How Methods Make Designers

Seyram Avle
University of Michigan
Ann Arbor, USA
Seyram@umich.edu

Silvia Lindtner
University of Michigan
Ann Arbor, USA
lindtner@umich.edu

Kaiton Williams
Cornell University
Ithaca, USA
kaiton@cs.cornell.edu

ABSTRACT
Through their combination of lifestyle and method, Silicon Valley models for tech production such as design thinking, startup incubators, lean management, etc. are spreading across the globe. These paradigms are positioned by product designers, politicians, investors and corporations alike as replicable routes to individual and national empowerment. They are portrayed as universal templates, portable across national borders and applicable to local needs. We draw from our ethnographic engagements with tech entrepreneurial efforts in Ghana, China, and Jamaica to unpack the stakes involved in their uptake, showing that while local actors produce situated alternatives, their work nevertheless often results in a continued valorization of these seemingly universal methods. We argue that design methods shape not only use practices, but have consequences for the life worlds of professional designers. This includes how they impact personal and national identities, confer legitimacy in transnational innovation circles, and secure access to social and economic resources. Ultimately, we call for an inclusion of these factors in ongoing conversations about design and design methods.

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Design methods; ethnography; China; Ghana; Jamaica; Silicon Valley.

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H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

INTRODUCTION
The last ten years have witnessed a standardization of a series of design methods that have come to represent what counts as innovative. We construe methods, here, loosely to refer to approaches such as designer and start-up toolkits, how-to guides, events as well as spaces and organizational approaches including, but not limited to, design thinking, startup weekends, the lean startup, hackathons, pitch contests, incubators and accelerators, co-working spaces, and many more. While not all of these methods have originated from the Silicon Valley region per se, they are positioned by diverse stakeholders, from governments to entrepreneurs and designers themselves, as the essential tools of a contemporary culture of technology production that the valley has come to represent. From new incubator programs in Chinese factories to design thinking workshops in Aarhus, these methods have found fertile ground in diverse regions [20, 28]. They are understood across different interests, cultural norms and regions as representative of "the right way" to do cutting-edge design and contemporary technology innovation. They constitute, in other words, a methodological hegemony: a dominating approach towards design and technology production. And, while they share a proposition that good design and production rests on taking seriously culturally-specific user demands and experiences, they also share a common ideal of how one best arrives at this: a set of pre-packaged toolkits, handbooks, and guides that shape the design process.

In this paper, we provide ethnographic accounts of the ways in which this methodological hegemony and standardization has extended beyond more familiar and established technology hubs like Silicon Valley. In research that spans regions in China, Ghana, Jamaica, and the United States, we have witnessed various endorsements of this "Silicon Valley method" (henceforth referred to as the 'SV method') by cities, regional and national governments, private and public institutions, designers and entrepreneurs alike. Across sites, this has proliferated a call for the cultivation of innovative thinking and entrepreneurship. This has been accompanied by an allocation of resources towards incubators, design thinking programs, the hosting of hackathons, start-up weekends, and pitch contests. Often, and as we will show here, an underlying motivation is to rebrand cities, local regions and whole nations as emergent tech innovation hubs arising from the periphery [8].2, 8]. Silicon Valley's methodological hegemony extends through and across borders, though not without contestation, and is aided by an infrastructure jointly constituted by educational institutions, financial investments, and the people who flow in and out of the San Francisco Bay Area [41, 42, 43].

Prior research in HCI has addressed such processes of Western hegemony at the site of technology production and computing. Dourish & Mainwaring [13], for instance, argue that ubiquitous computing can be linked to a 'colonial intellectual tradition' that uses universalizing discourse to locate innovation in relation to, and as emanating from,

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specific sites, predominantly in the West. The logics of this 'colonizing impulse' make certain ideas hegemonic practice. Our goal is to add to this discussion by drawing attention to how specific ideas about design have emerged as seemingly universal approaches applicable to diverse social, cultural, and economic contexts. More specifically, we examine how privileged modes of technology design shape professional identities. Extending from [2, 20, 45], we unpack how a professional identity around design practice emerges from within a center-periphery narrative, how it figures into design concerns, and how the socio-economic realities of the global market shape contemporary design practices. This includes accounting for how designers may not, and sometimes cannot, disentangle the design of products and services from sociopolitical and national aspirations [1, 2].

In doing so we focus particular attention on how the uptake and contestation of the SV method unfolds through desires of global belonging and legitimacy, dreams and hopes for alternate futures, and ultimately the pragmatic realities of making a living. In ethnographic detail, we show how a myriad of actors – including governments, corporations, individual entrepreneurs, and NGOs – jointly proliferate and sustain a universal approach to technology design, often without specifically intending to do so. We show how the seductive draw of the SV method lies exactly in its universal promise of local applicability, individual and collective transformation. When that promise becomes too difficult to realize, we observed contestation of its universal reach and the development of situated alternatives. Yet much of this work is underemphasized, or is located within the universal template in order to align with hegemonic methods whose use confers legitimacy in global tech networks.

In what follows, we briefly cover our methods, and then present prior work that situates the shift in global digital labor towards entrepreneurship and individual self-actualization. We follow that with an overview of the main theme of methodological hegemony, the contours of which we reveal through ethnographic accounts. We trace the social and material infrastructures that support this hegemonic approach in each site, and unpack how it interplays with mechanisms of identity and nation building. We highlight the frictions between the hopes for these methods, and their disappointments. We then reflect on why it is important for design research and practice in and beyond HCI to consider the livelihoods of designers.

