ABSTRACT

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In 2013, a series of posters began appearing in Washington, DC's Metro system. Each declared "The internet: Your future depends on it" next to a photo of a middle-aged black Washingtonian, and an advertisement for the municipal government's digital training resources. This hopeful discourse is familiar but where exactly does it come from? And how are our public institutions reorganized to approach the problem of poverty as a problem of technology?

The Clinton administration's 'digital divide' policy program popularized this hopeful discourse about personal computing powering social mobility, positioned internet startups as the 'right' side of the divide, and charged institutions of social reproduction such as schools and libraries with closing the gap and upgrading themselves in the image of internet startups. After introducing the development regime that builds this idea into the urban landscape through what I call the 'political economy of hope', and tracing the origin of the digital divide frame, this dissertation draws on three years of comparative ethnographic fieldwork in startups, schools, and libraries to explore how this hope is reproduced in daily life, becoming the common sense that drives our understanding of and interaction with economic inequality and reproduces that inequality in turn. I show that the hope in personal computing to power social mobility becomes a method of securing legitimacy and resources for both white émigré technologists and institutions of social reproduction struggling to understand and manage the persistent poverty of the information economy. I track the movement of this common sense between institutions, showing how the political economy of hope transforms them as part of a larger development project.

This dissertation models a new, relational direction for digital divide research that grounds the politics of economic inequality with an empirical focus on technologies of poverty management. It demands a conceptual shift that sees the digital divide not as a bug within the information economy, but a feature of it.

THE PROMISE OF ACCESS: HOPE AND INEQUALITY IN THE INFORMATION ECONOMY

by

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Dedication

For Annie. This is a book about the politics of making a living and caring for those who do. There's no one I've learned more about this from than you.

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I've got a really big team. And I'm not much without them.

Most importantly, the members of my dissertation committee have shepherded this project from its early days, each shaping how I think and write in ways that make this project as much their's as mine. Without Ira Chinoy, I wouldn't have the diligence, detail, and fairness I hope this work displays. Without Sheri Parks, I wouldn't understand the practice of risk that becomes so important as a method here, particularly in the Conclusion, nor the navigation of the institutions that teach us how to live. Without Jan Padios, I wouldn't have the sheer joy that comes from cracking open a thorny problem, or the articulation of a socialist feminist political economy that drives this project's theoretical concerns and provides the compass for my own politics. Without Katie Shilton I literally wouldn't have had the time or space to complete this project, nor would I have learned how to speak the different languages and move through the different spaces this project attempts. Without Jason Farman I wouldn't have the courage to take on the big questions in new ways, to look at writing as a craft no matter the venue, and to take something of myself and put it on the page.

Without my brothers and sisters in the graduate workers' union, I wouldn't have been reminded of my priorities throughout this project, nor would I have been able to recharge and apply myself to the things that I really want to make a career of —making our institutions work for everyone in them, making sure my students'

learning conditions don't suffer for my working conditions. I won't name y'all because we've already been targeted for speaking up in public and you know who you are anyway. I've also learned an immense amount from DC activists with whom I'll pitch in occasionally, doing the bare minimum to help people get free and mostly standing in awe of the courage displayed by Stop Police Terror Project DC, the Latino Economic Development Center, the DC Employment Justice Center, and the Neighborhood Solidarity Network. I'm inspired every day by my students and I want nothing more than to do right by them. Thank you to everyone I've learned from in my classrooms, and to those I've learned from outside my classrooms—particularly those brave young people in SLAP and PLUMAS.

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Table of Contents

Introduction: The Political Economy of Hope

Abstract: This Introduction introduces the common-sense framing of the 'digital divide' as a gap that appears to exist between high-skilled knowledge workers fit for the information economy, and those locked outside that economy because they lack digital tools and skills. This framing has high stakes for individuals struggling in a bifurcated labor market, institutions looking to survive in a post-Keynesian state, and regions looking to speed up development. It gives us something to hope for and tells us how to get there. And while the frame itself does not hold up under scrutiny, it maintains a tenacious hold on public culture. I introduce the 'political economy of hope' as the urban development regime sutured together by this common sense frame, and describe a research program that can track the origins and reproduction of this frame across urban institutions concerned with the so-called 'digital divide.' This research program is theoretically based in Marxist feminist theories of social reproduction, and methodologically in comparative ethnography. With these tools at hand, we can begin to understand the inequalities grouped under 'digital divide', and the common sense idea of the problem of poverty as a problem of technology, as a cultural tool for navigating, legitimizing, and repairing institutions wading through the constant low-level crisis of the political economy of hope.

“The Internet: Your Future Depends on It”

In 2013, a series of posters started appearing across the Washington, DC Metro system, largely in those neighborhoods still majority black. Each one declared “The

Internet: Your Future Depends on It" next to a photo of a working-class black Washingtonian. They told their story about using the DC government's digital training resources to get a good office job, often after losing another job or spending years in a presumedly dead-end career in the service industry—one explicitly referenced the subject's "20 years as a beautician." Interested parties were told to send a text message for more details.

Why does your future depend on the internet and why does this message matter? We know in 2016 that it is difficult to find or apply for any job without an internet connection and a PC—and just try filling out an application to CVS, let alone USAJobs, on your phone. We know that the tech sector is the leading edge of the information economy and that well-paying jobs are available—but we do not have enough coders to fill them. We know the future of our public institutions depends on training and recruiting this next generation of digital entrepreneurs, lest they too get left behind. "The internet: your future depends on it" is just common sense. We know it to be true before the poster even tells us.

This dissertation asks how that idea became common sense and why it remains common sense, even as evidence of its falsity continues to mount, and as the skyrocketing inequality seemingly built into the information economy becomes harder and harder to ignore. Common sense, Gramsci (2000) notes, is never a totally coherent, factual account of the world. Rather, it emerges organically from practical responses to real problems in the real world, crafted from the symbols and materials at hand. A world with clear and discomfiting divisions between ruler and ruled. A capitalist world, where the major institutions of social life—schools, statehouses, churches, mass media, etc.—necessarily reproduce these divisions, not in a mechanical fashion but because these institutions built to last for generations must necessarily establish the normative outlines

of the world they wish to make and because they too must 'make sense' out of the mess of social life confronting them. Common sense then is never a mirror for the world, nor a deception perpetrated by the ruling classes on the ruled. For everyday people, it is a guide to navigating the political, cultural, and economic institutions that structure our lives, a way to understand the reality of an unequal society and adjust ourselves according to the lessons imparted by the institutions in which we find ourselves. Not because something like “The internet: Your future depends on it” is necessarily empirically correct, but because it is politically legible. It makes sense. And it helps us make sense of the world, specifically a city, like so many others, where the technology sector has massively expanded as part of a wave of post-2008 white, affluent emigration, while black unemployment has remained persistently high, homelessness has increased, and working-class wages have barely budged.

Common sense—“The internet: Your future depends on it”—makes these these problems appear natural and immutable, like a drought or a disease, and teaches individuals how to survive them. The task of any materialist intervention into common sense is to separate myth from fact, ground that precise mix of myth and fact in the historical process, and rearrange the incoherent story into a coherent explanation of how the world works, why it works that way, and why we believe it to be otherwise.

It is easy to see the appeal of “The internet: Your future depends on it” in contemporary DC. The city has long been segregated between black and white. That segregation has produced a pattern of underdevelopment where majority black Wards have long been bereft of the jobs and public and private services apparent in majority white Wards, a divide historically marked by the Anacostia River; although a confluence of historical forces produced one of the nation's most visible black bourgeoise, historically concentrated in a few specific neighborhoods like Hillcrest and LeDroit Park.

Municipal revenue has always been a problem for a city whose major employer and property owner, the US federal government, is virtually recession-proof but who does not pay taxes on their property and many of whose employees, commuting in from Maryland and Virginia, the District is unable to levy taxes against except for their lunch purchases (Sherwood & Jaffe, 2014; Hyra & Prince, 2016). Decimated by white flight in the 1960s and 1970s, the 1980s and 1990s saw a commercial property boom in the city that never quite managed to reach its citizens, partly because many of the land sales either sold municipal tracts far below their worth[1] or drastically discounted the price in anticipation of future sales tax revenues.[2] The city's population reached a post-WWII low of 572,000 in 2000 as members of the black middle class able to move often did so, usually to the neighboring Maryland suburbs (Bowser et al 2015).

The story began to change in 2008, as the worst recession since the Depression gripped the majority of the country but largely missed DC and the surrounding counties of Maryland and Virginia. The federal government and associated contractors and nonprofits provided a base for this resilience, but the influx of new knowledge workers—DC added nearly 69,000 people between 2008 and 2013 (Bowser et al, 2015)—expanded beyond that to those working in education, hospitality, law, and technology (Dani, 2013; Tavernise, 2011). While the private sector, including thousands of contractors who depend on the federal government, has always employed *more* people in DC than the public sector in the absolute, the 2008 recession marked a severe divergence in their relative growth rates, such that the overwhelming majority of job growth in DC post-

1 See Chapter 8 "Greed City" of Sherwood & Jaffe (2014) for an account of the 1980s and 1990s commercial property boom in DC.

2 DC was a major innovator in tax increment financing, using it for placebuilding projects such as Gallery Place, the Mandarin Oriental Hotel, the City Market at O Street (explored in Chapter 5), and the DC-USA mall. See Weber (2002) for a fuller description of this funding mechanism.

2008 was in the private sector—66,100 net new private sector jobs between January 2009 and March 2016 versus 4,000 of the same in the public sector (DMPED, 2016).

The influx of new residents was raced and classed. It continued a trend begun under Anthony Williams' mayorship where the majority of in-migrants were higher-income whites and the majority of out-migrants were lower-income blacks—though higher-income black households were more likely to move out than higher-income white households (Sturtevant, 2014). New housing construction in this period was overwhelmingly concentrated in high-cost condominiums, and between 2002 and 2013 DC lost half of its affordable housing stock (Rivers, 2015). In 2011, the city became majority white for the first time in 51 years (Tavernise, 2011).

Gains from the upwardly mobile tide of immigration were, as with so many things in DC, unevenly distributed. Post-recession job growth was concentrated in low-wage sectors alongside some increases in high-wage sectors, with the middle largely dropping out. Lazere & Guzman (2015) found that middle- and high-wage jobs saw their pay grow between 2007 and 2013, low-wage earners in DC saw their's shrink, and long-term unemployment for those with only a high school diploma drastically increased. Median Black and Latino/a wages rose 90 and 30 cents per hour respectively in the same period, while median white wages rose $3 per hour. In 2015, DC had the highest black unemployment rate in the nation at 13.6%—or 5.7 times the white unemployment rate (Wilson, 2015).

The top 10 percent of income earners in DC today make six times the bottom 10 percent, the highest disparity of any 'state' (Giachetti 2015). This gulf emerged as the middle fell out of the local labor market after 2008, and especially after federal deficit reduction measures began to take effect in 2011. A flood of young, white-collar knowledge workers entered the city and their wages rose, while low-wage service

workers' wages stagnated, and the federal government—the employer buttressing the black middle class in DC and its suburbs—shrank, partly by automating thousands of mid-level, information-processing positions dominated by black women (Khimm 2014; Rein 2014). The uneven recovery did little to dispel the long-held conspiracy theory —"The Plan"—that white Washingtonians have been plotting to regain control of the municipal government and the city at large since Home Rule was granted in 1973 and the District was first able to elect its own municipal government.

That municipal government heavily courted these new, white, knowledge workers and the firms employing them as the future of the city, as later chapters will demonstrate, and as a way to create jobs and garner tax revenue without relying on the federal government. They seemed to represent a cohort of knowledge workers whose digital skills, information-processing jobs, and highly mobile careers would help separate the city from the old, broken industrial economy—a robust midcentury manufacturing base was now largely limited to a single industrial park in Chillum Place, on the far northwest edge of the city—and a federal bureaucracy that was historically unresponsive and unreliable with respect to the needs of the city around it. Development then, for individuals, communities, and the whole region, depended on making those who had been left out of the information economy more like those on the leading edge of it. Their tools, skills, and habits had to spread or DC would get left out. This is what seems to drive "The internet: Your future depends on it." This crisis, the frame for it, and the proposed solutions to it are surely familiar to other cities in the US.

But this frame and the solution it suggests falls apart when viewed dispassionately from above. As the brief survey above showed, high-skill, high-wage in-migration to DC during the recession did little for those on the other end of the labor market. And as far as the power of skills training goes, evidence for a persistent 'skills gap' driving a bifurcation

of wages is slim. Even slimmer is evidence supporting the idea that there is a shortage of skilled knowledge workers and that training new members of this cohort will raise whole communities into the middle class, or even that bringing in swathes of this cohort from outside will lift all boats in struggling regions.

The Bureau of Labor and Statistics (2015a) has found that, because capital moves faster than the labor it employs, any 'skills gap' is necessarily local and temporary—and that local oversupply of knowledge workers with a particular skill set is as much a possibility as undersupply. Nationally, one would expect the wages of degree-earners in science, technology, engineering, and math (STEM) to have boomed in times of high demand. But median STEM wages have remained stable since 2000 and most STEM degree-holders work in non-STEM fields; partly because firms are able to outsource high-skilled labor to low-wage workers through digital networks, or import them through programs like the H1B Visa system (Charette, 2013). The BLS (2015b) also persistently finds that the fields of projected high job growth in the next two decades are in low-wage service work like home health care and food preparation, not high-wage knowledge work. The internet is not the future, for most workers.

Evidence for the thesis that redesigning cities to court technical 'creative class' emigres will create a rising tide that lifts all boats (Florida, 2004) has been thoroughly contested. Critics instead identify the emigration of cosmopolitan, high-wage knowledge workers with rising inequality and residential displacement of working class residents of color (O'Callaghan, 2010; Peck, 2005; Peck, 2007). Indeed, no more senior a figure than Alan Greenspan, who perhaps, more so than anyone else, built the US information economy, admitted in 2007 that the main effect of importing skilled knowledge workers is to “suppress the skilled-wage level” (Bloomberg, 2007).

So the evidence supporting this hope that training or importing skilled technologists will raise all boats is, at best, mixed. But still the hope survives, still "The internet: Your future depends on it" continues to make sense. And to makes things happen. Not just that poster series but everything from the wholesale transformation of public institutions like schools and libraries into training centers for knowledge work, to political appointments, to curriculum decisions, to tax incentives, to grant writing, to the disbursement of over $4.5 billion in Recovery Act funds for broadband infrastructure and digital skills training. The latter from a President who continues to insist that "In the new economy, computer science isn't optional—it's a basic skill" (Obama, 2016). How does this hope in information technology, the skills to use it, and the people with those skills get reproduced day-to-day? How does it help us make sense of urban inequality? How does it change the institutions in charge of spreading this hope and remaking themselves in the process? These are the questions with which this project is concerned.

Digital Divide Studies

This then is a study of how and why the problem of poverty becomes a problem of technology, which institutions set the terms of that problem, and what happens to them when they try to solve it. It builds on and critiques research in the interdisciplinary field of digital divide studies. Chapter 1 is dedicated to reviewing the 1990s roots of the 'digital divide' as a problem to be solved by an alliance between the state, technology companies, and nonprofits, a problem framed then and now ultimately not as the deficit of a particular tool or skill but of opportunities for competition. For now it is sufficient to say that the digital divide is today generally defined as a stratification of meaningful access to personal computing, the internet, and the skills to use them, with 'meaningful' most frequently specified in terms of economic opportunity (e.g., finding waged work

and learning the skills necessary for it), and less frequently, but still prominently, in terms of educational, political, medical, or social opportunity (Warschauer, 2002). This research program quantifies the hope in the internet and personal computing to overcome poverty.

The measurement and theorization of the digital divide has grown by leaps and bounds since this project kicked off with the 1995 "Falling through the Net" report from the US National Telecommunication and Information Administration, subtitled "A Survey of the 'Have-Nots' in Rural and Urban America." There, stratified access, not yet termed the 'digital divide', was measured in terms of PC ownership and modem connections, with serious deficits identified in poor, rural areas and urban, majority-black ones. The concern motivating this initial report, though this changed with later reports, as Chapter 1 will show, was that market-based diffusion of PCs and internet access was not reaching these areas quickly enough and so they would be left out of the transition to the information economy, left behind by the early adopters. The problem was self-evident to the people writing these reports. The 1995 report decrying its findings because those "most disadvantaged in terms of absolute computer and modem penetration are the most enthusiastic users of on-line services that facilitate economic uplift and empowerment." "The internet: Your future depends on it" has deep roots indeed.

Much of the first decade of digital divide research followed this roadmap laid out by the US federal government, and much still does. But today, the leading edge of empirical digital divide research explores inequalities not only in which technologies of which quality are available to whom, but the uses to which those technologies are put and the rewards drawn from them. As internet penetration increased, DiMaggio and Hargittai (2001) called for a shift in focus to digital inequalities among those with access to the internet, focusing on equipment, autonomy of use, skill, social support, and the purposes

for which the technology is employed. Van Dijk (2012) describes this as a move from mere description of inequality, to explanation of processes driving stratified access. His quantitative work (e.g., Van Dijk, 2005) has pushed the field to focus on the social relations, rather than the individual attributes, driving digital inequalities: managers force employees or those seeking work to develop particular skills, parents and teachers encourage young boys to tinker with PCs at an early age and not young girls. Though, it should be said, Van Dijk has also called for interdisciplinary, theoretically-engaged, qualitative investigations of access gaps that track users over time and in different contexts (2005, p. 22)—a need the present study intends to fill. Hargittai and Hinnant (2008) extend this conversation on digital inequality beyond digital activity, to the rewards garnered from it; finding for example that white, wealthy youth are more likely to use the Web for activities that enhance their social capital than middle- or working-class people of color.

There is also a qualitative tradition in digital divide studies that examines technology transfer and training projects in the long term, assessing their successes and failures and the cultural and political blindspots of technologists and government agencies, showing how everyday people reuse and remake institutionally deployed technology. This builds on a broader literature in the sociology of technological development (e.g., Akrich, 1992). Warschauer (2004), for example, draws on case studies from Brazil, China, Egypt, India, and the US to show that the digital divide is less a matter of gaps in access and more a matter of how well physical, digital, human, and social resources are integrated into the needs of local communities. Eubanks' (2011) participatory action research with a group of working-class women in an upstate New York YWCA showed that the typical 'information poverty' approach to empowerment-via-technology-redistribution occludes both the oppressive experiences her participants

had with digital technologies in, say, welfare system surveillance, as well as the wealth of technological knowledge these women built up through years of work in the low-wage service industry, supporting the lifestyles of high-wage tech workers. Drawing on theories of popular education, she argued for dropping the binary understanding of a digital divide between haves and have-nots in favor of an approach she calls 'technologies of citizenship', where technology transfer is based not on the technology itself, but the needs of people who face multiple roadblocks to political, economic, and cultural citizenship and seek means to demolish those roadblocks or route around them.

But despite these interventions, the basic, binary framing of the digital divide, where the problem of poverty is a problem of technology transfer between haves and have-nots, remains commons sense. Work like Eubanks', and Warschauer's especially, is well-cited in the field, but was hardly the locus of activity at, say, the 2014 and 2015 Partnership for Progress on the Digital Divide conferences. “Digital divide” remained embedded in the title and researchers and advocates spent much of each conference updating each other on penetration rates in different countries, best practices for literacy, and more. Joe Straubhaar, who had led a team on an innovative study published in 2012 on the relationship between access, gentrification, and changing labor markets in Austin, wondered aloud at the 2014 conference why their work had not been replicated in other cities. Elsewhere, digital divide and digital literacy curricula remain staples of training programs for helping professionals in education and information and library sciences.

At a scale far above DC's efforts, the Obama administration framed and deployed Recovery Act funds for broadband construction and skills training as a means to close the digital divide rather than, say, a jobs program for communities dealing with long-term unemployment and capital flight even before the 2008 crash. In the world of corporate philanthropy, internet magnates like Bill Gates and Mark Zuckerberg and their various

foundations invest millions of dollars annually in extending basic internet connectivity to those currently lacking it, deploying everything from local mobile phone networks (O'Donovan & Frenkel, 2016) to WiFi-broadcasting drones (Hempel, 2016) in order to close the gap. In a recent *Times of India* editorial Zuckerberg advocated for his Facebook Free Basics service—a stripped-down, insecure mobile internet service offering only content from Facebook and its affiliates—to be allowed into the country (2015). He wrote:

> We know that when people have access to the internet they also get access to jobs, education, healthcare, communication. We know that for every 10 people connected to the internet, roughly one is lifted out of poverty. We know that for India to make progress, more than 1 billion people need to be connected to the internet.
>
> That's not theory. That's fact.

No research was offered in support of these 'facts'.

Even in the work of critical scholars like those above, the tenacity of the common sense of the digital divide is visible in the sheer effort they devote to complicating or refuting it. Van Dijk and Hargittai's stories about how internet access and the skills to use it drive social mobility may depart from or critique Zuckerberg's version, but the tropes and characters invoked remain largely the same. The frame is stable, even if it is extended or problematized. Similarly, qualitative, longitudinal work like Warschauer's or Eubanks' argues that our common sense is not up to the task for the social mobility project the information economy needs, and so new categories and perspectives are added to it and old ones are revised or discarded. But the common sense remains stable. We still know that our future depends on the internet even if the precise nature of that dependency has grown fuzzier.

The fact that this common sense is so tenacious as to require repeated intervention either goes unexplained, or is dismissed as simplistic thinking repaired by better

empiricism, or more equitable theorization. Eubanks, for example, describes the binary digital divide frame as “magical thinking” that only recites old American progress narratives instead of facing the real issues: the volatile and uneven information economy, the destruction of the welfare state, stagnant real wages, etc. But perhaps “The internet: Your future depends on it” does more work than simply obscuring the source of those problems. Perhaps the problem the digital divide, and the repeated discovery of the crisis, maintains a helping class of professionals and their institutions. The problem may help us understand how the destruction of the welfare state is so often approached not as a crisis but as an opportunity for entrepreneurship. And the problem may not obscure class conflict so much as defuse it. Within the digital divide frame, we see a world without any workers at all. Only one full of investors looking to grow the fixed capital on their desks and the human capital in themselves.

Features, Not Bugs

The tenacity of this common sense cannot only be due to propaganda or ignorance. Its persistence cannot only be critiqued negatively, as a way to conceal, rather than reveal, contemporary power relations and thereby garner consent to them. The frame's persistence must be due to its positive, creative functions. This hopeful frame of digital social mobility helps us understand ourselves, our institutions, and the massive changes wreaked on both by the post-1970s restructuring of global capital. Chief among them the reconstruction of the welfare state as a security state bereft of social democratic functions for the poor and working class (Wacquant, 2009; Gilmore, 2007), the stagnation of median wages globally, and the increased uncertainty of work locally as labor attempts to keep up with capital—now unhinged from the nation-state form (McNally, 2009; Vidal, 2013). The 'digital divide' makes this world make sense.

This then is the perspective guiding this project: That the digital divide, the problem of poverty made a problem of technology, is a feature, not a bug, of the information economy. Not only are these inequalities native to our contemporary mode of production, as some scholars, particularly Van Dijk's (2005) diagnosis of a 'deepening divide', have argued. But the terms of the problem are borne from those institutions that reshape us for the information economy: our schools, our libraries, our businesses, our city councils and more. The terms of the problem are inseparable from the problem itself, and are a crucial factor in reproducing a deeply unequal information economy. Through the digital divide and sister crises (e.g., the STEM gap, the skills gap), we learn what it means to be rich or poor, the rules of the game for surviving and thriving in the current capitalist era. And not just for individuals but whole institutions (e.g., schools, libraries). They gain purpose through the crisis and seek legitimacy and resources in their work on it. The hope that personal computing, the internet and the skills to use them will power social mobility is the cultural glue holding a deeply unequal information economy together.

The core argument driving this project is that the hope that personal computing and the internet will overcome poverty is not borne from thin air or imposed on mass culture by corporate propaganda—though, as Zuckerberg demonstrates, there is certainly some of that in the air as well. Rather, that hope is produced and reproduced by institutions with a stake in economic transition in order to manage and shape that transition. This hope is first produced, and the concomitant crisis declared, by state institutions in the 1990s seeking to manage the national transition to an information economy and the persistent poverty within it. It is then repeated by more local institutions in order to reproduce a specific set of skilled knowledge workers with the specific

cultural and technological disposition required for the needs of the local labor market—whether or not there is space for them in it.

The motivations for that discursive repetition will vary with the institution. Local governments may deploy it in their desperate competition for startups and the jobs, tax revenue, and political cache they could bring to the city. Startups may deploy it to solicit those same resources from the state, and entrain their employees in the hopeful mission guiding their corporate growth. Libraries may deploy it to manage the human toll of the poverty produced by contemporary urban inequality and to seek legitimacy in an internet era when many outsiders deem them unnecessary. Entrepreneurial charter schools may deploy it to compete for students, private resources, and state approval. Institutional culture drives institutional organization, giving it a purpose and direction. The hope in overcoming the digital divide shapes the horizon of political possibility in these different places for the people within them, guiding their day-to-day work and they decisions they make in it.

After an historical overview of the source of the 'digital divide' framing, this study turns to an ethnographic investigation of the everyday life of these different institutions—startups, schools, and libraries—and their relation to state and capital in DC. The goal is to understand why “The internet: Your future depends on it” keeps making sense, what work it does for different people in different places, and how it shapes the development of these institutions and their city. This is then a cultural studies intervention into a conversation heretofore dominated by the social scientific wing of communication studies and the technology studies wing of sociology. In that cultural studies tradition, it asks how the problem of the digital divide becomes a problem in the first place, how it keeps being a problem, and what the effects of that process are on the problem-solvers and the people designated as part of the problem. In this way, it takes methodological and

conceptual inspiration from both classic texts in cultural studies and cultural-studies-inflected work in the social sciences.

Chief among the former is arguably the foundational text of the field: *Policing the Crisis* (2013, 1978), authored by a collective from the University of Birmingham's Centre for Contemporary Cultural Studies. They demonstrated how an early-1970s English moral panic over a spike in 'muggings'—vastly out of proportion to, and indeed actually preceding any real rise in rates of mugging—was produced by the national government and reproduced by police, the judiciary, and the mass media as a way to manage social tensions produced by the collapse of the post-WWII economic boom and the welfare state that matured within it. Those tensions were pinned on a scapegoat: the urban black youth who had been largely left out of that boom and were suffering most from the crisis of the 1970s. Where conventional criminology of their era attended chiefly to individual acts of deviancy and their cause and solution, *Policing the Crisis* shifted focus to the reaction to the act and the work done in advance to prepare that reaction. It is worth quoting the authors at length to capture how they understood this conceptual shift:

> The impression that 'violent crime', particularly 'mugging', was increasing produced a massive and intense coverage by the press, official and semi-official spokesmen, and sentences of an increasing severity in court. In short 'mugging' had consequences in the real world, quite apart from the number of people mugged on the streets; and these consequences appear to have less to do with what actually was known to be happening, than with the character, scale, and intensity of the reaction. *All these other aspects are part of the 'mugging' phenomenon, too. They, too, require explanation.*..It is this whole complex—action and reaction—as well as what produced it and what its consequences were, which requires to be explained (p. 21, emphasis in original).

What the Centre sought to do with the negative hysteria animating 'mugging', I seek to do with the powerful hope animating the 'digital divide'—though with a somewhat different theoretical and methodological toolkit, as the remainder of this Introduction will detail.

For a more recent example of this conceptual tradition, with a methodology more similar to my own, we might look towards Gowan's *Hobos, Hustlers, and Backsliders* (2010). The author spent years living with San Francisco's homeless and navigating the institutions—drug treatment facilities, the shelter system, courts, temporary work sites—which managed homelessness. Her fieldwork reads action and organization as discourse, as social moves as thick with meaning as speech-acts. The result of her research is not only a moving testament to the survival strategies of her 'companions', but a typology of the ways they and the institutions in which they found themselves understood and acted upon homelessness: as a matter of sin, sickness, or systemic injustice. As the Centre shifted criminology, so Gowan does the sociology of poverty. I hope to do the same with digital divide studies.

The work that follows analyzes the production and reproduction of the digital divide from three core sites—startups, schools and libraries. In the binary of the common sense digital divide framing, this could be understood as examining the perspective of those on both the 'right' side of the digital divide—the internet startups who represent the 'good life' in the information economy—as well as the 'wrong side'—homeless patrons of the library's computer lab, outside the information economy—and the people and organizations trying to close the gap. But conceptually, this work is focused not on what is wrong with one side and right with the other, but how those definitions are produced symbolically and given real material consequence.

Digital divide studies owes much of its scholarly framing to the sociological and economic literature on the diffusion of innovation (e.g., Rodgers [2010] in the original, Van Dijk's 2005 critique) which studies patterns of adoption for new technologies in order to pinpoint where and how laggards can be pushed in the direction of early-adopters. Theoretically, digital divide studies owes much of its political urgency to the

field-spanning work of modernization theory. This literature largely conceives of progress in a linear, economically- and technologically-deterministic fashion with governments and philanthropies engaged in a project whose goals are "to bring the backwards people *forward"* (Graham, 2008, p. 779, emphasis in original).

In the foundational work of modernization theory, as Graham shows, the political-economic situations of the backwards people and the benevolent Westerners laying ahead of them are understood to have no relation to each other, except insofar as the latter seek to remake the former in their image. A different set of theoretical tools are required in order to understand the construction of these (inevitably raced, classed, and gendered) categories, the relationship between them, the urgency behind them, and the daily re-creation of them. For this I turn to the Marxist feminist literature on *social reproduction.*

Reproducing Inequality

Marx (1990) identified the capitalist mode of production as one in which the daily survival of the free laborer (i.e., the working class) is contingent on their ability to sell their labor to a capitalist, one who owns the means of production (i.e., land, industry, and the capital to put them to work), for a wage. But one of Marx's major innovations over the classical political economists was his insight that it is not that the laborer is selling themselves but rather their 'labor power', their ability to work for a certain period of time and thereby generate a certain amount of surplus value for the capitalist. More specifically, it is not generalized labor power that is sold on the market because, as a commodity like any other, unique only its ability to generate new value, the value of labor power is instead contingent on the political and economic context in which it is applied: the laws of supply and demand governing the need for particular sorts and numbers of workers in particular times and places, the racism or sexism that marks some

jobs for some and not for others, the precise technical knowledge needed for a certain job, the level of health or education needed to persist in the job day after day, etc.

However, while Marx goes to great lengths to theoretically establish how the average socially necessary amount of labor time is set *within* the process of production—by intra-capitalist competition, the introduction of new machinery, etc.—he is largely silent on how labor power of varying qualities and quantities is reproduced *outside* the workplace before it can be put to work, despite some evocative descriptions in the chapter on the Working Day in the first volume of *Capital*.[3] Engels described some of these processes in sociological terms in his study (1993) of Manchester factories and the living conditions around them, and in anthropological terms in his study (2010) of the historical construction of gender relations. But by and large, Marxian theory lacked an overarching account of how labor power was reproduced for the market and whose labor was involved in that reproduction.

Marxist feminists of the twentieth century filled this need. Together (1984), and individually, Silvia Federici (2004) and Leopoldina Fortunati (1995), showed that capitalism's birth centuries ago required the accumulation of differences among the working class so that, among other changes, social life and social roles were violently divided into private and public spheres. Wage labor was undertaken by men in the former—though women and children often continued to contribute, for much cheaper rates at the factory or for free at home—and the physical and emotional care that prepared and repaired that laborer for work, and created new laborers, was undertaken by women in the home. Key to this argument is the idea that primitive accumulation, the separation of the

3 Some theoretical notes are offered in the Results of The Immediate Process of Production that Marx appended to Volume One of *Capital* (though these are often fragmentary and truncated) and in *The Grundrisse*, and some useful descriptions of the reproduction of labor power are offered in his earlier historical works. But it is most likely that he was waiting to undertake a full examination of the process of the social reproduction of labor power in the planned-but-never-completed volume of *Capital* that would address the role of the state.

working class from the means of production and reproduction that forces them into wage labor, is not a one-off event. Rather, in moments of expansion or sheer desperation, capital will repeatedly reclaim or destroy the means of 'making a living'—be they held by the state, or in common by the working class—so that that activity can instead take place on and for the market. This violent process leads to the accumulation of racial and gender differences within the working class, ordered in a hierarchy of social necessity with respect to capital and forming historically-specific intersections through we live our lives. (James, 2012; see also Dalla Costa and James, 1975).

In this model, the unpaid emotional labor of women—whether at home or in the small acts of care required to make any workplace run—and the sexist oppression of women is not outside or parallel to production for accumulation. Rather, this historical, never natural, separation is crucial to the maintenance of capitalism as a system for the production of surplus value for the market (Vogel, 2013). This work of maintaining the system and the people within it, and the historical shifts in the relationship between maintenance and production, is termed *social reproduction.* It is work that occurs every day, both for 'free' in the home and for a wage in spaces—schools, hospitals, churches—that may not produce a profit themselves, but without whose work laborers would hardly remain alive, much less able to work, socialize, consume, and generally navigate the world around them. Cindi Katz (2001) describes social reproduction as a whole geography of sustenance involving

> the reproduction of the labor force at a certain (and fluid) level of differentiation and expertise. This differentiated and skilled labor force is socially constituted. Not only are the material practices associated with its production historically and geographically specific, but its contours and requirements are the outcome of ongoing struggle. Apart from the need to secure the means of existence, the production and reproduction of the labor force calls forth a range of cultural forms and practices that are also geographically and historically specific, including those associated with knowledge and learning, social justice and its apparatus, and the media (711).

Feminist researchers have built on this theoretical foundation to describe the work of social reproduction, historically and contemporarily, at multiple scales: the household, the institutions in which we find ourselves, and the political-economic structures guiding both (Laslett & Brenner, 1989). Key to this line of thinking in the neoliberal era, and Chapter 1 will more precisely detail my approach to that thorny term, is a critique of how systems of social reproduction rely on and reproduce national and racial differences. For example, by exploring how the entry of white middle-class women into the waged, professional workforce relies upon on the migration of women from the global South, so that private tasks of social reproduction within the home can be contracted out (e.g., Parrenas, 2012; Vora, 2015). Important too is the mapping of moves by the neoliberal state to slough off tasks of social reproduction it was previously forced by a labor-capital alliance to take up (e.g., education, healthcare, eldercare) and the movement of those tasks either into the home or the market (Bezanson, 2006; Bakker, 2007). Over the course of the lifespan, education becomes an incredibly important site of social reproduction, the point at which the necessity of certain skills, behaviors, and attitudes is stressed to young folks as they enter the labor market and the point at which labor market segregation often begins, as working class students of color are given a set of educational resources distinct from the white middle- and upper-class students destined for office jobs (Giroux, 1983; Willis, 1981).

In the present study, the social reproduction perspective is used to track the relationship between particular models of work (e.g., startups, knowledge work more generally), the geography shaped by and for that work by the state, and the reproduction of those models and that way of working in other institutions. The labor of social reproduction is also a touchstone throughout, as the undervalued work of care that keeps

people and institutions alive day-to-day and is so often left behind or forgotten in the masculinist drive for constant technological 'innovation'. Social reproduction is not just a mechanical process of keeping people alive or training them in certain skills but, as Katz notes, the daily recreation of a set of cultural dispositions, a particular way of imagining the world of work, how it works, and what you are supposed to get out of it. It is the space in which we learn to hope for a better life gained through a certain set of skills and tools. So, in the same way that my use of 'common sense' gestures towards Gramsci's use of the same, as the haphazardly assembled materials from which the working class makes sense of its own oppression, so too my use of 'reproduction' throughout this text gestures to the Marxist feminist use of the term to imply the creation and recreation of the labor power commodity and the institutions setting the terms of its social necessity.

The Political Economy of Hope and an Outline of the Present Study

Key to this project, and to critiques of social reproduction more generally, is the question of scale. "The internet: Your future depends on it" is a powerful idea but how does it unite individuals, institutions, and whole regions, and change as it moves between them? Most of the subsequent chapters deal with institutions and individuals, leading to the argument's climax in Chapter 5, as the links between them are traced. It is worth taking a moment to map out the broader system connecting urban knowledge work, systems of social reproduction, and a culture of hope in overcoming the digital divide. I call this system *the political economy of hope*. It is managed by municipal politicians and other powerful actors connected to them, in a terrain shaped and constrained by global capital. For example in DC we might think about the major role *The Washington Post* has historically held in shaping local politics, or the power of the commercial real estate

lobby in supporting particular politicians' desperate attempts to move out from under the federal government's thumb.

The political economy of hope has three primary aims. First, to convince largely white entrepreneurs from outside the city to relocate to it and invest in it. Second, to remake the geography of the city to entice, support, and reproduce these mobile knowledge workers and their lifestyles, through the management of the process commonly described as gentrification (e.g., Smith 2002, 2005). And third, to remake urban institutions of social reproduction in the image of the firms that will move to the city, and so that the people enmeshed in these institutions will emerge from them as entrepreneurs able to work in those firms, or ones like them, or start their own. Social reproduction is shifted to support a particular mode of production, with an entire, hopeful cultural repertoire deployed in support. Providence comes from innovative outsiders and/or drastic change to who the natives are and how they live and work. Internal solutions to these dire straits that might allow natives to build a local economy independent of, or at least a stronger bargainer against, global capital are largely rejected on the basis that they would frighten capital away. Chief among these solutions would be the sort of progressive taxation regimes on higher-incomes, capital gains, and land value that could fund urban infrastructure; the sort of direct job creation or resource provision (i.e., houses for the unhoused) that would promote social inclusion and economic independence; and a shift from a punitive law-and-order regime to one where the primary point of contact for social services is social workers and healthcare professionals rather than the police, making clear that everyone in the city has a right to it (e.g., the best practices described in Brown & Kristiansen, 2009).

Where does this desperate-yet-ever-hopeful drive to remake our cities come from? Harvey (1989) identifies this shift in urban political economy with the neoliberal

revolution of the 1970s. This transition was marked mostly sharply by the near-bankruptcy of New York City in 1975 and then by a spate of downtown revitalization projects meant to drive monied consumers to shop and knowledge worker firms to relocate from the suburbs, while heavily policing everyone else. Examples of such projects might include the Grand Central Partnership in New York, the Baltimore Inner Harbor, or, in DC, the MCI (now Verizon) Center and the Gallery Place development around it. Harvey categorizes this trauma of urban abandonment followed by hopeful place-making as the shift from urban managerialism to entrepreneurialism.

Managerial cities during and after WWII were run as outposts of the Keynesian welfare state. They were sites of industry with a diverse tax base and social services to match—some even engaged in direct job creation outside the municipal bureaucracy. The state-supported flight of the white middle class out of cities and the subsequent flight of industrial capital to the suburbs, the South, or overseas, irrevocably changed this picture. What emerged were entrepreneurial cities, whose fortunes hung on remaking their downtowns as sites for consumption and entertainment on the one hand, and the headquarters for firms engaged in information processing tasks on the other.

