giving away “campus kits,” with packaging that read “GET VAGUCATED” in bright, bold pink type. The boxes were filled with cups of various sizes and samples to be used to demonstrate to others the benefits of reusable menstrual products, in the style of midcentury Tupperware parties. When I went up to the booth, the representative suggested a kit would be especially good to take if I were a member of a sorority or leader of a campus group, so I could best make the appeal to captive others.

The schedule was packed with panels on gender inclusivity, global initiatives, menstrual education, and entrepreneurship, Okamoto told the audience. The program also featured high profile keynote speakers such as YouTube personality Ingrid Nilsen, who had recently questioned President Obama on why menstrual products were taxed in many of the nations’ states (to which he responded he was

unaware of the issue and encouraged women to lobby their state representatives to push for policy change). Over the course of the day, the conference would also welcome menstrual cup company DivaCup International CEO Carinne Chambers and US Representative Grace Meng, who had recently introduced the “Menstrual Equity for All Act” which advocated for a number of federal changes from federal spending to tax codes revisions (discussed in more detail in Chapter 4).

There were many benefactors to thank, Okamoto counselled. DivaCup, first and foremost at the “Diamond-Level,” deserved special recognition. Okamoto shared with the group that she had been using the brand since she was 12, including through a period when she experienced housing insecurity. “I never had to worry about having menstrual products because I had my Divacup,” she declared. Other companies too, such as U by Kotex and Lunette Cup had been important supporters and collaborators for the organization, on donation drives and sustainability campaigns respectively. She encouraged the young advocates to visit the booths, to show support for the vendors who had joined them: Gladrags, Thinx, Pink Parcel, Organyx Sarah Fox, and Lunapads. I was a bit taken aback to hear myself lumped in with these organizations, categorized as a business.

But I had been invited to setup a booth along with the rest of them, to a certain extent realizing my pericapitalist endeavor. I was right next to the lunch spread, a fairly prime spot across from a cloth pad company. There I fanned out a set of catalogues and contact cards and pulled up the project’s site on my laptop. Over the course of the morning, a mix of students and supporters passed by, some taking the catalogue quickly without question and others pausing to inquire about what it contained. One of the first visitors to the booth was a board member for the Period organization. After I explained the design workshop series and the ideas within the catalogue, she asked for more detail about the workshop agenda and how long the activities took to run. She then asked if she could have a slew of booklets, thinking the design workshop would make for a fruitful teambuilding exercise for an upcoming board meeting. Worried I would run short early, she went to the website on her phone and ordered the lot to be delivered to the Portland.

A student from nearby New York University stood with me for some time, describing how she had recently joined her campus chapter of Design for America, a national network of campus chapters using collaborative design techniques for projects creating social impact across a variety of domains. She wondered if I had taken up methods of design that she had been using in her own work, such as Human Centered Design, and offered to share her own newly initiated work on the topic of

menstrual placemaking. Another graduate student of sociology studied the catalogue over several minutes and declared it looked like a “refined zine” – a style of handcrafted short run publications popular in feminist and punk movements over the past several decades. Others discussed particular projects that appealed to them or gave them pause. For instance, two university students from the same organizational chapter determined the Period Picnic campaign would motivate their community to support local drives, while a financial analyst who had learned about the conference through her social network said the political landscape helped her make sense of the flurry of recent legislative activity.

As the catalogues slowly disappeared and the event began to come to a close, I left contact cards and encouraged those who came by to send lingering thoughts and ideas through the site. I packed up my things in an adjoining coatroom, but as I did I noticed an extra catalogue at the bottom of my bag. I turned around to go back in to the studio space to offer it to someone, but before I made my way out I saw someone standing behind me. “Hey, do you want this?” I opened the invitation and then explained the project and the workshop series. “Sure,” she replied, “I’ll set it out at the office for people look through.” Where do you work?” I asked, as reactions to the work have varied. “I’m at Google Creative Lab,” she said with a smile as she stepped out the coatroom. What sorts of menstrual accessibility would Google imagine, I wondered?