METHODS

We draw on ethnographic work in China, Ghana, Jamaica, and the United States. This work covers participant observation and interviews from six years of work/engagement in China (Shenzhen, Beijing, and Shanghai) by the second author, six years of research in Ghana (Accra and Kumasi) by the first author, and three years of research in Jamaica (Kingston) by the third author, and across Silicon Valley. The authors worked, variously in their respective sites, within tech incubators, makerspaces, accelerators, startups, and co-working spaces. We attended multiple events including hackathons, pitching competitions, workshops, coding & startup bootcamps, conducting in depth and informal interviews with founders, designers, manufacturers, government officials, and others. The second and third author were also active as team partners and designer researchers, working side by side with startups, organizing workshops, and conducting trainings, e.g. [26, 28, 47]. Each of us has followed the transnational connections of people and ideas between our sites and regions in North America including the San Francisco Bay Area, New York, and Boston, tracing the paths our interlocutors built. Additional details on our methods, which we cannot do justice in the space allotted here, can be found in [1, 2, 27, 28, 47].

This paper is an outcome of frequent conversations at multiple conferences, including CHI, between the authors on the practices, ideas, and consequences of design and business methods we were independently observing in our sites. We formalized our analysis by working inductively on each of our datasets, noting themes and patterns as they emerged, and tracing them as they cut across and diffracted within our sites. This collective reading of each site through the others was both comparative and multi-sited allowing us to heed commonality and differences that revealed the role of design in each space. Following the method of multi-sited ethnography [32], we attended to the ways in which our interlocutors themselves drew out connections to multiple other places and sites as they situated their own work. What emerged across our sites was that Silicon Valley's methods amounted to strategies both for the production of technology and for living. In all three sites, we found various commitments and practices of directly engaging with Silicon Valley, and with what we call its proxy agents. Proxy agents include, for instance, people who have either worked in some capacity in Silicon Valley or in an adjacent industry such as in venture capital or in an allied institution, often universities (particularly in China) but also international non-governmental organizations in Ghana and Jamaica.

We critically unpack the notion of a Silicon Valley approach as a universal framing that works across diverse sites by focusing on how its narrative of design and innovation played out in unique ways in relation to the political economies and social structures of our three sites. While not a specific focus in this paper, we are guided by a historical perspective that takes into account how the respective colonial, postcolonial, neoliberal and capitalist developments in each region in part shape discourse and practice today. For instance, histories of neoliberal experimentation post-independence, followed by development efforts and NGO infrastructures, cannot be disentangled from how the role of technology design is construed in Ghana and Jamaica today. In China, a confluence of economic reform and opening in the 1980s, contemporary ambitions to reposition it on a global stage of economic and technoscientific prowess, and a history of

colonial occupation and humiliation in the 19th century, all shape contemporary technology practice, as well as policy and imaginations of the country's relation to Silicon Valley. These historical and contemporary national and geopolitical processes shape our analysis and discussions across the three sites, and yet within the constraints of this paper, we cannot do justice to their complexity or the myriad of prior work in area studies, postcolonial studies, and history that has tackled them in detail.

Our analysis includes relevant stakeholders whose presence and participation in the spaces we examined helped to maintain Silicon Valley's methodological hegemony. In all three sites, the state exerted different degrees of influence in directing policy towards one method or the other. In China, for instance, the national government has begun taking up the discourse and approaches offered by elite technology entrepreneurs in major cities, leveraging their existing relationships with Silicon Valley even as it tries to remake the nation along what it perceives as an emancipatory path of modernization for its people. We similarly trace the interactions and interventions of a range of actors in Ghana and Jamaica who feature in design and tech entrepreneurial spaces. Foreign funders and other interested parties have emerged out of what is best described as the NGO & aid infrastructure active in Africa, the Caribbean and other parts of the Global South. Together with our interlocutors (who we anonymize in our accounts below), state representatives, and Silicon Valley evangelists, they provide the foundation of a methodological hegemony that shapes professional identities and livelihoods.

GLOBAL LABOR & THE ALLURE OF INDIVIDUALIZED ENTREPRENEURIALISM

The desire to transform regions into knowledge economies and dot them with innovation hubs is not a new impulse. The novelty lies in the global scale and the range of actors involved in implementing these ambitions. Researchers of tech work and labor have long documented how the rise of so-called creative and knowledge economies has been accompanied by an increasing in the precarity of labor and neoliberal modes of governance that stipulate that the future of whole nations rests on citizens becoming self-entrepreneurial and self-actualizing subjects. Neff, for instance, documents how risk-taking came to be seen as a good and necessary skill for people working in the American IT industry [37]. Whether running a startup or working for a large tech corporation like IBM or Microsoft, to work entrepreneurially or participate in what Neff calls "venture labor" became a mandate to be successful in Silicon Valley and beyond. Doing so represents not just new sites of work, but also sites of "self-making" where design practices inform artifact and personal identity. Similar processes have been documented by researchers who have studied the rise and fall of creative industry policies in the UK [10, 29, 33]. Since the 1990s, policies have been implemented that "promise freedom to self-actualize while also subjugating (individuals) to a normalization of risk and uncertainty" [29]. These developments are understood as a shift in work and labor security structures in Post-Fordism societies that have normalized precariousness and further extended a neoliberal mode of governance to those "areas long considered secure" [29]. In other words, with the rise of flexible work and the demand to turn individuals into risk takers [37] it is increasingly difficult to discern between the secure and the precarious.

In her studies of the information industry in the Caribbean and the pursuit of entrepreneurial flexibility more broadly, Freeman finds that what she terms "the entrepreneurial enterprise" is also the central site of "neoliberal self-creation and labor in today's global economy" [14, 15], entangling selfhood and labor in a common project. In our sites, governments and the private sector promoted entrepreneurship as holding promise for individual and national futures in a moment where prior promises of creative work and socio-economic development began to appear hollow. Within these spaces, the self emerges as an entrepreneurial project under constant renovation, much like the digital products common in them. In our sites, the neoliberal undercurrents in visions of self- entrepreneurship have in drastic ways shaped social life and livelihoods, rather vividly for instance through Structural Adjustment Programs implemented by the World Bank and International Monetary Fund (IMF) in Ghana and Jamaica in the 1980s and 1990s.