There were two primary results. First, those who lived in the city were confronted by a bifurcated labor market, between relatively well-paid office workers and relatively lower-paid service workers who prepared the meals, clothes, and entertainment of the former. This divide is often visibly marked by race and immigration status. Second, those who ran the city found themselves no longer cooperating with other cities in different parts of the Keynesian industrial capitalist network (e.g., working at different parts of the national value chain or for different arms of the national state) but competing with other cities to create conditions favorable to increasingly mobile global capital. The goal of this competition was to create either apparatuses for mass consumption (e.g., stadiums,

festivals, hotel chains) or as headquarters for corporate coordination (e.g., relocation of large firms or conditions of agglomeration for smaller firms).

This is the geography in which the political economy of hope forms, but the scope of the latter is much larger than the shift from managerialism to entrepreneurialism outlined by Harvey. The city is certainly rebuilt to beat out its peers and attract outside investment that will revitalize housing, labor, and entertainment markets. But Harvey's story is incomplete without an accounting of how the rest of the city, outside the offices of Mayors or CEOs, experiences these changes, are taught to participate in them, and consent to them—or not. Providing such an account is one goal of this project. A perspective grounded in social reproduction allows us to see how this story is told and normalized, and shows that the entrepreneurial city requires city dwellers to become entrepreneurs in turn.

"Hope" in the political economy of hope signals not just the goals of planners desperate for outside workers and outside capital, but the crucial role that reproducing that hope across the city plays in maintaining this system. Even and especially if that hope does not fit the lives of every person in the city, or every institution that cares for it. While concerned chiefly with 1990s national and international institutions rather than municipal ones, Chapter 1 reveals how the dire straits of persistent poverty within the neoliberal era—borne of a revanchist state and increased capitalist militancy—are turned into a hopeful, entrepreneurial opportunity through the language of the 'digital divide.' That chapter reviews the birth of the cultural common sense—"The internet: Your future depends on it"— that is so crucial in maintaining the political economy of hope, even as the cracks in its edifice become more and more evident. The invention of the digital divide in the Clinton era provides a sense of mission and urgency to what may otherwise appear to be simple wheeling and dealing or skills training.

Chapter 2 begins the ethnographic work that forms the majority of the project. It focuses on the 'right' side of the digital divide: internet startups and the people who found them and work in them. I explore how these internet entrepreneurs see themselves within this story, and how the hopeful mission of social mobility powered by personal computing is reproduced within the firm and between firms in order to secure employee buy-in, political legitimacy, and economic resources.

Chapters 3 and 4 tell the story of urban institutions remaking themselves to look more like startups and remaking the people within them to look more like internet entrepreneurs. Chapter 3 focuses on the daily life of the computer labs in DC's central library branch, one of the last few safe public spaces for homeless Washingtonians. The digital divide frame provides librarians with a way to manage this overwhelming problem and decide who is a 'good' or 'bad' library patron. Conflicts arise between the open, liberal culture in which librarians and their institution are grounded, and the neoliberal turn the entrepreneurial library takes as it undergoes a major renovation and recasts itself as a training center for knowledge work. Chapter 4 explores a similar conflict between engrained values and new mission in an entrepreneurial charter school. There, a digital infrastructure for professionalization pushes students and teachers towards a quantifiable mission for social mobility and disciplines deviations from it—including the school's liberatory values.

Chapter 2 describes the ideal-type for knowledge work, and the workers and spaces involved in it. Chapters 3 and 4 describe the institutions of social reproduction that are reformed in the hope of replicating and spreading that model. Because “The internet: Your future depends on it.” Comparisons are drawn throughout, as the workspaces and work habits of schools and libraries begin to resemble startups. The hope of the new MLK Library is invested in the glass-walled collaborative workspaces and makerspaces

used by library visitors, in contrast to the quiet rows of the computer lab used by homeless patrons every day. Du Bois Public Charter School engages in a constant series of data-prompted revisions to its mission and methods, attempting to remain, like startups, an organization in 'permanent beta'. Chapter 5 brings these comparisons together to discuss how the institutional work of social reproduction succeeds and fails, and the resulting uneven geography of the political economy of hope. It uses the examples of the 'permanent beta' process and the practice of 'presence bleed'—the digital extension of the workplace to other times and places—to review the incentives and pressures that lead schools and libraries to look more like startups, adopting their culture and habits.

This process of 'institutional isomorphism', as organizational sociology calls it, never fully succeeds. Hope powers change, but often fails in the attempt. Because of the outside stakeholders and historical constraints on the mission of these public institutions, they can never fully live up to the example set by their more nimble, private peers. This failure is taken not as an indictment of the hope invested in the digital divide frame, but a sign of the need to invest further in it. While the liberal, industrial geography of social reproduction explicitly segregated the labor market hopes of its participants, the political economy of hope is held together by gearing social reproduction towards a single model.

The political economy of hope is of course not supported solely by ideas, industries, and technologies related to the internet and personal computing. In DC and cities like it, there are certainly other political fields at play in this particular historical conjuncture. Hope lives there too and my fieldwork often intersected with these other conflicts—including gentrification, homelessness, and education reform. For example, at the March 2014 groundbreaking for the $220 million Wharf project in Southwest DC, a site of repeated urban renewal experiments, the white CEO of developer PN Hoffman pitched the mixed-use commercial project as an investment in the spiritual growth of the

community. He asked the black Mayor, City Council representatives, and children's choir behind him to join hands in a reading from Ecclesiastes—"a time to build up and a time to break down..."—and prayed to God to bless PN Hoffman and their partners Madison Marquette, and for the crowd of mostly white onlookers to "give thanks to Clark Construction."

There is an important story there about hope, gentrification, intra-racial class conflict, and the role of long-standing urban religious institutions. But like most stories about the enormous macro-social changes that reproduce inequality, its interpersonal and institutional reproduction is difficult to pin down. It is hard, empirically and politically, to relate the massive scale of shifts in state and market, with municipal and organizational reform, and the everyday experiences of people just trying to make a living. This is the work I believe media and technology studies is prepared to do.

By focusing on specific technologies, the networks required to sustain them, and the institutions with which they intersect, we can discover a relatively stable object of inquiry with which to open up and connect processes of stratification. The present study is intended as an example of this sort of intervention. It pushes digital divide studies away from surveys of skills and tools and towards the 'big questions' (Greene, 2016) that have come up in some studies (e.g, Straubhaar et al, 2012) but are certainly not typically asked by the field. It also demonstrates the interdisciplinary weight that comes from connecting different traditions and scales within the broad field of media studies. Particularly fruitful for me is the creation of links between critiques of the social relations built into individual phones, computers, or programs (e.g., Introna & Nissenbaum, 2000) and investigations into the political economy of media industries and media work (e.g., Smythe, 1977; Xiang, 2007).

In this methodological spirit, the Conclusion extends Chapter 5's organizational focus on digital hope and failure in the information economy, showing how a focus on the technologies we use to engage with the economy can help us understand the reproduction of inequality in it. Theoretically, this means distinguishing between states of precarity and flexibility, examining how our relationship to the labor market and our mobility and insecurity within it is concretized within our phones, laptops, and even the simple search to find a plug or WiFi signal.

These relations of endangered precarity and empowered flexibility, too often grouped together under the former, are produced by the uneven terrain of the political economy of hope, by institutions of social reproduction that succeed for some and not others. They fail on their own terms but they were perhaps never able to succeed. As Katz notes (2001), the local institution-building and place-making that the work of social reproduction entails can never keep up with the pace or the whims of global capital and is all too frequently abandoned by it. It is difficult to imagine the cycle ceasing, barring a commitment from the state to empower mass flexibility of the sort represented in entrepreneurs mobile careers—where failure is expected but the fallout is not life-threatening—or to engage in direct job creation—of the sort pursued in DC in the 1960s and 70s with Pride, Inc. or later with the Summer Youth Employment Program.

The political economy of hope then is not just a means for reproducing particular economic relations but maintaining a particular form of hegemony and plastering over any cracks within it. This is the work that "The internet: Your future depends on it" does. The creation and maintenance of hegemony of course never relies on pulling the ideological wool over our eyes. It requires compromises and negotiations between conflicting institutions and constituencies. Gramsci uses Henry Ford's $5 day as a prime example: guaranteeing individual effort, ensuring organized workers were on board and

under pressure by the masses beating down the door to apply, and stimulating effective demand. Similarly, the hope for social mobility in personal computing and the internet similarly proposes real solutions at different scales in order to maintain and reproduce the political economy of hope. A free laptop for a student who never had a computer in their home is a very real thing indeed, as is the guarantee of a mass renovation for a beloved building decades overdue for one.

Common sense is not delivered unto us. It is made by and for us. Each chapter that follows is filled with the genuine excitement of people who want to get ahead and the people who want to help them do so. There is no lie there. But at the same time, they are confronted again and again by the failures of their efforts and the deepening inequality that surrounds and fills their institutions. Hope helps navigate inequality and inequality gives hopeful institutions a political and economic roadmap for the future. We see that hope and inequality do not just co-exist but co-create each other. Because "The internet: Your future depends on it."

Coda: Methods for Tracing the Digital Divide

I take much inspiration from the conceptual innovations of *Policing the Crisis.* But interdisciplinary work must adapt and mix its methods with respect to the problem at hand. In their preface to *Crisis'* second edition, the authors note that their study departs from "the classic methods of ethnography"—participant observation and interviewing—but feel that their approach to newspaper and court archives, the secondary literature, and post-WWII political history remains within that tradition because "any approach that assists the journey towards a detailed empirical knowledge of a particular 'social world' can be ethnographic" (xi). I could not disagree more. There is no substitute for years of sustained attention into the daily life of particular places, peoples and cultures; no other

method, in all its admitted variety, fitted to discovering the rules of conduct governing a particular space but which go unremarked upon by the people in it precisely because those rules are unremarkable to them.

This is not meant to draw pedantic distinctions or compare empirical dedication to the subjects at hand—a problem all too common in the frequently masculinist, adventuresome ethnographies of urban poverty (Gowan, 2009; Rios, 2015). It is only that certain methods are fitted to certain questions. *Crisis* gauged public opinion and the public presentation of official bodies deigning to speak for the public. *The Promise of Access* is a study of institutional reform, the way the problem of poverty is turned into a problem of technology in different urban spaces, and how that problematization connects the everyday life of those institutions. It was originally conceived as a comparative ethnography of the digital divide: A study of the ways in which different 'sides' of the divide—what Al Gore will refer to as “information haves and have-nots” in the next chapter—use the same technologies and interact with the same institutions. That kernel is still very much there, but as the connections between field sites and the importance of this problem to urban development became more apparent, it was clear that this project was not just comparing an issue from multiple perspectives, but following the movement of a particular idea between different sites. The idea—the digital divide—changed as it moved, and changed the sites in its movement.

This is hallmark of multi-sited ethnography, a methodology developed to explore the complex social forms that are not bounded by a single place. The appearance of these social forms is increasingly common within social worlds linked together by global capital (Marcus, 1995). Within anthropology's colonialist history, the fieldsite would typically be an isolated 'native' people visited by the anthropologist, who would then return to the metropole to develop and disburse his observations. In contemporary

ethnography a single 'site' might be a factory, a hospital, a town, etc. Marcus outlines three different approaches to multi-sited ethnography, moving through world-systems while at the same time making them objects of critique: following persons, things, or metaphors. The present work largely studies the movement of a metaphor, but the 'digital divide' way of thinking is often concretized in particular objects or people. While each field site is a different social world, each was selected and approached because it was dealing with the same problem: the relationship between social mobility and personal computing. The 'field' was thus as big as DC and as small as the offices of the startups I call InCrowd and Hearth. Fieldwork began in the spring of 2012 and concluded in the summer of 2015. Fieldsites were approached roughly in the order in which they are presented here, though there were certainly long periods of time where I would, say, spend the morning at InCrowd's offices to attend some meetings and then catch a bus over to MLK library to conduct some interviews with homeless patrons.

The point was not to make a spectacle of jarring comparisons, but to ask similar questions of different spaces and see how the answers were shaped by the space. For startups, the hope invested in personal computer to power social mobility was crucial to establishing their legitimacy—to themselves and the city around them. For libraries, efforts to close the digital divide have become one their main driving purposes. Charter schools were a mix of both, using digital hope to outline and justify their entrepreneurial mission—in distinction from traditional public schools—but always on the terms that they were reaching across the divide to ensure those left out of the information economy could be brought into it. Over the course of the three years of fieldwork, the movement not just of ideas but of people and resources between these sites became increasingly clear. It is this sort of movement on which the climax of my argument in Chapter 5 hinges.

Thousands of hours of fieldwork were supplemented with a series of interviews, usually one-on-one but sometimes with pairs or a small group of friends. Many multi-sited ethnographies lean heavily on interviews because they allow the researcher to zero in on the people involved in a culture when they are not all interacting in the same physical space (Hannerz, 2003). For this project, formal interview data (i.e., planned moments where a participant and I sat down with an audio recorder between us) was most useful and prevalent in studying startups, which had, even within one firm much less the whole community, their activity dispersed across the whole city. Formal interviews were less necessary for studying charter schools precisely because the whole activity of a single school was tightly bound to a single place and I was able to interact with a wide swathe of students and teachers over the course of a day. Libraries fell somewhere in the middle. In total, I interviewed 60 people, with many interviewed two or three times across the three years of fieldwork. Interviews were generally an hour long, conducted at a place and time of the participant's choosing. Interview participants younger than 18 had a parent or guardian grant informed consent along with the participant.

The use of a first name to refer to anyone in the present work is indicative of a pseudonym used to preserve their anonymity. Full names indicate that the person being discussed is a public figure and that any quotes from or descriptions of them are drawn from public events, rather than events to which I gained entree through the permission of my informants. The only exception is Principal Catherine Carroll. This is a pseudonym for the real name of Du Bois' principal, since I could not imagine referring to someone of her stature, authority, and dedication by their first name alone! I also collected a good deal of ephemera that were incorporated into fieldnotes: brochures, worksheets, business

cards, social media screenshots, party favors, and pictures that helped me remember the layout of a room or a striking piece of art.

The everyday practice of fieldwork differed between fieldsites. I began working with startups and internet entrepreneurs in February 2012. Some initial interviews were arranged by a former classmate with a background in public relations and marketing, others were solicited during fieldwork, and then snowballed from there. Large public events (e.g., launch parties, demos, networking events) were easy to find and join, other co-working sessions or meet-and-greets with political figures had to be arranged based on an informant putting in a good work for me. Entree to the offices of InCrowd, the startup with whom I spent the spring and summer of 2014, was arranged through Travis, the founder and CEO. He was amenable to the project and my methods because his mother and I were both former social workers. I met Travis and his team at the opening party for their new office, saw they were rapidly growing, and the relationship grew from there.

At large startup events where I would walk around or sit in the audience, scribbling in my notebook, I was frequently asked if I was a reporter. This was always a good opportunity to explain my project, make new connections, and hear about their thoughts on DC's tech scene. At InCrowd, there was some of this when I sat in on meetings or joined employees for lunch, but more frequently I just rotated through the spare desks in different teams' offices, chit-chatted, and took notes on my laptop. Travis called me his “scientist” and would often kick off the Friday happy hours by putting his hand out as though he were clutching a microphone, and asking what I had learned about them that day. The location, name, and precise business model of Hearth—another startup whose founder appears in Chapter 2—and InCrowd have been changed to protect their anonymity.

Libraries are of course public spaces by nature so entree there was no problem. Fieldwork was focused on the Martin Luther King Jr. Central Branch, beginning in September 2012 before the Digital Commons opened, when the much smaller computer lab was in Popular Services. Interviews were drawn from there but also throughout the DC Public Library system, and occasionally with librarians in neighboring systems in Maryland—if they had previously worked in DC or had similar, relevant experience. Librarians were recruited at first via cold-call emails to local librarian listservs and thereafter by snowball sampling or simple requests to librarians in MLK whom I'd already gotten to know through fieldwork. Some fieldwork was also conducted in other branches, to get a sense of the work of the people whom I interviewed, and at public events and hearings about the library—especially those focused on the upcoming renovation.

In my day-to-day visits to MLK, if I was not taking a class or going to a meet-up or press conference, I would usually sit in the back row of the computer lab, charging my laptop next to everyone else and taking notes. Most days, I would sit in the back charging my devices alongside everyone else. There I could observe the rows of PC's in front me, the street life on the other side of the floor-to-ceiling windows behind me, and chat with Mia, Ebony, Josie, and Shawn, part of a crew of homeless black youth who visited MLK almost every day. I spent most of my three years of library fieldwork, and much time outside of the library, with these brilliant, generous people: Mostly in the Digital Commons but also in classes, hanging out on the street, standing in line for the bus or charity food, texting each other updates on school and health. They were my key participants in terms of learning about the library as an institution. We met by sharing space and opening up conversations about the shows we were watching on our computers or mutual complaints about library police. They were open to interviews and introduced

me to friends who were too. MLK library is named because it would be impossible to pseudonymously describe its operation, layout, and role in the city without giving it away. Though much of that layout will be a matter of history once the renovation begins in late 2016 or early 2017.

Du Bois charter school was the hardest site to which to gain entree. This was entirely sensible: Schools are sensitive to strange outsiders hoping to hang out with their students. Eventually, an important internet entrepreneur informant—Olivia, a DC native and one of the most prominent black women in DC Tech—let me know that her son attended Du Bois. Olivia described the one-to-one laptop program and the school's innovative curricula and we both knew it was a perfect fit for the project. She introduced me to Principal Carroll over the summer of 2014 and then, after a background check and the required immunizations, I began the school year with Du Bois. Principal Carroll had pitched my role in Du Bois as math aide, helping students work through the software that guided their personalized curriculum. Fieldwork here thus began the latest but was by far the most intensive: Attending high school a minimum of two days a week for ten or twelve hours a day so that I could capture meetings and activities before and after classes, with special events at this charter school and others tacked on to nights and weekends.

I spent most of my charter school fieldwork in the Think Tank—the startupesque work space in which seniors were given free reign, at least in the beginning of the year—though I also took my pen and paper to individual classes, especially technology focused ones like Videogame Design. Teachers were obviously busy but happy to schedule interviews before and after school, especially once I made myself more helpful to them by doing writing workshops with students. Some students—particularly Irene, Daniella, and Corrinne—started approaching me on their own, at lunch or during class, because I was the weird new adult in the room and they were curious about why I was so interested

in their boring school, and how I could possibly fill a whole book with stories about computers. Some students, like Martin, opened up as we worked on school projects together. Others, like Irene, were happy to have an adult who wasn't a parent or teacher with whom to discuss post-school life. We all bonded over a shared love for the hip-hop soap opera *Empire* and sneaker fashion; I had unwittingly broken dress code with my shoes a few times early on and this scored me some cool points. The location and name of Du Bois has been changed to preserve the anonymity of the school, its employees, and most importantly its students.

All handwritten fieldnotes were transcribed and integrated with typed notes collected from the same site. In total there was approximately 500 pages of typed notes. All interview audio was transcribed and integrated with fieldnotes from the same site. In total there were approximately 90 hours of interview audio. All of this data was imported into the qualitative data analysis software Dedoose for coding. An initial thematic code-set was developed based on prior review of fieldnotes—one benefit of doing your own transcription—and used to chunk and code data. Child codes of these original codes were developed as categories expanded and grew more nuanced. New parent code sets were added as well. The same codebook was used across all field sites, though not every code was used for every site. The coding process was reviewed with a pair of experienced advisors in the initial stages of the process, and fieldnotes and interview data coded earlier in the process were repeatedly compared with those coded later in the process to ensure reliability.

Early thoughts on particular chapters were shared with key informants, who also gave feedback on chapter drafts. Despite this collaboration and my desire to tell these stories fairly and truly, this is by no means a collaborative ethnography in which participants co-authored the story (Lassiter, 2005). The power relation between

ethnographer and informant remained intact throughout. Nor was the final product prepared as a means to 'give back to' or 'speak for' my participants, particularly students and patrons (TallBear, 2014). Academics' dissertations and first books have, by necessity, a limited reach, a specific vocabulary, and a lengthy incubation period. All of which circumscribes any political ambitions. Beyond that, most of my participants—from students joining protests to homeless patrons attending City Council hearings—were exceptionally politically literate and were in no need of any social scientific ventriloquy I might provide.

Most folks, on either 'side' of the digital divide, understood that I was there to tell a story that was less about specific individuals or communities and more about a trend involving specific organizations and the cultural conflicts within them. While extreme examples of charter school or startup misbehavior are readily available in DC, I leapt at the chance to work with the business I call InCrowd and the school I call Du Bois precisely because they seemed to embody the best their particular sectors had to offer. In the Marxian tradition, I see ethnography as one way of conducting immanent critique; finding the best example of a particular way of thinking, and giving a good-faith reading of its premises and conclusions, taking apart its own logic and following that through to the conclusion to see its effects.

As an insistent materialist I am realistic about the impression one book can make and so did try, throughout fieldwork, to make myself as useful as possible to the informants and organizations involved: reviewing college essays, advising the library on its new 311 system, helping with job applications, giving Travis a frank appraisal of his organizational culture and who was left out from it. Any political impact the project might make is thus largely empirical and educational, offering a different frame the might rearrange the common sense to which we're accustomed. That common sense of course

drives so much of the institutional change I find myself wrapped up in: desperate turns to 'digital' methods and topics as ways of saving academic fields, skills training as a mandate for austere universities, the gentrification the city I grew up in has undergone. Because of this, I consider my role here not so much as 'giving back' to a specific culture, much less 'speaking for' it. I merely hope to tell these stories fairly and frankly, to 'stand with' the people in them (TallBear, 2014), sitting as we are at different, but always connected, points in the map of hope and inequality.

Chapter 1: Discovering the Divide: Technology and Poverty in the New Economy

Abstract: This chapter[4] uses archival materials from the Clinton administration to explore how the 'digital divide' frame was initially built. By connecting features of this frame for stratified internet access with concurrent poverty policy discourses, the 'digital divide' frame is revealed as a crucial piece of the emergent neoliberal consensus, positioning economic transition as a natural disaster only the digitally skilled will survive. The Clinton administration framed the digital divide as a national economic crisis and operationalized it as a deficit of human capital and the tools to bring it to market. The deficit was to be resolved through further competition in telecommunications markets. The result was a hopeful understanding of 'access' as the opportunity to compete in the New Economy.

Introduction

The Clinton administration's first report on stratified internet access in the US, what they would eventually call the 'digital divide', argued "While a standard telephone line can be an individual's pathway to the riches of the Information Age, a personal computer and modem are rapidly becoming the keys to the vault" (NTIA, 1995, para. 3). What is left out of this frame is how the vault became locked. This includes, beginning in the 1970s, the automation or outsourcing of industrial production, stagnant real wages, increasing healthcare and higher education costs, roll-backs of federal poverty relief

4 A revised version of this chapter was previously published under the same title in the *International Journal of Communication* 10 (2016): p. 1212-1231. IJOC articles are released under a ***Creative Commons Attribution Non-Commercial No Derivatives*** ***license.*** Many thanks to the IJOC editorial team, and their anonymous reviewers, for their help with this piece, and for granting permission to include it within the dissertation.

programs, and the massive expansion of the carceral state in poor communities (Edelman, 2013). Frame analysis traces how elements like these are obscured while other explanatory elements are highlighted, why, and to what effects; what Goffman (1974) called “the serial management of consequentiality” (p. 23). This manifests in the digital divide literature as a series of 'if information technology, then social mobility' propositions.

If the digital divide was a problem of stratified access, 'access', at the time of the frame's setting, meant not so much the availability of a specific technology or skill but the opportunity to compete in the New Economy. This frame emerged even before the phrase 'digital divide' was coined. It transformed the potential precarity of the New Economy into a series of opportunities for competition—if you, your community, or your country made the right upgrades. The state is here charged with encouraging private investments in those upgrades, making targeted investments of its own, and managing those populations who cannot or will not upgrade. This frame pre-selects political responses to persistent poverty and explains it as an ongoing shortage of human capital. It is thus a key entry point for understanding the post-1970s dismantling of the Keynesian political consensus, its reconstruction as neoliberalism, and the discursive role information technology played in this shift.

What follows is an investigation into how the digital divide frame was initially built and why the Clinton administration pursued this narrative of economic transition. After detailing my approach to frame analysis, I show how other critiques of the digital divide frame omit the neoliberal political conditions that structured the frame and linked technology politics with poverty politics. I then explore the three pieces of the Clinton-era digital divide frame: a crisis of national competitiveness, defined in human capital terms, and resolved through general deregulation and targeted public-private

partnerships. Throughout, I show how the three parts of the digital divide frame interact with other neoliberal frames for the problem of poverty (e.g., education and welfare reform) in order to demonstrate the inextricability of contemporary technology talk from broader narratives about redistribution and the value and future of work. I conclude by reflecting on the limits of the frame, and the ease with which it is co-opted.

Framing Neoliberalism: Theory and Method

Framing selects elements of reality for salience. Political frames define a problem by specifying the agents involved and their options for action, diagnosing the problem's origins, judging the agents' efficacy, and positing solutions to the problem and their likely outcomes (Entman, 1993). This draws on preexisting meta-cultural frames, such as the tendency to highlight individual bootstraps narratives in American political culture, and the 'institutional action frames' nested within them that are formed by years of accreted political discourse that set boundaries of acceptability for future discourse and which political elites draw on when judging and publicizing policy alternatives (Rein & Schön, 1996). When viewed not solely as a technology policy but also a poverty policy, the digital divide frame appears as one component of an emergent institutional action frame that obscures the state's potential to act as a bulwark against periodic economic crises and instead highlights its role as a guarantor of competition for its citizens, themselves circumscribed as bundles of human capital entering the market to contribute to national economic fitness.

Clinton and Gore both responded to that reframing of institutional possibility and participated in it as allies in the Democratic Leadership Council of the 1980s, moving the party rightward, away from New Deal social democracy in order to reverse years of Republican electoral gains. On the campaign trail and in office, they repeatedly framed

New Democrats as superior economic managers: Willing to make some Keynesian investments in human capital and export-oriented industries, opening borders to free trade, and focusing on deficit reduction—which limited any potential stimulus that would counter the early-1990s recession (Ferguson, 1995).

Clinton and Gore's liberalism was thus only strategically, not fundamentally, opposed to Reagan and Bush's conservatism. It was Clinton who cemented neoliberalism as the common sense of political possibility in the US, after a long electoral revolution beginning in the mid-1970s in reaction to midcentury social and labor movements and in partnership with new capital accumulation regimes associated with globalization, Western deindustrialization, and information technology networks. It is a slippery phrase, and so I follow Wacquant's (2012) institutionalist definition of 'neoliberalism' as a political project wherein an activist state repurposes its institutions to define and enforce citizenship around market demands. This requires not a shrunken state but a re-engineered one; enhanced, redistributive bureaucratic functions for the upper class alongside more paternalistic functions for the lower class; and a massification and glorification of the penal system. This is contrasted with definitions of neoliberalism which emphasize either the privatization of state functions and the marketization of social life—thereby taking neoliberal rhetoric about the primacy of markets at face value and overlooking state activism—or the expansion of techniques of governmentality throughout the social field—thereby obscuring reforms' historical and institutional specificity, what's 'neo' about 'neoliberalism'. This institutionalist focus connects this more historical, discursive chapter with the ethnographic focus of the remainder of the text. It is here that we see where and how the 'rules of the game', the common sense guiding institutional reform and individual's navigation of those institutions, are set up, when, where, why, and by whom. Later, we will see how those rules are applied and

reproduced locally, within startups, schools, and libraries, and by the local political and business elites managing the movement of this discourse between those sites.

This chapter sits in the sociological, rather than psychological, wing of framing analysis, which studies how particular frames maintain or disrupt political-economic power structures, and the political elites sponsoring particular features of frames to obtain desired institutional arrangements (Carragee & Roeffs, 2004). What this approach loses in predictive power, it gains in theory-building and interdisciplinary connection. Empirically, I supplement Wacquant's institutional analysis of neoliberalism, and his critique of narrowly economistic or broadly dispersed Foucauldian governmentality analyses, with a study of specific neoliberal institutions communicating the necessity of neoliberal reforms: the substitution of welfare with workfare, the deregulation of communications industries, and the support of industrial capital flight. Methodologically, I build on recent work investigating framing as a strategic resource for political institutions—the work going into those frames, their role in larger institutional transformations, their relation to other strategic resources—such as Schaffner and Sellers (2009), with a focus on an historically specific frame connecting information technology and poverty.

The 'discovery' of the digital divide cannot be analyzed without this context. The Clinton administration positioned their promotion of digital training centers for disabled Americans, for example, within a larger mission to “give work back to the American people” (Clinton, 2000, para. 11), without ever endorsing direct stimulus or job creation. This included the effort “to end welfare as a way of life and make it a path to independence and dignity” (Clinton, 1993, para. 34) which resulted in 1996's Personal Responsibility and Work Opportunity Act (PRWOA). Clinton and his Congressional allies celebrated PRWOA, which replaced the Aid For Families with Dependent Children

(AFDC) poverty relief program with Temporary Assistance for Needy Families (TANF), for replacing the American poor's entitlement culture with a work culture. Funding to TANF was block-granted so that a counter-cyclical poverty policy became nearly impossible, while award limits were placed on recipients who were not working, or who were unwed mothers or undocumented immigrants. No training or job creation programs were paired with these new restrictions (Wacquant, 2009, p. 76–109). Two years earlier, as part of the New Democrats' tough-on-crime agenda, the Violent Crime and Law Enforcement Act created 60 new death penalty offenses, criminalized gang membership, ended Pell Grants for college education in prison, and funded almost 100,000 new police officers with plans for almost $351 billion—almost 20 times the 1994 AFDC budget—in prison operation and construction funds to hold the more than 1.5 million prisoners predicted to enter the system (Duster, 1995). These policies punished those already hard hit by deindustrialization and the failure of federal poverty relief measures to keep pace with inflation, as well as the shorter-term damage of the early-1990s recession. As Wacquant (2009, p. 53–7) reviews:

- 40 million Americans, or 15% of the population, met the federal government's stringent definition of 'poor' in 1994.
- Real wages had stagnated since the mid-1970s and, in the 1980s, the mass layoff became a common method of managing corporate finances. 3.4 million Americans were laid off in 1994.
- By 1993, the country's largest employer was not General Motors but temporary staffing company Manpower Incorporated, a sign that the industrial economy, and the labor-capital compact that went with it, had largely ended.

These changes were particularly apparent in American cities. Urban centers were successively abandoned by middle-class whites headed to the suburbs, manufacturing headed overseas, and corporate headquarters—most iconically, the Exxon and Mobil Corporations fleeing New York City for the Dallas suburbs and Fairfax, VA respectively in the late 1980s—headed anywhere but the downtown core. This left poor and working class people of color without employment opportunities or well-funded social services, newly bereft of a tax base, and left urban elites desperate for new solutions to power the urban growth machine (Logan & Molotch, 1987; Sugrue, 2014; Harvey, 1989). One solution was punitive. Wacquant traces how punitive poverty policy, particularly in cities, became a method to compel participation in a slack labor market and control and contain those who would not or could not participate and thus preserve urban spaces for the sort of hopeful redevelopment efforts Harvey (1989) described as entrepreneurial urbanism. Other poverty management industries, a mix of non-profits and state agencies, began to follow this model set by welfare and law enforcement services, particularly those focused on homelessness (Wilse, 2010). Ruth Wilson Gilmore (1999; 2007), has shown how the punishment industry itself became a solution to jobs and real estate crises, linking cities with the surrounding countryside, providing jobs through policing and prison management and providing land-use solutions through prison construction.

Another solution to urban abandonment was not punitive, but creative. The 'creative cities' movement that emerged in the 1990s could be considered a subset of the entrepreneurial, inter-urban competitive shift in urban policy that Harvey identified, or what Peck (2005) called “property-led and partnership-facilitated downtown revitalization” (749). It came up with the dotcom boom and continues to this day, providing the context for the ethnographic investigation of DC's information economy that is to follow. Identified most closely with Richard Florida (2002), creative city

policymaking identifies a 'creative class' of workers on the cutting edge of the information economy—e.g., programmers, graphic designers—and engages in place-making projects to lure them to abandoned downtown cores: transforming old productive assets into real estate or consumption spaces, public arts projects, and light investment in the sort of social reproduction institutions that appeal to young white professionals without children (e.g., bike paths and co-working spaces, but little money for new schools) (Tochterman, 2012). The political economy of hope offer something of a next step in this policy agenda, with not just a supply-side theory of cultural economy, but a full re-arrangement of existing institutions of social reproduction. In this new regime, human capital stock is not just imported from outside but upgraded within, in the likeness of those outsiders.

Empirically, the payoffs of creative city policy are usually measured in terms of increasing real estate prices, rather than job creation or wage growth, and even on those metrics the record remains decidedly mixed (O'Callaghan, 2010). But creative city policy remains incredibly popular. Jamie Peck (2005, 2007) argues this popularity comes down to creative city policy filling an ideological vacuum in neoliberal urban policy when other compelling visions of urban life were not forthcoming. It does not ask for much, and the work it does do comes down to re-casting existing gentrification and property- and consumption-focused redevelopment as an investment in productive capacity. It puts a hopeful face on already-existing urban economic processes. Despite acting as something of a cargo cult, this creative policy regime remains powerful, because of a desperation of entrepreneurial urban policymakers reinforced by the detailed rankings of creative cities that Florida and his consultancy produce.

The punitive and creative solutions to urban abandonment by political elites must be envisioned together. The digital divide frame is of a piece with the creative solutions

but, as we will see here, that hopeful vision of technology and technologists overcoming poverty only makes sense in a context when the alternative is abandonment or punishment. As the conclusion of this chapter will make clear, both the punitive and creative solutions to urban poverty operate on the same basic political framework. Access to opportunities for competition must be offered and those opportunities must be preserved. Preserving those opportunities requires a plan for those who cannot or will not compete, who will not try to skill up and log on. That plan is punishment.

Policy does not just administer the social world, it also communicates the rules for it. The neoliberal push for punitive poverty policy effectively communicated that poverty was not a problem of structural economic transition, but of individual choices. The role of the state became nudging the poor towards responsible choices and effective competition. It is within this context that 'access' came to mean not so much the availability of a particular tool or skill but the opportunity to compete in the New Economy. This marks digital divide policy not as a welfare-state exception to other Clinton-era policies but an effort to increase the productivity of the nation's human capital stock while other state institutions either create new zones for competition or enforce the rules of competition. The institutions under review in the present study include the National Telecommunications and Information Administration (NTIA), the Federal Communications Commission (FCC), the Advisory Council on the National Information Infrastructure, and the offices of the President and Vice President. I selected these institutions focused on economic and telecommunications policy in order to demonstrate novel connections with other, concurrent neoliberal institutional discourses on poverty, revealing both the framing features they share and how their different institutional functions interact to produce an emergent institutional action frame for the executive branch response to the problem of poverty in the New Economy. Viewed in this way, the

digital divide frame becomes a method to garner consent to the creation and enforcement of New Economy competition by positioning economic and technological transition as a natural disaster which only the high-skilled will survive. At the time of its construction, the frame formed a left edge for neoliberal statecraft, pushing institutional reform to reproduce a flexible workforce, while the right edge managed perceived obstacles to transition.

Previous critiques of the digital divide frame obscure these links, either by neglecting the political context which structured the frame or by misreading that context and positioning the frame solely as a legitimation tactic meant to justify new accumulation regimes.

Gunkel (2003) argued that the 'digital divide' frame maps a complex social field onto a simplistic binary that automatically devalues one side, and positions 'technology' as a primary driver of social change. But while he explored a general Western epistemological fixation on binaries and compared divide talk's determinism with historical antecedents, he neglected to examine why particular political elites sponsored this particular frame with these particular features at this particular time. Similarly, Selwyn (2004) encouraged more nuanced, conceptually rigorous digital divide scholarship that moves beyond counting PC's as signs of successful outreach. But mapping the frame's origin to a new moment of Euro-American political preoccupation with “social inclusion” neglects how these technology outreach policies are also always poverty policies, native to a punitive, paternalistic turn in US, UK and French statecraft that, as Wacquant (2009) shows, emerged partly to manage the racialized groups marginalized by deindustrialization policies.

Stevenson (2009) penned the most compelling critique of the ideological origins of digital divide policy to date. Like Selwyn, she showed how the frame technologizes a

political problem; but further demonstrated how this obscured new post-Fordist social relations by focusing on individual access over class structures, garnering consent to those new divisions, and legitimating the state's role in advancing tech sector accumulation. These critiques are correct but incomplete on two counts. First, they fail to capture exactly what is appealing about the digital divide frame and why it persists despite numerous attempts to refine the concept. By reviewing the links between the digital divide frame and other contemporary neoliberal projects, it becomes clear that a crisis of human capital deficits was articulated in multiple domains and that final result of the frame—redefining access not as available tools or skills but as the opportunity to compete—fit cleanly not just with the demands of post-Fordist capital but with the common sense of laborers who really were excluded from the transition to a knowledge economy, and those helping professionals—librarians, in Stevenson's account—who really do work for inclusion. No matter how complex the various definitions of the digital divide became, they retained this core understanding of 'access'. Second, Stevenson's critique took neoliberalism's marketization thesis at face value and thus envisioned a shrinking state that prepares new markets for high-tech capital rather than an activist institution expanding ever deeper into the lives of the poor especially and enforcing the social exclusion the helping professions attempt to resolve. Her economism ends up echoing a persistent feature of neoliberal political discourse: Highlighting the contemporary welfare state's diminishment in response to pressure by capital, while obscuring the carceral state's growth at the same moment. This is an empirical and theoretical blindspot that framing analysis, as an exploration of the political process of selecting certain elements of discourse for public attention, is well-suited to fill.

It is only by viewing the digital divide frame as a poverty program *as well as* a technology program that we can cut through the marketization thesis and resolve the

contradictions Stevenson observes between the new regime's simultaneous pushes for deregulation or outsourcing on the one hand and universal access or skills training on the other. Within the neoliberal rearticulation of citizenship, the goals of promoting market competition and reproducing a post-Fordist workforce are not fundamentally opposed. Rather, redefining a healthy citizenry as a bundle of human capitals brought to market by information technology justifies both the punishment of populations perceived to be non-competitive and the increased marketization of welfare state services dedicated to them. The digital divide frame does not just transform structural unemployment and stagnant wages into the problems of individual poor people. It explains and justifies persistent poverty and delimits the responses of the state and civil society to either (limited) investments in workforce-oriented technology provision and training or (expanded) investments in monitoring, policing, and warehousing the poor. Techniques of consent and coercion necessarily cooperate structurally even if their institutions, or their personnel, appear opposed.