Across these exchanges, I found conference goers coming to the catalogue with a renewed set of ideals and concerns. For some, it offered inspiration for ways to better to connect with those around them, as was the case with the board member and the chapter leaders who saw promise in the social media campaign or the workshop format itself. For others, the catalogue represented extensions on the familiar, from traditions of alternative publication to popular modes of design. Still for others, such as the visiting financial analyst, the presentation of the ideas offered clarity through unconventional representation. The presence of corporate technology affiliates within this site also prompted new ideas and concerns. Perhaps there were consumer facing menstrual tech products in the works at Google? Would they resemble the Dash Button concept, for it involved widespread IoT devices like the ones developed in the Nest line? As these thoughts rushed to my head, I came to recognize that the potential for the generation of new relations and ideas did not stop with those who were newly encountering the catalogue, rather interactions with others through the catalogue could spark new concerns within myself as well.

Sarah Goes to Washington

To further investigate the variable openings created by the circulation of the catalogue. I turn next to a trip I made to the US Capitol. I had been in steady contact with the office of a US Representative since posing an inquiry about a set of bills some months earlier. When the catalogues were assembled, I reached out again to ask if it would be possible for us in person to meet to discuss the ideas. Over the course of the next section, I recount the interactions I had at the House of Representatives and the collisions and sensitivities formed as a result.

I waffled as I ascended the steps of the United States House of Representatives, realizing in that moment that I had not confirmed with the Congressman's aide where we were supposed to meet. Looking into the building as others in perfectly pressed suits stepped through a set of tall, ornate doors, I could see security personnel and two separate lines for those with and without appointments. "Would I be on the list," I questioned. I called up to the office just to be sure. The aide would call me back, the person on the line quickly told me as he hung up. Sure enough, minutes later, Monica—the legislative aid I had been in contact with—rang and reassured me that I was in the right place. "Just come on up to Room 345c," she told me.

Simpler said than done. I passed through a dizzying array of winding hallways and elevators that only took me part of the way to where I needed to be. There were surprisingly few people passing by me, but after several minutes I found a security guard in the basement level who pointed me down a long connective corridor to another building. I had been so careful to be early, but now I would be right on time.

Finally, I found my way to the office door. I knocked timidly at first and then with increased force when there was no response. "Come in," someone shouted from the other side. I slowly and carefully opened the door to find a team of young people (all younger than me by a least several years) seated at desks across the area of the small office. "Are you meeting someone?" a person to the left of me asked. "Yes, I just called. I'm Sarah Fox from the University of Washington. I'm meeting Monica," I replied. "Do you have a card," he quickly answered. Of course, I did not, but I searched my bag anyway to make a visible effort. Walking in alongside me was a Congressional aide from another office. She announced she was dropping off a Deferred Action for Childhood Arrivals (known as DACA) renewal request. It had been just a couple of months since President Trump had moved to end the Obama-era program—a program granting temporary work authorization and legal protections from deportation and detention for immigrants brought here as

children—describing it as an unconstitutional overreach of executive power. In its place, the president advocated for “merit based” immigration, or a system that would focus on allowing those with “useful skills” rather than familial ties to be admitted to the country. The person who had ask me for my card told the visiting aid to set the request in the document tray on his desk. He would be sure to see the Congressman received it, he assured her.

“It’s fine. We just talked on the phone,” the aide at the desk said to me referring to my delay giving him a card. He stood up, opened the door behind him leading to what appeared to be the Congressman’s office, and slipped inside. I took a seat in a small waiting area to the right of the office door. As I settled in, I the scanned coffee table beside me. All the latest issues were there: *The Hill*, *Politico*, *Roll Call*, *The Atlantic*, *The Washingtonian*, *The Washington Post*, and regional publications from the Congressman’s home district. On the bookshelf above, there were images from the Congressman’s swearing in and others with prominent politicians and presumable family members. In through the main door, came another aide who sought to hand deliver a letter to the Congressman. The gatekeeping aide remerged from the office and asked what it was concerning. “It’s on tax reform,” the person said. He took the mail from her and stepped away again into the Congressman’s office.