The trope of individual empowerment and techno-utopianism that emanates from Silicon Valley is a powerful one that often hides the reality of increasing precariousness [26]. What Neff described as the new cool – launch parties, hackathons, coding, etc. – are even more so now part of the global Zeitgeist. We see this across regions and scales: high schoolers dropping out to move to San Francisco [6], the introduction of coding to pre-schoolers [7], hackathons hosted from Rio to Rome, Accra to the Zambezi. Incubators and accelerators dedicated to digital technologies have sprung up across this expanse. Across Africa alone, at time of writing, the count was close to 100 tech hubs in just under five years [49], and in China, makerspaces have sprung up in the thousands seemingly overnight [27].

METHODOLOGICAL HEGEMONY

The professional identity of a tech entrepreneur combines design and engineering with business acumen. Silicon Valley lore propagates online through industry news and blogs, and through global news media via stories of highly visible tech entrepreneurs of some of the world's most highly valued companies (which are increasingly tech companies) [11]. These accounts provide ready models for how a tech entrepreneur should behave, work, and live [18]. Many of our interlocutors could recite the founding stories of Facebook, Uber, and other 'unicorns'. They were familiar with the current signposts towards tech success, and like their peers in SV, are conversant in lean management and design thinking, know of and attended global events like TechCrunch's Disrupt, participated in hackathons and

bootcamps, pitched to investors, and sought the shelter and support of incubators.

These templates were never taken wholesale or rejected outright. Certainly, there were those of our interlocutors who were more or less enthusiastic about what it means to 'speak the language of innovation' but even within those shades, it was rarely simply one or the other. We found many complex negotiations of identity and enactments of professional design and production methods. Our underlying goal is to show how our interlocutors were actively reworking universal appeals and approaches through the everyday, making sense of their environment, and adapting what they saw as necessary to succeed as professionals.

In what follows then, we document various scales of how SV methods materialize, unpacking how the making of professional identity was entangled with projects of branding particular regions and nations as innovation hubs. For instance, political aspirations to mark China as a global leader in technological innovation and economic development have motivated policy reforms aimed at cultivating an entrepreneurial spirit and innovation thinking across "the masses". This is in stark contrast to Ghana where the government has largely been laissez-faire about the tech industry with industry actors more focused on building an 'ecosystem' that succeeds in spite of (in their view) the government's lack of commitment. Meanwhile in Jamaica, tech entrepreneurship has become an outlet for youth frustrations, and a fulcrum for effecting the transition to a knowledge economy and securing a position in the global economy that it has been denied since the removal of preferential trade agreements. Both Ghana and Jamaica's involvements with the World Bank, first through Structural Adjustment policies, and today through its underwriting of tech entrepreneurship efforts, reflects how SV's proxy agents fit within larger historical and contemporary efforts in building technological futures. Taken together, all these cases demonstrate not only the hopes and aspirations associated with SV methods but also the tensions and challenges our interlocutors navigated as they incorporate these approaches into their professional work and identity.

Nation-making & the making of professional identity

Making Creative China

In 2014, the Taiwanese contract manufacturer Foxconn turned one of its former Nokia manufacturing facilities in Beijing into the hardware incubator Innoconn. Spanning two floors, the former assembly line of the factory was converted into the kinds of open office space many in Silicon Valley have come to understand as necessary to produce innovative ideas: an assortment of desks behind glass walls, whiteboards distributed throughout the space, colorful chairs and high-ceilings that expose the building's pipes and electronic infrastructure. These transformed the former production site in seemingly authentic ways into what has become a global chic of contemporary innovation culture. One of the first things one can't help but notice when entering the remodeled office spaces is a wall-sized mural made of Apple iPhone covers that together form the immediately recognizable shape of Steve Job's head. Within seconds of a glance, the mural signaled that the factory was now a place where people could turn themselves into the kind of entrepreneurial designer Steve Jobs symbolizes.

The 2014 factory-turned-incubator in Beijing was one of the latest investments by national and foreign entities into China's desire to remake itself from a site that produced for the world into a site that originated its own ideas. Over the last two years, incubator spaces like Innoconn have opened up in the thousands in Chinese factories, IT corporations, schools, universities, and libraries. In a 2015 policy entitled "mass makerspace 众创空间 - mass entrepreneurship 大众创业 – mass innovation 万众创新," the Chinese government officially endorsed experiments like Innoconn as a model for the nation as a whole. The underlying vision of the policy – as articulated in numerous government speeches and texts – was that a "maker" approach was ideally positioned to help China cultivate an attitude of entrepreneurship, which in turn would help transform the nation as a whole into a knowledge economy and a globally renowned hub for innovation. The "mass" in the policy represents the goal of cultivating an entrepreneurial mindset and mobilizing many – if not masses of – people in China to start their own businesses. These new spaces would enable China, as prime minister Li Keqiang 李克强 put it when he introduced the new policy, "nurture an environment for entrepreneurship and innovation as well as to allow people to realize their full potential" [46]. With the new policy, funding was made available to provinces and regions across the country to set up new spaces for people to incubate businesses.