Gramsci (2000, p. 222–245) argues that in moments of economic transition, when the reins of power seem to be 'up for grabs', political coalitions secure power partly through activist cultural policy emphasizing sharp breaks with a denigrated past, and new institutional directives fit for new economic demands. Hopeful, technologically determinist framings of innovative new technologies are something of a constant in American political culture (Winner, 1997). The story told here about PC's and the internet has in the past been told of cable television (Light, 2001) and electricity (Nye, 1999). But these stories take on special importance in these moments of economic transition, when new narratives can unite new political blocs.

Framing analyses of political communication are important additions to this literature on hegemony (Carragee & Roeffs, 2004), and, in that regard, this chapter is

intended to expand the literature on the emergent neoliberal consensus in the 1990s. Later, ethnographic chapters will show the reproduction of this consensus within institutional life. But hegemony is always incomplete and in-process. And communicative frames are, as Matthes (2012) argues, an active, integrated process of political elites competing to sponsor particular frames, journalists reinterpreting and broadcasting them, and citizens processing and acting on them. My empirical focus here is limited largely to that first stage, in order to introduce new concerns, namely the links between technology and poverty policies, that have thus far been ignored in the literature, via a careful reading of archival materials. This necessarily omits alternatives to the Clintonian digital divide frame of internet access and economic transition produced by other political elites, the news media's reinterpretation of the problem, and the citizenry's negotiation of that message. Some comparisons are provided with the Brazilian approach to internet access, but largely in the name of highlighting the historical contingency and institutional specificity of the Clinton administration's efforts. More and less powerful actors produced alternative frames and rejected the Clintonian frame, or accepted it with revisions, but that work is beyond the scope of the present chapter. Further research is needed to produce an integrative picture of the political struggle to frame poverty in the New Economy, particularly social movements' contestation of these dominant frames.

Social Mobility as National Mobility

Even before the digital divide was named as a crisis, it was articulated as one. During the 1992 election campaign and throughout its first term, the Clinton administration argued that getting every American plugged into a National Information Infrastructure (NII) was a matter of economic survival. Investment in the fixed capital of fiber optics and the human capital of skilled knowledge workers would cement victory

over Soviet communism, end the early-90s recession, and regain global economic dominance from Germany and Japan. The imperative to name the digital divide and close it cannot be understood without this refigured economic nationalism. 'Refigured' because while Clinton and Gore distinguished themselves from Reagan and Bush by endorsing some Keynesian stimulus, most major stimulative plans were dropped in favor of deficit reduction after taking office and the NII proposals which persisted were, compared to Roosevelt's rural electrification or Eisenhower's highways, relatively modest in scope (Ferguson, 1995).

This section argues that the Clinton administration's plan to connect every American to the newly privatized internet was framed as an investment in national economic competitiveness. Within this first part of the digital divide frame, combating poverty is a problem not of alleviating suffering in the present but of making the correct investments in 'information have-nots' so as to resolve current crises of underutilized labor, realize future capital growth, and achieve post-Cold War international economic hegemony.

The internet began as a Cold War research communications network funded by the Defense Department and housed within US universities. By the late 1980s, the military (ARPANET) and civilian (NSFNET) functions had been split off. The infrastructure was under federal control but administered by private firms. In 1991, then-Senator Gore proposed the $600 million High Performance Computing Act to study how to upgrade this network for commercial and consumer use at gigabit/second speed, opening up a portion—the ANS CO+RE network—for commercial traffic managed through an IBM-MCI partnership. During the 1992 campaign and immediately after taking office as Vice President, Gore repeatedly posed NII buildout as a national economic emergency. Political opponents attacked this as undue state intervention but

Gore had spent years carefully negotiating this terrain, publicly identifying networked technologies not only with collective economic fitness but with individual values of consumer choice and democratic deliberation. He argued for his NII proposals in a 1991 issue of *Scientific American* alongside other early internet architects:

> The unique way in which the US deals with information has been the real key to our success. Capitalism and representative democracy rely on the freedom of the individual, so these systems operate in a manner similar to the principle behind massively parallel computers. These computers process data not in one central unit but rather in tiny, less powerful units.
>
> Capitalism works on the same principle. People who are free to buy and sell products or services according to their individual calculations of the costs and benefits of each choice process a relatively limited amount of information but do it quickly. When millions of individuals process information simultaneously, the aggregate result is incredibly accurate and efficient decisions...Communism, by contrast, attempted to bring all the information to a large and powerful central processor, which collapsed when it was overwhelmed by ever more complex information (p. 151).

This conflation of different scales—infrastructure and individual, personal computing and national markets—was not just New Democrat spin, but an overarching regulatory regime emphasizing market competition as the primary political calculus and market citizenship as the primary political unit. Nor was the anti-Communism simple cheerleading. Clinton and Gore (1993) positioned NII buildout and basic research into technologies of "commercial relevance" as the place to shift funds no longer required for Cold War militarization.

Since the internet would necessarily exceed the boundaries of the US, it was also posed as an instrument of soft power—especially within newly capitalist, post-Soviet states (Gore, 1994)—to the benefit of US software producers who supported the Clinton-Gore campaign and depended on English's dominance as the language of commerce (Ferguson, 1995, p. 301). The administration took this economic nationalism so seriously that Gore accused his 1996 vice-presidential opposition of "unilateral disarmament" for

threatening to defund the Next Generation Information Infrastructure (Holland, 1996, para. 14).

Internet infrastructure buildout was a crucial part of the administration's plan to upgrade the workforce for an information economy. This New Economy was based on transmitting and manipulating information but was not limited to software coding or computer manufacturing—it was post-sectoral. “Everyone will be in the bit business,” Gore said (1994, para. 28). Within the “Technology for America's Economic Growth” policy initiative, released a month after Clinton and Gore took office, any gaps in connectivity were a blow to the nation's standing in the New Economy; to the point where “schools can themselves become high-performance workplaces” to train tomorrow's technologists (p. 14).

“Because information means empowerment, the government has a duty to ensure that all Americans have access to the resources of the Information Age,” a duty which, in the administration's telling, Reagan and Bush had neglected (Commerce, 1993, para. 25). But that duty did not demand traditional Keynesian public works responses. The provision of access was meant to create new markets or better position American exporters in existing ones—not provide market alternatives. Funding requests for infrastructure buildout were not particularly large, certainly not sufficient stimulus for the early 1990s recession: $600 million for the High-Performance Computing Act, $100 million per year for the NII (Commerce, 1993). The bulk of the $100 billion costs for extending the commercial internet, with NSFNET infrastructure fully privatized in 1995, to every American would be borne by telecommunications firms incentivized by deregulation.

This mild Keynesianism was supported by an investment bloc of capital-intensive, export-oriented industries, especially high technology companies felt to be

competing with “Japan Inc.”, that needed the state to relax US import tariffs for components, negotiate lower export tariffs abroad, educate a new generation of knowledge workers, protect intellectual property, and provide at least the groundwork for an internationally competitive communications infrastructure through new policies and institution-building (Ferguson, 1995). Donors from this sector, including lifelong Republicans such as John Young of Hewlett-Packard and John Sculley of Apple, formed the Council on Competitiveness and provided pivotal funding and public support for the 1992 Clinton-Gore campaign (Sims, 1992). Many of these elite donors were then recruited to the Advisory Council on the NII to advise the Secretary of Commerce on all matters internet, an institutional project that cemented the Clinton administration's links with high technology companies and which set them apart from the corporate alliances that marked the Bush and Reagan administrations (Cate, 1994).

Speaking at the 1997 Microsoft CEO Summit, Gore emphasized the competitive advantages his public-private infrastructure project had borne and warned of isolationists and fiscal conservatives attempting to stymie his efforts. He was clear that extending access to all Americans was a key part of a rich and free capitalism. Whereas in the old economy “growth depended largely on capital and labor [and] the task of policy makers was to keep those factors of production in sync” (para. 23), in the New Economy the main assets were ideas, “our core capacity as human beings” (para. 21), brought to market through the internet.

While the New Democrats framed their technological investments against the 'pure' laissez-faire of neoconservatives, their interpretation of poverty in the New Economy as a national crisis of competitiveness—and the proposed definitions of and solutions to that crisis—was strikingly similar to neoconservative education reform frames. Secretary of Education Terrel Bell convinced Reagan to make education a

conservative issue through 1983's “Nation at Risk”report. It framed a decade of falling SAT scores, in an era when the pool of test-takers rapidly expanded, as a “rising tide of mediocrity” that left students so lacking in the skills needed in the global economy that “If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war” (Gardner, Larsen, & Baker, 1983, para. 3). Then-Governor Clinton picked up this torch as chair of the 1989 National Education Summit, endorsing a national program of outcomes-based standards, charter schools, and a nationwide standardized testing regime that would survey the extent of the skills gap and allocate resources accordingly (Scott, 2011). Schools here were positioned not as welfare state social supports but skills-training centers.

Taking Measure of the Divided

After the crisis was declared, it had to be mapped so that appropriate interventions could be identified—similar to the high-stakes testing regime that emerged from education reform. This section explores how the digital divide frame characterized problems of poverty as problems of performance, specifically as under-utilized human capitals in need of a federal push towards competition, and how that definition affected the measurement of stratified internet access and explanations for it. I do not dispute the reality of these inequalities. Rather, I hope to show how the narrow framing of them led to a dominant understanding of 'access' as the opportunity to compete in the New Economy. The digital divide measurement program highlighted a deficit of skills and tools as the main symptom of the problem of a lack of fitness in the New Economy. It operationalized what it meant to be in or out of the New Economy, on one side of the

digital divide or another, and solutions to the problem, the carefully targeted interventions that would help the poor cross the divide, flowed logically from there.

For the administration, economic growth was a question of making adequate investments into human capital: the skills and abilities making up what Gore called our "core capacity as human beings", those means of production internal to the laborer. The 1994 Economic Report of the President made human capital investment the second administrative priority after deficit reduction. Later, it is one of a list of investments the state must make, alongside fiber-optics, or one workers must make in themselves: "American workers must build the additional human capital they need as a bridgehead to higher wages and living standards" (p. 41). At other times this approach is implicit: the language of re-skilling for knowledge work or connecting to online resources. Gaps in access were not crises just because PC's and internet infrastructure are necessary fixed capital for the New Economy, but because these technologies permitted access to re-skilling opportunities that increased individual human capital, access to new markets for the products of individual human capitals, and access to new markets *for* human capital. They made you competitive and allowed you to compete.

As Adamson (2009) discusses, human capital theory became a key concept for governance in the 1960s, as Adam Smith's theory of the term was reassessed by a new generation of economists and as planners sought to incorporate domestic educational costs and international development projects into the neoclassical investment theories that drove macroeconomic policy. Defining human capital as productive skills and abilities fixed to a person demands a mapping of its distribution, and the effects of investment in it, across increasingly larger scales and more fine-grained variables. Human capital theorists such as Gary Becker and Jacob Mincer provided the techniques to incorporate poverty management into a postwar political consensus focused on economic growth.

'Human capital' thus becomes a key idea in the liberal, sometimes social-democratic War On Poverty, and its transformation into the punitive poverty policy Wacquant, Gilmore, Wilse, and others identify with the neoliberal era.

As Goldstein (2013) demonstrates in his history of community action in the War on Poverty, poverty, for postwar liberals, was undesirable largely because it was a drag on national productivity. This undesirability emerged from both a longstanding moral consensus in the political class, and the emergent technical problems of managing a high-growth economy whose very acceleration was premised on uneven participation in highly productive sectors and uneven consumer gains from them. By the latter, I mean the manner in which the New Deal institutionalized a distinction between those steadily employed in manufacturing trades, largely white men, and those more precariously employed in domestic and agricultural work, largely women and people of color, with labor protections, education credits, and housing subsidies directed mainly to the former. Poverty relief within US Keynesianism always held full labor force participation as its goal. Morally, this was maintained by widely-held bootstraps individualism, especially among political elites. In his 1935 State of the Union address, Franklin Roosevelt, the architect of the US welfare state and the initiator of the federal Keynesian revolution, argued that

> ...continued dependence upon relief induces a spiritual and moral disintegration fundamentally destructive to the national fibre. To dole out relief in this way is to administer a narcotic, a subtle destroyer of the human spirit. It is inimical to the dictates of sound policy. It is in violation of the traditions of America.

Poverty relief sapped the individual's will to work and addiction to it would destroy the cultural unity that made America strong. Roosevelt, and later Kennedy and Johnson, admitted the need for controlled doses of this narcotic not primarily to assuage suffering or halt exploitation. Rather, welfare became a necessary evil because it would dampen

the crisis tendencies of the capitalist boom-bust cycle by propping up effective demand and maintaining the temporarily unemployed long enough to seek waged work. It would keep the precarious alive and healthy long enough to push them back into the labor market, funding these efforts with progressive taxation on those capitals who had entered into a state-brokered, growth-oriented compact with industrial labor. This liberal, Keynesian program institutionalized the relief measures introduced by charities and the workers' movement in the Progressive era, creating the stable, manageable category of 'the unemployed' for the first time.

But if the specter of dependency ever haunted US poverty policy, how are we to account to the major shifts in that policy in the neoliberal era, reviewed above? 'Human capital' provides the unifying thread, with the major changes occurring in who was considered to have it and how it would be grown and reproduced. During the War on Poverty, the welfare state identified wage labor with independence largely irrespective of the content of that labor. And so the state of dependency was feminized and racialized by its identification with paupers, people of color on the margins of the labor market, and unwaged housewives (Fraser and Gordon, 1994). Independents received state support through payroll taxes (e.g., Social Security), while dependents received it through general taxation appropriated legislatively (e.g., AFDC). The latter were easily scapegoated because they were unproductive (i.e., they had low human capital) and, because of its funding mechanisms, their relief was perceived to be a drain on the national economy. To offset this, Goldstein shows, the various local community action agencies of the Office of Economy Opportunity active during the War on Poverty required impoverished communities to actively participate in the work of relief. This opened up many moments for democratic governance, but also allowed politicians to blame the War on Poverty's failures on the poor themselves.

Anti-poor revanchism dismantled many of these programs from the 1970s through the 1990s, as discussed above, largely on the Rooseveltian terms that they were destructive of human capital—not only incentivizing people to not pursue waged work, but subtly destroying their ability to do any work at all. At the same time, slow growth, deindustrialization, the defeat of the workers movement, the rollback of workplace protections, and the transition to a service economy meant that the number of impoverished people grew independent of particular boom-bust cycles and that many of these were not unemployed but underemployed or working full time in the service industries[5]. The victories of the feminist movement and the stagnation of the 'family wage' also pushed millions more women into the workforce. All this within the nationalist economic narrative explored in the previous section—where the more productive economies of West Germany and Japan were considered to be outpacing the US.

Clinton's war on welfare, and the digital divide frame included within it, provided a human capital solution to the perceived failure of the War on Poverty—where the political imagination of the Reagan and Bush administrations was seemingly limited to taking those programs apart. As the federal government allied more directly with national capitals, poverty relief, like all public goods, became “neither pure commodities, nor pure public goods but new intermediate strains that combine features of both” (Fraser, 1993, p. 17). Subsidized PC's, modems, and internet connections were emblematic of the trend. The welfare state built a safety net through the War on Poverty that supported both the

5 Wage growth is slower in services as opposed to manufacturing not just for historical reasons where labor activism infiltrated services later, but for structural reasons. The wage makes up a higher portion of the finished product in services and there is little redesigning of the production process that can happen to boost productivity. This means that employers are not incentivized to raise wages to boost productivity, and that they are always on the lookout for jobseekers willing to plug into the workplace for less than is currently on offer. Sexism plays a major role here since the stagnation of median wages generally means the death of the family wage—more women are looking for more work—and much service work is considered to the 'natural' purview of women, who already perform that care work for free elsewhere and so do not deserve any sort of skilled wage premium.

unwaged and the crisis-prone capitalist system as a whole, securing dependents so that they could survive within the system or produce for it. In contrast, the neoliberal state sought to eliminate dependency wholesale by poverty relief not on whether or not someone had a wage but on the inner nature of individual poor people—their human capital. This was extended to all potential participants in the labor market, not just the traditionally dependent. The digital divide project, was the leading edge of this trend, an effort to upgrade the human capital of the dependent so that they could move from low-wage service sectors with low productivity growth and into higher-wage knowledge work sectors that were, in the 1980s and 1990s, seeing big productivity gains. This is what would promote independence at the individual level and competitiveness at the national level.

The Clinton administration was willing to countenance limited state intervention into the 'natural' functioning of human capital markets because of a post-Cold War spending pivot and a burgeoning alliance with Silicon Valley. They were thus free to acknowledge that the market was not joining fixed capital computing resources to human capitals in need of upgrading quickly enough to transition US workers to the New Economy. All this before 'digital divide' entered popular usage in 1996.

While there is no consensus as to who coined the term, former White House staffer and MCI General Counsel Allen Hammond IV and Sesame Street Workshop co-founder Lloyd Morrisett probably used “digital divide” in the seven years between the passage of the High Performance Computing Act and the NTIA's 1998 *Falling Through the Net* report (Eubanks, 2007). It appeared nowhere in the 1995 edition of that report. Clinton and Gore used it while campaigning in 1996, comparing their investment in America's future to Dole and Kemp's neglect of the same. 'Digital divide' appeared four

times, in quotations, in the 1998 *Falling Through the Net* report and more than 50 times in the 1999 sequel.

During Clinton's presidency, the NTIA, a small wing of the Department of Commerce, released four, increasingly larger, more fine-grained reports on the state of the digital divide in the US in 1995, 1998, 1999, and 2000. At Gore's request, the agency had asked for the Census Bureau's monthly Current Population Survey to be updated to include household data on computer ownership and internet and telephone subscriptions. Results were then cross-tabulated by income, race, age, educational attainment, and region. The NTIA, and its reports picked up by Clinton and Gore on the campaign trail, became a key institutional ingredient in the construction of the digital divide frame by treating stratified access as a chief symptom of, and thus universal access as a logical solution for, the poverty that haunted the overall optimism of the New Economy. It was here that the problem of human capital deficiency was operationalized.

The NTIA framed increased economic fitness as the goal of access and market competition as the means to extend access. The 1995 report found that poor, rural minorities were least likely to have a PC or modem, followed by poor black residents of central cities—but that those positions were reversed when education was held constant. It decried this because those "most disadvantaged in terms of absolute computer and modem penetration are the most enthusiastic users of on-line services that facilitate economic uplift and empowerment" (para. 10).

Gaps in connection rates between white and black or Hispanic households, even with income held constant, grew from report to report, with the 1999 report labelling the digital divide a "racial ravine". This is another variation on the gap or canyon imagery of the early digital divide literature: A fissure borne of the New Economy, separating the "information disadvantaged" from opportunity on the other side (NTIA, 1995). Gore

often asked audiences to consider opportunities for access not just in rich suburbs but nearby, poor, predominantly black inner-city areas: Bethesda and Anacostia, Brentwood and Watts (Gore 1994a).

Each report ended by profiling the "least connected" who "lag further behind" and what they stood to gain through PC's and modems (1998). The 1999 report concluded "While these items may not be necessary for survival, arguably in today's emerging digital economy they are necessary for success" (p. 77), that "no one should be left behind as our nation advances into the 21st Century, where having access to computers and the Internet may be key to becoming a successful member of society" (p. 80). Policy proposals were absent in the first report but included ever after. Over time they gave greater weight to market diffusion of the means of access, but argued that time was of the essence and 'community access centers' such as schools and libraries could act as temporary bridges for disconnected communities.

A focus on the number of internet-connected PC's available—the most basic unit of this human capital mapping project—dominated the US digital divide frame initially but later co-existed with investigations of usage and skill, all broadly grouped under 'access' (Epstein, Nisbet, & Gillespie, 2011). Access ultimately meant not skills or tools specifically but the general opportunity to compete. Bringing the digitally divided online was an urgent problem not for reasons of human rights, religious obligation, or any of a variety of other possible frames but because crises of GDP were placed at the level of individual users and their PC's. *Intern*et access could, for the Clinton administration, never be part of a broader poverty relief mission, because the broader institutional action frame for poverty emphasized individual responsibility, and state action only in policing and incarceration. The NTIA's measurement program had to justify itself on this terrain. Its first report claimed that "Once superior profiles of telephone, computer, and on-line

users are developed, then carefully targeted support programs can be implemented that will assure with high probability that those who need assistance in connecting to the NII will be able to do so" (para. 17). The crisis of competitiveness was expansive but the needs of the human-capital deficient needed precise measurement. Aid needed to be precisely targeted so that access would offer opportunities to compete and not handouts; as Pell Grants for prisoners were perceived to have been and as an extensive, federally-funded and managed internet infrastructure would surely have been.

From Universal Service to Access to Opportunity

The administration's discussion of access solutions became a meditation on state limits. This final part of the frame made equitable distribution of these technologies the responsibility of deregulated markets, wherein competition would lower prices and extend access. This forced a reconsideration of the universal service mission—the provision of baseline connectivity to every citizen in the name of safety and political and economic participation—in telecommunications policy. Consistent with other contemporary neoliberal projects, state intervention would persist but only insofar as creating markets and securing competition in them. Community access centers would triage technological poverty in the meantime. This section reviews how this final portion of the frame was built, and the master definition of 'access' cemented: The opportunity to compete in the New Economy. Where the declaration of the crisis and the measurement of it nested technology policy within the larger institutional action frame for poverty through institutions like the NTIA, the proposed solutions to that crisis necessarily invoked, and were delimited by, existing institutional action frames for corporate regulation and trade.

The administration repeatedly staked out the purpose and limits of the state during economic transitions. Press releases for the Next Generation Information Infrastructure even included Q&A sections asking why the government was involved at all (Clinton and Gore 1996a). This was posed as a reaction to a larger economic problem beyond government's control. The NII Agenda for Action (1993) described a new era where "information is one of the nation's most critical economic resources" in every industry trying to thrive "in an era of global markets and global competition" (para. 11). Its future priorities are listed under "Need for Government Action To Complement Private Sector Leadership": tax and regulatory policies that promote long-term private investment, universal service, and research programs and grants that help the private sector build and demonstrate NII applications.

Laissez-faire is always an activist policy, charging the state with creating and protecting markets. Plans for a Global Information Infrastructure (GII) that would end the global digital divide hinged on the World Treaty Organization's (WTO) request for member states to privatize state-owned telecommunications (Clinton and Gore 1995). Gore (1994b) compared the GII's promise to the contemporary privatization of USSR telecommunications, arguing that "reducing regulatory barriers and promoting private sector involvement" (para. 4) allowed freedom of movement for information, capital, and democracy. Such forceful market creation is familiar from the North American Free Trade Act (NAFTA) which the Clinton administration instituted alongside Mexico's Salinas government. NAFTA was promoted as a development program for rural Mexico and the US Rust Belt alike. Its results were lowered import barriers and the collapse of Mexican peasant agriculture through competition with US (state-subsidized) industrial agriculture (Harvey, 2005).

Prioritizing market creation would seem to contradict the universal service mission which the 1995 *Falling Through the Net* report argued was "at the core" of US telecommunications policy—there is always someone who cannot pay after all, always an area where new infrastructure is too costly. The US' universal service mission emerged from early 20th century competition between the first telephone companies, who refused to connect to each other's customers. The 1921 Willis-Graham Act admitted that "there is nothing to be gained by local competition in the telephone industry" and permitted AT&T to form a monopoly eventually spanning the country. The 1934 Telecommunications Act created the FCC to regulate telegraph, radio, and telephone traffic and negotiate with AT&T over price controls and service quality (Kim, 1998). State-enforced private monopoly guaranteed universal service; exactly the sort of anti-competitive, Keynesian compromises the Clinton administration argued were upset by information technology. This conflict was resolved by selecting certain aspects of the universal service mission, particularly its identification of individual ownership of technology with democratic participation and economic uplift, for incorporation into a broader discourse of market creation and participation. Within the digital divide frame, this meant equitable access would be best facilitated not by monopoly but cross-media competition.

By the 1999 NTIA report, universal service was largely a stopgap measure for "high-cost areas" left out after a program of "expanding competition in rural areas and central cities" (p. 78). Here, in the last report with 'divide' in the title, universal service is a question to be asked after pro-competition policies were realized. This was foreshadowed by a 1994 Congressional Research Service report showing that Gore's original nine principles meant to guide NII policy were, a year later, cut to five. Gone

was the explicit universal service principle, replaced with a new commitment to not creating "information haves and have-nots."

This commitment registered not as universal service but an emphasis, increasing over time, on triaging the digital divide through community access centers such as schools and libraries. In 1995, such centers were temporary "safety nets" in a "long-term strategy" (p. 6). But by 2000, and despite a report ten times the first's length which stressed that "not having access to these tools is likely to put an individual at a competitive disadvantage" (p. 89), the NTIA observed the increased use of libraries by the un- or under-employed without any judgment or policy proposal. It was a settled state of affairs. The later reports had a deterministic faith not only in the competitive boost information technology provided the poor, but the power of markets to extend those opportunities. Indeed, the 1999 report reinterpreted history to fit this frame, comparing internet and telephone buildout and arguing that "high levels of telephone connectivity" were achieved primarily through "pro-competition policies at the state and national levels" supplemented by universal service subsidies—rather than the monopoly granted AT&T (p. 77).

Universal service was always more of a political principle than a specific set of proposals and objectives, vulnerable to reframing. Crawford (2013) describes the 1990s reorganization of US telecommunications as an anticipation of the possibilities of media convergence and a reaction to monopolies borne of Reagan-era rates deregulation. Trying to manage burgeoning oligopolies, the 1996 reform of the 1934 Telecommunications Act pursued universal service largely through further deregulation. Cross-media competition and ownership was permitted in all markets; local phone companies could offer long distance, cable companies could offer internet, the Baby Bells borne of AT&T's break-up

had to let smaller companies offer services on their circuits, and all cable rate regulations were ended.

Internet access for schools and libraries would be supported by the Universal Service Fund, administered by the FCC from taxes, the 'e-rate' subsidy, collected from telecommunications firms—an easy target for court challenges (Hammond, 1998). There was no similar provision for households. Indeed, the FCC later argued that compelling firms to offer services of equal quality or speed in rural and urban areas "would undercut local competition and reduce consumer choice and, thus, would undermine one of Congress's overriding goals in adopting the 1996 Act" and that equality should therefore not be considered as part of the universal service rubric (FCC, 1997, para. 79). Where the 1934 original supported direct government intervention into the failures of market-based diffusion, the many-times-longer 1996 Act largely rejected such intervention as a distortion of the market.

At its core, the creation and protection of markets as a neoliberal political strategy relies on an institutional action frame in which more competition brings more winners and fewer losers (Dean, 2008). Clinton could promote NAFTA while warning about the need for workers threatened by globalization to re-skill because both were framed as competitive responses to New Economy stakes. This competition for competition was a core component of the New Democrats' neoliberal revision of their party's postwar social democratic agenda. It structured the digital divide frame so that no matter how 'access' was operationalized it still denoted an opportunity compete in the global economy, best provided by competition to offer that opportunity.

Conclusion: Framing the Future

This shape for the digital divide frame was not inevitable, as Straubhaar et al's (2008) comparison of US and Brazilian technology policy makes clear. They found that the Clinton administration focused primarily on physical access and framed technological stratification primarily in terms of economic opportunities lost in an inevitable moment of economic transition. The Brazilian *inclusao social* framework made access one part of a mission rooted in long-standing divisions based in race and class. It was thus an explicitly political framework lacking the Clinton administration's technological and economic determinism. Brazil's Cardoso government set the goals for access policy in their 1997 Green Book: new research initiatives in science and technology, distance learning, cultural preservation, telemedicine and the modernization of health systems, the construction of local e-commerce platforms, and technology education at all levels. The state was the primary actor in this frame and the citizen in their community, rather than human capital in the market, was the primary site of intervention.

This naturally led to interventions different from those pursued in the US. Brazil's universal service fund collected 1% of telecommunications firms' revenue, rather than the variable contributions levied on US firms based on their own quarterly revenue projections. These funds were directed not only towards schools and libraries but towards direct infrastructure investment, assistive technologies for the disabled, and the creation of purpose-built telecenters providing wraparound social services through partnerships with local civil society groups. Local municipalities funded telecenters and provided technical support, civil society groups managed them, and the whole process was administered by a community council of local telecenter users who ensured that the initiative catered to local needs. Telecenters ran on open source systems to reduce licensing fees and maintain the spirit of democratic participation. National

competitiveness was never entirely out of the picture but, because of a broader developmental state institutional action frame emphasizing historical inequalities, it was subordinated to community control and community empowerment.

A full comparison with other national and local access frames, and the public's reception of them, is beyond the scope of this chapter. But this brief comparison should make clear that something like the Brazilian social inclusion mission could not fit, contra Selwyn, within the US digital divide frame, narrowed as it was around human capital measurement and national competitiveness. Indeed the Brazilian framework was reminiscent of earlier US political eras, such as when cable television was positioned as a "public information utility" that could act as one piece of Great Society urban policy (Light, 2001) In the digital divide frame, increased individual economic fitness could only be achieved through telecommunications firms competing with each other—the furthest thing from a utility, or, indeed, the original sense of 'universal service' in US telecommunications policy. Both the Great Society and inclusao social were aimed at historical inequalities that demanded broad-based, redistributive public works responses. Such responses were beyond the digital divide frame, where new inequalities were borne of the problems of New Economy transitions, rather than long-term problems of deindustrialization exacerbated by punitive poverty politics.

'Digital divide' stuck in the US, because a frame announcing a national crisis of competitiveness, defined as a human capital deficit, and resolved through public-private partnerships for access extension, created a fundamental definition of 'access' that resolved the contradictions between a punitive, paternalistic poverty policy and the promise of the New Economy. If the opportunity to compete was made available by information technology, then investments in those opportunities—publicly encouraged but privately executed so as to not violate the sanctity of competition—were urgently

required. Unfortunately, more competition creates not just more winners, but more losers. So individual failures of competitiveness had to be excused as lacking initiative or improperly planning, while mass failures could be understood as populations surplus to New Economy requirements—thus justifying the expansion of the prison and workfare systems that paralleled Clinton-era digital divide initiatives and bounded their anti-poverty aspirations.

In his final State of the Union address Clinton told the nation "We have built a new economy" (para. 3). Brought into office during a recession and after the collapse of the USSR, his administration was supported by export-oriented technology industries prepared to countenance mild state economic intervention that would catalyze private investment in internet infrastructure and upgrade US human capital stocks for the New Economy. This economic nationalism would create and protect markets and ensure participation in them but lacked the direct job creation or public works of prior Keynesian regimes. The 'digital divide' frame managed the anxiety of flexible economic relations by positioning access not just as a tool or a skill but the opportunity to compete in the global network. Even when the actual distributive mission of increased access narrowed over time, it continued to effectively frame the problems of poverty in the New Economy not as dislocation borne of deindustrialization or the retreat of the welfare state, but as the absence of investment—by state or citizen—in human capital and the technologies to grow and market it.

But the problem with an approach to equity based on sound investments in human capital is that a new set of investors can just as easily declare them unsound, which is what happened when George W. Bush entered office. His FCC Commissioner, Michael Powell, famously riffed on the persistence of the digital divide, "I think there is a Mercedes divide...I'd like to have one; I can't afford one" (Labaton, 2001, para. 11). This

signaled a shift that included prominent cuts to an Education Department program funding community access centers, and a Commerce program for underfunded organizations, like food banks, attempting to modernize their infrastructure (Schwartz, 2002). In response, representatives of liberal think tanks like the Benton Foundation argued that this political retreat kept the nation from leveraging sunken investments that could effectively mobilize human capital (e.g., Wilhelm, 2003). But the "Mercedes divide" comment was not fundamentally at odds with the frame set by the Clinton administration. Powell just held that this sort of capital investment was unnecessary to increase individual or national competitiveness. The frame persist, even as the left edge of neoliberalism weakens and the right strengthens: Equity is still a problem of human capital investment, it's just no longer worth investing in equity.

Hope, then, crosses the political aisle. What differs between neoconservative and neoliberal approaches—besides the support from Silicon Valley and so-called Atari Democrats courted by the latter—is merely the particular emphasis placed on the carrot or the stick in the calculus of development. Powell's dismissal of digital divide politics was not a dismissal of the crisis itself, or even the terms of the crisis as set by the Clinton administration. The 'Mercedes divide' comment occurred in a broader context where he was continuing the deregulation of telecommunications markets begun under the 1996—most of these changes were later reversed by appeals courts—and in a specific context where he agreed that "it's an important social issue" but suggested that the diffusion of devices specifically would largely be taken care of by the free market (Lasar, 2011). Preserving and promoting competition thus remains at the core of his more conservative vision of digital divide politics—unsurprising, given Powell later ended up as the chief lobbyist of the industry he used to regulate, becoming chief of the National Cable and Telecommunications Association in 2011.

This was consistent with broader changes in federal poverty policy under the second Bush presidency (Allard, 2007). The shift from cash assistance to workfare programs begun under Clinton continued apace. Cultural reengineering of poor people's human capital intensified, especially in terms of the aggressive ramping up of marriage promotion programs and faith-based organizations in poverty relief. Block granting of poverty relief funds to the states was reauthorized, which would make the recovery from the 2008 recession even more painful. The emphasis on increasing competitiveness through punitive poverty policy thus continued, or arguably intensified with respect to the marriage promotion initiatives and faith-based solutions, even as the digital divide program was largely offloaded to the private telecommunications market. The hope for social mobility powered by personal computing exists mostly in the friendlier terrain of the latter, but shares with the former the same core framework of promoting and securing market citizenship and market competition. The “Mercedes divide” comment marked a relative shift in precisely how this promotion and securitization would happen, but the overall program remained intact. Critiques like the Benton Foundation's obscure this relative continuity. And while Stevenson, Gunkel, and Selwyn trace and critique the repeated blindspots of digital divide research, they miss this context of political continuity that promotes a digital divide frame with these blindspots built into it.

The production and reproduction of this frame, communicating the rules for institutional conduct, does of course not just happen from the top-down. The hopeful frame may have its origins in the Clinton administration, but the problem of poverty only becomes a problem of technology when the institutions managing technology and poverty build that problem into the fabric of their organization. These blindspots in the digital divide frame, and the core meaning of 'access' as not the deficit of a specific tool or skill but the deficit of opportunities for competition, are built into institutions of social reproduction as a

matter of survival within the political economy of hope. This is true for those on the 'right' side of the digital divide too. The hope that personal computing and the skills to use it will power social mobility is crucial to the success of internet startups—for founders, firms, and the sector as a whole. To see this common sense at work, we have to turn to the everyday life of the political economy of hope, beginning with those internet startups so crucial to this hopeful vision of the new, creative city.

Chapter 2: Startupland and the Trouble of "Tech"

Abstract: Why is everyone clamoring to be counted as 'tech'? What accounts for the political-economic force of this cultural identity, stretched as it is over companies delivering everything from taxis, to menswear, to catering software? This chapter explores how the disparate corners of 'tech' are granted coherency by the hope in digital tools and literacies to overcome the limits of the old industrial economy and its staid institutions and to generate new financial and social dividends. The 'tech' identity provides a work ethic within the firm and political purpose between firms. It legitimates startups both within and between firms. This legitimation is crucial to gaining employee buy-in to the stressful work environment that produces the rapid growth desired by venture capitalist investors. I track this process first within startups, through two firms that I call Hearth and InCrowd, showing how founders internalize the social mission of their firm and how those generally considered to be on the margins of 'tech'—women and people of color—are charged with reproducing digital hope within the firm in order to train their colleagues in the work ethic required to turn long hours, high risk, and rapidly changing working conditions into profit. I then turn to the production of this hope between firms, exploring how the community generates a regional 'tech' identity to secure 'talent' and political resources.

Entrepalooza

The evening of March 6, 2012 was the first time I really came face-to-face, at least en masse, with DC's tech entrepreneurs. Around 300 people showed up to the massive “Entrepalooza” event in what had been a Borders bookstore until the company went bankrupt a few months prior. Sponsors greeted you upon entering or roamed the event handing out information and requesting some in return: The commercial real estate firm hoping to lease the space and the offices above it, a bevy of local startup incubators that provided space and training for early-stage tech companies, angel investment firms. Neon-colored, branded booths filled the open spaces. Reps handed out souvenir 'swag'—a t-shirt, a branded stress ball or water bottle, or just a business card—and waved hard at passers-by, encouraging them to crowd around a phone or laptop and review a demo or just play a game of cornhole, in freelancing platform oDesk's case. Exhibitors and attendees spanned the local startup scene and stretched the coherency of 'tech': Social media marketers, ridesharing companies, digital security firms, professed 'serial entrepreneurs' onto their latest consumer internet application, a bespoke menswear company with an online store.

Loose wires dangled from holes where ceiling tiles had been. A pair of hired graffiti artists tagged walls still stained in neat stripes by bookshelves' years of pressure, watched by murmuring crowds of white urbanites in jeans and sportscoats (many with a t-shirt bearing the name of their startup) or cocktail dresses with a smartphone in one hand and a red, plastic Solo cup in the other. Dubstep thumped from a DJ booth on one side of the main hall, with an empty dance floor in front of it. A line snaked around the corner and up the block from the entrance where attendants checked guests' tickets or waved through press—the option I often chose for these events. A special doorway was set aside for VIPs who had reserved higher-price tickets, received extra swag and drink tickets, and arrived in specially-chartered Uber black cars. They were no older than the

majority, most in their 30s, but some broke out the tuxedo or the furs. Around 8, overhead lights dimmed and brightly colored mini-spotlights flashed from the floor. It was hard to hear conversation but everyone still tried. Phones only came out for a brief spot-check or FourSquare, Instagram, or Twiter check-in and headphones, tablets, and PC's were totally absent—in sharp contrast to most other tech networking events. Networking circles clustered around perceived power players, not necessarily investors or even executives of the most profitable firms, but those playing a key role in DC Tech boosterism, connected to other power players in the region, and with major social media followings. Like my informant James, the brash, young community engagement lead for a major ridesharing startup. Or Jack, the CEO of the design firm James had left after one fight too many. Or Peter Corbett, CEO of digital advertising agency iStrategyLabs. The mood was an awkward mix of warehouse rave, speed-dating event, and small business convention. One entrepreneur, working for another digital advertising agency, asked what I was scribbling down on in my notebook, I started to say I was researching access in DC and he cut me off—"Access to capital?" The Latino cleaning crew circulated throughout, grabbing discarded drinks and restocking increasingly rank restrooms that were never designed for a catered event of this capacity.