Moments later, someone else came from the Congressman’s door. She walked up to me and introduced herself, “Hi, are you Sarah?” It was Monica. She apologized for the delay. It was busy, she explained. The House was preparing to vote on the Tax Cuts and Jobs Act (colloquially known as the House GOP tax bill). This was a highly anticipated piece of legislation that was on one side meant to redeem a year’s worth of congressional shortfalls with classic “trickle down” economic policy made permanent. On the other side, it was a partisan maneuver that would cement economic immobility many believed to be increasingly on the rise. I was surprised they were able to make time for me on a day like this, I admitted to her.

As we flipped through the catalogue, I described each concept—noting some were more speculative and others more immediately actionable—and the workshop team who had produced it. I paused at the political landscape, pointing out where the Congressman’s bill was featured. She told me there would have to be amendments made, as there was more in the works. Monica then asked where else the catalogue had traveled. I had just made a trip the day before to the now defunct Museum of Menstruation, just 10 miles away in New Carrollton, Maryland, I told her. Her face lit up: “Do they have any contact with the Smithsonian?” The

Congressmember had helped push for more diverse representation across exhibits in the nation's most preeminent cultural institutions, Monica began. Perhaps here was point of connection or launching point for action, Monica told me, a means for us to discuss leveraging my research connections and the political position of the office of the Congressman. Here I was, an unassuming lobbyist without even realizing it.

Soon after, the congressman stepped out to greet us. Monica introduced me and began describing the work I had done with the catalogue, pointing out some of the same spreads I had just shown her. She also relayed the Smithsonian idea, to which the congressman agreed would make for an exciting project that could draw on past political wins. The congressman took the catalogue and began to flip through, taking particular time to look at the political landscape. As we met, there was a distinct “ding” sounding in the background. It began increasing in frequency, until it was difficult to ignore “ding, ding, ding.” Monica pointed overhead, acknowledging the noise. “Those are the votes coming in the for the tax bill,” she said. As the noise continued, the congressman collected their things. It was time to go to the floor of the House, they told me, to be there for the announcement of the final count. As the congressman stepped out, they told me I was on the list of people to connect with when working on issues to do with the topic of menstruation.

When I got back to the hostel where I was staying, I learned that the House had passed the tax bill. Tucked within the legislation was a mandate that would make graduate school (and thus the research I was doing) impossible for me and many others. Tuition waivers, offered to graduate teaching and research assistants in exchange for their work, would be considered taxable income according to the document and would represent an exponential increase in tax burden for those who already take home relatively low wages²⁶. For public institutions such as UC Berkeley, the increase was estimated to be over 61%. At private institutions where tuition costs are higher, the rise would mean percentages at 1.5x or 2x the current rate (e.g. a 240% increase for MIT).

Opinion pieces in the days to come decried the inclusion of such a provision, outlining the ways in which the national economy would falter as bright students seeking postgraduate education would simply look elsewhere (Wermund 2017). Advances in medicine and technology development would also suffer as those too were in no small part due to graduate research labor, other columnists would argue

²⁶ The national average wage index for the United States in 2016 was \$48,642.15. The annual mean wage for Teaching Assistants at Colleges, Universities, and Professional Schools is \$37,750. <https://www.bls.gov/oes/current/oes251191.htm#nat>

(Rousseau 2018). New innovations would be left underdeveloped and startups unlaunched. These arguments began to read as similar to the cases made for “girl effect” programs I’d encountered during fieldwork with social enterprise initiatives (see Chapter 5). Investors and customers were told to imagine the untapped potential of girls in developing countries. Without the ability to consistently pursue education, they represented a loss in “productive labor” and thus the national economy silently suffered. Without relatively inexpensive graduate labor bolstering the functioning of Research 1 universities, would elite US institutions face the same perilous fate—the loss of market potential and an underutilized labor force? I wondered, if this bill unchanged also passed the Senate and began law, would there be social enterprise initiatives set up to disrupt the graduate labor scheme and higher education generally?