The new policy, however, not only made money available to turn old buildings into new offices. It was, more importantly, an articulation of a particular kind of professional identity. The future of the nation, it posited, rested on the ability of many Chinese, across class and professional background, to turn themselves into entrepreneurial professionals. Government officials positioned this project of cultivating an entrepreneurial ethos among the masses as implementing, at last, the long-held ambition of overcoming foreign imperialism by transforming the nation into a leader in technological and scientific innovation, a project that has occupied China since it lost the Opium Wars in the 1890s [38]. Since China joined the WTO in 2001, government officials have argued that this could be accomplished by turning the nation into a creative society and developing a creative industry [50]. With the help of foreign advisors from the UK and Australia, local policies were implemented that borrowed from creative industry policy texts and approaches in the West to enable China's transition into a globally recognized creative producer. These policies have led to radical transformations of many city neighborhoods, displaced millions of migrants to make room for the practices of a global elite of creatives, and are considered today as a

largely failed experiment. Creative and cultural production thus remained a project all too vague and exclusive.

The more recent shift towards entrepreneurship, mass making and incubation positioned these earlier ideas of turning China into a knowledge economy and to fight Western hegemony as suddenly feasible. The setup of incubator spaces, makerspaces, and co-working spaces in a variety of settings, rural and urban, white collar- and blue-collar work environments, should transform, so Chinese politicians envisioned, in concrete ways what work and professional identity mean in China today. Much of this contemporary shift towards entrepreneurship, albeit positioned as establishing China as independent from the West, is enabled by alliances with corporations and individuals who evidence experience in Silicon Valley type start-up and entrepreneurship culture. The irony is that the wish to overcome Western hegemony is implemented by positioning Silicon Valley models as the crux to overcome Western imperialism.

Entrepreneurial visions and a future Ghana

Walking into one of the tech hubs in Accra during fieldwork one day in early 2016, Avle noticed one of the co-founders, Jake, practicing a short speech in the corner. After being told he was prepping for a video application for a fellowship with one of the US's elite universities with a popular design-focused program, Avle watched him fine-tune a few takes before sitting down to chat. Jake was enthusiastic but somewhat nervous about the application. He had achieved a lot – creating a tech focused co-working space that attracted leading figures in Ghana's fledgling tech industry. The "beauty" of the fellowship, for him, was that it was "highly explorative" and that it would help him combine SV start up methods with the financial infrastructure in Ghana. He thought the opportunity to engage with "some of the top minds" from the SV area made this an opportunity too good to miss.

Jake was one of the most outspoken tech entrepreneurs Avle interacted with in Ghana. Like many others, his view of SV methods was that they necessarily had to be adapted to Ghana's business and economic culture, but the underlying ideas were valid and worth pursuing as a way of life. Unlike many others though, he had greater openness to working with government to implement policies that would be more beneficial to the local tech industry, rather than simply keeping them at arm's length. Here, he felt his generation of Ghanaians could apply some of what he described as their 'pragmatism' to work out a way to guide government action towards investing more in the tech sector.

Most interlocutors distanced themselves and their profession in general from state efforts and what was perceived as the government' failures at supporting innovation in Ghana. Many agreed that the state paid lip service to working towards turning Ghana into a knowledge society and hindered rather than enabled innovation. The view was that state incompetence and the myopic view of successive governments have made Ghana an unnecessarily difficult terrain to do business in general and tech business in particular. This difficulty was experienced at the micro level of the day-to-day business environment and on the macro level, the absence of supporting infrastructures towards innovation.

To that end, Jake and others welcomed interest from aid and non-governmental organizations that previously used to deal directly with the Ghanaian government but had recently started instead turning to tech hubs as a way of implementing creative and entrepreneurship policies that came from their parent organizations. For instance, some of the Danish government's funding for 'cultural development' had recently gone towards supporting activities in tech hubs. Other European and American organizations such as Hivos, Stichting Doen, Making All Voices Count, the EU, The World Bank and its InfoDev Group, US Embassies, USAID, DFID, SeedStars, Koltai, & Dahlberg, all work alongside multinational tech companies like Google, IBM, and Microsoft to endorse and fund 'innovation' and tech programs in Ghana. The pragmatism Jake mentioned was about taking 'unconventional' routes such as leveraging resources from such agencies, to build an 'ecosystem' that worked for Ghana's contemporary economic situation. For Jake, moving between unconventional funding sources, working as a government policy ally (even if unpopular), was to be able to answer the key question "what template do you use to grow a tech company in Ghana?"

This question underscores the underlying narrative presented by SV and its proxy agents: that its methods are at the same time both universal and particular. However, the devil was in the details; many tech entrepreneurs agreed that what could be made particular was the crux of the challenge in Ghana. Comparing how many days it took to register his business and get the documents verified in the UK (2.5 hours) to how long it took him to do so in Ghana (17 months, granted he tried to do it from outside the country), one interlocutor, Delali, remarked that "you need a lot more labor to get things done in Ghana". Another, Yaw, described how doing everyday things like visiting prospective clients was a physically laborious process, one that required doing things like queuing, walking under a hot sun, sitting long hours in traffic etc. on top of contending with bureaucratic issues and business culture that made negotiations protracted. Such descriptions of the actual daily work of producing technology portrayed a bodily and viscerally-felt dimension of technology production that is often absent from the Silicon Valley success stories floated around tech spaces. More importantly, they show how tech entrepreneurs locate their professional identities to other forms of work and how they fit into the broad project of building a different, better future for Ghana.

Jake, Delali, Yaw, and most of the tech entrepreneurs interviewed in Ghana ultimately saw Silicon Valley as more of a place of inspiration, motivation, and validation, and as

less a reflection of the conditions in which all tech entrepreneurs must work. To Yaw for instance, producing digital technology in Ghana was "not necessarily [about] building another Silicon Valley, but when you hear the stories it motivates you. It's a motivational factor, but for us, it's really being able to solve a problem for clients". When Jake talked about a "growth hacking template", he meant one that combined lessons from successful Ghanaian entrepreneurs outside the tech industry and how their methods can be combined with the SV methods (on starting up, pitching, pivoting, design thinking, etc.) that he and other tech entrepreneurs used. What was stake, as was often articulated to Avle, was Ghana's technological future and the glory of being a part of that future. The ideal outcome for these tech entrepreneurs was to build an 'ecosystem' for tech entrepreneurship and technology production that created a technologically advanced future for Ghana, one that will have its own successful variations of SV methods, suitable for the local context. To do so, they had to position themselves and take from not just Silicon Valley but other forms of entrepreneurial work in Ghana.