Around 9, the DJ directed attendees downstairs where 221 seats were arrayed in front of a podium and a large screen. The transition was supposed to have been seamless but Mayor Vincent Gray arrived late and so everyone crowded around downstairs, wondering about the holdup. When Gray did arrive, he was greeted at the door by several tech power players and ushered downstairs alongside his entourage—some of the few black faces in the room. News crews stationed around the podium pivoted to capture an entrance facilitated by that special talent of local politicians to look comfortable in and in charge of any room in their city. The Mayor was there to show his support for the tech

sector and remind the crowd of the tax credits—for relocation, enterprise technology purchases, specific hiring thresholds, and more—his administration had designed for these entrepreneurs. But in the span of the evening's schedule, his role amounted to (proudly) introducing a documentary local boosters had put together in a few days. It showed local entrepreneurs road-tripping down to Austin, Texas for South by Southwest Interactive, the startup festival whose demos and networking conversations where the stuff of legend in the community, and that remained a fixture in corporate calendars. The lights dimmed, more dubstep blasted, the screen filled with scenes from a rented bus driving down a highway towards the setting sun. And the crowd cheered.

The Disrupters

While there were certainly clear demographic links between members of these—mostly white, male-dominated—firms, these solo entrepreneurs, these investors, there was very little connecting their actual businesses. Freelance platform oDesk shared exhibition space with bespoke menswear entrepreneurs Hughe & Crye, whose two founders designed custom suits and accessories while outsourcing all production to Asian manufacturers. They were regular fixtures of the DC entrepreneurial speaking circuit. Representatives from on-demand transportation company Uber—who are mainly cab dispatchers, reaching consumers through a smartphone app—rubbed shoulders with designers who worked in traditional advertising and public relations, using the tools of social media and Web design. Most, besides the real estate firm who owned the space, identified as 'tech' even if their product was taxis or temps. What brought everyone together was not just the promise of drinks and the possibility of networking, but the hope inherent in an over-the-top name like 'Entrepalooza', in filling the space of a dead, disrupted economy (the industrial bookstore) with the energy of a new one, and in

receiving mayoral blessing on the whole operation and its centerpiece: A documentary about skilled knowledge workers pulling themselves up from their bootstraps with long hours and good code, headed to the tech sector's promised land, where friendly crowds and venture capitalists awaited.

The disparate corners of 'tech' are granted coherency by this hope in digital tools and literacies to overcome the limits of the old industrial economy and its staid institutions and to generate new financial and social dividends. It provides a work ethic within the firm and political purpose between firms. The Introduction explored this coherency at the level of urban political economy, showing that the hopeful discourse surrounding the internet and personal computing is so powerful and attractive because of its apparent provision of creative political and economic alternatives to the breakdown of the Fordist social contract. Chapter 1 examined the concrete historical roots of this neoliberal conceptual map by focusing on the Clinton administration's advancement of the 'digital divide' as a frame for the problem of poverty in the wake of deindustrialization and the transition to a so-called information economy, explaining the persistence of poverty as a deficit of human capital, those means of production internal to the laborer, and the tools to bring it to market.

This chapter and the two that follow build on the previous political-economic and frame-analytical analyses to explore the reproduction of digital hope ethnographically, within and between institutions—here startups, in Chapter 3 libraries, and in Chapter 4 schools—that make and remake this hope every day. I track this process first within startups, through two firms that I call Hearth and InCrowd, showing how founders internalize the social mission of their firm and how those generally considered to be on the margins of 'tech'—women and people of color—are charged with reproducing digital hope within the firm in order to train their colleagues in the work ethic required to turn

long hours, high risk, and rapidly changing working conditions into profit. I then turn to the production of this hope between firms, exploring how the community generates a regional 'tech' identity to secure 'talent' and political resources.

The discourse of digital hope legitimates startups both within and between firms. This legitimation is crucial to gaining employee buy-in to the stressful work environment that produces the rapid growth desired by venture capitalist investors. It is also crucial to securing the political approval that lowers the operating costs of the tech sector as a whole and gives it a pass (or even a municipal thumbs-up) on the displacement that accompanied the post-recession flood of new, mostly white and middle-class knowledge workers to an historically majority black city. The process of reproducing this discourse, the results from it, and the coherency it lends the tech sector is thus always at once material and symbolic. What counts as 'tech' matters. Precisely how 'tech' matters links individual and organizational identities with bottom lines. And everyone wants to stand up and be counted, as local TV station WRC-TV unwittingly revealed in October 2015 when the D.C. Court of Appeals ruled it could not be considered a Qualified High Technology Company under the New E-Conomy Transformation Act of 2000 and demanded the station pay the city the $78,784.84 it had tried to claim in tax credits (Neibauer, 2015).

Knowing You're Tech

I'd been introduced to Brett, a 20-year-old Asian student-entrepreneur, by Khalil, a breathless business development rep for an HR-outsourcing firm, thirty years Brett's senior. They had met at one of the networking breakfasts Khalil attended religiously, and I was told we just had to meet. Over coffee, Khalil would grin, shake his head, and hold out his iPhone, pointing at the blank screen, telling me I would not believe what these

kids—Brett specifically, but his generation of post-recession entrepreneurs more generally—were building. So in March of 2014, I drove up to Brett's parents' house in Rockville, a suburb about a half hour out of the city, to see what was going on.

Brett greeted me at the door, sporting a tight t-shirt emblazoned with the cute animal logo of the music recommendation startup he, his brother, and a "technical co-founder" had been working on for about six months. He gave me a tour of the company's office—a spare bedroom now covered in whiteboards, more stickers and tees and toys with their logo, and office furniture on wheels. It looked like a miniature version of the 1776 startup incubator downtown, or one of the WeWork co-working spaces that acted as hubs for DC techies. Brett had to cut our interview short to go pick up more shirts. I got a sticker for my trouble.

They had taken a small piece of the city's startup scene and brought it into a spare bedroom. They were relentless about branding their work, not only with stickers and tees but with Reddit conversations with their core customer base. While young and inexperienced—Brett's previous work experience was in catering and while he was learning to translate his co-founder's technical expertise, he still couldn't code—they had also internalized the interpersonal norms of the tech startup scene. Brett was cagey about describing future business plans, speaking only of 'transitions' that would occur as they moved away from a popular API and developed their own. He signed my consent form on the basis that "you promise not to steal my IP [intellectual property]", and had me turn off my audio recording as he walked me through the design of their app and how it evolved over time. Clearly, the idea of someone beating him to market with this same idea terrified Brett. The enthusiastic startup aesthetic was thus not window dressing on their business model, but one indication of how deeply they had internalized the

competitive norms of the startup scene. It was as important a piece of their 'tech' venture as the investor pitch or the design of the app itself.

This section explores how 'tech' startups begin to understand and perform their sectoral identity. Founders identify most strongly with the firm but as the firm grows, producing that identity and the breathless enthusiasm that comes with it is delegated to other workers in order to entrain their colleagues in a work culture supporting a risky, demanding, quickly-changing industry.

Founders' close identification with their budding firm is not just a matter of lengthy work hours—Brett loved his current living arrangement because of how close his bed was to his office—or networking and advertising, but frequently leads to founders evangelizing the social mission of the firm. The networked technologies on which the firm's product is based are explicitly framed as new technical means to solve intractable, postindustrial social problems. This makes the hopeful discourse of 'tech' clear, legitimizes the sector for potential skeptics, and legitimizes the firm and its boundless future for potential investors. In this way, startups and the digital tools they use become the discursive benchmark of success—creative, independent, fulfilling, socially and geographically mobile—against which the failure of technological laggards, old economy holdouts, and the digitally divided are judged.

Evgeny Morozov (2013a; see also 2014) has derided this hopeful 'tech' identity as the “pervasive and dangerous ideology” of “solutionism”: “an intellectual pathology that recognizes problems as problems based on just one criterion: whether they are 'solvable' with a nice and clean technological solution at our disposal.” Morozov has ably critiqued the symptoms of the problem, but misdiagnosed the disease. His is an idealist critique, about the blindspots of ideologues, rather than a materialist one about the sources of the idea, the way it is produced and reproduced in the world, and the work it does for

different people in different places. My choice to focus on the digital hope moving between different sections of the information economy, rather than propaganda produced within it, helps us see the motivations different people and organizations with different levels of power have in reproducing this discourse, and the work it does for them. They are not just tricked, or tricking others. Hope does work and even just within tech, it does different work for founders, firms and regions. The 'right' side of the digital divide is marked by its relative technological wealth, but securing that power is a political, not just economic, process.

I kept up with Ji, a late-30s Asian entrepreneur leaving a career in design, throughout my fieldwork, following up with her as she founded, demoed, and grew her startup Hearth. Hearth was based around a matchmaking app for conversation partners, theoretically monetized by getting businesses to generate coupons for particular conversation partners to draw them to a bar or restaurant. The monetization of Hearth was the piece of the startup lifecycle that made Ji most uncomfortable, a compromise she was forced to make in order to bring her vision to the world. She had spent years following research on social and emotional intelligence prior to starting up her own company, hoping to build a consumer application out of those lessons that would begin to solve what she saw as growing social isolation:

> When I'm observing gun violence or digital divide issues or political chaos, a lot of it comes down to people not connecting to each other on a fundamental level. And through this research what I was finding was it wasn't based on individual social isolation, it was becoming a larger collective problem. And nobody was actively attempting to take the tools we have and taking attention away from the social connectivity and trying to find solutions for that instead. So that's where I stepped in and said 'OK somebody needs to do it, I'll give it a shot.'

What Ji would refer to sometimes as a growing, population-wide gap in 'empathy' or 'social capital' had many sources: the built environment, the distractions afforded by smartphones that she called “a huge addictive behavior source”, long hours at unfulfilling

jobs. But it was fundamentally a design problem that required design solutions. And she was the only one with the skill-set and mind-set that could solve it.

Like many of my entrepreneurs, Ji described personal computing and the internet as neutral tools that could be used for good or for ill. Poor design could be solved with better design. The anomie borne of Facebook or Twitter and its relentless branding could, according to Ji, be combatted with better consumer technology applications, integrated into a holistic vision of a more connected society. The actual technological platform for Hearth—a smartphone app—was thus only a means to an end, a small ingredient in the overarching mission. It was not just her tech that made Ji a part of 'tech', it was that overarching mission to provide meaningful social connection in an era she saw marked by social isolation, and "a problematic decline in connectivity."

Just as 'tech' needs a mission, it also needs a venue. Economic geographers have outlined on the benefits agglomeration bears to elite knowledge work firms: networking opportunities for both itinerant employees and founders seeking funding (Grabher & Ibert, 2006), a critical mass of producer services catering to those firms' specific needs (Sassen, 2001), and a highly-trained workforce (Storper & Scott, 2009). For early-stage consumer technology firms, especially those with location-based functions, a critical mass of highly-educated, prime-age workers with disposable income and free time provides a fine testing ground.

Ji told me over and over that DC was the perfect city in which to prototype Hearth. I attended several of her early group dialogue sessions, hosted by local high-end restaurants in rapidly gentrifying areas like Shaw, curated around themes like 'trust' or 'talking with strangers.' There, Ji tested out some of the prompts Hearth would use for in-person conversations, and the curated group of mostly white professionals repeatedly voiced a desire for more unplanned social connection in lives marked by 80-hour work

weeks, heavy use of the internet on the job and off, and frequent travel or relocation. It's a cliché in 2015 that white professionals in DC are rarely from DC, and that made the city the perfect venue for Hearth. The hopeful, cultural mission of the startup was thus perfectly aligned with Ji and her social geography, who had worked in New York and London but said "for the first time in my life I really felt like I was among my people here in DC."

But just as culture and geography are just as important to 'tech' as the tech itself, so too is the business model: both the long-term plans for revenue generation and the short-term relationships with investors who would sign on to the mission and provide the funds to hire more employees, buy server space, test and market the app, and grow the company. It was a sign of how closely Ji identified with the app, its mission, and the social geography it was supposed to intervene in, that she began to agonize over the lack of productive business relationships in DC and reluctantly admitted the need to relocate to San Francisco. She complained about the "parasitic consultants" in DC who weren't "making things", and realized that her firm's advisers, her teammates, and the investment opportunities would all be better suited to the San Francisco scene. But her startup was borne of a particular personality and a particular place, and it hurt her to abandon her "tribe", to focus on the nitty-gritty of business concerns in order to further Hearth's social mission.

Founders like Ji do not learn to internalize their firm, and its social mission, in a vacuum. They are trained to think of themselves as equivalent to their company by the emergent institutions of the startup ecosystem. In DC, the 1776 startup incubator in Logan Circle is one of the most important institutions, as well as something of a meeting-point for various smaller communities within the scene. 1776 was founded in 2013 by Evan Burfield and Donna Harris, with office space secured by Mayor Gray, who often

framed 1776 as a cornerstone of his five-year economic development plan, along with a $380,000 grant from the city. Burfield made his name as an executive in consulting firms, particularly those working with the federal government, before shifting to investment and entrepreneurship. Prior to starting 1776, Harris worked in enterprise software sales. She was then appointed Managing Director of Startup America, a public-private partnership created by the White House to organize efforts across the executive branch to fund, train, and lobby on the behalf of startups and cities trying to recruit them. 1776 rents office space to startups lacking it and provides training and resources to them, but also hosts parties and informational events for the larger startup community. Examples of the latter might include the Venture Capital Meet-Up in March 2014, when representatives of two of the largest local venture funds, Revolution and Valhalla Partners, based in Virginia like most of the larger funds, and new entrant Acceleprise, which was smaller, based in DC, and composed mostly of startup CEOs looking to invest in their peers.

These were men who could make or break a startup, and the 1776 crowd was eager to learn how they looked at the world. David Hall, from Revolution, told the packed room that "our whole mantra is disruptive change in big categories where people are already spending money." Investors, more so than founders or employees, always couched the disruptive social mission of the startup in market terms. Hall also advised the crowd of mostly white men, tapping down notes on their smartphones, on the importance of zealously defending their intellectual property in the early stages of the company, studying fundraising and jobs posting website AngelList to see how peers branded themselves, and obsessively networking with "serial entrepreneurs" and venture capitalists in order to both gain social capital and to know what it looks like. Venture capitalists provide more personalized advice to founders they fund, indeed the type and

quality of training is one way VC firms distinguish themselves from one another. So too do the 'advisers', veterans of the scene, that founders are encouraged to cultivate.

Besides 1776, other training venues for the self-as-startup ethos included the WeWork co-working spaces in Shaw (the opening of which we'll return to at chapter's end), Chinatown, and Dupont, and various events hosted by Tech Cocktail—a news website and events organization run by former AOL employees Frank Gruber and Jen Consalvo. One way WeWork justified its rental costs—$400-550 per month for a dedicated bullpen desk—is through the event series (e.g., "How to Properly Offer Unpaid Internships") and social networking site open only to tenants. In addition to large startup pitch sessions, Tech Cocktail also hosted a number of events throughout 2014 centered around Gruber's new book *Startup Mixology: Tech Cocktail's Guide to Building, Growing, & Celebrating Startup Success,* which blends business advice about investment and hiring with more personal guidance about networking and avoiding burnout. It is meant to help readers get into an entrepreneurial mindset. At one event held at Crystal City, Va incubator Disruption Corp offices, Gruber pitched the book as a 21st century successor to the classic self-help text *How to Win Friends and Influence People*. There, he invited a series of startup founders on stage to discuss their failures and successes. Each was greeted with a cocktail personalized to them and their firm. Mixologists made the drink, passed it up to the founder on stage, and then passed samples throughout the crowd.

I was in the audience with Travis, who had waved at me from across the room as I entered, furiously typing away emails on his laptop before the panel began, clad in his usual jeans, sportscoat, and t-shirt bearing the logo of his catering startup InCrowd. I had just completed about four months of fieldwork with InCrowd and he told me then they were about to announce a new $8 million funding round led by a New York venture firm.

As people mingled after the event, he related InCrowd's origin story, centered around his frustration with crowded, understaffed parties in his native New York during the dotcom boom years, when he was working as a web developer and volunteering with local Democrats. He omitted the portion of the story he had told me in an earlier interview, about wanting to design an app that would make sure he always sat next to the prettiest girl at friends' weddings.

Travis was a rising star in the scene, even as he regularly protested that he wasn't interested in scenes, just in building his business. He was one of the first graduates of The Fort, another incubator and predecessor to 1776. And 1776 had cut InCrowd a deal on rent before they moved to their current location, something Travis described at as a mutually beneficial relationship, since InCrowd's fast growth—and rare status as a truly, regularly profitable startup!—lent the new incubator an air of respectability. InCrowd had been a side project while he worked on his MBA and then for a government contractor, whose impersonal bureaucracy frustrated him to no end. Travis was always up-front in saying "the company is a reflection of me." This was true outside the firm, where angel investors conduct their due diligence on a founder's background and management style as much as the fundamentals of an early stage company with great promise but little to show for it, or where founders represent the firm to politicians or other firms.

It was also true within the firm. There, the leader-firm link was partly a matter of management signaling desired behaviors to their subordinates, something Travis always told his leadership team was half their jobs, but it was more than that. "People buy me. Especially when they choose to work here, they want to believe in who I am." He internalized the firm, and the firm was an external representation of his goals and values. They were synecdoches for one another, parts standing in for the whole. And while Travis didn't fully share Ji's idealism, there was still a social mission in catering, "a

massive opportunity for building relationships, leveraging the community that exists at every table." This was true even though those people seated at those tables weren't the customers purchasing InCrowd's software (i.e., InCrowd, in its current iteration, sells enterprise software to firms, not consumers).

Startups on the Way Up

While there was no InCrowd without Travis, and vice versa, it was important to the firm's success that they buy into his vision and that mission. I saw this culture across the startup scene, but was best able to view its production at InCrowd. With the dotcom bubble at the turn of the century in the rear-view mirror and the success of Palo Alto giants like Google and Facebook in the cultural zeitgeist (e.g., through local efforts like Entrepalooza and 1776 but also high-profile media like 2010's *The Social Network,* tracking Facebook's founding), startups became self-aware of 'tech' as not just a sector but a social movement. Tech entrepreneurs frequently engaged in the negative comparisons with 'legacy' corporations or government work similar to those deployed by the dotcom workers Ross (2004) and Neff (2012) profiled. In contrast to Neff's work in particular, I here show the function those comparisons play for founders and for the internal life of firms, not just for individual employees. I was again and again taken aback by the degree to which 'tech' knew it was 'tech', called itself 'tech', cultivated a community around 'tech', and defended itself against perceived threats to 'tech', the good life within it, and the good works carried out by it.

Veterans of the last dotcom boom felt the same way. Mike, an early AOL employee now working as an angel investor and startup advisor, would put on a clownish, Goofy voice to impersonate some of his eager advisees "We're doing something important!" and then shake his head and mutter "No you're not! I mean maybe

you are but who knows. There was that kind of feeling in the AOL crowd, but it wasn't actualized." He was careful to add, and I agreed, that this 'actualization' wasn't just arrogance, but an important community-building force in the sector: Building a peer group out of 'tech', even if the companies' products had nothing in common besides the delivery of services over the internet, was an important step in arranging institutions like incubators, investor clubs, and lobbying groups where founders and employees of early-stage, venture-funded companies could commiserate over their uncertain, stress-filled lifestyle and develop strategies to support themselves, their business, and the political standing of their sector.

Not that everyone in 'tech' had the same status or role. Indeed a crucial part of this story, reviewed in this section, is how the labor of producing that 'tech' identity and the rewards from that labor, are unevenly distributed across the firm, along lines of race and gender. As Travis told me:

> I'm a majority owner, everybody here is an owner [i.e., all InCrowd employees receive a small amount of equity] so everybody here is an entrepreneur, I know it sounds cheesy but everybody here is an entrepreneur. Everybody is entrepreneurial […] My goal is to make it everybody's baby but I might have the head. They might have a finger.[6]

Brett and Ji's startups were of course too young and too small for this division of labor to reveal itself, with three and five employees respectively. InCrowd, in contrast, had grown rapidly since its founding in 2011 and by the time I arrived in 2014 employed over 30 people, with more added every month. Many of these new employees, women especially —whether it was formally included in their duties or not—became responsible for

6 That InCrowd's CEO professed the most fervent belief in 'tech', while delegating the production of 'tech' culture to subordinates, is a valuable point of comparison with DC Public Libraries and, to a lesser extent, Du Bois Charter. At the library, CEO Richard Reyes Gavilan was brought in explicitly to proselytize the hopeful mission of the soon-to-be-renovated MLK Central Branch to DC elites, while the librarians working the computer labs and maker spaces, even as they were much more skeptical about the social dividends supposedly borne by technology transfer because they came face to face with the intractable problems of homelessness every day, were responsible for producing that hope and building it into the library space.

training their coworkers to believe in 'tech' so that they would buy into the firm's mission, internalize it to a degree that work and personal life blurred, and embrace the long hours and grueling work schedule required by InCrowd and companies like it.

The tools of their trade became signs of their constant, collective climb to the good life. This might come from the camaraderie that comes out of sharing jokes alongside product updates on the non-stop backchannel in their in-house chat client Or it might be the feeling of expertise that comes from gradually mastering the hotkeys and shortcuts in their customer relationship management software or their own product, and teaching rookies the same. It was not that the comparative technological wealth on the 'right' side of the digital divide invested startup employees with a sense of destiny, that they deserved their success because they were chosen for it. Rather, the social mission Travis invested in what was essentially a catering business required that his employees build these tools into their culture. Everyday use of their phones, tablets, laptops, and dual-screen desks, became evidence of the collective struggle they engaged in over these 80-hour weeks. Mission was disseminated through these technologies, but the technologies were also evidence of their mission. Constant connectivity meant they could be their best selves and, inseparably, the best employees.

Startups are thus the leading edge of what Kathi Weeks (2011) describes as a post-Fordist revolution in the work ethic. The Protestant work ethic described by Weber accompanied capitalism's birth by prescribing wage labor as an individual calling to do the good works that would guarantee a place in the afterlife. Its secularized, Fordist successor built on this to prescribe wage labor as a means to personal progress in the course of one's life (i.e., social mobility) and, counter to earlier asceticism, to the consumer goods necessary for the 'good life'. The post-Fordist work ethic emerged to counter 1970s labor unrest directed against both unsafe working conditions and demands

for less work, prescribing wage labor not just as a means of social mobility but a path to self-realization and fulfillment.

The new, humane workplace called workers to dedicate themselves to work, love it, and identify with it as a way to manage the tensions borne of new demands placed on Western postindustrial labor: being more precarious than capital, being asked to labor not just with hands but hearts and minds, and being asked to produce cultural products or affective states, which are harder for managers to measure and regulate than physical widgets. Travis took an instrumental approach to these challenges, building the cultural and physical space of InCrowd with exactly this work ethic in mind, telling me "One of the things you have to accept is that people don't go to work these days, they go to sleepaway camp. The employer has to be more than a provider of salary but also an environment, continuing education, excitement."

InCrowd's humane workplace emerged from a division of cultural labor[7] that produced and embraced a 'tech' work ethic within the firm. To see it in action, it is important to first understand the division of personnel. Beneath Travis and his assistant Karen, the startup was made up of three teams: "Design", were the coders and engineers actually producing the software; "Sales" secured new clients; and "Contact" trained clients in InCrowd software, designed templates for them, answered and managed customer complaints and questions, collected outstanding bills, and sold existing

7 By 'cultural labor' I do not mean to introduce yet another specie of postindustrial labor meant to contrast with the supposedly mechanical, physical work of Fordist capitalism: immaterial labor, emotional labor, glamor labor, aspirational labor, relational labor, etc. As described in the Introduction, and in the work of 1970s feminist Marxists, this growing taxonomy indexes general crises in both the profit rate and social reproduction. New specie are then specific, local solutions to this crisis: Either finding new forms of reproductive labor (often from women) that can be commoditized and made productive of surplus value, or finding new ways to reproduce the labor power commodity in a manner conducive to future surplus value creation. "Cultural labor" in this chapter and the next two are largely of the latter variety. It describes the work that is separate from the work producing a commodity to be sold, the work that is developing either an institutional way of life that supports a specific form of commodity production (the startup shipping software) or the work that reproduces a particular 'public' (library patrons, public school students) in a manner supportive of a broader accumulation regime (what the Introduction calls the 'political economy of hope') in cities desperate for 'tech'.

customers on new products and bigger contracts[8]. Design was an all-male team led by Tim (who was Chinese-American and nicknamed "Captain Deploy") and Vijay (who was born in Bangladesh but raised in Britain and retained his citizenship), with largely South Asian subordinates except for Paul, who was white. Sales was split evenly between men and women and was led by Grayson (a white man Travis referred to as his second-in-command) and Suraj (an Iranian-American and the only non-white member of the team). Contact was led by Beth (who was white) and was made up entirely of women of a mix of races, with the exception of three men—two white and one black. Sales secured customers, Contact maintained them, and Design never met them. Each team had their own office, though as InCrowd grew, it increasingly placed new employees in hallways or in the small corner spaces that used to be used for phone calls or one-on-one meetings. Travis tried to have a one-on-one with every employee every month.

Two persistent myths obscure the division of cultural labor in startups. First, the very real sexism in the industry and the declining presence of women in computer engineering and computer science majors since the 1980s (NSF, 2013) leads to the assumption that women are largely absent from the startup landscape or at least inessential to it. (e.g., Khazan, 2015). Women may be under-valued in tech but exploitation is not absence. It is rather, in startups, often a sign of the many types of paid and unpaid labor that is crucial to the maintenance of the company but which are not paid 'what they're worth' either because this work is perceived to be unskilled, in comparison to coding, or the sort of caring, interpersonal work women are supposed to take to naturally. As Kate Losse's (2012) history of Facebook's early years showed, women in startups find themselves playing a variety of roles beyond those listed in their official duties (e.g., planning events, mediating disputes), many of which are crucial to the

8 The names of the different divisions have been changed to preserve InCrowd's anonymity.

continued success of the firm (e.g., Losse's work as Zuckerberg's ghost writer) but which do not fit the normative, young white male coder mold of what 'tech' is or who is in it. Second, the very real focus in the very competitive industry on quick-moving business plans and computer science skills leads to the assumption that 'tech' does not care about or think deeply about 'culture.' Of course, everyone has 'culture' and all institutions build a specific—if sometimes implicit—internal cultural in order to keep themselves going. Startup engineers may have a very different understanding of 'culture' from humanists but they still research it, act on it, and actively promote it in their organizations (Seaver, 2015).

InCrowd's division of cultural labor had specific roles for specific divisions, as well as an overarching official cultural policy that affected everyone in its production of a hopeful 'tech' culture. Design certainly had a role to play, even if other divisions joked about them doing nothing but drinking Red Bull and uploading their own code to open source repositories for fun. Tim would post live updates to social networking site Twitter about demos Product carried out in their office, sharing InCrowd's business with the world. After interviews, the team would chat about the logic puzzles—based on classic board games like Connect Four—they used to vet candidates, and mused about what it would it mean to change them and became a "Yahtzee company", and what message that would send recruits. The clear glass wall around Design's office was always marked up, usually by Vijay, as they diagrammed out new designs they were working on and the steps to completion, or brainstormed ideal features they'd love to work on in the future. "The Wall of Awesome Ideas" became a fixture of debates at company happy hour—every Friday at six—and tours given to new employees and interns, prospective investors, or just other tech entrepreneurs visiting the office at Travis' invitation.[9] For Design, the

9 Office tours were a fixture of the DC startup scene. So much so that DCInno, the local trade magazine, ran a regular 'Office Envy' column with breathless photo-tours of startup offices.

tools of the trade were boundary objects for the industry: Things they used to reflect on who they were and where they were going.

But the bulk of this cultural work, the stuff that made InCrowd employees know they were in 'tech' and trained them to invest themselves in that identity, was carried out by those in 'non-technical' roles. This meant both Contact and Sales teams in formal 'non-technical' roles', and well as the women and black male employees who were informally considered to be outside the white, male 'tech bro' stereotype. Indeed, Design's hard-nosed pragmatism, and their knowledge that they were 'behind the curtain', away from external eyes, often kept them from producing the sort of empowering, romantic business culture that InCrowd needed. Paul noted in one team meeting, immediately after the company as a whole had met to hear updates about its financials, that "we are in the business of firing people, that's what 'we help your company be more efficient' means." His officemates laughed it off awkwardly. It was hardly the sort of thing that boosts morale or woos outsiders. Other people were needed to do that work.

Formally, the task of selling outsiders on a more hopeful version of 'we help your company be more efficient' was assigned to InCrowd teams dominated by women. The comforting, cheery tones of the Contact team, often repeating the same script again and again over the phone if they weren't training a customer on a specific issue, were background music to the rest of InCrowd's work, even as actual background music—usually indie guitar rock or dubstep remixes of Top 40 songs from streaming services like Pandora, Spotify, and HypeMachine—played softly from speakers in the middle of the office. Entry-level women working in Contact and Sales posted to the official company blog several times a week. This was the public face of the company and it included everything from the hot Twitter hashtags used in the industry, to new features rolled out for customers recently, to core InCrowd values (hiring managers would be disappointed

if interviewees had not researched these), to a breakdown of the annual InCrowd awards ceremony, where everyone received a funny certificate about their work personality (again, produced by these same women). Contact members Jessica and Martine would regularly represent the firm at industry events or just fashionable DC parties, bringing InCrowd 'swag'—t-shirts, toys, cards—with them. Constant digital connectivity did work for the firm not just within the firm, but outside it.

Internally, InCrowd also sold itself on 'tech' and this work, rarely included in someone's official job description, was again dominated by women in 'non-technical' roles. Beth was clear that this sort of extra work was required: “You may have a role on paper but if all you're doing is what it says on that paper, then you're not doing your job.” For her, this meant that time spent socializing at work and out of work—she and the other Contact members regularly coordinated brunches, concerts, hikes, and bar crawls for co-workers—became a research activity. It meant that her phone was filled not just with work emails, but Instagram photos, tweets, Facebook posts, and Snaps from her coworkers.

Corporate identity became a social identity, an embrace of those community-building opportunities Travis mentioned alongside what Beth called, admitting it was cheesy, “a mutual excitement for the product.” But this wasn't just team-building, it was homework. Beth drew on her friendships with members of other teams in order to put herself in the shoes of an engineer or salesperson and gain their buy-in to new projects and collaborations, and taught her team members to do the same. This instrumentalization of socialization by middle-management was not only encouraged by Travis, but was one of the things InCrowd employees liked best about the company. That work friendships had a purpose was a sign that the company had a vision and that everything its employees did was bent towards that vision. Many complained about

companies and colleagues in tech who turned their office into a playground—LivingSocial's ball pit was a frequent joke—or let their workdays be taken over by drinking and video games. This was a sign of a disconnect between the playful tools meant to encourage a 'tech' identity, recall Travis' "sleepaway camp" comment, and the social and financial mission that identity was meant to support. Indeed, Beth preferred the InCrowd model to that of her previous startup which "put these friendships first and that's why people were there." She was let go from that firm in a mass layoff, as non-technical roles were outsourced to Tuscon.

Beyond coordinating InCrowd's social calendar and mediating between teams, the women in Contact also decorated the office in the company's orange and black colors, hung inspirational quotes, planned themed clothing days, and cheered the company on in their InCrowd t-shirts when it did public demoes at DC Tech events. They also brought a kiddie pool and coolers in, to store beer for Friday happy hours, though men in Sales and Design were usually the ones going on beer runs.

This material culture of 'tech' was supported by InCrowd's technical infrastructure. A custom chat client kept employees in conversation with each other even when the office was quiet, sharing news and internet memes. Paul built a stock ticker that automatically updated the company's valuation based on new financial data, sharing the results with his team and making the company's notional worth a matter of regular lunch time conversations. InCrowd's customer database pinged every employee when a new client was secured, along with the amount of the sale, and the commission the salesperson received. Beth praised this as a sign of an "open culture" where everyone was equally committed to the cause. That constant connectivity also meant constant surveillance rarely came up in conversation.

What were the returns from this division of cultural labor and the infrastructure supporting it? A shared 'tech' identity gave InCrowd a culture, a purpose, and a set of office habits that would hardly have fit a catering company that just sold food, instead of software. When the company was much smaller, the work of entraining new employees into the startup mindset had to be outsourced to academies and incubators like 1776. That was what happened for Grayson, whom Travis praised for coming into the company at age 23, ready to work around the clock and manage a team of his own and their rapidly shifting deadlines. By 2014, the vibrant company culture did that job for them. By then, Travis could joke with new hires about leaving behind the 9-5 schedule that marked their old lives in government or non-profits while he gave them a tour, and other employees would laugh along.

Beth regularly stayed at the office until 9 or 10 PM and warned interviewees that this was a feature of the firm, not a bug, because they needed to "get their shit done." Engineers especially collaborated on work over the weekends, but that was the only formal working-from-home anyone did; it was strongly discouraged otherwise but no one minded, since the office culture was so inviting. Travis tried to discourage weekend emails, but they happened anyway, along with a constant stream of text messages and social network connections (especially photos shared on Instagram and Facebook) between co-workers. The sense of mission also helped employees to not only adapt to the rapid changes in official duties that came with a quickly-growing company responding remotely to clients around the world but, as Beth testified, to embrace them. Their stress of this labor regime would have been much more difficult to bear without full investment in it, investment that came from the belief that they were a startup on the way up. The buy-in was there and the social mobility mission of the tech, lived through a life of constant connectivity, ensured reproduction of that buy-in every day.

Buying into InCrowd's 'tech' mission and the lifestyle surrounding it would seem to wreck work-life balance. And Beth did worry about this for younger employees especially. But on both anonymous satisfaction surveys and in my months at their office, InCrowd employees reported loving their job and everything came with it. The 'tech' culture empowered Travis' vision of a company where:

> If work is not part of your life or if you consider it two different things, then this is not the place for you. Because I want you to really believe in what you're doing and be really committed to the company.

#DCTech

So we have seen that the 'tech' identity—a disruptive yet empowering social mission that comes from an embrace of personal computing and the internet as means for producing and delivering goods and services—is internalized by founders and reproduced for the firm. For founders, it's a matter of legitimating the entrepreneurial journey, securing funding and resources, and recruiting employees. For firms, it garners not just consent but embrace of the long hours and heavy (and rapidly changing) duties of the firm.

The neoliberal 'digital divide' frame, reviewed in the Introduction and Chapter 1, effectively transformed the jobs crisis of the postindustrial US into a crisis of human capital and the tools which would build it or bring it to market. This invested the expansion of the tech sector with a social mission. It was supported by states and municipalities desperate for redevelopment in the wake of decades of capital flight and looking to entrepreneurialize overloaded social services (as chapters 3 and 4 will show) . Gore would certainly consider Travis, Ji, Beth, and Mike to be 'information haves.' The DC Tech community represented, to insiders and outsiders, the right side of the digital divide, the ideal-type of worker and workplace and the good life around it. Not because

they were owed it, but because they worked hard for it and the tools of their trade became not just means to advance their social mission but persistent reminders of it. Mayor Gray, for example, never missed an opportunity to link the influx of upwardly mobile young white 'tech' workers, and the real estate boom catering to them and their cohort with an older DC that was majority black and, in his telling, crime-ridden, bereft of private investment, and dependent on the federal government for any job creation. “I could only think about what O Street used to be” he said at the Digital DC Thank You, held at the brand new City Market on O condominium building. Gray then joked about how any apartment or hotel built here twenty years ago would have just been used for sex workers before reviewing the benchmarks of his 2011-2016 economic development plan.

But just as founders and firms reproduce the hopeful, socially-just, upwardly-mobile 'tech' cultural identity, so too do regions. Networks of startups work with each other, related services (e.g., law, real estate, finance), and local government to create a local 'tech' identity. They do this in order to attract a pool of 'talent' (e.g., highly skilled coders and business professionals who require little on-the-job training) multiple firms can draw on, to secure continued support from local and state governments, and to legitimate the social mission of a sector that is dominated by the white upper- and middle-class and frequently indicted as agents of gentrification and displacement (Stehlin, 2016). In DC, this scene goes by the name of DC Tech. The educational side of this inter-firm identity production was reviewed above with respect to 1776 and Tech Cocktail. In this final section I want to review how institutions like these work not just with founders or firms in 'tech', but DC as a whole—or at least the limited portion of it useful to to maintaining and advancing the political economy of hope.

I first met Travis and the rest of the InCrowd team at their office party, when they celebrated their move out of rented 1776 space and into an office of their own, opening

the doors of their new home to the DC Tech scene. Framed trademarks of their proprietary software met guests as they entered through the glass double-doors, just in front of the conference room where a huge company logo hung over the hors d'oeuvres. The halls were decorated in company colors, and most employees wore an InCrowd tee. Beer and cocktails flowed from an impromptu bar set up in the back next to the DJ booth, and a magician roamed the halls doing card tricks. Travis gave a tour to anyone who asked and, in his usual blunt fashion, noted that this was as much a recruitment event as anything else, showing that InCrowd had arrived and was ready to act on his "number one operating principle": "being an employer of choice for the right people."

Of course, an office upgrade party has nothing on a launch party. Festivities surrounding the release of a new product, especially ones connected to DC Tech's premier funding networks or whose consumer technology business model relied on recruiting tremendous numbers of users as quickly as possible to 'get big fast' (Crain, 2014), necessarily produced regional hype alongside the hype for their specific software. Not only was the company on the way up in 'tech', so was DC.

The biggest DC Tech party to date, reaching mythic status in the community, was Social Radar's launch party in February 2014. The company was founded by Michael Chasen, former CEO of DC-based educational technology giant Blackboard, which was sold to private equity group Providence Equity Partners in 2011 for $1.64 billion. Chasen and the rest of Blackboard's leadership team used the gains from the sale to start their own series of startups in education, hospitality, and social media, leading some observers of the scene to label their influential funding network the 'Blackboard mafia' after the West Coast 'PayPal mafia' (Snyder, 2014). Building regional investment networks to rival San Francisco (or at least New York, Boston, and Austin) was the top concern whenever I asked DC Tech members about the scene's future—recall Ji's impending move. One

instrumental purpose of large parties, then, is advertising the resources available to local startups, presumably because of the strong support their investors lent them before they begin producing any revenue, much less turning a profit—recall Travis' pride at being one of the rare startups in the scene to be consistently profitable.