In some ways, the encounter at the Congressman’s office introduced federal allies and held potential for the re-opening of a long-closed archive hosting historical items currently facing material degradation. In other respects, my presence that day began to clarify the stakes involved in such engagements and the interconnectedness of political concerns. Within research contexts, topics of immigration reform, education funding, and public health policy might typically be delineated by formalized academic disciplines and discussed in their respective fora. But within the House, concerns across these fields were deliberated without such distance or definition. For example, while flipping through the catalogue, we were confronted (very literally, through an interjecting and repeated “ding”) with what might have meant further privatization of something that has historically been considered a public good in this country, education. It was difficult in the moment to separate the thought that if something considered as high return as academic scientific research,²⁷ for instance, was deemed unnecessary in terms of governmental support that there would be much movement to get behind improved menstrual resource accessibility. The encounter was not simply about stopping by the House of Representatives to drop off a booklet. Instead, this was a meeting of design research and politics, which demanded new sensitivities and arrangements. Through the knotting together of these partial interventions—my presence at the Capitol, the tax bill passage through the House, and the DACA repeal—I began to see the potential for the catalogue as a tool for gathering around at the edges of academic and public life, a means for at least momentarily thinking across the delineations that might typically relegate us.

²⁷ For instance, a Milken Institute report suggests research funded by the National Institutes of Health (NIH) leads to a \$1.70 output from biotechnology industries (Chatterjee and DeVol 2012).

Conclusion

The development and circulation of the catalogue offered partial visions and forged partial connections across product, activism, and policy, pulling at threads that ran through a variety of concerns and commitments. At the menstrual conference, the form of the catalogue offered points of connection. Many reflected on a sense of familiarity in the textures and materials it took on (e.g. its closeness to a zine or traces of Human Centered Design). Through conversations around the booklet, I also learned how interlocutors conceptualized venues for change. For the university student newly affiliated with the organization Deign for America, widely circulated design approaches offered a lens through which to see problem and possibility. For the tech employee, depositing the catalogue in the context of her workplace constituted intervention. For the nonprofit board member, a site of change was found among her fellow leaders; by using the catalogue to promote discussion amongst them, she would alter their ordinary procedure for decision making. In sharing their interpretations and plans for the booklet, each offered a lens on their perspective on change, on how they went about affecting the worlds within which they live. Through the catalogue and the conversations it prompted, I was able to—however briefly—see glimmers of these positions, or multiple realities.

At the House, the catalogue took on dual roles by allowing for both focused discussion on particular programs the Representative showed interest in pursuing, while acting as a mechanism by which to pull the conversation into wider political contexts. Similarly, in assembling the catalogue, the design team uncovered emergent considerations and dependencies related to the proposed concepts. For example, we realized through laying out the Periodical that there would be additional forms of enrollment necessary, beyond what was discussed in the workshop setting, to ensure the upkeep of the intervention. Other times we aimed to give form to attendees' multifaceted proposals that sought to intervene across time (in the case of the sex education reform) or institutional structures (as with the policy suite). In this way, the ideas within catalogue and the conditions around them resisted fixed solutions. Instead, calling attention to—in the words of anthropologist Anna Tsing—"the uneven, collective contingent work required for change" (Tsing). The catalogue represented a sort of plural composite of the relationships that gave rise to and circulated it—beginning with the design workshop engagements and evolving across development and each site of engagement.