Get Up, Start Up, Jamaica

In Jamaica, the focus on tech entrepreneurship has emerged within the context of a nation-making endeavor. The current 25-year plan, Vision 2030, plans to route the country to Developed Nation status. This vision couples the expansion of technical infrastructure with the development of knowledge industries as a transformational path for its citizenry and a new basis for the country's economy. The current production of ICTs as a route to realizing nationalist and personal ideals is anchored within the historical context of slavery, colonialism, and the globalization inherent in the island's place in The New World.

The plan is part of a longstanding attempt to craft national futures through technical possibility. Arguably, much of this began with the laying of submarine fiber for voice transmission in the late 1800s. Then, a public-private partnership of colonial officials and promoters of cable connections crafted a politics and technology of Empire as a universal vision enabled by the network [34]. This continued with the stressing of modernity, cybernetic theory and technical achievement, but this time as way to demonstrate transcendental unity during the independence movement of the mid 1900s. Then, as today, the Jamaican people were to be exemplars of cosmopolitanism, their orderly mind, body, and modernity crucial at the time to helping achieving legitimacy and political autonomy from England [35].

This desire to bind technology use and production to personal and national identity making would manifest again during the establishment of the Informatics and Business Process Outsourcing industries in the 1980s & 90s [36], and now today in the promotion of ICT entrepreneurship. Evident across these efforts is an evolving relationship between technology and identity: first one of order and accuracy, embodied in the computer terminals and orderly cubicles of the Informatics Industry; and now one of disruption and individualization, ushered in with the advent of the smartphone and the influence of Silicon Valley startup methodologies and rhetoric.

Instrumentally, much of the support of this recent style of tech entrepreneurship has been to address chronic youth unemployment, and stem brain drain. In this effort, the government is joined by a wide array of private and public institutions. Various corporate efforts, both local and international take place in parallel with a series of efforts funded and facilitated by the World Bank Group. While the Bank's efforts are aligned with and supportive of the Government-led initiative, their program is spread across the Caribbean, and policy and practical decisions about curriculum, and even the target areas/industries that are "fundable" for startups (for e.g. the "sharing economy"), emanate from Bank staff who circulate between other hub initiatives spread across the globe.

Through EPIC (Entrepreneurship Programme for Innovation in the Caribbean), the Bank has created a pipeline for tech entrepreneurs that is spread across several sites: long-term training sessions and bootcamps for teaching mobile development and "lean" startup methods; pitching competitions where graduates demonstrate both product and startup acumen; and an incubator/accelerator where startups can find material support and further training to mature their products. These sites work together, with participants circulating among them.

Digital Jam (DJ) is one example of the combination of pitching competition, training program, and startup conference, that in 2014 was in its "3.0" iteration. The conference focuses on training mobile app developers and in preparing youth for opportunities in "microwork and e-lancing." In a World Bank publication covering the event, titled "Silicon Valley casts its nets in the Caribbean", Fabio Pittaluga, the "World Bank Innovation Expert" responsible for organizing the event recaps: "Through this effort, Jamaica and other Caribbean countries will join numerous business networks that *stretch out from Silicon Valley to the rest of the world to connect the region's youth with the technology giants* and other employers...This is a worldwide revolution in the making." [emphasis ours] [48]

While it is a judged competition, the facilitators are keen to position it not just as a contest but as a program of progressive education in the values of tech production. The lead up to DJ features extensive mentoring sessions where participants learn not just how to design apps, but how to present both self and idea. Here's Richard Shaw, one of the mentors, as covered in a blog post: "The world is changing… practices that worked well at one time must be regularly revised. The younger generation see the world through a 'different lens'." He positions what's being taught as not just tech methods but "values and core beliefs that are applicable across generations", and once "these values are absorbed and

understood, then the younger generation can unleash their talents" [25].

The training program is steeped in the language of SV design & engineering practices. This entails a comfort with publicly embracing failure (against established social norms) and human-centered design focus on the user and the social context of use, seen as missing from local design practices. Teams learn to present themselves within The Pitch as a marriage of technical know-how ("the CTO") and business acumen ("the CEO"), describing their product and its development processes, while displaying entrepreneurial stances. As participants progress through this pipeline, what counts as technology and design is progressively shaped, ideas are narrowed down, and methods sharpened.

Aspirations, hopes & frictions

Upgrading China

In 2012, HAX, one of the world's first hardware accelerators opened its doors in Shenzhen, Guangdong. It was around this time that the city of Shenzhen, a manufacturing hub just North of Hong Kong, rather than the internationally more well-known cities like Shanghai and Beijing, began garnering attention in Western tech entrepreneurship networks. Makers excited to turn their ideas from prototype into end-consumer products from smart home appliances to wearables and robotics began traveling to Shenzhen [27, 28]. "Shenzhen is a place where stuff still gets made. That expertise is concentrated there," Dale Dougherty, founder of Make Media, described this draw of Shenzhen to Lindtner in a 2014 interview. Other maker-turned-entrepreneurs would speak of their partnerships with factories and of an informal economy of manufacturing that was still at work in the wider Guangdong region that permitted them, despite language barriers, quick entry into a previously unfamiliar cultural practice of industrial production.