SocialRadar was a social media company whose smartphone app let you see how close other SocialRadar users, and users of other social networking sites (e.g., Facebook, Twitter, FourSquare) you connected to the app, were to you, in real time. Its launch party was a sign of major DC Tech players moving into consumer technology, where the scene had recently been focused on enterprise software like InCrowd's. It was hosted at 1776 and the line to enter stretched down two blocks, blocking traffic, a half hour before doors opened. The email to those who had RSVPed emphasized the comparative technological wealth of the sector as a crucial ingredient in its mission, and presented the company's mission as a regional effort that touched not just DC Tech but DC food, art, and culture. It read:

> *Hello **Social**-ite,*
> *We're looking forward to spending a fantastic evening with you tonight at the **SocialRadar** Launch Party.*
> *Here is everything you need to know to maximize your experience:*
>
> *1. It's a **SocialRadar** launch party: Please be sure you download SocialRadar* [linked to an download page in Apple's App Store] *beforehand so you can find your friends throughout the night (iOS 7). And then please tweet, instagram and post to Facebook & Vine all night long. Tag **#srlaunch**.*
> *2. Get ready to connect **socially**: Bring your **ID** and make sure you friends have RSVPed* [linked to an event page on NVite]. *18+ to enter, 21+ to drink. Space is extremely limited, so RSVP does not guarantee entry, the event is first come first serve.*
> *3. It's at a **social** space: The party is at the "**1776 Campus" at 1133 15th Street NW**. We recommend cabs and metro. Closest metros are McPherson Square on the Orange Line or Farragut North on the Red Line.*
> *4. We'll have food and drink from some of the most **social** places in DC: Grab bites from KAZ Sushi, MBK, Rappahannock Seafood, Ted's Bulletin, Astro Donuts, &pizza and even a pre-release tasting of Bluejacket beer. (Please drink responsibly – especially if driving)*

*5. Meet artists shaking up the DC **social** art scene: **Win a painting** – created live at the event – by No Kings Collective. Post your best party pics to Instagram with #srlaunch & & look for our winner announcement comment at the end of the evening!*

*And when that is over join us for more **socializing** at the After Party! At 10:30pm we'll take the party over to Tattoo Bar at **1413 K Street NW** (two blocks away) for dancing and $5 drink specials.*

I think that covers it – see you soon!

Michael Chasen

CEO

SocialRadar

The co-working spaces in 1776 were cordoned off or pushed aside to make room for the party. Renters used their desks as coat racks and snuck friends into the service elevator to skip the line. Almost every informant I'd met during fieldwork in DC Tech was there at some point in the night, downloading the app and testing it out. The incubator's red-and-white murals of DC landmarks and political quotes were lit up by dancefloor lights or covered over with SocialRadar posters. Young, attractive SocialRadar employees roamed the halls in SocialRadar t-shirts, with plenty of Nvite vests, TrackMaven tees, and other startup swag visible throughout the mostly white and under-40 crowd. Dubstep thumped, craft beer and and boozy punch flowed. Food was served by trendy DC restaurants catering to new residents of gentrifying neighborhoods (e.g., &Pizza, then based in H Street NE, and Rappahanock Seafood, then based at the boutique food hall Union Market complex on the grounds of the old Union Terminal Market wholesaler). Artists made screenprints of the SocialRadar logo for attendees, right next to the photobooth and across the hall from the cotton candy machine. Instagram photos, Twitter tweets, and FourSquare check-ins were filled with the designated #srlaunch hashtag. 1776 CEO Donna Harris snapped a picture of the line snaking through downtown outside her building, tweeting "yep, this is the line to get into #srlaunch party tonight at @1776dc. Great to see DC come to celebrate the launch!"

As the bold type in Chasen's email shows, 'social' here came to signify much more than just interpersonal ties. 'Social' meant a local community, mobile consumer technology pushed to market in the wake of Facebook and Twitter's massive successes, a set of connections not just between people in 'tech' but businesses in 'tech', an upper-middle-class urban aesthetic associated with gourmet-yet-accessible food and street art moved indoors, and of course the energy that comes from any large, eagerly anticipated party. All of these various meanings of 'social' were bent to the service of a new company who in a year's time would completely abandon the social media side of the business and 'pivot' to providing enterprise-level geolocation technology.

Building a regional identity was a key project of the community, a 'tech' identity that was produced and reproduced between firms. Parties were not just all food and drink and networking, of course. SocialRadar was actively driving up its user base with the set of digitally literate customers with disposable income that their eventual advertisers—had their consumer-oriented business model survived—covet. InCrowd was recruiting new 'talent'. Many large DC Tech events also centered around demos and pitch sessions where entrepreneurs presented early stage technologies either for critical feedback from the community or for attention from potential investors. These large events will become important in Chapter 5, as we review the changing organizational culture of libraries and charter schools hoping to adopt the entrepreneurialism of 'tech'. By way of conclusion, and as gesture towards the broader landscape of the political economy of hope, I want to show how the inter-firm production of a hopeful 'tech' identity utilizes the geography and the political institutions of the city in service of that cultural project.

The annual Challenge Cup is the highlight of DC Tech's calendar, second only to South by Southwest in Austin. It's a series of workshops, informational sessions, and panels about the startup ecosystem—covering everything from copyright to

crowdfunding—all leading up to the main event: A series of pitch sessions where early-stage companies pitch their product to the crowd and a panel of investor judges, demonstrating it, its capabilities, and its promise. Pitch sessions are organized around themes (e.g., education, security) with entrants from all over the world first competing at local and regional levels before being invited to DC for the global final, thereby symbolically positioning the city as a major center of the 'tech' social movement sweeping the world. 1776, the lead sponsor of the Challenge Cup alongside venture capital fund Revolution, describes it as "A worldwide tournament for the most promising, world-changing startups to win cash prizes, make international connections and share their vision on a global stage" (1776, 2015).

In 2014, I attended as many Challenge Cup events as I could. Many were hosted in the bustling 14th Street NW corridor in venues like the Studio Theatre. The area was devastated by the 1968 riots and, as the Washington Post liked to remind readers (e.g., the fall 2013 'New Washington' series) was once upon a time a thriving site of informal economies in sex and drugs that Washingtonians turned to as employers left the city. Now, one-bedroom rents averaged $2700, compared to the already-high city-wide average of $1450, and venture capital funding for tech startups was more heavily concentrated there than in any other neighborhood in DC (Fung, 2013). It was the face of the new DC. The strip that was, sixty years earlier, called Black Broadway now featured condo buildings named after black jazz greats, filled with white emigre residents, sitting on top of tapas restaurants.

The 2014 Challenge Cup concluded at the Ideaspace warehouse on the Southwest waterfront, a section of DC whose gentrification had been kickstarted by a new baseball stadium but which was not yet as built up as 14th Street or Dupont Circle. I could see condo buildings covered in scaffolding and storefronts advertising lease terms from

where I stood in line to enter the Cup's closing party. Brewpub Bluejacket, featured at SocialRadar's launch party, was based next door. The party was hosted and directed by iStrategyLabs (ISL), a digital advertising agency who, especially in the figure of their gregarious CEO Peter Corbett, was a fixture of DC Tech's meet-ups, demos, and parties. They were one of the first companies mentioned whenever I asked informants about who they thought of when they thought of DC Tech, often mentioning ISL's prototype FourSquare connected app that opened a beer cooler when enough people checked in nearby.

Inside, the warehouse was bare. Ideaspace had never built the maker-space they promised and so they mostly just rented out their space for parties. A graffiti artist worked on the walls. Beer and wine flowed. Go-go remixes blasted, a soundtrack from black DC for a mostly white crowd. The Challenge Cup winner, designer of an app called HandUp that gave secure payments to homeless people earmarked for specific goods, eventually arrived to much fanfare. I said hi to a couple of InCrowd employees who drifted through. Most lived within walking distance. At the office, they regularly updated each other on the new restaurants, bars, and apartment buildings opening in Southwest.

Through Ji and her work with Hearth, we saw that the cultural geography of a city could become a resource for consumer-focused software development. 'Tech' only works when it is grounded in a specific time, place, and community. And Travis, within and without InCrowd, emphasized the cultural geography of the city as a resource for 'talent'. The only moment I ever saw him lose his cool in the office was after interviewing a highly sought after Russian engineer, who turned down Travis' offer for one in Utah: “You’re going to move to the US and go to Salt Lake City? What the fuck?” Tech boosterism from municipal government empowered and encouraged this extraction of cultural resources. Chapter 5 will further review of these incentives and the way they

push other institutions to mimic startups, and show that it is not always an even exchange. The uneven geography of the political economy of hope often better serves the firms and entrepreneurs courted to the city, and fails the institutions of social reproduction already there.

The March 2014 opening of the WeWork co-working space in Shaw was another important milestone in DC Tech. Douglas Development Corp. had long been seeking a tenant for the abandoned Wonder Bread factory they had gutted and renovated, one of the last industrial production sites in DC proper. The day-long festivities gave DC Tech and a host of real estate professionals skeptical of the WeWork business model a chance to tour the glass cubicles decked out in DC flags and Wonder Bread kitsch, speak with representatives across the corporate hierarchy, and enjoy the perks of the space: beer on tap, catering from local food trucks, a clear view of downtown, and "a target-rich environment" for networking, as one attendee told me. The space was overflowing by the time Mayor Gray arrived for the ribbon cutting downstairs, an empty warehouse space WeWork wasn't leasing, but which would be leased to ISL some months later. Black middle-schoolers from a STEM-focused charter school managed by Howard University wandered through in a line behind their teacher. They were the only signal of the historically black university's presence nearby, the anchor of the neighborhood and one of the most important black cultural institutions in the country.

"The District has come a long way," Gray announced. He ran down the list of successes from his tech-oriented economic development plan: growing the city's population from its historic low in the 1990s, bringing in more tax revenue, and moving it away from the federal government as the primary employer. Shoutouts were given to the Challenge Cup, TrackMaven's new founding round, and Michael Chasen's historical role in DC Tech. The Mayor delivered a prize to the charter school students, saying they

could go toe-to-toe with Sidwell Friends, the historically elite, majority-white private school to which Presidents Clinton and Obama had sent their children. Gray and WeWork CEO Adam Neumann stood on stage together to cut the ribbon, echoing the economic and social mission of 'tech', but also the personal one, with Neumann adding: "If you love what you do, you never have to work another day in your life." Afterwards, Travis shook Gray's hand, posed for a picture, and thanked him for his support of DC Tech generally and InCrowd specifically. Gray wore a tie but Travis and every other CEO present went without.

This was a few weeks after InCrowd's office party. Travis and I had already been corresponding. When he spotted me in the networking crowd afterwards, he made sure to run over to shake my hand and ask "Hey, did I help you?" A few weeks after the ribbon-cutting, we sat down for our first formal interview at InCrowd. We spent our final twenty minutes together reviewing the financial incentives DC offered startups, and founders especially. He praised a since-cancelled city program for paying the first $10,000 of a new hire's salary if they'd been unemployed in DC beforehand but were training for a new skill at their new employer.[10] "That is an awesome program! It does not dilute capital for entrepreneurs to put to work." But in general, he said the municipal government's incentives for startups to relocate to DC were "totally misaligned" with what founders needed, mere "lip service." Regarding tax credits for hardware purchased in DC: "Who the fuck buys hardware in the store?" And "This other thing where they have a real estate credit if you move to some shithole [the city-designated 'tech corridor' along along the gentrifying 7th Street NW and Georgia Avenue NW strip]. No! I need to live here, I need to work here." Gray had announced that program at WeWork. What Travis said he really

10 Since the 1990s, DC has been notoriously bad at maintaining jobs programs for its black, native Washingtonians. The Department of Labor ranked it dead last among 'states' in terms of effectively using federal job training funds. Since 2012 Labor has classified DC as a 'high-risk' partner for job training programs (McCartney, 2015).

needed were tax breaks, not so much for business expenses, because startups didn't make many big fixed capital purchases, but from income and capital gains tax so that he could save his profits and pump them back into InCrowd.

Despite working in the national Democratic party for many years, Travis confessed, now that he was a business owner, that "I don't even know what government does. I just try to stay far from it." Still, I was a little taken aback when I asked if he thought the incentives package might change since Gray had lost the Democratic primary[11] to Muriel Bowser yesterday and he raised an eyebrow, confused. He popped his head out of the conference room to shout down the hall "Did anyone know there was an election yesterday?" and was met with shrugs and laughs. "Is she also African-American?" he asked me, of Bowser. I said she was, and related a bit of her political history in Ward 4. Travis thanked me for the information and went about the interview. InCrowd had a mission and Mayors would come and go. They would work around it.

11 DC Is effectively a one-party city, so the Democratic primary in spring is the de facto general election for Mayor.

Chapter 3: “More than Just a Building to Sit In For the Day”: Reproducing Digital Hope and Urban Poverty in the Library

Abstract: Where does the emancipatory, entrepreneurial hope in personal computing come from? This chapter[12] provides one answer, examining the urban public library's production of that hope as a way to manage the social pressures placed on the institution. Drawing on three years of fieldwork and in-depth interviews in Washington, DC, I argue that personal computing is a site of conflict over what the library, and its digital tools are *for*: A public service space or an entrepreneurial training center? I demonstrate how the library builds the hope in personal computing into its digital technologies. The conflict between the two visions of the library space is institutionalized within librarians' professional practices. In turn, homeless patrons adapt these techniques of hope to form spaces of play, collaboration, and rest. Ultimately the institution overwhelms these adaptations because, for, the hope in personal computing to survive, the library must necessarily regulate or eliminate other visions of the space.

The Hope Upstairs

In the spring of 2015, I was at the Martin Luther King Jr. central branch (MLK) of the Washington, DC public library system with Dave, the mid-30s white man at the head of MLK's digital programming, Claire, a mid-40s black woman and upper-level administrator at MLK, and the Friends of the Library charity group. The Friends are a group of middle- and upper-class white retirees who lobby the library on policy changes and run literacy classes and book drives. Dave delivered a presentation on the library's imminent renovation. Our backs were to the glass cubicles separating the Dream Lab

12 A streamlined version of this chapter was presented at the 2016 iConference in Philadelphia and is included in its conference proceedings. The iConference cedes all copyright considerations to authors. Greene, Daniel. 2016. '“More than just a building to sit in for the day”: Reproducing digital hope and urban poverty in the library.' 2016 iConference. Philadelphia, PA. http://hdl.handle.net/2142/89295

presentation and co-working space from the Digital Commons computer lab, whose 150 seats were full, as usual, and dominated by the city's homeless population, mostly older black patrons, more men than women, who walk over to MLK every day if they're not dropped off by the shelter shuttles that also do pick-up runs in the evening.

Dave, eyes gleaming, asked if we'd like a tour of the new Fab Lab makerspace upstairs—a reclaimed meeting room intended as a preview of the fruits the renovation would bear. So we walked past the help desk where a librarian monitored the whirring 3-D printer, through the great hall where a mural of Dr. King overlooked local internet entrepreneurs setting up hundreds of chairs for their monthly demo series, up two floors on the elevator, past one of the video visitation rooms for DC Jail, around the corner from the black studies collection, back into the cavernous stairwell that had been a gay cruising spot for much of the 1980s, through some locked double doors, and into a sunny meeting room whose floor-to-ceiling windows looked out onto the Morton's steakhouse next door.

It was hard not to get caught up in Dave's enthusiasm for the 3-D printers, the laser cutters, the CNC fabrication machine, and the scattered laptops. He pitched the 'maker' skills the Fab Lab would teach as a new literacy for a new economy, something that could help defeat the STEM gap and provide the creative, technical workers he said we were so desperately short on. Consumers would learn to maintain their devices and save the environment. Skilled technologists would have a new space to inspire underprivileged communities. One Friend pitched it as a poetry lab to upgrade the arts for the 21st century. Dave said they were "testing for tomorrow", a tomorrow where people could say "'I learned to code at the library, I got a job because of the course I took at the library."

There was so much hope in the Fab Lab. Much of it recycled from earlier pronouncements on the three-year-old Digital Commons that seemed so far away

downstairs, where most patrons spent most of their time and which was itself a massive upgrade from the 14 Dells that had previously made up the main computer lab of the central library branch of the nation's capital. There was so much pressure placed on those tools, that room, that library, and those librarians, even though, today, it is mostly used by library visitors rather than the homeless patrons there all day every day—just like the Dream Lab work spaces. The sheer force of the hope being built in this space raises crucial questions. Why did this library, and so many like it, pursue this hopeful vision of digital literacy at this moment in history? And why did that manifest in a literal glass wall between the everyday use of the Digital Commons PC's by homeless patrons and the new technologies and new workers of the Dream Lab?

These upgrades to the library space project a reassuring vision of the future, in a city where a flood of new tech workers have been accompanied by the housing and jobs crises reviewed in the Introduction. Since 2000, DC's affordable housing stock has decreased by 50% (Rivers 2015), and since 2011 there has been a 12% increase in total homelessness and a 29% increase in the number of homeless families (HUD 2014). In a very real way, the internet-era library, the tools and people meant to overcome the digital divide and provide connectivity and digital literacy, embodies a hope that these structural challenges can be overcome with the right tools and the right skills. Indeed, the institution is literally rebuilt around this discourse of hope, this responsibility for local development. This chapter explores the everyday life of the urban public library in order to demonstrate that the hope in personal computing to power social mobility (i.e., the underlying logic of the 'digital divide' framework) is not naturally occurring. It must be produced and maintained by specific institutions with a stake in economic transition, crafted out of the materials at hand: from boxy black Dell Optiplex 755 PC's and shiny new Makerbots, to an historic public space in the middle of the DowntownDC Business Improvement

District, to a city government desperate to project an urban identity independent of the federal government, to the mass of patrons working through the day-to-day of racialized poverty in a US city.

Where DC startups represent the 'right side' of the digital divide, Gore's "information-haves", the library represents both the digitally divided and the effort to close the gap. In InCrowd and elsewhere, we saw that the hope in personal computing and the skills to use it provide internal legitimacy for startups in an uncertain, stressful sector that demands total commitment from employees, as well as the sort of external legitimacy and political resources that supports the sector as a whole. This hope serves a different purpose at MLK. The library is charged with upgrading Washingtonians to become more like startup employees—and to remake itself in that same image. This remaking, a literal renovation in MLK's case, becomes a way to save the library, legitimate its mission in the internet era, and decide exactly how the overwhelming problem of urban poverty, particularly homelessness, should be handled day-to-day. The call forces a conflict within the library around the purpose its programming, personnel, and architecture should support. There is a call to adjust social reproduction to the demands of market citizenship that the institution is forced to answer but which it cannot ever fully fulfill.

The library is not unique in this charge or the internal conflict it prompts, as the next chapter on the STEM-focused Du Bois Charter School shows, but conflicts over its social space offers a particularly stark illustration of public institutions adopting the technologies (digital and social) of entrepreneurial knowledge work as a way to secure their own fortunes in a precarious economy, and understand, direct, and administer the fortunes of those they serve. DC public libraries produce this hope as a path to legitimation in the information economy, and as a way to manage their role as one of the

last remaining safe, public spaces for marginalized city residents. For the library to maintain this hope in "using the technology to improve their lives", as librarian Grant put it, it must necessarily regulate or eliminate other potential plans for the library space.

Making Space

If the larger arc of my fieldwork is oriented around Marcus' (1995) idea of multi-sited ethnography, tracking how the hope in personal computing and social mobility moves between start-ups, schools, and libraries and how the city as a whole produces and manages that hope, then work at individual field sites must explore how specific spaces institutionalize that hope, why, and to whose benefit and detriment. Here, the distinctions between 'theory', the conceptual framework for the empirical record, and method, the path by which that record is produced, begin to blur.

In my three years of fieldwork, I prioritized MLK over the local branches—though my interviews with librarians necessarily addressed those smaller libraries. MLK was the largest branch by far, with the most social activity—those daily shelter shuttles but also concerts, classes, and meeting groups—and the most computing activity: The Dream Lab start-up space, the Digital Commons' PC's, tablets, and fabrication tools, and dedicated labs upstairs for classes, teens, and children. And of course the impending renovation, finalized in 2014 with a projected cost of $208 million, that would double down on the digital upgrades and, in the rhetoric of the Mayor's office, new Chief Librarian Richard Reyes-Gavilan, and the architectural firms Mecanoo Architecten and Martinez+Johnson, change the cubicles and stairways from a closed, transactional space into an open, transformational space that would offer learning and training opportunities to the whole city. In my day-to-day visits, if I was not taking a class or going to a meet-up or press conference, I would usually sit in the back row of the Dream Lab, where you

can plug in your own devices. Most patrons come here with at least one device. Shawn is not unusual among my homeless participants for having two phones—a government-subsidized Tracfone for calls and a Sprint smartphone he bought himself, for email, texts, music and social media. Tablets are also common, laptops less so.

Thus, I assumed from the beginning that the hope in personal computing inherent to the digital divide frame was not naturally occurring and was instead produced in a space of social interaction. That space's components included structural materials of architecture, labor markets, and housing markets but also interactions between patrons, librarians, and technologies of personal computing: phones, PC's, laptops, chargers, plugs, batteries, routers, etc. I approached these media not primarily as sites of representation (i.e., containers for transmitted cultural values) but as sites of social interaction, not just mute instruments projecting programmed feeds but spaces where personal values struggle with institutional mandates and structural constraints, with different degrees of individual success or failure depending not only on skill or luck but institutional favor. Those rows of boxy black Dells were very much 'where the action is' (Dourish 2004). Not that the whole of the social space of the library was contained therein, but that the institution's production of space, patrons' experience and reconstruction of that space, and competing discourses about the 'right' way to use the PC, and by extension the library space, all converged at those desktop machines.

This approach is informed by a relatively recent turn in ethnography, and the humanities and social sciences generally, to spatializing culture. As Setha Low (2014) argues, just as the study of history shows that cultural formations are not timeless or permanent, and are instead the result of specific political-economic contingencies, the study of space shows that those same formations are not fixed or natural, and instead need to be built up, only to be modified through everyday use or reinforced to buffer the

status quo. Henri Lefebvre (1991) pioneered this spatial perspective, showing that space is not a transparent container for social life but always a social practice: "space is never empty, it always embodies a meaning" (154). Low (2014, 35) builds on his insights and puts them into practice ethnographically, showing through her work with immigrant markets in New York that space is 1) socially produced under specific material conditions 2) then socially constructed over time through transformative interaction with 3) specific people whose specific experiences are embodied in a specific place and time and who use 4) specific discourses to tie those experiences together and manage collective life.

Ethnographers are specially equipped for spatial analysis because they are forced to engage with the contours of a field site from day one: where to sit, who to talk to, how that seat and those people got there. And specially equipped for the spatial analysis of social stratification in particular: A deep engagement with people and place shows that something like homelessness in DC is not a product of sterile, natural 'market forces' or the like, but a phenomenon "imposed through the spatial relations of the environment and the discourse that mystifies its material effects" (Low 2014, 38). The public library is a key site for managing DC's growing stratification, and it is through the library's deployment of personal computing and stories about it that stratification is made sensible, actionable, and palatable. Or at least a concerted attempt is made.

Theoretically, the library forced me to grapple with materialist theories of race which could link the determinants of spatial production with their everyday experience, and do so in a way that could track how different institutions deployed the hope of social mobility powered by personal computing to link racialized structural unemployment with white helping professionals and the changing geography of a segregated city. As Omi and Winant (1994) argue “every state institution is a racial institution” insofar as they are

embedded in racialized social relations and their policies rewrite what race—here defined as a social hierarchy crafted, at least initially, with bodily difference as the prime referent —is and how it works (83). This process occurs even when the institutions are not explicitly addressing 'race' as their domain of interest. Different state institutions will often work at cross-purposes in this regard[13] but in moments of increased political conflict, where marginalized populations begin to organize collectively and state officials feel the pressure of racially-coded challenges either from above or below, the state will strive to unify this institutional work into a coherent effort that can absorb demands and placate challenges to the racial order.

In DC, poverty is inevitably racially coded, and so the library's helping mission is inevitably understood as mostly white, mostly middle-class helping professionals extending digital tools and digital literacy to mostly black, mostly poor patrons framed as 'outside' of the knowledge economy (Graham 2008). Race is thus a key material used to construct the social space of the library. Following Jessie Daniels (2015) critique of racial theory in internet studies, I approach 'race' not as an subject position located within nonwhite people, or as a variable strategically introduced into the content of Web pages or library discourse, but as a system of stratification produced by this information institution and ones like it. It is distinct but inseparable from class (e.g., relations to the shifting labor and housing markets that produce poverty) and gender. The latter appears on site through what participants called the 'pink collar' library profession (Garrison 1979; Fox & Olson 2013), as well as the masculinity of the normative homeless experience, as it is understood by patrons and the social services system (Gowan 2010). Nor do race, class, and gender invade the space of personal computing from the outside,

13 E.g., MLK makes a Teen Space for black teens without a safe place to hang out after school, while the Metropolitan Police disperse large groups of black teens hanging out on the steps of the National Portrait Gallery down the block.

though these social relations are clear indicators of the enormous stressors placed on the library. Race, class, and gender are very much produced and transformed by these technologies (McPherson 2012). This is most clear in the library's queue system and the division of library space between patrons who visit the library to produce new things with new tools and the more everyday patrons who are treated by librarians as passive consumers. What becomes clear within this theoretical frame is that a production of space explicitly designed to reduce inequality, to close the digital divide through the hopeful deployment of entrepreneurial technologies of the future, instead becomes a means for reproducing the system of stratification that provoked the institution's urgency in the first place.

The process of remaking the library as a hopeful institution where personal computing powers social mobility is a contested one. Indeed, it is at those black, boxy Dells that we see a fight, repeated over and over, between librarians and patrons over what exactly the PC, the internet, and, by extension, the library is *for*. Everyone agrees that the library is a crucial digital resource. After all, in 2012, the last year for which data is available, 89% of DC libraries reported that they were the only source of free internet in their area—the highest level of any 'state' (Bertot et al 2012). But if anything, the importance of that space for public internet access only raises the stakes of the fight over how to manage and direct that resource. Is the library a refuge, one of the last remaining public spaces in the city where anyone can spend the day without purchasing anything, enjoying whatever digital resources they choose because they cannot access them elsewhere? Or is the library an entrepreneurial space in which the prized people and tools of the knowledge economy are deployed purposefully, to help those locked out of knowledge economy learn how to access it? Resolving this conflict requires regulating the space and eliminating or isolating alternative visions of it.

As April, a white librarian in her mid-20s, patrols her branch with colleagues, she gives out imaginary stickers to patrons whom they think are using the space appropriately (“gold star if you manage to use the library appropriately...”), inappropriately (“special snowflake if you really think the rules don't apply to you...”), or just wrong (“paint bucket for 'You're as dumb as paint.' You're teachable, you're just dumb”). They walk the stacks and the computer lab, giving out stickers whenever they see patrons engaged in self-talk, fighting with each other, eating, watching porn, touching themselves or a partner, or bedding down for the night on a strip of cardboard in the reference section.

April has a master’s degree in library science. She is a middle-class white woman who recently moved to the city for a secure but stressful job. She can tell you how to verify Google results, do basic HTML and find your nearest polling station at election time. She loves open access and President Obama. She and her co-workers are ideal, liberal knowledge workers and her professional identity is formed by a series of confrontations with not-that: poor or working-class patrons with only a high school diploma, if that, much younger or much older black and Latino patrons who have been priced out of DC housing, patrons with mental illness, patrons who mistake socialsecurity.com for socialsecurity.gov. These are her patrons, or 'customers' as she and most newer librarians say. And while she ostensibly serves them, there is of course a power relation inherent in that dynamic, not unlike that associated with teachers and students or social workers and clients, helping professions who also produce justifications for and narratives of racialized poverty in their management of it (e.g., Chavez-Garcia 2012). Indeed, Shawn, a homeless patron, explicitly compared librarians' emotional , especially that of the “hipster contingent” he had bonded with in the Digital Commons, to that of the social workers he had met in the homelessness system: sitting down to chat with regulars, acting as a reference for jobs, actively looking for opportunities to help.

Like those institutions, the school and clinic, the American library pursues a very liberal mission, open and accepting of all in a mission of self-improvement, in order to help those it serves assimilate into the norms and routines of the labor market and law-and-order regime. This has been true since at least the founding of the American Library Association in 1893. Most of my librarians described their profession in classed and gendered terms as a "pink-collar" one, with April calling them "mavens of knowledge." It is a long tradition. White middle-class women in the Progressive era, worked as 'readers' advisors', teaching immigrant patrons to move away from entertainment materials and towards Anglo-American classics, inculcating sufficient literacy to enter formal job and housing markets (Wiegand 1986; Garrison 1979; Luyt 2001).
This mission took on renewed importance when, as Chapter 1 showed, the Clinton administration birthed that hopeful digital divide discourse but also pushed the 1996 Telecommunications Act.W The latter gave the US some of the slowest, most expensive internet in the developed world and made schools and libraries the only places to get it for free. And of course that mission to become a public access point to connect to the opportunities of the future occurs in a larger context of the privatization of urban public space.

Most patrons I met come to the library because they have nowhere else to spend their day. Those present needs for public space conflict with the library's needs for a space oriented towards the hopeful future of personal computing. That conflict is institutionalized within library computing, the rules for it, and the selection and training of library personnel.

Institutionalizing the Conflict

There are many things one can do with a PC. At the library, personal computing is largely directed towards the professional norms of white-collar knowledge work. This direction is sometimes explicit, sometimes less so. It is during moments of implicit control over personal computing, when the stakes are less clear to everyone involved, that the everyday conflict between the present needs of the library as public space and the future, hopeful orientation towards personal computing and knowledge work often erupts. But that conflict is also visible at an institutional scale, above individual librarians and patrons working at a PC, in the gap between the library's transformational mandate and the reality of serving marginalized Washingtonians.

There is a complex hierarchy of PC classes across the branches but especially at MLK. Those for beginners (e.g., introductions to email, Microsoft Word, or PC Basics) take place during the day, in a third floor classroom with about 40 PC's total, away from the bustle of the Dream Lab and Digital Commons on the ground floor. Attendees are mostly older black men and women who do not bring their own laptops and who are trying to re-enter the labor market, upgrade their current low-level service position, or gain enough literacy to communicate with friends and family and interact with social services. Classes for more advanced students range from Adobe Creative Suite, to Python, to mapping sessions with Mapbox—a start-up given free workspace in the early days of the Dream Lab's glass cubicles in exchange for occasionally volunteering to teach classes. (In June 2015, Mapbox raised $52.55 million in Series B investment. They are a regular talking point of library administrators, a clear success for the Dream Lab in general and its outreach efforts with tech start-ups in particular.) Intermediate and advanced classes mostly take place at night and in the Dream Lab presentation space,

where students are required to bring their own laptops. Their crowd is younger, whiter, dressed in the clothes they just left the office wearing.

There are several sessions of Intro to PC Basics upstairs every week. Many are taught by Betsy, a middle-aged black librarian who encourages her students to repeat these foundational lessons with her until they feel confident in them, gently ribbing them all the while: “This is for folks who have no clue and that might be you!” Her class emphasizes beginner skills like how to right and left click or create folders, but also concepts: The different names for a flash drive or hard drive, the logic of file trees or deletion, the “proper language of the industry” that prevents people from being embarrassed at a job interview. The civil service exam is a constant reference point for her—even if most students will not be applying for those mid-level bureaucratic jobs. Independent, PC-based office work is not only a story that drives and directs the classes, it is built into the exercises and instructions: Reciting the technical terms for different pieces of hardware to get students past 'whatchamacallit', the typing motions that Betsy differentiates from those used on typewriters in the old civil service exams, the tactile confidence to not request help but to close a program and reset the computer if the anticipated caption does not pop-up. Students might apply these skills to a variety of domains, but, for the library, the arc of personal computing bends towards professionalization. Indeed, after sections on demographics, skills, and the instructor, the DCPL survey for rating classes that all students are asked to complete includes ten items in response to the question “How will this class impact your life?” Four, including the first three, explicitly address professionalization: job performance, creating professional documents, job search, and online business presence and marketing. The others cover helping children with homework, creating a web page, and increasing knowledge and appreciation of library resources.

Outside of the classroom and down in the three-year-old Digital Commons, patrons have more freedom to do as they will with the available desktop PC's, let alone the tables at the back ready for phones, tablets, and laptops. There, librarians are less able to exert control over patrons' computing—both because it is a free space and because the three or four librarians on duty, and the armed library police who circle through hourly, cannot possibly keep an eye on everyone's screen at once. So some of that control is necessarily delegated to the Pharos queue system which MLK installed, as well as the internet filter which the 2000 Children's Internet Protection Act requires all libraries receiving federal funding to install. Library values are inevitably built into library infrastructure (Winner 1980; Nakamura 2008; Chun 2008). This is one interface for managing the social stressors placed on the library.

Patrons use their library card to sign up for a session at a central terminal by the printer and are then directed to a queue displayed on a pair of large, wall-mounted screens to wait to be directed to one of the Digital Commons' 74 desktop machines. Patrons cannot log into a computer to which they were not assigned.[14] In 2012, Elena, a mid-20s white librarian who supervised the three-hour waits for the 14 computers in the old Popular Services lab, told me that even triple the number of computers would not be enough to meet patron demand. Today she is often proved right, especially in DC's sweltering summers. Then, unlike winter, there is no legal right to shelter for the homeless. Mia noted that her shelter let her hang out all day during hypothermia season, but not during the summer. And so as the weather heats up, the wait for a PC can extend to over an hour. Over the course of 2014, I visited MLK at least twice a week, usually

14 Patrons who are relatively new to the library and in need of a quick transaction (e.g., tourists printing out a ticket for the nearby Chinatown busses that go up and down the east coast, date-night couples checking the Regal Gallery Place movie theatre schedule) will often walk into the Digital Commons, sit down at an empty PC, try to log on, and stand up flustered when they're redirected to the sign-up queue. They are inevitably younger and whiter than regulars.

more, and recorded the queue count over the course of the day. Each day, the queue peaked in the late afternoon but the seasonal differences confirmed my suspicion about the relationship between the queue and local shelter rules: never more than ten people waiting for five or ten minutes in the winter, regularly between twenty and thirty people waiting for thirty of forty minutes in the summer. The queue can be stressful, especially if you're between appointments or carrying heavy bags, but that stress only ever boils over if two patrons disagree over whose computer is whose or, as happened throughout the summer of 2014, the web-hosted queue display fails to refresh, or crashes with a 404 error, and librarians must hastily rig up a replacement screen.

The Pharos log-in system is sold as an enterprise package to schools, libraries, and corporations. It manages the queue: taking log-in credentials, placing the patron in line, and then assigning them a computer. Patrons without a laptop or tablet head there first. I entered the library as it opened on a two-hour delay in February 2014, a day after a foot of snow hit, and a fifteen-person line immediately formed at the sign-up desk and didn't subside for three hours. Forty-five minutes after opening, every seat was filled. When demand is high, librarians are quite strict about keeping the queue moving. Elena has no sympathy for those who signed up but missed their alert for a cigarette break or something else: “You know how this works. You know the rules. You missed your turn. Too bad.” Pharos also allows librarians to monitor every session's activity from a central terminal and choose to end or extend the seventy-minute session. Patrons watching porn repeatedly might find a pop-up screen saying, “Please don't do that”, a privilege librarian Rachel frequently exercised against patrons whom she felt were not using the internet, and by extension the library, correctly. Patrons chafe at this surveillance, part of a wider network that includes a dozen cameras in the lab alone, positioned above Wi-Fi access points, and constant patrols by librarians and police. Mia, a homeless patron, is quick to

complain about the surveillance network, especially Segway-riding police patrols, but is largely resigned to it. The library after all is only one of the government offices that those in the homelessness system regularly visit, all of which demand consent to regular surveillance (Eubanks 2006). Having a librarian note your internet activity is less of a big deal when you also have your diet and sleep schedule policed at the group house, your sexual activities and social life critiqued by clinicians, and your daily purchases scrutinized when applying for food stamps or housing assistance. “The system is designed to break you down physically and mentally,” Mia said.

On the other hand, patrons who are working on a job application or filing for unemployment insurance with the municipal government can usually raise their hand, have a librarian walk over and check in, request extra time, and have an additional session tacked on. These distinctions between correct and incorrect computer use do not appear in the library's posted rules for computer use, besides the boilerplate notice that inappropriate materials will be filtered, but every librarian I spoke with admitted to acting on them and every patron I spoke with admitted to having the rules explained to them at one point or another. Though, as we will see, this is not an all-or-nothing division: Librarians and patrons will each be more or less invested in 'correct' internet use, depending on whether they believe more strongly in the liberal service mission of the library's present or the entrepreneurial professionalism of the library's future. But the conflict itself is unavoidable, hardwired as it is into the library's personal computing curriculum and the infrastructure for it.

The ground for this conflict is prepared long before anyone enters the Digital Commons. Librarians are confronted with it in their training for the Masters of Library Science (MLS)—a prerequisite credential for promotion or administrative duties—and during the local hiring process. For the library, choosing the correct librarian in turn

chooses the correct way of using the internet. This is, on the one hand, a long-term issue of the librarian pipeline. In interviews, veteran librarians often regretted the transformation of Library Schools into Information Schools—a movement that began in the latter third of the twentieth century and gained momentum in the late 1990s and early 2000s (Olson & Grudin 2009).

Becca, a white librarian in her late 30s who "can't imagine doing anything else", was training for her MLS in 2000 at the University of Maryland when the College of Library and Information Services changed its name to the College of Information Studies. She and her peers read the shift as the tragic downfall of the profession, an embrace of technical over service values:

> Man there was a stink like you would not believe. You're going to eliminate 'libraries' first of all and then you're going from service to science.[15] Leaving the people out, that face-to-face. Nothing wrong with theory, I love theory, but people are somehow getting kicked out...There was a big, big stink about the person-to-person service versus the cold, electronic seemingly end-all approach that looked at face-to-face as kind of antiquated. No!

Becca's own career arc provides ample evidence of the pressure placed on the profession: At one point state budget cuts closed the hospital library at which she was working, and she was forced to re-apply for her old job as a new part-time position and rebuild the print collection in a digital format. Credentialed right when the iSchool movement really gained strength, she is the most junior librarian I interviewed who consistently calls her patrons 'patrons' rather than 'customers'.

Contrary to her own description above, this is not the total loss of a librarian service culture, but a sign of a shift in that culture, forced from above by state institutions and major donors such as the Gates Foundation, from one of public service to one of

15 Interestingly, the word 'science' does not appear in the College's title although it does of course appear in the MLS and the iSchool itself grew to include more 'scientific' degree programs such as Masters in Human Computer Interaction and Information Management, and the PhD in Information Studies. And while the MLS curriculum in general did shift to include more of a research base, Becca does appear to be projecting her fears over the profession's future onto the College as a whole.

entrepreneurial service. As Stevenson (2011) argues, US and Canadian libraries were a key site of welfare state investment in the 1950s and 60s, and libraries' description of their broadly defined public service mission emphasized a well-credentialed workforce. In the 1990s, that began to shift as customers and information technology became the subject of library discourse, rather than librarians, partly as an attempt to justify the library mission in the face of broad cuts to welfare state services. Libraries and credentialing institutions began to describe librarianship as yet another new economy profession whose product mainly consisted of serving customers through information technology.