Chapter 8

Considering Menstruation

The expansive, sun kissed Downtown Los Angeles vegan restaurant was filled with hundreds of visitors wading through dozens of exhibition tables. Many donned #METOO stickers that had been distributed upon registration. Toward the back of the room several more attendees were gathered around a photo wall featuring signs with quippy sayings and Beyoncé-inspired puns to help document the occasion on social media. We were all there for a daylong program of workshops, panels, and the exposition of commercial vendors. Representatives working the booths offered services or products somehow related to sexual or menstrual health. Some shared pamphlets on new medical trials (e.g. an abortion pill delivery service), cannabis products to relieve menstrual symptoms, or expanded health insurance coverage. Others offered demonstrations of products such as a connected basal body thermometer designed to sync with popular period tracking apps, menstrual cups, cloth pads, absorbent underwear, and dozens more. I made my way around the space slowly, striking up conversation with each of the exhibitors.

Toward the end of my trip around the room, I found myself in conversation with Diana. I quickly learned she was not sharing wares like many others in the room but was instead a representative of The United Nations Entity for Gender Equality and the Empowerment of Women (colloquially known as UN Women). The organization was setup in 2010 to promote, “women’s equal participation in all aspects of life” through the development of global standards and norms related to economic empowerment, access to leadership experiences, ending gender-based violence, and so on (United Nations Entity for Gender Equality and the Empowerment of Women 2010). Diana told me she was there to share their recent research on the interactions of sanitation barriers and menstruation across the world. Her explanation of this work would reveal through lines between the UN’s work and the efforts of other entities such as UNICEF and USAID, particularly on sanitation as tied to the notion of dignity. One of the UN’s reports suggested that dignity would indeed need to rest at the heart of sanitation work and that campaigns for hygiene resources were in support of basic human rights (operating in the same rhetorical milieu as many of the activists I discussed in Chapter 4).

I offered her a catalogue as I did everyone else I had spoken with and, before I could explain the project, she began flipping through the pages. After a few seconds, she looked up and asked, “Have you heard of Human Centered Design?” I told her I had, and I asked in return if it was a method used by UN Women. “My co-worker is studying it in graduate school, so I’ve heard a lot about it from her,” she responded. Through her colleague’s exposure to design processes in business school, she told me she had learned about particular design firms and the methods that emanated from them—particularly, the internationally known consultancy IDEO and the aforementioned process of HCD (Human Centered Design). Through the company’s online materials, Diana had encountered their branded kits, techniques, and the occasional sponsored design competition. She suggested I visit the regional office of UN Women to discuss the design workshop approach depicted in the catalogue in detail with her team. We exchanged information and I made way to the few remaining booths within the room.

Later that evening as I landed back in Seattle, I received a text from Diana. Within the body of the message was a link to OpenIDEO, the social enterprise arm of the popular consultancy. Specifically, she sent a call for proposals for a sponsored challenge asking participants to respond to the question, “How might we radically improve access to, and quality of, sexual and reproductive health education and services for young people?” (OpenIDEO 2017). The competition aimed to crowdsource design concepts from volunteer contributors across the globe via an online community, guiding winning ideas through their signature process of iteration and refinement supported by expert consultation and foundation funding. As the consultancy described it, the impetus behind OpenIDEO was to imagine how they might “open up [their] method” to those outside the corporate setting. With the right tools (design thinking), problems long facing us (e.g. sanitation inequality, too few reproductive care resources) could be addressed, the company posited.