What started out with individual makers and early incubator projects like HAX soon received attention by foreign investors, high-profile corporations and institutions from the United States and Europe like Intel, the MIT Media Lab, the British Council, Make Media, Arduino, Microsoft, and more. These endorsements by Western entities further legitimized the project of Shenzhen as an ideal laboratory to innovate in hardware. By 2015, both city and national governments had officially endorsed Shenzhen as a model for tech entrepreneurship and innovation for China as a whole. Lindtner has written elsewhere extensively about the remake of Shenzhen into a rising innovation hub, today often referred to as the "Silicon Valley of Hardware" [see for instance, [26, 27, 28, 47]. The focus, here, in particular is on how a portrayal of Shenzhen in line with and following the innovation trajectory of Silicon Valley began rendering invisible exactly the kinds of informal production culture that had attracted entrepreneurs to Shenzhen in the first place.

One of the first destinations of many newcomers to Shenzhen interested in hardware and entrepreneurship has been the electronic market of Huaqiangbei 华强北. Comprising a 15-by-15 city block area, Huaqiangbei is made up of department store buildings, some 20-30 stories high, filled with a tight labyrinth of stalls of vendors selling anything from new and recycled small electronic components all the way to finished products such as mobile phones, tablets, hoverboards, selfie sticks, security cameras, and much more. Huaqiangbei has been featured in numerous blog posts of Western hardware enthusiasts and journalistic accounts to describe Shenzhen's unique approach to entrepreneurial tinkering. In 2015, a couple of months after the official announcement of China's new mass makerspace policy described earlier, Shenzhen hosted its second featured Maker Faire. It was the first time the city government of Shenzhen had officially endorsed and financially backed the event. Hand in hand with the Maker Faire came an urban redesign of the Huaqiangbei electronic market. The market space was transformed into a glossy interface of China's latest industrial products on display. The redesign wasn't only about an aesthetic transformation. The city government's goal was to transform the informal economy of Chinese manufacturing that had enabled the rise of the young city of Shenzhen from a region of agriculture to a metropolis of more than 15 million people and the world's largest hub of electronic manufacturing in only 10 years. What was holding the nation back, many in China agreed, was its history and practice of informal production, symbolized by the Huaqiangbei electronic markets -- a gray market that produced knock-offs alongside new products to niche markets in regions of Africa, India, Latin America. Incubator spaces, makerspaces, and co-working spaces would have to take their place, so the government envisioned, making room for a new generation of entrepreneurs, trained in Silicon Valley methods and globally networked.

The goal was to promote Shenzhen as a partner to regions like Silicon Valley and to retrain those who had worked in industrial design and manufacturing in Shenzhen as entrepreneurial designers recognizable to the language, behaviors, and customs of Silicon Valley. Shenzhen's new maker and incubator spaces, its factories, national and international corporations like Intel and Huawei, and the local city government began hosting pitch contests, hackathons, startup weekends, maker competitions, and many more similar events. At one such event, Lindtner met Wu Xun. Wu Xun had come to Shenzhen about 10 years earlier at the urging of a relative. "Shenzhen was a place where you could still make yourself," Wu reflected. He had worked his way up from engineer to starting his own business, producing and selling tablets to markets in Europe and South America. The new policy on mass entrepreneurship, according to Wu, was a good thing, for now. It enabled him to rebrand his business and get funding for his projects. However, in day-to-day practice, this project of rebranding was not as straightforward as the new policy documents promised.

As Wu was standing on stage, pitching his latest project of an open source PC stick to a mixed audience of Chinese and foreign makers, entrepreneurs, and venture capitalist, people in the audience nervously shifted in their seats and awkwardly gazed around the room. Wu was speaking in a loud voice, far too loud for the closeness of the microphone that somebody had attached to his head, his voice echoing in the auditorium. He could offer services for Western makers, he elaborated in his speech, based on his ten-year experience of mass production in China. Wu was passionate, but in a manner that didn't fit the expected voice and language of tech entrepreneurial enthusiasm that has become so common to pitch contests, TED talks, and Kickstarter videos. In some ways, the glitch, Wu's misfit, made the absurdity of training people to pitch and present themselves over and over and in the same way visible. The audience felt uncomfortable. Halted and embarrassed clapping followed Wu's speech. "I am not sure," he said later when asked how he thought his talk went, "I hope to get to collaborate with lots of foreign makers!"

Ghana: A different grind

The corporeal/ tangible/material aspects of creating software products added color to being a tech entrepreneur in Ghana. As a tech entrepreneur in Accra, you were likely to have access to places connected to the internet, with air conditioning, and in general validated you as a special kind of person. At the same time, you were also trying to beat Accra's traffic, trying to network as much as you can and understand that yours was "a completely different grind". On a daily basis, one had to put on the outfit of a tech entrepreneur and be in the right places, even if one didn't understand what goes on. Peter, a tech entrepreneur articulated this to Avle as follows, "you basically have to fake it till you make it or just keep faking it till you die, which seems to be the thing here now… You just keep winging it for so long that you tell yourself every morning that you are an expert, just to be able to live with it."

While being a tech entrepreneur had its performative aspects, it became a lifestyle for those who were fully committed to it. The majority of those who showed up in the hubs and events Avle attended were either full time employees of banks, insurance companies, telecom service providers and other similar corporate jobs, using their spare time to learn how to be a tech entrepreneur or were engaged in multiple ventures. Some of those part time entrepreneurs were learning to become tech designers, learning the language of tech entrepreneurship, and how to join this global cadre of 'problem solvers'. "The tech scene is a side hustle for a lot of people," noted Peter, something that was necessary in Accra. This notion of technology production as a 'side hustle' was consistent with the story about the Ghanaian economy more broadly, characterized by self-employment, with many having to rely on multiple sources of income to hedge against low wages.