There are also more proximate factors in this rebranding of librarianship as the portion of the service sector devoted to training customers in knowledge work. At the level of local hiring, this is not only a question of who has which skills but who best fits the discourse of entrepreneurial librarianship, the story that transforms the library space. Eugene, a mid-20s white librarian, explained to me that the Digital Commons' computers, its Adobe Creative Suites, 3-D Printer and Espresso Book Machine, the Dream Lab's glass conference rooms loaned out to local start-ups, were all incomplete without a group of librarians who were younger, hipper, whiter and more digitally literate than the branch's veterans. The administration of previous chief librarian Ginnie Cooper had fired long-tenured, black MLK veterans before they could collect their pensions—a case their union is still pursuing—and replaced them with ten, majority white, members of what Eugene called "the hipster contingent":

> It really looked like 'We're gonna hire young, hip people.' I'm the library's idea of 'hip' which is sad. And that was to staff Digital Commons. Similar things have also been happening out at branches...I think the people who really would have had a lot of problems with that, you know starting from point one and just fighting it all the way, they've been gotten rid of.

Their t-shirts, jeans, dyed hair, and informal service style—pulling up a chair to chat up regulars, organizing basement hackathons with new Library-approved drones—often made me do a double-take on evenings when I arrived at MLK after spending the day at InCrowd office on the other side of town. The two sets of employees were largely indistinguishable at first glance, and that enthusiastic start-up aesthetic was essential to producing the Digital Commons space. Deliberately or not, the "hipster contingent"—cool, young, skilled, white—very much embody the hope linking personal computing with knowledge work and social mobility. Their labor was not only the technical work of helping set up resumes or recovering email passwords, but the emotional work (Hochschild 2012) of projecting that hope, of performing the future of knowledge work and of the public library.

Adapting to the Library

But this story is incomplete. The library has a specific organizational form for personal computing. It is individualized through long rows of PCs or desks with plugs. It is transparent with glass cubicles and open air. It is surveilled to orient patrons towards the habits and methods of office work. But, to recall Low, the institution's production of space, is always, to greater or lesser degrees, resisted or reconstructed by the people whose social lives touch those materials. It is to that dynamic that I now turn.

The library space exerts enormous material pressure—best symbolized by the hiring of the hipster contingent and the $208 million renovation budget— in producing an entrepreneurial space that trains patrons for the future of knowledge work. But homeless patrons, the vast majority of regular library users at MLK and those with whom I spent the most time, adapt to the institution's production of space and take advantage of the conflict between competing visions of that space with which librarians also struggle. In

the subsequent section, I will explore how patrons not only adapt to the library's production of space but construct wholly new places within it that diverge from the hopeful, technological, entrepreneurial vision applied from the top down.

Librarians are happy to help fill out social service forms for food stamps, affordable housing, and the like. Patrons know this and so pick particular librarians with good reputations for particular tasks. Most patrons also acknowledge that something like watching pornography is 'doing the library wrong', most of it is filtered after all, but know that they can get away with it anyway with a little work: choosing the right site that the filter has yet to catch, switching between windows so librarians patrolling the rows don't catch them. The days I did not spot several screens of hardcore pornography in the wide-open rows of PC's were the rare ones. This is a tacit recognition by patrons, over years of interaction, of an unresolved ideological conflict within most librarians. This racialized conflict between white helping professionals and the marginalized people of color with whom they work over the use of 'professional' technologies for leisure pursuits has become a trope in technology transfer work more generally.

As Akrich (1992) notes, for these transfers are to be institutionalized and regularized, they must produce a script for acceptable uses and acceptable users. This often positions poor people of color as irresponsible novices in need of outside, white expertise in order to make the technology, and the development project that depends on that technology, 'work'. In development work, this is often called the 'television problem', with foreign aid workers repeatedly complaining about natives using electrical infrastructure for leisure rather than the 'bare necessities'. Akrich describes these workers going so far as to produce specialty plugs and cables that will not fit televisions. A similar conflict, never fully resolved, plays out in the Digital Commons, with pornography the clearest focal point.

As Rachel, an early-30s white librarian, explained, she and her peers generally want to preserve the professionalism of the public access point and its hopeful future orientation towards knowledge work. Watching porn at the office, after all, is generally punished. But they also want to preserve the library's historically liberal orientation towards free-flowing information, a place where middle-class helping professionals blunt the individual misery within structural poverty. Rachel couched the issue of internet porn in a series of contingencies: "If you look at a nudie picture and you do it in a way that other people don't have to see it, it doesn't bother me...If they don't have access to a computer in another spot and it's an outlet, it doesn't really bother me." Her branch's lab was not laid out in MLK's rows, so she could turn a blind eye when patrons opened porn in more isolated computers. Elena echoed her, telling me internet porn was "morally awkward and professionally awkward...an unclear gray area." This conflict between institutional professionalism and personal liberalism extends to other areas but porn was the first example of 'doing the library wrong' that every participant jumped to, just as job applications were the go-to example of 'doing the library right.'

Nor was this internal conflict limited to librarians. Mia would often complain to me about the rows of patrons playing games or watching porn instead of learning a skill that would get them off the street, but she herself spent many hours clicking away at Farmville and when her friend Clarisse gestured to come over and check out some dancing nude men that had gotten past the YouTube filter, she and Ebony ambled over to laugh together.

Librarians are not the only municipal employees at the library. There is also the custodial staff and a heavy police presence—especially at MLK, where five or six officers are on duty at a time. They roam the computer lab rows, hand on their holstered pistol, their walkie-talkie the loudest thing in the room. They have a desk at the entrance

and a control room upstairs to review the surveillance camera network. They are allowed to touch patrons, where librarians are not. Police tend to enforce norms for sleeping, drugs, fights, phones, theft, or exposure rather than personal computing proper, unless a librarian calls them in to act as the conservative right hand sternly enforcing the liberal left hand's rules.[16]

Any day Mia and the friends she called 'the crew' were not at a day program for a clinic or a visit with social services—which was often, being poor and in 'the system' is time-consuming and expensive— they were at the library. But they only began their regular routine at MLK in late 2013. The crew had moved from branch to branch, fleeing police who hassled them, Shawn especially, for sleeping at computer desks or speaking too loudly on the phone. At the smaller branches with only a dozen or so PC's, it is easier to spot patrons not 'doing the library right'. The size of MLK allows for more anonymity. A year after moving on, Shawn and his girlfriend Ebony were still unnerved when an officer they recognized from the Northwest One branch visited MLK. Mia was often tapped by the police when she looked like she was dozing off, when in fact her astigmatism forced her to lean in close to her laptop screen.[17]

Beyond adapting to institutional representatives, the librarians and police who crafted the rules for the space, patrons also learn to adapt to institutional infrastructure, developing a slew of strategies to manage the login system and the queue. Ebony, before she was gifted a used laptop by an older friend from church, would email whatever she was working on to herself before her session ended, run back and grab Josie's library card,

16 These micro-political interactions repeat all day long and It's a sort of interpersonal representation of institutional neoliberalism.

17 Institutionally, the relationship between police and homeless patrons was generally antagonistic. But that of course varied by individual circumstance. Many patrons would curse police generally but favor 'their' officer. Ebony, with Mia in support, ran to the police for help in the fall of 2014 when she was assaulted by a group of teenage girls in the bathroom, a random attack instigated, she believed, only because of her prominent birthmark. The police brought the two of them back into their surveillance room, a rare look behind the scenes, and asked for descriptions as they scanned the library for the assailants.

and start a new session as soon as possible. Completing something like a housing voucher in seventy minutes was impossible, even if the librarians granted her another 15 minutes or a whole other session (the limit is two per patron per day). Other patrons would work in pairs, hoping the police did not spot them and enforce their one-user-per-computer rule. One partner would sign up for a session where they collaborated on a task, and once the countdown timer appeared onscreen the other would run to the queue to reserve a new machine where they could continue the task. Credential-swapping as a form of mutual aid that (hopefully) bypasses bureaucratic rigidity is of course not limited to the library: Patrons share other state-issued ID cards—food stamp cards or clinic-issued metro passes—when and where they feel they will not get caught.

Other Libraries

MLK calls on a complex set of materials—architecture, computing infrastructure, specially-selected workers—to produce a hopeful space where social mobility is harnessed to personal computing. Every day, that future space is built around, and sometimes over or against, the needs of the present space in downtown DC, where one of the last few public spaces in the city, staffed by highly-educated helping professionals, strives to meet the needs of marginalized city residents who have few other places to go. A variety of actors—individual, institutional, and structural—bring those present needs to bear and reconstruct MLK's hopeful space in the process: The needs of specific patrons, the historical culture of public service in librarianship, the longstanding shelter shuttle routes, the rising cost of housing, the absence of other options for free internet in DC, the ubiquity of online applications for jobs, social services, housing, healthcare.

It is important to make clear the basic fact that while patrons vastly outnumber staff, they lack the organization, resources, or institutional support networks to truly

rebuild the space.[18] There are hard limits to their agency, limits imposed by architecture, infrastructure, and the scripts for the library's technologies. And so the production of a hopeful space of personal computing proceeds apace, with increasingly stark divides created between the technologies of hope, the Fab Lab and the Dream Lab, and exactly those patrons whose social mobility was to be powered by those technologies. Preserving the hope in personal computing for the future eventually requires segregating it from the messy needs of the present.

But that conflict is always in process, never fully resolved. Other libraries circulate within this institutional machinery. Patrons do not just adapt to the library's production of space; they also produce alternatives within that space, ephemeral though they may be. Some of these alternatives must be suppressed by the institution, others can be incorporated into the library's future-oriented vision of entrepreneurial personal computing and the cultures and skills that go with it. The present space of public service survives inasmuch as it can be subsumed within that entrepreneurial vision of the future. This dynamic is clearly visible in the library's responses to patrons' spaces of play, collaboration, and rest within the computer lab—where personal computing often provides only a background for cultural geographies of other sorts.

Places to Play

There are plenty of places to play in the Digital Commons. What my fieldnotes call 'noisy corner' is a group of tables and chairs with no desktop PC's in the front corner

18 "Patrons" is of course a gross generalization. While I spent most of my library fieldwork time with the homeless community, the Friends of the Library—wealthier, organized, politically astute—could and would make demands of the library's resources that were later granted: space for events, book sales, a conference. This of course did not happen as frequently as they might wish. At an October 2014 presentation by the National Capital Planning Commission addressing how the planned renovations to MLK would affect Mies van der Rohe's historic architecture, Caroline, the group's leader muttered to me that new Chief Librarian Richard Reyes-Gavilan's shout out to the Friends was "window dressing" because the Friend's were never consulted just "talked at". Neither Caroline nor Bill, another Friends participant, passionate about teaching digital literacy, live in the neighborhood of MLK nor do they regularly frequent its collections outside of meetings and events—a stark difference with other, admittedly better funded, Friends groups associated with specific branches.

of the room, near the queue screens and the glass windows that look out onto the lines forming outside Catholic Charities for their free dinners. For 2013 and much of 2014 this corner was, especially after school let out, taken up by loud card games—mostly monster-battle-themed Japanese trading card games Pokémon and Yu-Gi Oh. Friends, mostly young black and Latino men, met there every day, and cheered each other on like any other sporting event. Phones and computers were left to charge under the desks or against the walls, sidelined in favor of the main event.

But that is inappropriate behavior for an office, and so it is inappropriate for the computer lab—it is not 'doing the library right'. And so Jefferey, a mid-20s white man and one of Eugene's colleagues in the "hipster contingent", replete with mohawk and mechanics coveralls, invited a friend of his who lives in a Maryland suburb of DC to drive in on weekends and organize official Pokemon and Yu-Gi-Oh leagues. The new Battle Subway Pokémon League is an official league of the Pokémon Company International. It was advertised by the library, by players on Facebook, and by flyers showing cartoon monsters fighting in a DC Metro car. Robert, the organizer and a white man in his early 30s, brings official tournament jackets and badges to the Dream Lab one Saturday each month and reorganizes the presentation space for card matches. The start-up employees mostly vacate their glass cubicles on weekends so there's no one to bother when things get heated. Space was also set aside in the foyer on some Thursday afternoons—though school was in session for part of that timeslot. With the raucous play contained to a themed space and time, librarians were free to crack down on gameplay in noisy corner during the week. The professionalism of the space, and the purpose of access, was reinforced. Problem solved, though librarians continue to deal with their own version of Akrich's 'television problem' elsewhere.

Places to Collaborate

The Digital Commons individualizes personal computing or at least makes it a matter of didactic, librarian-patron couplets; those long rows of Dells all facing the same direction often reminded me of a lecture hall during an exam. Beyond them, glass walls separate the everyday use and the everyday users, largely homeless black men, of the Commons from the hopeful, future uses and users of the Dream Lab. Other spaces emphasize digital collaboration when it comes with an entrepreneurial bent: The Fab Lab, the Dream Lab's workspaces, some more advanced classes. Collaboration is obviously encouraged in the glass cubicles at the back of the room where the start-ups work. Those largely white technologists are usually the loudest patrons in the room during the week, brainstorming on the cubicle whiteboards and Skyping with distributed work groups while the rest of the Digital Commons types and whispers and has headphones offered to them by librarians if their music is audible. Most patrons acknowledged this segregation, but it hardly impacted their routine. They felt the Dream Lab was not for them, and continued to whatever desk they could find.

But outside of these approved spaces, non-digital collaboration abounds, often with an entrepreneurial bent—though not the sort of white-collar entrepreneurship the library or the city government advertise. Ricky, a white male patron in his mid-20s who works at a restaurant down the street, often roams the rows selling single cigarettes, stopping at the back row to chat up Mia and her mother Ruth as they play The Sims side-by-side. Sales of harder drugs, usually synthetic marijuana or crack cocaine, occasionally crystal meth, are quite frequent and more or less surreptitious depending on the client and seller. The library police crack down on this quite hard, taking a special interest whenever two people are too close together—even apparent couples.

The library also changed its own layout to crack down on this particular entrepreneurial use of the space: The sidewalk out front used to former a cozy corner with an alley separating MLK from the church next door, a secluded spot for drug sales or a nap along a busy block that gets more crowded as lines form for shelter shuttle pick-ups. That space was a point of conflict for a neighborhood that was increasingly becoming a dining and residential destination during my fieldwork years, and which already hosted a basketball stadium, a movie theater, and department stores amongst its longstanding office buildings. Residents of the ten-story Mather Studios condominium building across the street, an office building next to Catholic Charities, renovated in 2004 as part of the neighborhood's redevelopment push, called a public meeting with the library, the police, and their city council member in May 2014 to address what the RSVP called "the degrading situation in front of the Library." A summary of that meeting, provided to me by a building resident, gave residents guidance on what was (public urination, blocking private entryways) and was not (general loitering) illegal on DC sidewalks and provided instructions on when to call police and how to provide a description of a suspect. That summer, the library began leasing that cozy corner space to the Bike and Roll bicycle rental company. Their bikes and storage units took over the space and invited more tourists into it. The DC Public Libraries Twitter account retweets Bike and Roll's announcements throughout the summer. A conference on homelessness, with the Friends of the Library and local service providers but no homeless individuals, followed soon after, as well as the hiring of a dedicated social worker to some public fanfare (Sheir, 2015). She works upstairs on program management and my librarian informants confessed to never having seen her on the ground floor.

There are other forms of entrepreneurial collaboration in the library that still do not fit the Digital Commons' knowledge-work mold, but draw less attention from police

and property owners. A pair of middle-aged black men spent a month on a pyramid scheme posted on Craigslist in the fall of 2013, one member of the enterprise scrolling through contact details on the library PC while his partner worked the phone. And just like on the subway system's Green Line, oil men are a constant presence at MLK: Black Muslim men, with tiny vials of fragrant oils stored either in belts on their chest, jutting up against long beards, or light wooden racks that can be carried under one arm. Two or three at a time meet up in a back row between shifts, when foot traffic or subway traffic is low. Together they pore over maps on their phones, working out sales routes through the best neighborhoods and subway stops. Police mostly leave them alone. Ruth draws on her many hours spent watching YouTube crochet tutorials to make colorful phone sleeves and wallets. She is careful not to report the income so that her SSI is not garnished, because she is saving up to pay for a medical assistant training program. Mia models the items to friends and directs business her mother's way.

There is also a vibrant culture of digital repairs and exchanges. This reflects a trend described by Gonzales (2015), that even when access to devices, especially smartphones but less frequently tablets and laptops, has become nearly ubiquitous in a given geography, a strong digital divide persists in terms of upkeep and the marginalized populations who must manage the "dependable instability" of their devices. Sleeping on a park bench is harder on a phone than a charger-dock on the nightstand, a tablet purchased second-hand from a friend is likely out of warranty. In the back rows of MLK, patrons people trade peripherals or give each other tips for speeding up that used laptop or where to download free anti-virus software—or movies, music, and cartoons. If patrons are not close friends, they'll often make trades. A few minutes loading songs onto someone else's MP3 player is worth a cigarette or two in exchange.

Frederick, a homeless white man in his late 30s, spent many afternoons, jeweler's screwdrivers in hand, repairing the motherboard of the laptop he had unearthed from a dumpster, eventually getting it to working order. On some days he would be wrapped up in self-talk and would lash out against anyone nearby, but on most days Frederick happily dispenses technical advice to other patrons—or sits down with the occasional think tank employee who admires his blog on African politics. But it is Mia who, more so than anyone else in the building, acts an anchor for social life in the Digital Commons from her favored spot in the back row. Decked out in homemade jewelery, she usually camps out for the day, watching videos, gaming, drawing her graphic novel, handling calls with service providers as she tries to get herself and Ruth into transitional housing. Friends take up seats around her and she shares new anime and games updates with them, along with plenty of analog community service like advising them on the best clerks to see at particular municipal offices.

Places to Rest

More so than play or collaboration, the most important alternative use of the library space, especially for homeless patrons, is as a place to rest. This visible lack of productivity of course violates the entrepreneurial script of the library, and so it is constantly policed. The Digital Commons is not only a place to apply to jobs or learn Excel but a place to check email between dishwasher shifts. Or a place to stop after a mental health clinic's day program because most shelters kick residents out during the day. Or a place to sit and rest and sleep during DC's 100 °F summers, because neither shelter beds—“there's no such thing as relaxing at the House of Ruth,” Mia told me—nor the sewer grates above the subway stop next to MLK are quiet, comfortable spaces at night, and because many psychiatric medications are strong sedatives. Indeed, ambulance

pick-ups from MLK were not uncommon, with patrons collapsing after an unseasonably cold night on the street or, in Josie's case, after she was unable to secure new doses of her seizure medication. While, similar to the porn issue, librarians are conflicted on this, the fact is you cannot sleep at your PC at the office, so you cannot sleep in the computer lab. And so sleeping patrons are the most visible site of librarian discipline. Librarians patrol, knocking on the desks of people dozing off with a loud "sir" or "ma'am", calling the police if patrons do not respond. Elena explained that the conflict went to the core of the library's mission of self-improvement, although it was not a black-and-white issue:

> We are not allowed to sleep in the libraries....A library, whatever else it is, is 'a place for lifelong learning'—that's kind of the buzz phrase of the moment. And it is and we want people who want to come in and use our collections to come in and use our collections and our resources and feel comfortable coming and using them; and if all the tables are full of people with their head down asleep it's not super inviting for people who are there to use our services as more than just a building to sit in for the day. Which is why if you sit there with a book or a newspaper, you've kind of indicated you're interested in using our collections and our services but maybe you're tired [and so will not be woken up].

Elena could never decide whether library furniture counted as a public resource in the same way the computers and the collections did. She quit working in DC Public Libraries right as the Digital Commons opened. That computer lab does make MLK "more than just a building to sit in for the day"—after all, when, in December 2014, the Pharos system broke down and the computer lab's Dells were inaccessible, the library was open but empty. Patrons come to those machines to work or look for work, to manage social services, to connect and play, to compete or cooperate, to take their leisure. There are few, if any, other public spaces in the city where they can do so. Librarians, their labor, and their technologies, produce the hope in personal computing as a way to channel these social pressures into a form that legitimates this information institution in the information economy. But those same social pressures can make that hope look hollow, and the institution must then choose how to reorient the library space in response.

Conclusion: Partitioning Digital Hope

We have seen that the hope in the entrepreneurial value of personal computing, the future orientation of the library towards knowledge work, is not naturally occurring. It has to be produced, and the production of that space and that story requires the regulation of emergent spaces that diverge from the institution's plans. This is never an all-or-nothing process. The public service orientation of public institutions like the library, a free space in that options are wide open and no purchases are necessary, is subsumed to a forward-looking, hopeful entrepreneurial vision centered around digital tools and survival in the information economy. But because of librarians' liberalism and the serious needs of the city and its marginalized residents, that public service orientation is never erased. The Du Bois charter school, explored in the next chapter, also evidences this tension to a degree. But the library is the public institution in which this conflict is most highly visible because it is literally being rebuilt to become, as Chief Librarian Richard Reyes-Gavilan often says, a new “transformative” space rather than the old “transactional” one.

This re-production of the space is a three-year $208 million renovation project. It will require, in the short term, separating out the different functions of the library into different temporary locations downtown, beginning in the fall of 2016, since there is no one location large enough to hold them all. Looking forward to the new space has also required library staff to admit that the contemporary computer labs have failed in their hopeful, entrepreneurial mission and so need to be taken apart and put back together again.

Grant, a late-30s black librarian, has held a whole host of jobs in public service, from firefighting in Atlanta to libraries in the Bronx. When he and his wife moved to DC for her job, he threw himself back into librarianship, a job he believed in and a space in

which he was comfortable. He wears a suit to work, in contrast to the hipster contingent, and patrols the Digital Commons with authority. He is willing to be more confrontational than his colleagues, and so they mark his brand of emotional labor as more masculine, just outside the profession's 'pink-collar' norms: de-escalating conflicts between patrons, calming a patron down as he kicks them out. Lauren, a proudly confrontational branch librarian, similarly sees herself, a white woman in her early 30s, to be slightly outside her colleague's 'pink-collar' norms because she feels the social service demands placed on the library make “hand-holding” a luxury. They are both off-script, as far as their labor and their technologies are concerned, and this grants them a keen insight into how that script is set and how the space is produced.

Grant is resigned to the renovation, maintaining that Martin Luther King Jr.'s name is disgraced by the building, and it should have been torn down and rethought a long time ago—and would have if it were not a building designed by Mies van der Rohe, with landmark designation—because he believes its patrons are not being served by the library, or really any of DC's social services agencies: “Those patrons need help but we're not in a position to help them at all. As a matter of fact, I feel like a lot of our staff here feel we need to entertain them.”

Speaking with me one spring afternoon in 2015 in the Dream Lab, looking back through the glass cubicles towards the long rows of PC's, he walks me a through a game he often plays with himself—estimating that only four or five of the seventy-five users he walked past to get here were working on job applications or resumes, the rest on video games or social media. “Been doing that all morning. That's what they were doing yesterday, that's what they're gonna be doing tomorrow.” He sighs and nods towards Shawn, watching Dragonball-Z cartoons on YouTube, telling me that he had gotten to know the younger man pretty well during his first months here, giving him some spare

clothes and money, helping him map out a sequence of classes he could take to build on his artistic skills. Shawn always said he was “into computers” from a young age and knew that he should learn more, that his resume was not up to snuff, but he did not take Grant up on those classes. Grant chalked it up to dealing with depression or something similar. Ebony returned to school to get her GED, and would show off her report card to the rest of her crew in the Digital Commons at the end of each quarter. Grant admired her for that but he was not angry at or ashamed of Shawn for not following his girlfriend's example. He did not blame him for not using the technology at hand to pull himself up by his own bootstraps. Grant recognizes that the labor market would hardly welcome a homeless black man with no college experience and scant work history with open arms even if he did master Adobe InDesign.

Grant told me that he still believes that getting into a mindset of practicing professionalism would make a difference, but mostly he is disappointed that his institution cannot better meet the structural challenges with which it is faced, and provide more meaningful support to people like Shawn. He recognizes the conflict that has been built into the library, between the present needs for public service and the hope invested in technology for the future. It has bothered him for a long time, teaching classes with the 3-D printers or the Espresso Book machine and feeling that “there is innovation happening” in that classroom or the offices next door, but knowing that, because of the “stigma associated with this building” that whiter, younger, wealthier crowd “make a beeline straight for what they have to do and they don't hang out.” The present space is not for them, but the future one might be. This is true even for the Friends of the Library. Even though their mission is a charitable one, they are not regular members of the space. When the Friends visit, “We're told to tidy up and keep everyone quiet so they don't scare the good white folks. And I think that's absolutely disgusting. And I resent it.”

That social partition is a symptom of the conflict between potential library spaces that Grant believes the renovation will resolve. That resolution will further cement the library as a space built on the entrepreneurial promise of personal computing, but it will only come about through further partition:

> Certainly, moving forward with the renovation, everyone seems to be pretty clear that this did not work. The crowd they want to have—this crowd, our everyday patrons are not using the services we hoped they would use. So if they want to use the computer all day, mess around, that's fine, it's just gonna be in a different space. And those that want to get serious with technology and support technology, there will be a dedicated space for that.

He confirmed for me what I had suspected from seeing and hearing other plans for temporary spaces and the final renovation, due to be completed in 2019. Preserving the hope in personal computing for the future eventually requires partitioning it from the messy needs of the present. The homeless patrons watching YouTube or dozing off in the back of the Digital Commons do not fit the hope of the Dream Lab or the Fab Lab upstairs. During the renovation, and likely in the new building, the crowded computer lab and its largely black, largely homeless patron population will be separated from the more entrepreneurial, experimental spaces and their largely white, professional patrons And so those rest places, collaboration places, and play places that patrons built will be physically segregated from the start-up workspaces, the seminar spaces, and the transformative technologies which will form the heart of the new library.

Chapter 4: Hope in Training: Charter Schools and the Infrastructure for Entrepreneurial Education

Abstract: This chapter explores the final institution of the political economy of hope studied here: Public charter schools, entrepreneurial alternatives to traditional public schools with a mandate for quantifiable student social mobility and a technological infrastructure built to support this mission and geared towards student professionalization. It focuses on one specific school, here called WEB Du Bois Public Charter High School, whose anti-racist, restorative justice values marked it out among charters both nationally and locally. After introducing the school and giving some background on the charter system in DC and the role of educational technology in it, I show how those values come under pressure from the institutional mission, and how the infrastructure for entrepreneurial education—here, a one-to-one laptop program, a rich student data system, and a flexible workspace for students called the Think Tank—is used to subsume those values to that mandate. This happens both by design, in the case of data-driven discipline that regulates students "presence bleed", and in a more ad-hoc fashion, in the case of the role modeling work with laptops and workspaces that stresses white knowledge workers as the normative ideal for working class students of color. Ultimately, the infrastructure for entrepreneurial education is revealed to be beyond the control of teachers or students, and, in a process of "permanent beta" where rapid change is expected and encouraged, is redeployed to revise school values and support the charter mission.

Introduction: All Hands on Deck

The teachers at WEB Du Bois Public Charter High School who worked with the senior class met once a week to strategize. Everyone's laptops came out, collaborating on a document that could be focused on discipline, or field trips, or final projects, hosted in the school's Google Apps For Education system. Every month or so there would be an all-staff meeting that also drew in Principal Catherine Carroll, college counselors, technology specialists, and other high-level administrators. They usually met before school in the Think Tank. It was a large open room overlooking the school's field and their Northeast DC residential neighborhood. Half of the room was an instructional space with furniture and fixtures designed to be moved around for different classes' needs. The other half was an open work space with cubicles but also bean bag chairs, outlets, and study nooks where seniors could work on their own schedule, tucked away with one of their school-issued laptops. Like InCrowd's offices or MLK's Dream Lab.

Du Bois' driving principle was to get every student into "the college of their choice." They got there through an intensive, personalized curriculum that combined cutting-edge techniques and technologies with a restorative justice framework meant to move faculty thinking away from student deficits and towards student empowerment. One Latina senior, Daniella, said that what made Du Bois Du Bois was "the fact that they use technology a lot" to support a "mission" where "it doesn't matter where you come from, your background, or your socioeconomic status, or your home life—you all go to college."

Stakes were high in the 2014-2015 school year, when the charter's first class of seniors, only sixty strong and prototypes for so much of Du Bois' philosophy and methods, were hurtling towards graduation. I spent much of that year in the Think Tank, chatting with students on their free period, observing classes, sharing funny videos on our

phones. The infrastructure for entrepreneurial education provided a venue for Du Bois' liberation pedagogy, where students could embrace these flexible tools to take a personal stake in critical education. This chapter shows that, within the school, these tools for social mobility often became tools for the systemic critique of institutions and ideologies of social mobility. However, that flexibility also meant that Du Bois leadership could readily repurpose this infrastructure for entrepreneurial education towards charters' more narrow, individualist, test-driven social mobility mission, when that mission appeared to be in jeopardy.

In early January 2015, as the first semester was drawing to a close, an all-staff meeting was called. Everyone met in the Think Tank before first period. The largely white faculty asked the largely black and Latino students—the senior class included two students who identified as Asian American and none who identified as white—who showed up early to do their homework to please move downstairs. The faculty were increasingly concerned that a large chunk of the senior class, potentially half, did not have the GPA necessary to graduate.

A contentious December all-staff meeting had previewed the debate. Then, the senior teaching team had reflected on the question "Why don't we have a high performance academic culture?" despite years of intensive culture-building efforts, supported by the resources that came with one of the highest per-pupil budgets in the city (almost double that of a typical DC public high school, driven by corporate partnerships with firms like Google and donations and grants solicited by a full-time fundraiser). Then, phones, as usual, were the locus of every faculty complaint, the site at which good students were demarcated from those with "bad academic habits."

In December, lead college counselor Byron, who was black, had sternly reprimanded white calculus instructor Ryan for questioning whether teachers'

expectations were skewed because they all went to "top tier colleges."[19] Byron insisted, and the faculty largely agreed, that "we should not be referencing our college experiences" and that a high performance academic culture—setting and completing goals independently, using technology deliberately, managing multiple demands on one's time, pushing peers to focus on the same—would serve students just as well at the University of the District of Columbia. That students might not choose to attend college went unsaid, the case for most senior team meetings. Faculty began operationalizing a 'high performance academic culture' through an intensive data-tracking regime, scoring students on micro-habits like checking their phone, pushing them to follow their scores along, change their behavior accordingly, and encourage their friends to do the same.

In January, the stakes were raised. The school's Leadership Team—composed of the Board of Trustees, the Head of School, middle, elementary, and high school Principals, and other administrators in fields like instructional design and fundraising—had raised the alarm over the senior class' graduation prospects. They had reached into the SchoolForce backend for student data and found about 25% of seniors were on track to graduate. Teachers had been pointing this out in their meetings for months, but the Leadership Team now called all hands on deck to right the ship. Teachers complained that they didn't know who these board members were and that they didn't understand the facts on the ground. Teachers had been pointing out for months that a weak academic culture meant a broad swathe of the senior class wasn't living up to Du Bois' high standards.

These standards were meant to level the playing field for working class black and Latino youth and push them onto the path to middle-class life: an "AP for all" curriculum that made Advanced Placement classes the default for English, Science, and Math;

19 i.e., Ryan attended Haverford College, while senior team leader Sam attended Harvard. Both entered the profession through Teach for America.

regular college application deadlines, supported by full-time college counselors; regular practice tests for SATs, ACTs, and APs—and, for the younger students, the local high-stakes tests like the DC-CAS and PARCC, used to evaluate the school as a whole. Year-over-year dips in SAT practice scores and the DC-CAS scores on which every DC school was judged exacerbated the Leadership Team's alarm.

Despite a student body that felt safe and accepted—feelings that were, of course, regularly measured by surveys and focus groups—and a curriculum that kept them heavily involved in their own passions (e.g., Digital Music Production) and communities (e.g., a semester on gentrification and community investment in Sociology), Du Bois was in trouble. The numbers were off, and 'technology' was a distraction, not the engine for professionalization it was supposed to be. Teacher protests became a fight over Du Bois' mission, replete with the usual negative comparisons to a public school system labelled disempowering and anti-innovation, all the things they were supposed to move beyond in this space—itself a shuttered public middle school, bought by the Leadership Team years back, renovated, grown out, its walls inside painted with the school's grey and green colors and encouraging mottos.

Principal Carroll promised to bring faculty concerns to the leadership. But they were all called into a meeting with the Board in the gym the next day anyway, to repeat the message that the numbers were off and had to change. Data surveillance would intensify, running counter to the restorative justice practices at the school's core (which included pamphlets on your rights when speaking with the police). Laptop and phone habits would be a major focal point of disciplinary actions. The weight of first quarter grades would be retroactively lowered. The last day of the second quarter would include several hours of 'credit recovery.' Principal Carroll said that day “was about forgiveness, not justice”, and it gave students precisely-targeted opportunities to revise certain

assignments or re-take certain tests to boost their individual GPAs and get the collective up to a level that would satisfy the Leadership Team. Some teachers boosted grades regardless of whether the revised assignment was actually completed to a higher standard, or just added a few points to students' overall grades.[20]

The Infrastructure for Entrepreneurial Education

Du Bois prided itself on being the best the charter school movement had to offer, without the organizational failures and controversies that stained other examples of these entrepreneurial, nonprofit alternatives to DC Public Schools, run in parallel to DCPS, with equivalent funding and entry theoretically open to any student in the city for no charge. Du Bois avoided the exclusionary habits that put some of its peers in the news. English Language Learners [ELL] and Special Education [SPED] students were always admitted to Du Bois, and counted towards the test scores against which the school was judged, in contrast to some other schools where the themed curricula could not or would not support these students. The school also placed high value on its restorative justice framework. This was part of a broader, liberatory view of education. It was framed in contrast to the 'no excuses' disciplinary ethos that made some charters known for high rates of suspension and expulsion, and exacting standards for how students sit, stand, and make eye contact with their teacher (e.g., Lack, 2009; Golan, 2015; Green, 2016). But Du Bois was still firmly within the charter school movement insofar as it embraced an entrepreneurial approach to education that linked classroom experimentation, digital literacy, STEM knowledge, and data-driven accountability with social mobility for urban, working-class black and Latino youth.

20 I did not witness the latter firsthand but had it confirmed to me in separate interviews. English teacher Melissa cited this, and more generally the stress that led teachers to this, as a major reason for her quitting mid-year.

Charter advocates frame these students as having been failed by an education system built for a bygone industrial era. For example, in 2009 the Center for Education Reform's *Mandate for Change*, a lobbying document addressing the incoming Obama administration, prominently featured former DC City Council member and founder of Democrats for Education Reform Kevin Chavous advocating for charters as a "beacon of hope for parents and students alike" (20) because "We must leave the Industrial Revolution behind and embrace a new model of public education. One single approach no longer works with all children" (23). In what follows, I refer to the educational technologies used to carry out this entrepreneurial mission—including one-to-one laptop initiatives, student data programs, flexible workspaces—as the "infrastructure for entrepreneurial education." These technologies are put to service of a mission—high test scores and college acceptance rates—shared by most charters, because their administrators, funders, and municipal regulators evaluate them on it. Different values—operating philosophies defining what education is for and how it works—will be deployed by different schools with different tools in pursuit of this mission. The infrastructure for entrepreneurial education is deployed with these values in mind, but is often overridden in the name of the mission.

Charter schools are public-private partnerships: Funded by public school districts in parallel with the 'traditional' public school system, as an alternative to them. Though many, like Du Bois, procure outside funding, and are run by private management agencies seeking to experiment with educational methods, experiments judged by schools' scores in standardized tests. Many charters are part of a 'network' of schools managed by the same agency, with standardized methods and powerful lobbying wings helping to expand their networks (e.g., KIPP, Success Academy, Rocketship).

Charters are tactic in the in the 'education reform' portfolio. That portfolio also includes high-stakes standardized testing, 'school choice' programs that allow families to move students to schools beyond their neighborhood public school, and digital literacy initiatives designed to prepare students for the information economy. The political motivations and educational philosophies of specific charter founders vary widely, and the charter school movement includes sub-groups such as the 'small schools' movement or the 'alternative education' movement (e.g., Montessori schools and similar longstanding alternatives to the public school system). But from the top-down perspective of policymaking, it remains a key part of a neoliberal rethinking of welfare state institutions that reframes them not as universal social democratic benefits for all citizens, or bulwarks against periodic crises, but sites where the human capital of the citizenry can be enhanced to a level sufficient for competition in the postindustrial economy.

As Chapter 1 touched on, this movement bridged Democratic and Republican divides and united technology policy, poverty policy, and education policy in a push to enhance market competitiveness and provide opportunities for market competition. Reagan's Department of Education opened the doors for the education reform movement in the 1980s with the Nation at Risk Report. As Governor, Clinton chaired President George HW Bush's National Education Summit, in response to growing advocacy for education reform. Prominent among that public pressure was corporate advocacy such as the 1985 Carnegie Foundation for the Advancement of Teaching's survey of major corporations—finding persistent complaints about the need to retrain new hires—and a similar report from the executives and education professionals in the Committee for Economic Development. Clinton and Bush's 1989 Summit proposed charter schools as one part of a portfolio of education reform solutions to a national education system perceived to be in decline, especially in comparison to high-tech economies like Japan's

and West Germany's. These top-down efforts began to bear local fruit in the 1990s, when municipalities like Minneapolis and DC began introducing legislation that would allow prospective charter school managers to propose schools to a charter board—sometimes the same as a district's public school board, sometimes in parallel to it—have their proposals judged, and begin opening schools with municipal financial support.

DC is often considered 'ground zero' for the education reform movement and charter schools in particular. While it was not the first school district to introduce charters, it was in the late 2000s the first to have a Mayor, in Adrian Fenty, and a Schools Chancellor, in Michelle Rhee, wholly committed to the charter school movement, connected to powerful networks within it,[21] and willing to carry out massive changes to the traditional public school system in line with charter values: competition, public-private partnership, consumer choice, and data-driven accountability. Charters had existed in DC since 1995 but Fenty and Rhee gave them new purpose as part of a broader education reform movement and accelerated their growth, seeking solutions to structural poverty and the "achievement gap" between DC public schools and schools in its richer, whiter suburbs. In 2007, Fenty installed Rhee as Schools Chancellor after removing the elected school board's formal powers and turning it into an advisory body.