With this invitation, Diana suggested I open up the work of this dissertation to communities of corporate and social enterprise design. If selected through the IDEO competition, the project would have traveled in altogether new ways through these networks, perhaps gaining forms of legitimacy and professional exposure along the way. These modes of innovation and circulation popularized by consultancies such as IDEO promote forms of carefully managed coproduction (e.g. design competitions leveraging online communities to crowdsource project ideas) that combine an ethical and economic interest. Such procedures support notions of grassroots design, but in a manner that reads easily their own investors or stakeholders. If selected, the dissertation research would have likely been funneled into the very sort of structured

design process that it had set out to complicate. Rather than looking toward what might earn the most votes in an online poll or follow an HCD protocol most closely, the project at hand looked instead toward what might have ordinarily landed at the edges of such a campaign, toward what might be obscured by these dominant practices and their wide adoption. Instead, the aim of this dissertation was to engage with the faceted nature of the work setup to promote menstrual resources, efforts running through spaces of commercial, political, and activist orientation. With activity focused on developing collectives, products, and models of business, the groups I studied aimed to aid menstruators in a multiplicity of ways—from buy-one-give-one campaigns to instructive comics on trans-exclusionary politics. No single winning proposal could have encompassed each of their concerns.

To investigate and reflect these varied initiatives, I focused on two core questions over the course of this research: (1) What social configurations, value structures, and labor practices give rise to menstrual resources? (2) What forms of material and political practice sustain menstrual resources? Combining forms of ethnographic study and exploratory design research to engage these questions allowed me to critically interrogate the hierarchical structures that sort and guide the work and its outcomes. Across the previous chapters, I examined forms of labor that produced and promoted forms of menstrual accessibility. I began with an investigation of the governance strategies used to dictate the public restroom, as well as the care labor and material resources that comprise it. I also focused my study on the forms of collective responsibility that intervened on these patterns and delimited certain modes of managerial visions. Building on this initial fieldwork, I examined the politics of menstruation, in the resistance practices of activists and in the production of “social business” models of emerging startups. Each organization took on a partial character, with no one site or solution traveling across geographic, occupational, political, or class lines. Instead, each approached notions of menstrual accessibility from their various positions (e.g. conscious capitalistic, feminist) with the material and social resources at hand (e.g. high degrees of media literacy or sizeable social networks). I finally used this discussion of partiality to develop design interventions meant to engage collaborative imagination across these sites, among sets of activists, health workers, policymakers and others, to build toward multiplicitous visions of accessibility.

Over the sections that follow, I describe lingering concerns of this research and how they connect to notions of design, entrepreneurialism, and social change.

Caring through Commerce

Across many of the sites described in this dissertation, I explored how technologists and entrepreneurs have taken up feminism as a capitalist project by promoting forms of care across the menstrual marketplace. Within sites of social enterprise, campaigns concerned with reinventing the category of “fem hy” (the industry nickname for “feminine hygiene”) alter the delivery and packaging of items such as tampons and pads to be more appealing to those with particular aesthetic sensibilities or product preferences (i.e. those who choose organic products or nondescript packaging). Modern menstruators might be too busy to stop into a drugstore or find organic options, but these companies offered products delivered to their doorstep and, in doing so, furthered individual aims of “having it all” by offloading care for the self.

Taking up a social spirit of feminism, these companies also used market-based mechanisms of change to address issues of wide menstrual inaccessibility. Models of social enterprise business within these sites leveraged the care impulses of far off consumer-benefactors who chose to support these companies, in part, due to their buy-one-give-one approaches to donation. Thinking back to the case of Easy, founder Bertram was open about making change a part of an automated purchasing process. The social work of social change, in cases such as these, is then shifted to the company (and their local giving partners) who customers entrust with not only caring for themselves, but also the task of caring for others.

Tractability

Activists and commercialists alike tended to treat menstruation and the lack of menstrual resources as a tractable issue, a delineable problem that might be “solved” with the right proposal, enough donations, or an adequate social campaign. If provided with pads, for instance, girls could stay in school, attain degrees of education unavailable to their parents (particularly, their mothers), and later contribute to the national economy. Others saw promise in the use of provocative marketing imagery to unsettle long held social stigma or the promotion of menstrual cups to curb industrial waste and instances of toxic shock syndrome. Through these efforts, many viewed their menstrual resource development as a kind of instantiation of the feminist, environmental, or social enterprise ideals they possessed. These were seen as realizable goals that might sow seeds for social change around more overtly political or controversial topics such as equity in education, reproductive justice, or economic mobility. Yet, what might be the consequences of treating menstruation as a tractable extension? What sorts of activity might this solutions-orientation delimit, depending on who is doing the problem definition or idea refinement? With the case