At time of Avle's research, the Accra tech scene was comprised of regular events such as hackathons, talks, workshops, 'meet-ups', etc., most of which took place in two main hubs: Impact Hub and iSpace. At these hubs, part time tech entrepreneurs intermingled with "full timers" who were in start-up mode or has already started a successful business. The latter were often deemed 'resource persons' on hand to speak or provide input as judges for start-up competitions. Ever so often, people from outside the country or with experiences outside Ghana, particularly in Silicon Valley, (including 'returnees' in the tech sector [1]) filled this role, but often it was mostly 'local' folks mingling and working in a shared space. Hubs are where new entrants into tech entrepreneurship are enticed, nurtured, and challenged, depending on one's viewpoint. For instance, across the first class of students at iSpace's "Code to Startup" program, a 12-week training aimed at teaching people how to code in order to ultimately launch a viable product, many had joined because they wanted to learn to code or get better at coding and not that they wanted to build a tech focused business or launch a product. Within a few weeks, many had 'caught the bug' and were thinking beyond 'simply learning to code' and about how they might use technology to 'solve problems in Ghana'.

The hubs also served as venues for organizations to hold their own tech related events. These events, held by what we've referred to as proxy SV agents, such as NGOs, the US embassy, the World Bank, etc., were often styled after SV start-up culture, with similar rules, aesthetics and terms of engagement. For instance, all hackathons followed a particular kind of template: a challenge was issued, followed by a call for competitors, people then signed up (usually in teams), and converged at a dedicated location and work together throughout a specified timeframe, in order to finally pitch their solutions to a jury often made up of a mix of local tech stars and almost always at least one foreigner.

Since 2012, an increasing number of multinational firms (MNCs) in banking and telecommunications have been using hackathons to crowdsource ideas to leverage their APIs, or to generate innovative solutions to an in-house problem or for a new product. As one-time events organized by such proxy agents, hackathons largely served the interests of the organizing entity. Still, participation for the up and coming tech entrepreneur promised exposure and the possibility of funding. Exposure was expressed to Avle as visibility of skills, which promised to be turned into collaborations, sponsorships, new clients, etc. This possibility was, of course, up against the potentially exploitative nature of the power imbalance between an MNC and a young coder hoping to make new contacts. One complaint heard was that one had to do exactly what the organizer wanted or risk being cut off from funds, something that was described as possibly derailing one's projects. At the same time, other interlocutors were fine with that - having different expectations going into such events. Still others were more concerned about the terms and conditions that applied to whatever they created at

the hackathon. David, (a designer and coder) described how he had taken issue with the wording of a couple of hackathon contracts with a bank and telecom firm that essentially signs over his design to them and been asked if he was a lawyer.

Navigating in between worlds in Jamaica

Tech production is often presented by government actors and other industry supporters, unproblematically, as an "easy" route to success for youths. In speeches at Digital Jam and several other events in 2014, Julian Robinson, the then Minister of State for Science, Technology, Energy and Mining, frequently used Flappy Birds --- a smartphone game popular at the time --- as an evocative example of a success possible from a globally marginal place. The game's developer was based in Vietnam, and it had become a sudden hit, earning him thousands of dollars a day through in-game advertising.

The success of the game was presented without its details or complications: a message to youth about what hard work and following a proven formula (ad-supported smartphone games) could yield. But there was a dark side that the Minister was either unaware of, or unwilling to mention. While some accounts of the game presented it as an overnight success, it was the most recent in a set of many other games by the developer that had met with little success. The developer, frustrated in part with harassment about the game's legendary difficulty, the relentless press coverage, and accusations of copyright infringement, pulled the game from the app store and disappeared from public life.

Similarly, many of the budding entrepreneurs drawn into these programs by global media coverage of the industry, and rhetoric like the Minister's, struggled with the realities of the workload: the significant amount of new material to learn, the time and work necessary to produce an artifact, and securing funding and users. For many of them, these methods are embraced within a desire to establish oneself as a startup tech entrepreneur different from both earlier local variants of tech entrepreneurship, and entrepreneurship generally.

This entails both a vision of oneself as a global actor (traveling to international tech hubs, often sponsored by aid agencies) and adhering to the "up to the time" methods (which include embracing buzzy terms such Lean, Scrum, Agile, & GitHub, or avoiding 'outmoded' languages like PHP). Reflecting on the work of entrepreneurs, Pablo, a Jamaican entrepreneur visiting Silicon Valley notes the difference between what he has been doing and the work of local entrepreneur or "hustlers" who don't pursue "proper business practices" that reflect a science, and never look beyond the local market. In doing so he channels rhetoric that reinforces the neutral hegemonic position of SV methods: universal, modern, and rational; ready for international markets and scaling. Pablo's pursuit of the startup life is driven from poor experiences working within companies where he felt powerless and without agency. Pursuing a startup is a key part of a creative, self-empowered lifestyle. For others that Williams spoke with, this is compounded by a paucity of opportunities for "good" tech work locally.

While at least 3 well-regarded local universities churn out graduates in Computer Science and related fields, there aren't enough jobs to occupy them all. And where jobs do exist, they're often within slower-moving large institutions (banking, insurance) that often do not allow for the use of methods that are featured in the online tech hubs (e.g. ycombinator & reddit) that dominate local mailing lists and developer meetups. This leads to an exploration in personal time or a search for opportunities that allows for a use of these tools. Often an entrepreneurial effort arises as a site to implement a desired technology & product first, and to address the needs of the market second. This is accelerated by a cultural pattern that embraces entrepreneurialism as well as flexibility and occupational multiplicity [9].