Because of Congress' special regulatory and legislative powers over the District, DC's public schools have been a constant site of federal experimentation. Rhee, featured on the cover of TIME holding a broom halfway through her tenure in 2008, reversed this trend and pioneered city-wide changes that would become the model for education reformers across the country, and inspiration for Obama administration policies like Race to the Top. She closed dozens of schools with low enrollment, initiated a teacher-

21 e.g., Rhee was a Teach for America veteran tightly connected with the internship and advocacy organization, founded the New Teacher Project (NTP), was recommended to Fenty by New York City Schools Chancellor Joel Klein based on his work with Rhee and (NTP), and was a protagonist of the 2010 pro-charter documentary *Waiting for 'Superman'*.

evaluation system linked to student test scores, fired hundreds of teachers based on that system, used a new tenure contract with the teacher's union to incentivize millions of dollars in private philanthropic donations (many, like those from the Gates Foundation, for educational technology procurements), and approved dozens of new charters with many, like Du Bois, taking over shuttered public school buildings (Craig & Turque, 2010; Leman, 2013)

The mass firings of mainly black teachers and public fights with the Washington Teachers Union gave Rhee mass approval from white Washingtonians, and mass disapproval from black Washingtonians. There were deep, historical reasons for this divide. Until 1977, the District lacked a true, public 'state' university. For decades prior, DC's teachers' colleges provided the most direct route to white-collar professionalization for District natives, and so an attack on teachers was perceived to be an attack on the black middle class and the possibility of social mobility in a city that became majority-white under Fenty's tenure but was still heavily segregated (Schwartzman & Jenkins, 2010; Tavernise, 2011). The 2010 election became a referendum on Rhee's tenure and Fenty was voted out. Rhee left too but new Mayor Vincent Gray retained her second-in-command Kaya Henderson, who had worked with Rhee at The New Teacher Project and was largely responsibly for developing DC's teacher assessment system and negotiating the 2010 union contract. Charters are not included in this contract and the vast majority are non-union. Gray promoted Henderson to Chancellor at the beginning of his tenure (Craig & Turque, 2010).

Today charter schools educate about 44% of DC students, with most of the rest attending traditional public schools in their neighborhood (DCPCSB, 2015). Charters differentiate themselves through various themed curricula including language immersion, arts education, and leadership training—but most often through college preparation,

STEM education, and innovative deployments of educational technology. Students win entrance to a particular charter through participation in an annual 'lottery' in which their family ranks a list of choice schools. Participation is open to any family with the time and resources to fill out the online application. Because of specialized curricula that often involve multi-year tracks, and unlike traditional public schools, charters are not obligated to accept students in the middle of the academic year or outside designated on-boarding years, nor are they obligated to enroll SPED or ELL students (Chandler, 2015a). Du Bois proudly enrolled both.

Education reform's mass experimentation, including charters, has so far not borne the fruit its high-stakes testing regime promised to both promote and measure. Nationally, charters test about as well as traditional public schools (Gleason et al, 2010; CREDO, 2009). Locally, the Rhee-era gains in test scores were largely discredited by what appeared to be widespread cheating by under-pressure teachers (Gillum & Bello, 2011; Grippo, 2013). In the first year of the new PARCC test, “7 percent of charter school students who took the high school Math test and 23 percent of those who took the high school English test scored proficient, compared with 12 and 27 percent of DC Public School students respectively” (Chandler, 2015b). In terms of disciplinary practice and racial climate, nationally, charters disproportionately suspend black and disabled students compared to the rest of the student population, and do so at a rate 16% higher than traditional public schools (Losen et al, 2016). In DC, the disparity between black and disabled students and the median was maintained but students in traditional public schools are 1.58 times more likely than charter school students to be suspended or expelled (OSSE, 2013).

Du Bois negotiated this contentious terrain by rejecting parts of the charter movement's political legacy while still embracing the overall mission. The school

welcomed all lottery winners, hired no new teachers straight out of college or from Teach for America, deployed subject-specific SPED and ELL support staff throughout its classrooms, and used a variant of the Reconceptualizing Early Childhood Education (RECE) restorative justice framework that trains all staff in recognizing the racial micro-aggressions underpinning much of traditional American educational praxis. RECE largely removes disciplinary suspensions and expulsions (except in the case of violence) in favor of redirections meant to empower disruptive students to make behavior changes and 'recovery time' to help them work through it.

Still, everything the school did, down to mid-year adjustments to the seconds available for 'transition time' between classes, is bent towards the project of building an engine of social mobility for black and Latino students marginalized by contemporary political, economic, and educational structures. “Du Bois is super academic. It's almost rigidly academic. It's a place that is designed to make kids successful in the systems that we have in the world right now,” teacher Amanda told me. “College of your choice” is the goal for every student. Personalized learning is facilitated by the one-to-one laptop program. An intensive data-tracking regime, constant experimentation is the norm. And test scores remain the make-or-break measure.

Thus at Du Bois and in the US more broadly, the charter school movement does not just parallel efforts to close the digital divide. The two are intimately related, ideologically and in implementation. Both cast the outdated norms of the industrial economy as the villain in a mission of social justice that sees solutions in public-private institutional reform and individualized competition. Both support neoliberal reform projects that legitimate these institutions in the face of the challenges of structural poverty, and remake them around the demands of market competition. Chapter 1 gestured to this parallel at the national level, while this chapter explores the relationship in one

specific institution. As with MLK's Dream Lab and Digital Commons in Chapter 3, this relationship is fraught with tensions that are only resolved when a higher institutional power (there, the renovation process, here the testing process) steps in to realign the institutional infrastructure with its mission. When Clinton and Gore suggested in 1993 that "schools can themselves become high-performance workplaces" to train the knowledge workers of the future, something like Du Bois and its infrastructure for entrepreneurial education was probably what they were thinking of.

As the Introduction outlined, public education is a key site of social reproduction, where students learn the social and political norms that the major institutions in their lives expect them to conduct themselves by, and where skills and ideas needed for participation in the formal labor market (e.g., basic literacy and numeracy, respect for certain authority structures) are practiced. This process is uneven—not everyone receives the same training—and historically contingent—the norms, skills, and ideas that count as 'socially necessary' change over time. And students and teachers always resist or reinterpret, to greater or lesser degrees, these demands of social reproduction (Bourdieu & Passeron, 1990; Mitchell et al, 2004). Paul Willis (1977) described this process and resistance to it in his classic ethnography *Learning to Labour: How Working Class Kids Get Working Class Jobs.* He showed how West Midlands 'lads' resisted the discipline of formal education, associating the 'mental work' and the conformity it seemed to require with office jobs. Their counter-culture resisted school's meritocratic, individualist association with office work, and paradoxically ended up embracing, the lower-wage industrial labor to which the limited local labor market had largely consigned them in the first place.

Charter schools are a different institution built for a different economy. While many of the meritocratic associations of office work that Willis' lads critiqued remain, the

proud connections with industrial labor are less readily available. The clearest sign of this change in charter schools is the infrastructure for entrepreneurial education and the framing of that educational technology as an engine of social mobility. As the Introduction outlined, charters are a crucial institution in the political economy of hope. This is true for both the discourse supporting them—where entrepreneurial solutions are needed to adapt industrial institutions to the information economy—and their material effects on the educational landscape—where schools are remade as professionalization engines, unions are broken, and public-private partnerships manage state resources.

At Du Bois, much like MLK Library, personal computing and the infrastructure supporting it became the site of conflict over what exactly the school was *for.* A safe space where black and Latino youth could learn the rules of the system and how to flourish within it? Or a space for data-driven professionalization? This conflict went back and forth, with ground won or lost every day as the curricula and technology implementation plans changed. Sam, senior team leader, likened the process to building a plane while you're flying it, with summer the only time when teachers and administrators could think in the long term. Irene, a shy star student, said that by the end of senior year she was mostly tired of being experimented on and saw the laptop program as evidence of the charter's push for innovation—"The first class, the students are like little lab rats."

This chapter's focus on the institutional pressures driving this digital experimentation and shaping the standards for what does or does not count as 'legitimate' use of technology is partly in response to Christo Sims' (2014) call for further research into "differentiating practices", or how social divisions are reproduced through institutional technology implementations—even those designed to power social mobility and reduce inequality. Where Sims' work followed middle-schoolers as they took school technology home with them, mine expands the focus to include teachers' technological

practice, administrative pressure on it, and the political demands that give purpose, direction, and funding to educational technology.

The first class of seniors were subject to at least three distinct implementations of Du Bois' one-to-one laptop program. In their freshman year, students received Dell 2120 netbooks (i.e., a computer smaller than a traditional laptop, with less storage space, optimized for cloud-based software like Google Apps for Education). They put down a $50 deposit and signed a rental agreement dictating the rules for responsible use during the school year. The following year, freshmen were issued ACER Chromebooks, specifically optimized for the Google software with which most classes worked. Sophomores who had lost their laptops the previous year were issued Chromebooks. By the time I entered Du Bois, most seniors had lost their Dells. Chromebooks still circulated, but at least half the seniors lacked any computer, and five or six conspicuously brought a fully-featured laptop or iPad from home.

The school replaced the computer the first time it was lost, stolen, or destroyed, but required a $500 replacement fee the second time. This is what happened with Martin, a Latino senior who spent most of his non-school hours working at Chipotle or with the camera he had bought with Chipotle wages. He had his netbook for two years, until a friend sat on it and shattered the screen. Many families were unable to come up with $500 on the spot, and some struggled for the initial $50. Other computers were simply lost on the bus or at the library, stolen, or, enterprising students told me, sold once their serial numbers were scraped off. In the summer of 2014, Principal Carroll told me Du Bois had absorbed a nearly $35,000 on school computers in the last year alone. A normal public school would have been unable to bear that loss, but Du Bois' small size coupled with its grants and bond sales allowed them to survive. Still, Principal Carroll and other administrators knew that change was needed. As part of Du Bois' empowering approach

to education, meant to counter deficit thinking, they had not planned for theft or loss and had largely let students, many of whom lacked a clear workspace at home, do with their computers as they pleased. Nor was there time marked out for computer-specific education. So, by the time I entered Du Bois, school computers largely lived in mobile carts. Some seniors retained their older machines, but underclassmen were not issued their own—a relationship that, as we will see, paralleled shifts in Du Bois' culture and curricula to a more regimented, professionalized model.

School technology and school culture were inseparable in students' minds. Asked to describe Du Bois, students usually gave answers like Daniella's:

> It's a really open-minded school. It's really different from my other school [she had attended a private religious school for her freshman and sophomore years] and they use technology, you get a laptop—well the older grades do. And they make their planning around technology and that's different.

Sometimes culture and technology were in harmony, sometimes less so. The morning after the news hit that a grand jury in Ferguson, MO had elected not to indict white policeman Darren Wilson for the killing of black teenager Mike Brown, Principal Carroll, who was black, had her seniors sitting in a circle in the Think Tank. She told them, "Our country is doing some ugly things right now. Shooting unarmed black boys. That's wrong. Stay sharp. Use your minds, not your fists. Your words." Students shared their reactions and comforted each other and then left for first period. Those who remained in the Think Tank for Sociology were assigned research projects based on Ferguson and given choices about what issues they could write about and what sources they could rely on. Laptops, whether coming from backpacks or carts, allowed for the sort of personalized learning that Du Bois prided itself on, giving students the freedom to fulfill requirements on their own terms. Unfortunately, the school's firewall blocked several of

the sites Clara, the Sociology teacher, had listed as research sources because they contained videos.

Individual teachers struggled with infrastructural limits like these, beyond their control or their students, but the overarching mission of data-driven professionalization that gave purpose to charter schools often demanded it. School values won out in the early days, but as the year went on administrators increasingly, and more forcefully, flexed the infrastructure to align curricula with mission—high graduation rates and test scores. Manuel, the high school's systems administrator, quit in the middle of the 2014-2015 school year. Teachers had repeatedly complained to him that the school intranet was unusable during the three periods when students were at lunch. Bandwidth was severely limited then because everyone at lunch whipped out their phone to share videos and stream music. Manuel offered administrators a simple solution over and over. It would be easy to throttle bandwidth on mobile or unregistered devices. But he was shot down every time because that sort of top-down disciplinary measure did not fit a school like Du Bois. It was one reason he quit. By year's end, however, solutions Manuel's would become the norm as the first class of seniors rushed towards graduation.

The remainder of this chapter explores this tension between the entrepreneurial education infrastructure for education, the purpose of education, and who controls each, with two major examples. First, I show how Du Bois' instrumental approach to a 'high-performance academic culture' gradually led teachers to embrace a fine-tuned system of tracking behavioral data, particularly around phone use, in order to nudge students towards the habits of knowledge work. Unfortunately, that system was not entirely under they or their student's control. Secondly, I show how the school modeled effective knowledge work habits, particularly around laptop use, by coding knowledge work as an aspirational pursuit of the white middle class. This went directly against Du Bois' values

but was the natural result of bending their particular infrastructure to the charter school mission. I conclude by reflecting on the joy of graduation as the fulfillment of Du Bois' cultural project, focused on social flourishing in a system stacked against students of color, and the limits the political and technical infrastructure of this charter school, focused on social mobility, more narrowly defined, placed on that project. Hope, as in MLK, cannot here help but fail. This is partly because the breakneck innovation of an organization attempting to operate in 'permanent beta', a concept we'll explore later, is constrained by the public nature of the institution.

Professionalization, Presence Bleed, and the Data of School Culture

The mission of charter schools is to provide entrepreneurial solutions to the problem of social mobility, using a wide array of education tools. Included among those tools is the deliberate production of institutional culture, uniting parents, teachers, administrators, and students in an embrace of school values pursuant to the mission. Some charters, deliberately or not, aspire to be 'total institutions' (e.g., Goffman, 1968; Mouzelis, 1971) where those values and the structures enabling them permeate every aspect of community members' lives: not just weekday classroom time, but meal time, sports or hobbies after school, community service, Saturday instruction and team building, nighttime communication, and social events that, again, bring together not just students but their families and school employees. Information technology, specifically personal mobile media like laptops and tablets and institutional applications like email and digital gradebooks, are an important piece of this totalizing culture. This was the site of teachers' and administrators' concerns in that January meeting: Which piece of the 'high performance academic culture' puzzle was missing or broken and what tools could they retool or redeploy to fix it?

As we saw in the mid-year senior teachers meeting, it was easier for Du Bois staff to imagine models of failure, what Du Bois should *not* be, than models of success, what Du Bois should aspire towards. Positive, contemporary referents for 'high performance academic culture' were not readily available and so the largely white faculty drew on their own middle-class educational histories. In the next chapter we'll also see that this uncertainty makes them particularly attracted to models presented by the tech sector.

This process raised doubts for teachers about whether the infrastructure for entrepreneurial education adequately served their black and Latino students, a conflict lower-level administrators like college counselor Byron assuaged by re-emphasizing Du Bois' empowering, liberatory values and their commitment to erasing teachers' deficit thinking. This conflict replayed itself with somewhat lower stakes every day I was at school. But because positive, contemporary referents for 'high performance academic culture' were not readily available, faculty instead reached for negative referents of sites that 'lacked culture', thus confirming the essential rightness of Du Bois' values and the empowering role personal computing and the infrastructure supporting it played in executing those values. The process reminded me of nothing so much as InCrowd employees joking about the 9-5 lifestyle holding back their peers and their organizations in the nonprofit, government, or corporate worlds.

Calculus teacher Ryan, for example, would often address moments of failure within the charter school with reference to DC Public Schools (DCPS). In one early November teacher meeting he worried that both students' checking their phones in class and the time teachers spent disciplining them for it were signs that “some times we're slipping into a DCPS model.” English teacher Melissa told me she at first embraced Du Bois' methods and values because of her bad experiences teaching in suburban Virginia's public schools:

> They weren't super innovative in what they were trying to do. A lot of what they did in the classroom was like, 'read this side of the textbook, answer the questions that follow.' And that was sort of just like the culture there...It just felt like I was doing something wrong by doing something different.

Interestingly, in this November interview Melissa complained of the significant distance between teachers and administrators at her previous school but *not* at Du Bois—unlike her peers. Senior teachers spent significant time observing and advising junior colleagues at Du Bois, but administrators also bridged the gap by monitoring the constant stream of data teachers produced on student participation, projects, and habits. Significantly, Melissa's feelings changed quite rapidly once the Leadership Team's data-driven edict to boost graduation rates came down and the senior team elected to operationalize it through a more intensive behavioral monitoring system. In March, she quit teaching and left Du Bois for a research analyst position in the private sector.

Melissa had previously taught at a Houston charter whose culture-building efforts outstripped Du Bois', approaching 'total institution' status. There she was coached to refer students, teachers, and administrators collectively as 'the family.' Students were given her cell phone number and she was expected to return evening calls requesting homework assistance or technical troubleshooting. To incentivize teachers, bonuses were allocated based on student scores on Texas' high-stakes standardized tests. The cell phone requirement in Houston was an example of what Gregg (2013) calls 'presence bleed': The extension of the workspace into formally non-work spaces through information technology, increasing work hours overall and dissolving the mental or social barriers workers put into place to separate their identity as, for example, mother or deacon from their identity as employee. Du Bois didn't require teachers to hand out cell phone numbers, but efforts to build a 'high performance academic culture' still led teachers and students to use their PC's and phones to push the boundaries of the school far beyond its

walls. Melissa said this was a major ingredient in her deciding to quit teaching in 2015—"there was no privacy."

Other teachers embraced Du Bois' presence bleed, seeing these technological tactics as part of a grander strategy to put the school's values into practice and push their students towards the college of their choice and the middle-class life it promised. Sam, the white physics teacher and senior team leader, embraced Du Bois over his old school in Philadelphia in which he had taught for Teach For America—the teaching internship program wherein elite college graduates are placed for two years at underprivileged schools—because his previous institution "had little to no culture, no positive culture that was built by the school. It had its own culture but it was because the kids ran the place and it was a pretty violent place." He went on to describe how he'd spend all day breaking up the fights his working-class, majority black students started, but had to pause when I asked him to explain what 'culture' meant for him and Du Bois.

'Culture' meant being on the job all the time because the job was more than a paycheck, believing in "the social justice mission of education" and taking pride in his college-bound students because "that's going to change life outcomes." And it was important that he brought students into this culture too. One January afternoon in AP Physics, he asked students to take some time for a "a little real talk" where they would define what 'success' meant together. They shared different definitions, rated themselves on a Successful Habits scale he handed out, and compared their ratings to ratings the faculty had given them on the same scale at the end of last semester, when the Leadership Team had called all hands on deck. He said he had it easy because of his white privilege, his parents' PhDs and more, and then shared anonymous, largely racist, online comments to a *Washington Post* story about DC students' struggles. "The world at large has a negative perception of what you at your best is," Sam told them, soliciting and embracing

aggressive reactions. He concluded that excellence proved the haters wrong and that "There's something about being successful for you guys that's more important than it was for me."

Sam worried about the strain presence bleed placed on teachers, especially older ones, but embraced it himself because he figured, as a young man with no spouse or children of his own, this was the time to commit his whole self to a cause. "I would love to have 15 emails a night from kids on homework," he said—and he answered them too, even if he had to correct them on salutations, subject lines, and the like. This commitment was, again, similar to the way employees of InCrowd and other startups embraced the death of the 9-5 workday as a way to fulfill the social mission of the firm and self-actualize in the process. Sam tried to call every one of his students' parents every three weeks, usually on his walk home from school.

This commitment showed up in other life choices like Sam's decision to move to an apartment within walking distance to the school. Clara and Ryan did the same, fully aware that they were representatives of the same post-recession gentrification wave Clara's students studied in Sociology. Ryan moved into Du Bois' Northeast DC neighborhood not just to minimize his commute or make himself more available to extracurriculars—like the school soccer team he coached—but because he and his wife—also a teacher—wanted to commit to being members of the community they were teaching in, extending their inclusive pedagogies into their personal lives.

Students generally embraced Du Bois' presence bleed. It was another example of how Martin said his teachers would "make students push to their limits." They appreciated teachers' willingness to connect outside of school, especially when they were high-achieving perfectionists and/or doing homework at odd hours either because they were balancing school with a job or two or because they had no reliable internet access at

home. On weekends, Irene would bring an empty Starbucks cup into the branch around the corner from the apartment she shared with her mom and two younger sisters, so she could avoid paying to sit down, email her teachers, and do research. Daniella said the way Du Bois faculty "make their planning around technology" was a key ingredient in a more personalized education because if teachers did not have time to sit down with every student one-on-one in class, they could build in that time before or after class—emailing feedback on papers, updating rubrics, or suggesting tutorials on YouTube or elsewhere that could help a student work through a troublesome technique—the latter particularly common in Calculus and Statistics.

Not every teacher was enthusiastic as Sam about the technological extension of the school day and the classroom. Clara often used her time monitoring Study Hall[22] in the Think Tank after school to get on her laptop—a Dell provided by Du Bois, larger and more full-featured than students'— and catch up on grading and lesson planning. Teachers' 'free' periods were often taken up by subject-team or grade-team meetings, so they were always desperate for a spare moment in which to work. Still, most ended up using Sundays to plan and grade. In Study Hall, Clara was often approached by students asking when the grade for an assignment submitted earlier in the day, or even just a class activity or behavior grade, would be up online in the 'SchoolForce' gradebook Du Bois and other DC charters had agreed to beta-test for Acumen Solutions[23] as part of a federal grant. Clara would sigh, rub her temples, and then, as her RECE training suggested, patiently explain her daily schedule so that students could empathize with her not having had time to grade since this morning.

22 Study Hall was at first after-school catch-up program running at the same time as other extracurriculars like Robotics Club, open to anyone who could not or preferred not to work at home. Later, in another Du Bois experiment, it was required for struggling students. Attendance, however, was difficult to enforce.

23 Acumen is based in Northern Virginia and provides cloud-based analytics, storage, and customer relationship management services to enterprises in health, finance, media, and other fields. SchoolForce represented an important new push for them into enterprise-level services in public education.

On days I shadowed Amanda's Digital Music or Videogame Design classes—Du Bois' digital, professionalized equivalents to Art and Music, addressed further in the next section—she would vent to me about the consumer mentality she felt constant connectivity encouraged in her students. They demanded quick updates from her at all times and were disappointed when they did not get it. This was mainly students who were "low functioning", in Principal Carroll's terminology, who reacted to grade postings as though they were an alarm, asking teachers why they scored a 2 instead of a 3 and what they could do to bridge the gap. Students who were "high-functioning" would use SchoolForce to adjust their goals and how they're reaching them, building timelines for the rest of a project or a quarter. It was reminiscent of how new InCrowd employees trained themselves through the SalesForce—a clear naming inspiration for Acumen—customer relationship management system, using the data on themselves and their peers to learn how to carry out their work to the rhythms of company goals and the needs of both customers and management.

Software testing is expensive, and so these sorts of partnerships with schools willing to beta test are terrific wins for developers. Educational technology—or 'ed-tech'—remains a key component of education reform generally and the charter movement specifically. A brief aside on ed-tech's position in the political economy of hope is necessary at this point. Charters like Du Bois deploy one-to-one laptop programs, coding classes, software-based curricula and more, in order to inculcate the digital literacy necessary for the New Economy and to practice personalized and competency-based curricula that, they say, moves public education away from a mass industrial model, to a flexible, adaptive one. Ed-tech critic Audrey Watters points out (2015a, 2015b) that ed-tech is also a key site in which the financial network behind education reform becomes

visible. Many investors view public education as an opportunity due to be unlocked. Consulting firm McKinsey recently said

> US education is a $1.5 trillion industry and growing at 5 percent annually. On the face of it, those figures warrant attention from investors. But most of that spending is hard for investors to access: education is everywhere seen as a public good, entrusted to government and nonprofit institutions, and most spending is on personnel (Bryant and Saaktsannis, 2015).

Legacy investment firms like Goldman Sachs are important players in the educational technology scene, as well as in 'impact investing' funding of charter school networks (e.g., KIPP and Promise Academy have both received large grants from Goldman). Leaders in the sector also hold many board seats on charter networks and lobbying firms to support them. Chicago's leading charter advocacy group—the Education Committee of the Civic Committee of the Commercial Club of Chicago—has, for example, historically been led by investment bankers, including now-Governor Bruce Rauner (Perlstein, 2016).

While it is a small slice of overall activity in venture capital investment, VC funding—especially firms with a 'social mission' such as Kapor Capital—is where much of ed-tech gets its start. For example, VC titan and Netscape founder Marc Andreessen funds AltSchool, Genius, Kno, and Udacity through his firm Andreessen-Horowitz, to tackle the problem of public education as an institution that is "incredibly hostile to change" (Watters, 2015a). NewSchools Venture Fund is perhaps the most active ed-tech investor and explicitly promotes a venture capitalist funding model to public and private solutions to education reform. NewSchools' importance will become clear in the next chapter. Overlap with the tech industry continues as many tech magnates devote their philanthropies to education reform. Bill Gates is the chief example, but younger stars like Mark Zuckerberg have also gotten into the game (Skibbell, 2015). Important also is the movement of personnel between regulatory institutions, investors, philanthropies, and schools. Watters provides a snapshot of this movement:

> Ted Mitchell, once the CEO of NewSchools Venture Fund, is now the Under Secretary at the US Department of Education. (His replacement at NSVF: Stacey Childress, formerly with the Bill & Melinda Gates Foundation.) One of NSVF's donors is David Welch, who bankrolled the Students Matter group that led the legal charge against California's teacher tenure laws. One of the student plaintiffs in the case was the daughter of a Rocketship employee. Rocketship, a chain of charter schools [the former Chief Schools Officer of which, Aylon Samouha, will make an appearance alongside NSVF in the next chapter] is part of NSVF's investment portfolio. A non-profit organization investing in both charter schools and ed-tech startups, NSVF recently announced it was spinning off its investment wing for the latter into a separate for-profit endeavor.

What these investors, philanthropies, ed-tech companies, and charter advocates share is a vision of traditional public schools as an economic and technological fossil desperately in need of disruption. This is not just a technical mission but a social one, supported with frequent reference to education reform as the 'civil rights movement of our time. Within this mission, ed-tech becomes not just a means of advancing the mission, but a sign of its success. The cultural valence of the technology here is very similar to how startup employees at InCrowd and elsewhere viewed their tools and their constant connectivity.

But, to return to Du Bois, not every piece of technology in the classroom meshes with school values. Not all instances of presence bleed are geared towards academics and professionalization. These technological disturbances need to be disciplined, and aligned with the charter mission. Phones, especially, were a point of constant contention at Du Bois. Phones surfaced some class divides among the student body that students joked about. iPhones were common but more expensive. Pay-as-you-go plans like the one Martin bought were a sign of living more paycheck-to-paycheck and/or without parental support. But everyone had a smartphone, even students like Irene who spent some nights in a shelter. Her mother bought her a Walmart Tracfone so Irene could check her school email and report in on her and sisters doings while mom worked nights cleaning offices. And smartphones, especially for students like Martin who figured out how to use proxies or other workarounds for the Du Bois firewall, were a constant source of amusement.

Smartphones stretched student's social lives, their Snapchat pictures from last night or their Twitter jokes from this morning, into Calculus, Physics, and English. Phones became the locus of in-class disciplinary struggle. They were distractions in the moment, and teachers' reminders to put them away could end up taking up large chunks of classroom time. Phones also symbolized a focus on technology not for academic gain or professionalization but for momentary pleasure. The difficulty was that the school's values precluded a wide-scale confiscation program or other crackdowns on phone use. Sam and Ryan worked hard to designate appropriate and inappropriate times for phones in class, encouraging students to Google definitions or look up videos of experiments they discussed. But it was difficult for teachers to tell when the phone in the lap was being used to text message or check grades, whether they were checking out or, in Sam's words, “using their technology as a way to better themselves.” And so the reminders to put phones away continued. For two months, I tracked how often Melissa asked students to put phones away in her 50-minute AP Literature class at the end of the day. She averaged about 10 reminders per class. This was a challenge within the RECE curriculum because each negative reprimand to a student was supposed to be balanced by three positive encouragements. So student phone use meant Melissa was constantly fighting to balance her disciplinary ledger.

At the site of the phone, Du Bois' values, embracing student differences in an empowering setting, came into conflict with the charter school mission of quantifiable professionalization through technology. In contrast to the extension of the school day and classroom space through email and SchoolForce, this sort of presence bleed was not allowed. But Du Bois' values prevented any strong regulation. Sam had told me, walking back to the subway station one night on my second week at Du Bois, that information technology, phones especially, empowered the top third of students to connect more

deeply and extensively with their teachers and their material then they possibly could have otherwise. But the rest, those with 'poor work habits' in Du Bois' language, were distracted by phones and underserved by a school with no consistent policy on it.

In Sam's schematic, Latina seniors Corinne and Daniella were at one pole, emailing teachers for help when they hit a wall and temporarily deleting social media accounts during high-stress parts of the year so they wouldn't be tempted by their phone in class or during homework. Daniella made the explicit distinction between professionalized laptops and unprofessional phones: "I think that's why they gave us the laptops, to use it for good stuff and work and not use our phones—because we have social media on there." At the other pole, Melissa's students, tired at the end of a long day, ingeniously arranging bags, books, and hair extensions so they could surreptitiously Snapchat each other funny faces during a group reading of *Macbeth*. Sam didn't blame them, he blamed Du Bois' lack of a high performance academic culture for not training students in how to use their phones in class, and feared the consequences they'd suffer "in a professional setting" for keeping up those habits because "if you're a non-white person, the world is just dying to write you off."

This then was the conflict: Phone use created an unprofessional, social 'presence bleed' that drew students away from the charter's mission, but which Du Bois' values prevented a firm stand on. So the faculty turned to their SchoolForce data infrastructure to train students in a high-performance academic culture. The increased focus on 'habits' came after the Leadership Team, informed by SchoolForce data, called all hands on deck to increase the expected graduation rate for the first class of seniors. A new set of Work Hard Grades bridged subjects and focused explicitly on habits, with students expected to designate a particular area they wanted to improve and be assessed on—phone use being the favorite choice. In the second semester, individual teachers also made SchoolForce

data, Work Hard Grades and beyond, an increased focus of class time, training students to attend and react to their scores, and discipline themselves based on the data. At the beginning of the third quarter, Principal Carroll framed the changes as an opportunity for peers in Advisory—Du Bois' homeroom equivalent—to track each other's data and encourage each other to reach new targets. Melissa resisted in that senior teachers' meeting—"That's a lot of SchoolForce tracking!"—but most of her colleagues were on board.

This data-tracking piece of the infrastructure for entrepreneurial education, pushed by the Leadership Team that helped win the grant for it and now keeping a close eye on its use, thus became the means to build a professionalized, high-performance academic culture, overriding individual teachers' pedagogies and, to an extent, Du Bois' holistic approach to students' lives. Teachers never thought of their students as just a grade or a test score. But the professionalization imperative of charters' entrepreneurial approach to education meant that those data points became increasingly more important parts of their pedagogy as the second semester started and seniors rocketed towards graduation.

Clara's sociology class was perhaps the clearest example of Du Bois' values in action, engaging students in research on gentrification in their neighborhoods and, in the second semester, frank conversations about tracking, class reproduction, and systemic racism in education—including case studies of Du Bois! Students felt safe talking with her about just about anything. She even helped facilitate the walkout they organized in support of the #BlackLivesMatter protest movement. But by mid-March, just before spring break, even Clara was hard at work building professional culture through a pedagogy of personal data. One day she stood in front of a whiteboard divided into cells, each holding the seniors' passing rate for a given class. She highlighted the Sociology

classes and then showed the data dipping over time. Students whispered and whistled, surprised.

"We can do better than 57%," Clara said and walked them through SchoolForce's presentation of their academic and Work Hard grades once more. She encouraged them to look this data and their upcoming assignments, and start asking themselves "What is the thing I can do that can lift my grade?" Irene, sitting with me in the Think Tank's bean bag chairs during her free period, watched and kissed her teeth: "I hate this school." Not every student agreed with her. Martin embraced the data-driven pedagogy, reasoning that students would of course resist direct instructions to put phones away because it just made the phones more attractive. Instead, "they should make it a game", giving students small rewards to shape their behavior.

Martin's observation was prescient. At the Leadership Team's encouragement, the data-driven pedagogy only intensified as graduation approached. It was coupled with more emails, texts, and phone calls to students and their parents, reminding them of important deadlines or data points threatening their graduation. Data-driven pedagogy thus had the effect of encouraging some forms of presence bleed while discouraging others. Not only was unprofessional phone use penalized and trained away with some success, so students got the message that their social media selves were not welcome in school, but the increased reliance on SchoolForce not only as a recording tool but an educational and disciplinary tool meant that the students' school-selves were increasingly visible, salient, and accessible to them and their parents at home and to other teachers and administrators who were not physically there when students delivered a particular presentation or committed a particular behavioral infraction. In this way, the space of individual classrooms expanded beyond their walls, following students to other rooms and back home. And it looked and operated a lot like the presence bleed experienced by

the white, middle-class helping professionals these black and Latino students saw at the front of their classrooms. Their labor was a model for their students. Their dedication to the charter's social mobility mission was a model for the high-performance academic culture they wanted to encourage. The data infrastructure implemented and ultimately controlled at a level above individual classrooms had this culture 'baked in' and trained users to practice that culture in their academic labor.

This disciplining of students' presence bleed was a deliberate decision in the wake of the administration exerting control over student data. However, this process of building white-collar knowledge worker role models through school technology also happened in a more ad-hoc fashion at other times and places. Especially in teachers' attempts to tie how and where students worked in Du Bois to thinking about their futures, we see more impromptu moments where institutional imperatives and structural inequalities override teachers', and Du Bois', liberatory values. It was a challenge, often a stressful one, to try to practice Du Bois' values within the infrastructure of entrepreneurial education, governed as it was by these institutional imperatives for measurable professionalization.

Laptops, Work Places, and Role Models

The day after Principal Carroll delivered the Leadership Team's graduation rate ultimatum to her faculty in January 2015, I was a guest in Amanda's Videogame Design class. I sat at a table in front of her students alongside the other guests: in the first class period a South Asian woman working as a graphic designer and a white man in the same field, in the next period a white man working in user experience design and marketing. Students were devoted to Amanda. They asked for advice on home life, snuck into her riotously decorated room over lunch or after school, and gave her the pet name O.W.L

(Old White Lady). She was an middle-aged white punk with dreadlocks and a large tribal tattoo on her back. We had previously bonded over our shared love for DC's hardcore scene but today I was there because I was close enough to being in 'tech' for her class' needs.

We were there to judge student groups' final projects—sprite-based videogames addressing a social issue like homelessness or teen pregnancy—and to act as much as possible like representatives from a major games studio deciding whether to invest in their products. If a group member didn't show, Amanda would remind the rest of them that “these are real life experiences, and if you missed a presentation in front of a major company” your career would be over. A professional dress code was rigorously enforced and students who scored well on our rubrics were invited into the Executive Lounge where they could enjoy the snacks we judges were nibbling on. My partner judge in the second panel introduced himself by saying he had done the same thing they were doing on Monday in San Francisco, giving a two and a half hour pitch for a $1.5 million project. An audience member replied that they had just interviewed at a fast-food chain in Chinatown. Everyone laughed.

It was all good fun. Students reviewed their games and their work process, discussing who took project manager versus designer roles or how they negotiated one group member's lack of home internet access—a not infrequent problem. Demos ran off of their Chromebooks but most of the actual design work had taken place on the higher-powered Dell desktops in the back of the room, whose USB slots were today filled with iPhone charger cables. Amanda prowled the audience as their peers presented, pointing at phones that should not have been out. There was the usual handful of students who presented as though they had somewhere better to be; but most were quite proud of their final projects, happy to see their hard work playing out in the big screen, their designs

getting the sort of immediate, tangible reaction that is perhaps unique to programming. The highest-scoring games, including Irene's, about homelessness, would go on to exhibit at the DC STEM Fair. At the end of the final presentation, Amanda lead a round of applause for the projects and the judges, the bell rung, and students rushed for the door, stopping to high-five the O.W.L on their way out.

And then Amanda collapsed in a chair next to me, releasing a pent-up something halfway between a yawn and a scream. She unloaded regarding the after-school hours spent on the phone and over email the past week, pleading with parents to push their kids to complete the final projects that counted for so much of their grade. We talked about our past work with currently or recently incarcerated folks because she wanted to quit at the end of the year and try something new, where she would feel appreciated, where the higher-ups would even once say she was doing a good job. She kept being interrupted by students popping in to hug her on their free period. She didn't blame them for her stress, complaints about SchoolForce aside. Her ire fell on Du Bois' administrators and the limits of a system judged on its test scores. She was falling apart with these demands on her time, and rattled off some statistics showing that US teachers work hundreds more hours than other countries for lower relative pay. She needed to call out the next day to take care of herself. The Leadership Team's planned confrontation with senior teachers would have been too much.

The final day of Videogame Design captured all of Du Bois' technological hopes and contradictions: A passionate white teacher using digital tools to encourage students of color to embrace and practice their interests, as long as it led towards the sort of professionalization embodied by adults whose backgrounds and social worlds differed greatly from students'. The school's process of defining a standard of technological professionalization was sometimes deliberate, as when students were disciplined by their

data and trained to discipline themselves and their peers towards a standard that looked a lot like the passionate, round-the-clock knowledge work habits of their teachers. But this role modeling was also a more ad-hoc process where work spaces were rearranged in a more professionalized fashion and students were presented with role models like the entrepreneur returning from a million-dollar, cross-country pitch. And myself.

The process of saying 'this is what success looks like' and delimiting the good work habits that will get you there from the bad ones that will not had obvious racial and class overtones. For critics, this is a much remarked-on feature of the charter movement. A former Dean of Students at a New Orleans charter said

> My daily routine consisted of running around chasing young Black ladies to see if their nails were polished, or if they added a different color streak to their hair, or following young men to make sure that their hair wasn't styled naturally as students were not able to wear their hair in *uncombed afro styles.* None of which had anything to do with teaching and learning, but administration was keen on making sure that before Black students entered the classroom that they looked "appropriate" for learning (Griffin, 2014; for a broader postcolonial critique of education reform see also Vasquez-Heilig, Khalifa, & Tillman, 2014).

Elsewhere, Joanne Golan's (2015) ethnography of a no-excuses charter found that race was rarely made this explicit but class was, and disciplinary practices ending up producing cohorts of 'worker-learners' able to respond to authority but not take initiative and advance through postindustrial workspaces. Discipline at Du Bois never reached these levels and indeed the school's values explicitly opposed this sort of no-excuses curriculum that approached students of color as culturally deficient and in need of correction. Amanda complimented her students on their braids and tattoos and they returned the favor. Clara's sociology class made systemic racism in K-12 education the focus of a whole semester.

But the charter mission and the infrastructure supporting it repeatedly strained these values. The charter mission of professionalization forced teachers to regulate work

spaces and work technologies and perform work habits in a way that diverged from those values and emphasized white knowledge workers as the role model. Critical education researchers term these cultural norms expressed and enforced implicitly in school (e.g., the white video game judges as the model of success) over and above any explicit academic lessons (e.g., learning to make a videogame focused on issues and people you care about) as the 'hidden curriculum' (Anyon, 1980; Giroux & Penna, 1979).