of Thinx, for instance, we see how a notion of feminism through menstrual accessibility can bear particular consequences. Turning exclusively to a single issue—here, providing access to absorbent underwear—does not absolve one of responsibility or accountability toward those who market or produce the products the company sells, nor does it protect one from the repercussions of accusations sexual harassment or verbal abuse (in the case of company founder Agrawal). Though her own notions of feminism through menstrual innovation guided the company for some time, the misalignment between the company commitments and the day-to-day actions of the CEO led to widespread criticism and her eventual ouster.

Bringing Feminism Home (or, to the House)

Across my study of various sites of influence on menstrual resource development, I posed the question: what might it mean to carry feminism along the way? I sought not only to view feminism as a lens to cast on later interpretation, but also as a mode of living and working through the methods I took up (Ahmed, p. 10). For example, I asked, what sorts of methodological innovation might be involved to remain responsive and a responsible to the sites and phenomenon under study? Contending with these questions I sought to form techniques of participatory reclamation through design research. In the case of Riot, I co-developed IoT to interrogate the place of these devices within socioeconomic logics of public life, as well as their capacity to cultivate, repair, and maintain collective responsibility.

Modes of generative critique became important again to later portions of this dissertation, as I facilitated collective workshops with activists, policy makers, and others who put forth partial proposals meant to lead to enduring and wide-ranging menstrual resource accessibility. In an exercise in relinquishing a broad push for solutionism, I instead experimented through this series (described in Chapters 6 and 7) with mechanisms for opening up the design process to partial ideas and interventions. Similar techniques of collaborative visioning were extended through the format and the production of a dynamic catalogue, which took on a distributed character through its circulation, traveling from basements to expos to the House of Representatives. I suggest this approach constitutes a form of what feminist scholar Sara Ahmed might call “diversity work,” or modes of “diversifying the pathways for information so it is more likely to get to the right destination” (Ahmed, p.95). Through these various forms of methodological work, I argue for a staying open through method to revision, repair, and redemption along the way.

Conclusion

This dissertation has described an approach to the study of design and social change that considers sites at the periphery of technology development. First, this research offers an examination of the pervasive but under-examined domain of restroom internet of things technologies and the distribution and stratification of menstrual resources, focusing on the managerial oversight involved in the care and upkeep of public sites. Extending this discussion, the Riot project (described in Chapter 3) involved the collaborative redesign of menstrual product dispensers. This case further exposed the consequences of integrating such devices into public life and examining the role of smart objects in cultivating and maintaining forms of collective responsibility.

Second, this dissertation contributes an exploration of feminism and entrepreneurialism, and the tensions that arise from their intermingling. In chapters 4 and 5, I engage with forms of representation and status that evolved from menstrual activism as well as examine the complicated nature of “altruistic capitalism,” or efforts to fold philanthropy into day-to-day business practice. Third, this dissertation discusses questions of circulation, legitimacy, and currency. Through chapters 6 and 7, the project resists the presentation of a standalone “solution” to the problem of menstrual accessibility, instead welcoming a collection of perspectives on the issue in a plural composite of the relationships that gave rise to and circulated it—beginning with the design workshop engagements and evolving across development and each site of engagement.

This research reveals what might appear mundane or instrumental—for instance, menstrual products, their public distribution, and the care labor that sustains them—as integral to material and social innovation. By looking at the periphery of IoT usage or design practice, for instance, this work pushes back on the inclination to propose single technological solutions for all, to instead offer partial responses (both in the variety of ideas put forth and the methods taken up). Together these contributions provide conceptual scaffolding toward efforts to design adaptable, community supported, and collaboratively maintained resources.

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