Their heroes are Silicon Valley tech visionaries. They are embraced for their financial success but also for their methods, which offer a stark break from "local" practices through their engineering-orientation or attention to design. It's not just that they want to do as well (financially) as these figures: they want to do it in the same way. For instance, Pablo readily admits to being star struck by successful tech leaders in the past, because of their connection to recognizable brands like Apple or Google. And he is able to name and channel Silicon Valley figures whom Williams has difficulty summoning and recalling despite living in the valley for 13 years, much of it spent working within similar companies. Pablo knows local San Francisco "celebrities" like Karl the Fog, a twitter account detailing local weather patterns. This may seem slight but it's important: SF is a mecca, and many local eyes are turned toward it, no matter how distant. In a casual conversation outside a futurist event at a recently opened co-working space in a newly gentrifying block of SOMA in San Francisco, someone asks Pablo the question Williams has heard so many times addressed to entrepreneurs: "where are you based?" His response, "in between SF & Jamaica" is symbolic of the "in-betweenness" many of these entrepreneurs navigate: at some remove from Jamaican practices, in tune with a SV tech disposition.

DISCUSSION

New life-worlds and professional identities are brought into being when Chinese factories transform their empty assembly lines into incubators, when the World Bank hosts Digital Jam sessions, and when Accra's iSpace trains people in how to code. We have traced how the global appeal of such design methods lies exactly in their promise to upgrade individuals and nations along a trajectory of Western innovation hubs. Yet, none of this happens without contestation, frictions, and awkward misfits. We have shown, for instance, the irony that lies in China's attempts to use Silicon Valley design methods to undermine Western hegemony as well as the tensions that arise when governments try to intervene in spaces tech entrepreneurs have carved for themselves in Ghana and Jamaica. Much is

at stake in all these sites; the future of the nation, especially its place in global comparison, is portrayed as hinging on the successful upgrading of individuals into entrepreneurial citizens and on the making of a new kind of professional identity. This identity is of professionals who converse with ease in a globalized culture of "designerly" innovation.

What is HCI's stance? Do we have a say and do we want to have a say in what and whose methods become central to the making of policy, professional life-worlds, whole nations, and geopolitical relations? In some sense, it seems natural that we should. HCI has long been concerned with how methods shape use practices and users. Over the years as HCI has transitioned to a third wave [5], increasing attention has been paid not only to the instrumental aspects of our methodological approaches or the immediate concerns of the desk environment but also to the cultural, political, social, and economic processes of design and use. HCI researchers have also long reflected on their own values and ideals that might be embedded in the systems they design, and as a result have developed a myriad of critical, reflective, speculative, and other novel approaches to design and its evaluation.

However, comparatively little attention has been paid to the relationship between the shifts in methods and the profession of design itself. We contend that this is particularly important in sites that are both physical and cultural distant from the centers of production of those methods (e.g. SV). This paper begins to address this gap by accounting for the mechanisms and infrastructures through which particular design and research methods become dominant across regions, and by attending to how they shape the identity of the professional designer.

We have shown that professional design identities include entrepreneurial actions that are often not considered to be part of design. We have also demonstrated that the uptake of hegemonic methods is not a simple linear process, but subject to circulations, negotiations and frictions as well as individual and collective aspirations of global belonging. We could end our account there but we believe HCI can do more than just witness how certain methods come to dominate over others. Indeed, we strongly believe that the relevance of HCI as a field hinges in part on taking seriously how research and design methods, many of which have origins in HCI, are playing a central role in the hegemony of broader entrepreneurial innovation culture. What then, is there to be done?

We believe that one response lies in bringing into this conversation the rich body of work that has emerged within HCI devising critical alternatives to computing ideals and methods. Feminist HCI [3, 4], research through design [51, 17], speculative design [16, 31], reflective design [44], and many other approaches all share a commitment to envisioning alternatives to what counts as good design, as well as who and what is included in doing so. However, these critical approaches towards computing have only in limited ways been taken up or connected with the body of HCI research that has put forward a critical research agenda towards transnationalism, globalization, postcolonial processes, politics of innovation, and so on, e.g. [2, 13, 19, 20, 29, 45, 47, 21]. We believe that much can be gained by bringing these two fields into more direct conversation.

One possible starting point, we argue, is to locate the designer's lifeworld and professional identity as key elements in uncovering design methods and what counts as design. This entails understanding how the exigencies of eking out a living shape particular practices at the site of design, which are in turn shaped by individual hopes and aspirations. That is, we argue for a context of design that includes the designer herself, where aspects of life and business are prioritized over, or considered as important as technical or designerly aspects, and that HCI acknowledge and interrogate that with the goal of refining how we define design.

Second, we call for a broader lens for surveying the unintended consequences of design methods. In our accounts, we show how the proxy agents that maintain the valley's hegemony might be individual entrepreneurs and venture capitalists, development agencies with or without an explicitly neoliberal agenda, state bodies seeking work for the underemployed, or multinationals looking for new markets. The exact constitution and specific intent of these agents varied across our sites but their work collectively contributed to the narrowing of appropriate design approaches, and the proliferation of increasingly precarious forms of labor. Silicon Valley might not be the genesis of these approaches but it has effectively concentrated them. The Valley's templates and exhortations nudge sites at its periphery toward the standardizations needed for the mobility of capital rather than regional specificities needed to support emergent design practices. These moves are often accomplished through ostensibly optimistic and hopeful projects: grand visions of a technologically powered and globally-aligned future that may not ultimately support the very workforce being asked to change.

What could a critical HCI practice look like that acknowledges its own entanglements with good design, cutting-edge innovation, with what is rendered as the right kind of method, and who is framed as an innovator? How can we devise research and design methods as compelling as design thinking without giving up on our commitment to criticality and reflection? The answers to these questions certainly lie beyond the scope of what can be accomplished in one paper, but we hope we have started a nudge, little it may be, towards a collaborative and cross-disciplinary project within HCI that takes seriously and intervenes in the methodological hegemony of design methods.

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