The hidden curriculum, something RECE trained teachers to watch for but which they were never able to fully erase, opened a gap between Du Bois' values and the charter's mission. The infrastructure for entrepreneurial education was intended to close this gap between liberatory values and standardized success but again and again ended up reproducing it—perhaps not deliberately by teachers, but certainly by administrators under their own unique set of pressures. Repurposing the infrastructure to close that gap was difficult, stressful work. It was into that gap that Amanda had collapsed. The gap between values and mission repeatedly opened up by the hidden curriculum and enforced through the infrastructure for entrepreneurial education was visible throughout Du Bois, particularly its laptops and workspaces.

"We gave you [students] a laptop for free and you treat it like it doesn't matter, but if I take your phone because you're texting in class you act like I just ripped your heart out of your chest!" Sam told me. And it was true. The machine explicitly designed for work was never valued as closely as the machine that *could* be used for work but was usually used for something else. There were good reasons for this. Students often spent a large portion of their own income or their parents' income on their phone and their phone plan, where the laptop was a one-time $50 deposit almost always paid for by parents and access to school internet was free. Du Bois also lacked a deliberate instructional space for computer use, partly because of an assumption teachers would holistically integrate that

into their curriculum, partly because something like 'Digital Literacy' was, despite being a core part of charters' mission to prepare a 21st century workforce, never a subject covered by standardized tests, either the evaluative ones mandated by the state or the SATs, ACTs, and APs so crucial to students' college admissions prospects. In contrast, students built up their own community curriculum about phone use: What plans were best for which phones, how to set up proxies or make tiny alterations to a URL to bypass Du Bois filters, how to save photos and videos to the cloud in a manner most friendly to limited data plans.

Students carried their laptops by one corner, tossed them into a Think Tank bean bag chair while they made the rounds to chat up friends, or left them hanging out on a desk. It was no wonder so many were lost, stolen, or broken. Phones would disappoint or break of course—students getting by on a shattered screen was a common sight—but these were interpreted by students as accidents or personal failures. Laptop failures were instead interpreted as a failure of the institution itself. That an app would not load or that the case easily chipped was, for students, an indictment of Du Bois and its aspirations to be a 'real school.'

Irene had been in Du Bois since the second grade. She said that if her laptop, one of the few first-generation Dells still in seniors' hands, had a personality it would be “a whiny-ass ugly little girl that shuts down every other second. Like it would be a damaged person, like damaged on the inside not outside. If you're like just really broken inside, that's what that computer would be like.” A devoted painter, Irene later linked her laptop being “really broken inside” to her continual complaint about Du Bois lacking an art class —outside of Videogame Design. She understood that the school's procurement policy prioritized volume, cost, and cloud capabilities and this meant cheap netbooks rather than, say, expensive Macbooks for students. But she still felt that the fact that a laptop in

need of constant rebooting, as hers was, was a betrayal of the school's one-to-one laptop policy, a sign Du Bois could not live up to its values—just like claiming a holistic approach to education but lacking an art class.

Teachers were not exactly careful with their laptops either, although that was more out of the necessity forced by a day scheduled down to the minute. They walked between classes with their laptop in one hand, screen open, coffee in the other hand, placing it down on a task when they entered a room so they could immediately start up a Powerpoint presentation, explore a student's grades with them, or shoot off an email or two as students completed a warm-up activity. Opening the laptop back up and logging back in would take precious seconds. Seconds that assistant principals literally counted down in the hallways as students transitioned between classes. Seconds that Melissa counted down as her English students transitioned between activities—a habit she had picked up in Houston. This was implicit role-modeling on the faculty's part, showing that knowledge workers had their work machine glued to their hip and ready to go, and that there was always a way to slip a micro-unit of work—an email, a grade change, a slide adjustment—into any time that did open up.

High-achieving students picked up on this part of the hidden curriculum. Irene and her friends Rochelle and Liu regularly worked over lunch, netbooks open in front of them and either the school lunch or some chicken wings from a corner take-out spot—off-campus lunch was a privilege granted based on grades—next to it, headphones on, checking SchoolForce or the progress of college applications. Teachers became frustrated when implicit role modeling and repeated reminders could not elicit the necessary technological work habits from their students. Melissa lamented how even when she directly requested her students bring laptops to class the next day, or pick one up from a cart in the Think Tank beforehand, she would rarely find more than half the class with

laptops in hand when they settled down to mark up a Google Doc together, or whatever the day's activities were. Implicit role modeling of knowledge work habits could not overcome explicit needs.

Deploying the infrastructure for entrepreneurial education in support of their mission without betraying Du Bois' values was a struggle even for teachers who did not make regular use of laptops in class. The hidden curriculum emerged again and again, even if they were on the lookout for it. Sam's senior Physics classes were mostly pen and paper affairs, for example, but phones still presented a challenge he was never quite able to solve, at least with his seniors: How to model effective phone use himself and encourage it in his students, knowing that it required individualized instruction his curriculum didn't necessarily have room for, and that, Work Hard grades aside, he could not discipline too aggressively and 'make an example' of poor phone use. It led to some interesting moments:

> One of my favorite things is that when I see kids secretly using their phones under the desk, and I go over and look at them and they're looking at their grades. And I think that's awesome. We need to do a better job of teaching and having systems where you're allowed to use and signal to the other students and adults that 'I'm using my technology to get myself to be better at school'...that they're using their technology as a way to better themselves. Right now we are too much 'either you use it or don't use it at all' and that's not adult either. I'm allowed to have my phone in my pocket and I get to decide when it's useful or not, you know.

Sam was optimistic about the more prescriptive approach to personal digital technology he took with his ninth-graders. They were trained from Day 1 to recognize specific spaces for specific activities on phones and laptops and were rewarded or penalized accordingly; in contrast to the more ad-hoc approach faculty had taken to seniors, where they were given free reign to make these decisions themselves.

Importantly, and in contrast to how Sam described his own independent “adult” phone use, freshmen were explicitly told when the phone was useful or not, when it

should stay in the pocket or come out. It is also worth noting that one of chief reasons Melissa cited for her departure was a desire to be more prescriptive and see immediate results—she saw a future in education policy for herself.

These struggles over whether role modeling knowledge work habits could support the mission without betraying their values was most visible in the Think Tank. From my spot in the middle of the room, either at one of the wooden tables that marked the divide between the instructional space and the cubicles and corners given over to seniors, or on a beanbag chair along the floor-to-ceiling windows looking out on the school field, I tracked the daily struggles between teachers, administrators and their students over what exactly the space was *for.* Ryan and Sam would regularly pause their Calculus or Physics instruction to walk back and quiet students playing Flash games or YouTube music videos on their free periods, often telling them that they were not making the best use of their own time or supporting their peers who were trying to apply themselves. Principal Carroll checked in on the Think Tank several times a day, more and more as the year went on, walkie-talkie in hand as she communicated with other administrators. She would give a nudge to a student who was napping, or separate a couple petting each other in the corner and then watch as they took out their homework packets, plugged their headphones into their laptop, and got to work.

The fight over what exactly the Think Tank was for revealed the disjuncture between Du Bois' welcoming, open values and charters' general high-achievement mission, in much the same way that librarians' regulation of the Digital Commons in Chapter 3 revealed the disjuncture between classical liberal values of public library space and contemporary demands for a training center for knowledge work. There were obvious demographic similarities. Librarians and teachers were both largely white knowledge workers who recently moved to DC and were acting as role models,

instructors, disciplinarians, and occasionally social workers with patrons and students of color native to the District. Both sets of authority figures were expected to fulfill their institutional mandate with an entrepreneurial approach that generated creative new curricula, trained patrons or students in institutional culture, and bootstrapped innovative technological (e.g., Dave's Fab Lab) and personnel (e.g., Amanda's videogame judges) initiatives out of personal interest, social connections, and scarce resources.

The hidden curriculum of knowledge work was, in both cases, also built into the architecture. Noisy homeless patrons would be shushed in the Digital Commons and directed back towards desktops facing towards the clear glass cubicles of the Dream Lab, filled with noisily collaborative white startup employees. In the Think Tank, Principal Carroll and others would direct students laying on the ground, chatting with friends or just playing on their phone, to a cubicle where they could sit at a desk and do real work. This intensified over the course of the academic year, with teachers and administrators policing entry into the Think Tank after school for only those students who were going to get serious in Study Hall. It necessarily became less of a student community space and more of a student work space.

But just as the institutional mission was built into Du Bois' architecture, so too were its constraints. The infrastructure for entrepreneurial education is, like the other sites of social reproduction in the political economy of hope, necessarily a bootstrapped project, where new institutions are cobbled together from pieces of old ones. The Think Tank had clearly not been the Think Tank in the shuttered public school whose building Du Bois' leadership had purchased and remodeled. So there were hardly enough plugs, and never in the locations students in the room needed them. Plugs ringed the walls of the room, naturally drawing students to them to charge their phones and lay in the sun. But there were no plugs, and the distance as a little too far for extension cords, in the center of

the Think Tank where students collaborated on classwork or were directed to cubicles to focus on their own work. Directing students to focus on their work could only work if their laptop was charged.

Some of those constraints built into the space, conflicting with the institutional mission, were products of Du Bois' values. Marisol was a brilliant young woman who skipped the vast majority of her senior year. She spent the last few days of the first semester again skipping most of her classes but doing so in the Think Tank, where she sat at a cubicle desperately trying to recover credits. She was industrious, self-directed, and focused on her laptop and the papers around it, cocooned with her headphones—exactly what the space was built for. But she would not have been in that situation if her teachers had been able to exert clear disciplinary standards and fail her for her missed work and missed class. A few weeks later, in a meeting at the end of February with the third quarter well underway, senior teachers admitted they needed more clear consequences for students like Marisol moving forward, but that the final decision on whether her ship had sailed was not up to them—it was up to the Leadership Team.

At other times, values constrained, or at least tempered, the mission and made the Think Tank a truly safe space where students could escape from the pressure of a hard-driving high school. Martin was on top of his classes for the most part, but would still skip class now and then, or take a very extended bathroom break, to make his rounds in the Think Tank, catch up with friends he hadn't seen, or just sit down with me and share some fascinating new conspiracy theories he had dug up online.[24] At the credit recovery session Principal Carroll scheduled for the end of the first semester, Martin broke down

24 Favorite subjects included Edward Snowden's motivations for whistle-blowing and the shadowy parties Martin suspected might be supporting him, as well as the Jade Helm 15 theory that positioned military training exercises as an invasion of Texas.

in tears mid-assignment and had to leave the Think Tank for a few minutes, only to return after a hug and a chat from Carroll.

Within limits, students also carved out their own places in the Think Tank, similar to patrons in MLK's Digital Commons. Du Bois' values named the Think Tank as a safe space, but student's place-building projects were supported and approved insomuch as they did not disrupt the institutional mandate for using technology to power social mobility. Irene had a place to work on her paintings, for example. Some of these were gifts to friends and family, others were composed as a series for her senior project (one of the initiatives developed to boost grades in quarter four and prompt reflection on the high school experience). Place was not made for videogames, or for social media, or for music —unless they were for Amanda's class. The WiFi network Manuel built blocked most of these. But savvy students like Martin figured out ways around them, whether by using a proxy server, making slight changes to the URL, or creating new user profiles on the Chromebooks that had WiFi privileges equivalent to teachers'. In response, teachers and administrators patrolled the Think Tank and directed students away from these distractions and towards schoolwork. This intensified towards the end of the first semester and then again as graduation approached.

Places were made for students to support each other as the Black Lives Matter movement grew and their social media feeds filled with pictures and videos of police executing black men and women. Clara shifted her curriculum to give students a space to learn more and respond on their own terms, chaperoned students as they went to Black Lives Matter demonstrations downtown, and supported them as they staged a walkout in protest of Darren Wilson's non-indictment. But in the spring, the Think Tank was frequently taken away from seniors to set up work stations for tenth graders taking the PARCC standardized test, or for those students taking Advanced Placement tests. A

walkout or protest of these standardized tests, critiqued as a tool for tracking and reinforcing racial stratification in Clara's own Sociology class, would not have been permitted. That would have been an example of school values overtaking the institutional mandate.

Students also crafted places in the corners of the Think Tank to buy and sell drugs, mostly pot. It usually went unnoticed. But the walls of that safe place could quickly collapse: A rumor was started that Martin was dealing and so Principal Carroll, one of her Assistant Principals, and school security took him out to search him and his locker. They found nothing. Afterwards, they told him he could have exercised his right to object to the search. Martin was not too upset. Police hassled him now and then in his Fort Totten neighborhood. One time they said they were looking for a suspect matching his description, even as he walked into his building with his Chipotle uniform on and dinner in hand.

Most interestingly, students made places in the Think Tank that posed alternatives to the professionalized vision of information technology built into the space and the faculty role models in and around it. Students would regularly coach each other through job applications, for example. They would advise peers applying to CVS on how to open new windows and search for the most employer-friendly answers to the lengthy personality questionnaires that accompany retail job applications today. Advisory period was generally the home for these debates, when there was not a class going on in the Think Tank. Teachers leading Advisory would shut this collaboration down to focus on one of the many instructional (e.g., health curricula) or culture-building (e.g., quarterly goal setting) activities dumped into Advisory. Melissa frequently complained of the pressure that came with constant changes to the Advisory requirements, and its function as Du Bois' safety net, catching any curricula that did not fit elsewhere. But Durrell, a

black SPED teacher who ran Melissa's Advisory after she quit, was not as well-trained in the Advisory system, and so happily used the space as a way to advise students on how to negotiate with racist managers, how to balance work and family if you had a child at a young age, or how to get gigs as a DJ. He sometimes wore headphones to Advisory, just like his students.

Du Bois staff thus worked hard to use school technology and the spaces for it to connect the school's empowering values with its institutional mission for (quantifiable) social mobility. Some of this work was explicit regulation of what these tools and spaces were for, others were more implicit role modeling—part of the hidden curriculum that, in contrast to school values, restated white, middle-class knowledge workers as the standard against which students were judged. But, as we saw with student data, the infrastructure of entrepreneurial education was ultimately bent to the needs of the institutional mission rather than the school's values—whether because faculty were incentivized to do so, or just because the hidden curriculum was built into that infrastructure. Classes like Amanda's, both Videogame Design and Digital Music, worked hard to build a compromise between the hidden and explicit curricula, where students were empowered to use personal computing to reflect their own interests, backgrounds, and desired futures —in ways that could diverge from the white knowledge worker standard. But the stress of building that compromise, of acting as a role model but doing so in a way that satisfied both the anti-racist values and the institutional social mobility mandate, was enormous. Amanda collapsed from it and threatened to quit, though she ended up not doing so. Manuel and Melissa did. That stress was also built into the Think Tank space and the laptops that circulated through it.

Amanda's class was a signal values-mission compromise but its space and its tools were relatively isolated from the rest of the school—to the point of being based in

the basement around the corner from the gym!—and it was an elective that did not contribute to the test scores against which the school was judged. It was able to eke out a compromise partly because the institutional mandate fell more lightly on it. The Think Tank affected all seniors and so was more vigorously policed, as were laptops. Indeed, the ability of the charter mission to take control of the infrastructure for entrepreneurial education was never more visible than during the spring testing season—when every single laptop in every single cart was requisitioned for most of March so that they could be cleared of vulnerabilities, set up for the PARCC (Partnership for the Assessment of Readiness for College and Careers) exam, and then issued to a tenth grader to take the test. Teachers only found out two weeks ahead of time. The Think Tank was one testing ground, and it stopped being a collaborative space for the duration. Desks were separated out and students sat down and surrounded themselves with school-issued cardboard walls that kept them from peeking at each other's screens.

Conclusion: Moments of Failure in Permanent Beta

Teachers' work of guiding the infrastructure for entrepreneurial education in a way that connected school values with institutional mission was so stressful because there was no room for failure either pole. In terms of the charter's mandate for quantifiable social mobility, anything short of sustained year-over-year improvements in test scores, GPAs, and graduation rates was harshly scrutinized by the municipal government and the Leadership Team. Teachers complained that their school values responded to that pressure by doing whatever it took to get students to succeed—whether that meant late-night emails or changing grades. Sam had approached the Leadership Team to ask about plans for students who would need a fifth year of high school and was told to stay

focused on the fourth year. Ironically, Ryan noted in one senior team meeting that the fifth-year plan was one place DCPS shined.

Teachers said they had no way to let students fail, reflect on that failure, and learn to live with failure as a regular part of the professional world. There were at least three reasons why failure was not on the educational menu. First, the unspoken expectation that, given sufficient freedom, students would naturally follow the lead of the hidden curriculum's knowledge worker role models and develop a 'high performing academic culture' from there. Second, the dedication to Du Bois values meant everyone had a political and personal stake in pushing students to the finish line. And finally because the time and resources to practice certain types of professional failure just were not there—digital literacy was not a testable subject after all.

Other tactics stepped into the pedagogical space failure might have filled. The culture-building project that pushed students to embrace the institution's professionalization mandate relied on a careful project of data-driven discipline that pushed students away from the technological habits for which they'd be punished in the workspace. This pushed students of color towards an ideal that, counter to Du Bois' emancipatory values, neatly approached the work habits of their white instructors. The school's hidden curriculum often ran counter to these values, posing as role models those professionals whose privilege and institutional purchase differed greatly from their students, and disciplining the Think Tank away from a safe space and towards a work space. Hope was built into the school, but the institutional mandate, as much as any structural limits on how much a classroom could influence, say, poverty at home, delimited the direction and nature of that hope.

Looking beyond graduation day, Du Bois faculty wanted to rely less on the hidden curriculum and more on explicit limits placed on students, their technology, and

the flexibility allowed to it. Values would be readjusted so that the function of the safe space would conflict less with the institutional mandate for measurable social mobility. Sam's 9th graders would be the model: There would still be a laptop for every student, but students would have fewer opportunities to use them as they pleased, would never take them home and rarely move them from one classroom to another, and would be coached and disciplined from Day One on the correct and incorrect ways to use their phones in class. The Think Tank would no longer be available for seniors on their free period.

This was part of the ongoing experimentation on Du Bois' first seniors that had led Irene to call the first class of seniors "little lab rats." As the rare senior who had been in Du Bois' elementary, middle, and high schools, she recognized that the school worked hard to make its values a reality. She rattled off the school motto about getting every student, regardless of their background, into the college of their choice, and she praised the way Du Bois staff "do a really great job of giving you this support system." But she was more cynical about the ends to which those values and that constant experimentation were put. She and some of her peers recognized that charters like Du Bois were in 'permanent beta'.

This is how developers describe software that is never released in its final version (i.e., it never proceeds beyond 'beta testing'), but is experimented on and constantly updated based on user feedback. Organizational sociologists Neff and Stark (2004) have applied the 'permanent beta' label to flexible organizations producing these technologies and managing their operations through them, constantly remaking themselves as the situation and their users calls for it. In contrast to traditional public schools funded only by local property taxes, charters also have significant resources to support that experimentation. In DC, they receive the same per-pupil funding as traditional public schools but are able to draw on funds from their private management companies, as well

as millions of dollars in private donations—donations that mainly go to schools focused on college prep (Chandler, 2015c). As mentioned earlier, there is also the advantage of being able to select the student body in a way neighborhood schools cannot. This critique largely does not apply to Du Bois, except for its senior class being significantly smaller (at around 60) than the neighborhood school down the street (at around 120, one of the lowest high school enrollments in DCPS).

The liberatory, restorative values that encourage student walk-outs are one tactic within the permanent beta strategy, borne from student feedback. These values are always subject to revision within the objective limits of that strategy, whose goals are professionalization and social mobility quantified by college acceptances, GPAs, and test scores. These limits were built into the infrastructure for entrepreneurial education and its implementation; both its explicit use by teachers and administrators (i.e., deliberate data discipline) and its implicit use in the hidden curriculum (e.g., ad-hoc role modeling and workspace discipline). The infrastructure for entrepreneurial education thus gives charters the tools to 'pivot' their curriculum quickly, but also places limits on exactly what might emerge from the permanent beta process—such as Du Bois' explicit anti-racist values. How did Irene describe this process?

> They’re so good at trying to prep us to be like preppy white folk...My thing is, like, we’re in America, right? And I'm Hispanic, so the ideal would be that everyone—it doesn't even matter what race you are, we all have to be like the white people because apparently it's assumed that all white people are successful and whatnot. To get far in this country, you have to be like them, if you want to be up there, you have to be like them. I think for me, it's kind of, like, irritating, because that just takes the fun away and everything...

Irene recognized there was only so much individual teachers could do about these hegemonic standards. But students were not the only ones to confront the limits Du Bois' institutional mandate for (racialized) social mobility placed on its values.

In late March, the largely white Leadership Team met to hear an outside consulting firm's report on exactly why Du Bois' scores on practice SATs and the DC-CAS (the standardized test preceding PARCC) had fallen year over year. The consultants presentation began with the dramatic announcement that this was a “turnaround school”, despite one of the highest per-pupil funding rates in the city and a high internal measures of teacher effectiveness and student satisfaction. Staff were flat-faced. They pushed back a bit, saying they would need to develop better metrics for student culture and behavior, but recognized that an anticipated 54% graduation rate was unacceptable and largely agreed with the consultants' observation that Du Bois lacked priorities because everything was a priority and that a “culture of nice” lead to continued excuses for both students and staff. A new five-year strategic plan was rolled out. Everything would be fitted to this plan, or else it wouldn't be funded. Staff and technology included. The Board had confidence they could turn things around. Their resources, their data, their technology, their staff, their culture—all this meant they were flexible in a way traditional public schools were not. Being in permanent beta meant Du Bois was able to rapidly 'pivot', as tech entrepreneurs moving to a new business model liked to say and as traditional public schools, like the shuttered building they had bought for their charter, were supposedly unable to do.

The pivot would be planned and executed over the summer, although it was foremost in the Board's minds as they hired new administrators over the spring. Before then, seniors still had to graduate. The night before the June graduation, Du Bois' gym was set up up for a senior awards banquet, a celebration of seniors' lives at Du Bois and the school culture they had been brought up in. A buffet was laid out and students, dressed in business casual, sat down for dinner with siblings and those parents who could get off work. I sat next to Corinne, Liu, and their siblings—their parents were unable to

attend—as teachers and students gave speeches, announced college destinations, and gave out superlatives for everything from 'Most Witty' to the 'I Am Du Bois' award for the student who, based on peers' votes, best represented school values. Irene did not attend, though she received awards for 'Outstanding Forensics Student' and 'Great Attendance'. The firm that had renovated Du Bois presented a scholarship to a student headed into engineering. Lead college counselor Byron pleaded with parents to lobby Congress so that those undocumented Du Bois graduates could attend college.

Principal Carroll said each student should be proud of the “two million minutes” each graduate had spent working for this moment and the $3.5 million in scholarships the class had won, and then listed the top ten challenges the senior class had overcome. Number eight was “overcoming convention to learn with the one-to-one laptop program.” Number three was “overcoming the challenge of silence in organizing a walkout against white supremacy and police brutality.” It was a tearful goodbye for her. She was stepping down after years of pouring her whole self into this school and its first class of seniors. When I asked, she was not entirely sure what her future held. Perhaps start a new school down the line. In the meantime, she would work as a leadership coach and consult with ed-tech startups.

Students stayed on their phones throughout, texting friends at other tables and taking selfies with their little brothers and sisters. Corinne was too shy to take the stage when Clara, her Advisory leader, praised her as “someone who does the right thing when no one was watching.” Perhaps because she knew it was going to be followed with “Corinne is undecided about where she's headed in the fall.” We walked out together and Corinne asked me to snap some pictures of her and her little sisters on the stairs leading up to the Think Tank, now decorated with balloons in school colors, before she drove

home. She asked to use my iPhone because the lens on her pay-as-you-go Kyocera had cracked.

Chapter 5: Digital Time and the Convergence Towards Hope

Abstract: This chapter draws empirical and conceptual comparisons between field sites in order to discuss how and why startups, schools, and libraries reproduce a similar hopeful discourse of social mobility and how and why schools and libraries begin to look and act more like startups. An extended example of the sort of public events and powerful networks that ties these institutions together leads into an elaboration and critique of Neff and Stark's 'permanently beta' concept, introduced in Chapter 4, showing how schools and libraries are incentivized to become, like startups, organizations in permanent beta, through a process organizational theorists label 'institutional isomorphism', but are constrained in the process by outside stakeholders. These outside constraints on public schools and public libraries—and the lack of outside support similar to that of startups—keep them from fully realizing their desire to mimic their private role models. This process is then demonstrated again with a focus on the digital 'presence bleed' that spreads the working day to other times and places. I conclude by reflecting on the failure of institutional isomorphism as a feature, rather than a bug, of the political economy of hope, something that maintains the digital divide as a crisis in need of constant repair and institutional reform. This reveals a geography of social reproduction that produces stratification through its focus on seemingly universal, digital standards of success in the labor market.

The Summit

On a Saturday morning in December 2014, I attended the Education Innovation Summit with a school full of teachers, administrators, and entrepreneurs. We were hosted in the gym and classrooms of EL Haynes Public Charter High School in Northwest DC, another gleaming, renovated charter whose classrooms were filled with student laptops. At sign-in, every participant had to consent to being photographed and filmed for publicity materials the CityBridge Foundation[25] and the NewSchools Venture Fund—the organizers, both education reform philanthropies—would produce after the event and during it, on social media. A half-dozen videographers, photographers, and tweeters wandered through events and sessions all day long to support this. The building itself was largely empty of students except for a group of seniors upstairs working on college applications. Most attendees, especially teachers and entrepreneurs, were used to giving their weekends over to work, but were excited to hear lectures from educational technology experts and to hang out in workshops about managing student data, integrating Twitter into the classroom, or teaching basic Web design. I had been clued in to the event by a teacher who had been previously awarded a CityBridge fellowship. Everyone knew each other from similar events.

Haynes Head of School Jenny Niles, soon to take a position as Mayor Muriel Bowser's Deputy Mayor for Education, welcomed the 150 or so attendees—about a third of whom did not work in a school—to the gym. She praised the ongoing partnership

25 CityBridge has explicitly focuses its school grants and teacher fellowships on DC public and charter schools. The "Why DC?" subheading of their mission description cites (implicitly) the Rhee-era reforms and (explicitly) the booming post-recession tech sector as reasons for why this is the right space for them: "D.C. has enjoyed a decade of steady and determined public leadership, a strong policy framework for charter and traditional schools alike, ample public funding, and a growing innovation ecosystem." See: http://www.citybridgefoundation.org/about-us/ . NewSchools works nationally and explicitly operates as a venture capital fund modeled after its founders' experiences in the tech sector. They "were among the first and largest investors in public charter schools and the first to identify and support multi-site charter management organizations, which launch and operate integrated networks of public charter schools." See: http://www.newschools.org/about-us/our-history/

between charters and traditional public schools in DC and their shared vision of "schools as a unit of change" that could bring the "power of personalized learning" to high-needs students through skilled teachers, well-designed schools, and innovative use of educational technology. The new class of CityBridge fellows, all DC teachers experimenting with digital tools in the classroom, then took the stage to address the power of personalized learning. They compared their students' fate in the broken US educational system to the frustration of getting served the wrong drink at Starbucks, with the first fellow lamenting how "education is the only system that doesn't personalize." Their presentation ended with a slide full of different Starbucks orders, representing different educational services delivered by the same school.

Keynote speaker Jim Shelton, former Deputy Secretary of Education and current Chief Impact Officer at educational technology startup 2U, continued the theme. He said that slide full of different Starbucks orders was a ways off and that educational technology would fill the gap in the meantime. But he was hopeful, telling us that educators already knew the lessons about disruptive innovation and human-centered design that Silicon Valley was just now evangelizing. Low state support and the glacial pace of government bureaucracies were a given, but he praised the spirit of the people in the room: "You are on what is called the bleeding edge. It's a noble place to be."

Shelton had to close down discussion before all questions were answered. He received a standing ovation from the crowd. Teachers were still discussing it in my next two workshop sessions: on free tools and practical classroom tips—"'Take out your cellphones!' Last thing you want to hear in a classroom, right?"— and tracking student data. He had praised educators and positioned them as powerful actors in need of tools that fit their ambitions, with knowledge the tech sector could learn from. The lunchtime

panel titled “Inside the Design Sandbox: Two Approaches to Next-Generation Schools” was a different story.

CEO of Matchbook Learning Sajan George touted his credentials to start: moving from corporate turnarounds to school turnarounds, working as a consultant overseeing the transformation of New Orleans public schools post-Katrina and DC schools in the Rhee administration. He then started a charter management firm so that he could create his own schools—beginning in Detroit, although George lives in Atlanta. My older black tablemates had experienced decades of attacks on teachers and DC schools. They grumbled, and then complained more audibly in the next session, about George's glib approach to teachers' unions (“It's not something you want to start with...”) and structural poverty (“from crisis to opportunity...”), and his comparison between the charter movement's persistence and the resolve Martin Luther King Jr. displayed in his Birmingham jail cell.

Aylon Samouha, Education Design Provocateur with Achievement First, was more warmly received but few teachers understood what they were getting out of his pitches for his charter network's designs, given his honesty that his school had money that most did not. But folks nodded along with both speakers' core message and repeated it in workshop sessions: The public school model had not been innovated upon since its inception in the mid-1800s and was in sore need of an update. That update required a fresh injection of digital tools that could rearrange, personalize, and challenge student learning for the needs of the 21st century, and a fresh mindset borne of experimental public-private partnerships. Teachers may have chafed at the lack of fit between things like a competency-based model and the reality of underfunded, overloaded public schools who could not be as nimble as charters in 'permanent beta', but they knew a change was

needed and had hope in the future, represented by the tools they spent the day experimenting with when they weren't in keynotes.

Students only entered the proceedings at the end of the day, when Haynes' seniors descended from their college application marathon to stand on the stage and awkwardly receive a standing ovation. There was no Education Innovation Summit in 2015. Instead, CityBridge invited entrepreneurs and teachers together for Startup Weekend EDU: Next Gen Schools, where they collaborated on pitches for new types and brands of schools that could solicit investment, scale quickly, and deliver personalized learning.

Hope and Institutional Isomorphism

The Education Innovation Summit was one of the clearest moments of institutional overlap during my three years of fieldwork, a space where the hope in personal computing to power social mobility gained velocity as it moved between different urban institutions in the political economy of hope. This movement of hope united my field sites both symbolically—the same language of human capital enhancement was used by entrepreneurs and educators, the PC and smartphone were loci for systemic anxieties—and materially—the same Gates Foundation that funded technology procurements for DC Public Libraries also funded CityBridge, agile management and venture capital investment practices built for startups were here being endorsed for schools. Powerful men (in an audience made up largely of women) like Shelton, George, and Samouha moved with ease between these spaces, using the same message to unite them in the same mission. It was a concrete, one-day representation of the way this hopeful discourse repeated across startups, schools, and libraries. Two core questions animate this chapter, which draws comparisons across field sites: What

accounted for this repetition, and how did this repetition lead to schools and libraries looking and sounding more like startups?

I answer these questions by focusing on two primary examples of schools and libraries beginning to talk and walk more like startups. With both the 'permanently beta' organizational strategy and the 'presence bleed' work habit introduced in the previous chapter, we see these public institutions adjust the time-horizon of their practices to fit the hopeful social mobility frame. These two examples are just that, more could be drawn by thinking less about the time-horizon of these organizations, the way they think about the relationship between their day-to-day work and their longer-term mission, and more about, say, the way they organize their space. Digital hope was clearly built into MLK's Digital Commons, facing as it did the glass-enclosed cubicles of the Dream Lab, and similar architectural choices drove the design of Du Bois. To explain these organizational shifts, and situate their successes and failures within the political economy of hope, I draw on the theory of 'institutional isomorphism' from organizational sociology—the process whereby professions and organizations are incentivized or pressured into adopting the models, ideas, practices, and forms offered by other organizations in the same field. This is the process whereby hope is reproduced, spread, and disciplined into shape across the city, and it requires drawing together observations from previous chapters.

In the Introduction, we saw that the political economy of hope requires institutions of social reproduction to adjust themselves to the demands of an urban labor market stratified between high-wage knowledge and low-wage service work, and to elicit consent to the inequality built into this geography. Chapter 1 backtracked to explore the roots of this hope in the Clinton administration's framing of the problem of persistent poverty within the information economy as one of individual access to opportunities for

competition—i.e., the 'digital divide'. Moving forward to today and exploring the institutions reproducing that hopeful frame, we saw that startups—the 'right' side of the digital divide in the original Clintonian framing—reproduce that hopeful frame as a way to empower founders to secure funding and 'talent', to gain employee buy-in to the firm's mission, and to legitimate the tech sector as a whole and secure outside talent and local political support. MLK Library reproduced the frame as a way to legitimate its mission in the internet era and manage the pressures placed on it by being one of the last remaining public spaces in the city. The Du Bois charter high school reproduced the frame because of the demands placed on it for quantifiable student mobility, demands that ended up overtaking the infrastructure for entrepreneurial education and pushing the school away from its liberatory values.

But it was not just that similar people were saying similar words in different spaces. These institutions themselves were remade. Schools and libraries began looking and acting more like startups, departing from what was denigrated as an obsolete public, industrial model to become flexible, networked workspaces borne of public-private partnerships that could produce the human capital DC, and the US at large, desperately needed in the information economy. The discourse of social mobility powered by personal computing was a synecdoche, one part standing in for the greater change to which it was connected—a massive remodeling of their space, personnel, goals, methods, and infrastructure.

The remainder of this chapter compares these field sites, drawing on data and observations from earlier chapters and connecting them together, to show how and why these institutions converged on a single, hopeful model. It shows how the hope in social mobility powered by personal computing makes sense not just to individuals but to organizations—despite its repeated failure. Because these changes cover thousands of

people across the city, I focus my observations here on how startups, schools, and libraries, begin to adopt similar time-horizons, similar ways of thinking about the relationship between their everyday digital practices and their longer-term goals of powering social mobility. We will explore those similarities with two primary examples drawn from concepts introduced in the previous chapter. First, with the practice of running an organization in 'permanent beta', where, modeled after the software industry, means and ends are constantly refined with respect to new data and new feedback. Second, with the practice of 'presence bleed", where, modeled after the all-hours lifestyle of knowledge workers in tech and elsewhere, technologies of personal computing allow work time to bleed into times and spaces it would otherwise be isolated from.

Throughout, it is important to attend to both the incentives for the changes—what makes schools and libraries want to manage their time more like startups—and how these changes fail—the points at which these public institutions cannot live up to their private role models. Theoretically, the macro theory of social reproduction explored earlier provides a structural framework for these changes. As the labor market shifts, so too must the institutions charged with reproducing labor power day-to-day and communicating the social necessity of various, concrete forms of labor power and who is fit for which form. Schools and libraries hope to keep up with the 'bleeding edge' of the information economy, as Shelton called it, represented here by startups. The overarching pressure for reform is clear, as is the ideal role for each of these institutions within the political economy of hope. However, this macro-theoretical perspective struggles to explain the meso-level processes of reform: how institutions are alerted to the need for reform, when and how they decide to reform, and the everyday successes and failures of reform—especially when those reforms appear to be more in the service of political legitimacy rather than capital's abstract demands for more efficient production of surplus value.

While the explicit goal of institutional reform may be increased efficiency in the service of the market, the implicit motivations may be more haphazard, borne of the uncertainty inherent to coordinating organizational life everywhere and within the social anxiety specific to the political economy of hope. And reforms made in the name of market efficiency may not bear those results within the institution, while at the same time delivering other results that legitimize the institution, secure resources, or win broader political or economic reforms pursued in coalition with the state, other institutions, certain classes of workers, etc.

As Chapter 4 showed, charter schools pursue a flexible model of entrepreneurial education in the name of higher test scores, but the pursuit of new models continues even when the higher test scores do not emerge and when schools admit that the gains they do see come with increased funding, technology, and personnel that cannot necessarily be replicated elsewhere. Elsewhere, in 2014 seemingly every new startup described itself as 'Uber for X', clearly in pursuit of the legitimacy this world-beating startup had gained, even if it wasn't clear the model would translate beyond taxis (Griffith, 2015). Organizations are complex beasts where form does not necessarily follow function.

To explain how and why libraries and schools start to look like startups as they try to become training centers for knowledge workers, and why they often fail in the attempt, it is helpful to again draw on work from organizational sociology, specifically DiMaggio and Powell's (1983) classic theory of 'institutional isomorphism' (see also Beckert, 2010). They noted that Weber's thesis (2002) on the ongoing bureaucratization of state and business in the 20th century has, in advanced capitalist countries, largely succeeded and that today organizations often converge on similar models not necessarily because of market competition or demands placed on or produced by the liberal democratic apparatus, and often without the expected result of increased efficiency. What then

accounts for the homogeneity of organizational forms within similar domains (e.g., the startup office aesthetics described by Losse, 2014) or across domains (e.g., the Think Tank and the Dream Lab looking like InCrowd)? Their answer was the process of 'institutional isomorphism': Limits are placed on organizational possibility when organizations interact with similar organizations, realize they're in a common enterprise, and seek models that both assuage uncertainty and provide legitimacy. They “compete not just for resources and customers, but for political power and institutional legitimacy, for social as well as economic fitness” (150).

DiMaggio and Powell identify three distinct mechanisms through which institutional isomorphism emerges within a domain, though they necessarily overlap empirically. 1) Coercive isomorphism, when organizations adopt a new model because of pressure exerted by the organizations or state agencies on which it depends or the cultural norms or political support on which it relies. 2) Mimetic isomorphism, when organizations adopt a new model because of overwhelming conditions of uncertainty. In moments where goals and technologies are poorly understood, adopting someone else's model can demonstrate activity and legitimacy. And 3) Normative isomorphism, when organizations adopt a new model because the profession which dominates the domain establishes standardized practices and ideas, or centralized organizations (e.g, boards of directors, some unions), regulate what a good, effective, organization looks like. Homogenous definitions of how to achieve social mobility appear across startups, schools, and libraries, and homogenous organizational forms putting these ideas into practice emerge from each of these coercive, mimetic, and normative pressures. This theoretical perspective will help us understand how and why institutions of social reproduction adapt their everyday activities to the demands placed on them by the political economy of hope—as well as the uneven, raced, and gendered terrain produced

by their failures. The next section of this chapter focuses on how practices of presence bleed that blur the boundaries of working time in the name of institutional mission are adopted across my three field sites and how and why full adoption often fails in schools and libraries. These public institutions can never fully mimic their private, entrepreneurial role models.

This process of uneven institutional isomorphism—where organizations are pressured to remodel themselves but fail in the process—was hinted at in the previous chapter with respect to charter schools in 'permanent beta'. The term—and the objects of Neff and Stark's critique—comes from firms that produce software and rewire themselves based on the software testing process: Constantly updating product and process based on feedback from users, putting the organization itself into a state of constant flux. Institutions hoping to achieve the legitimacy and success of startups attempt the permanent beta process. Indeed, the cause of educational reform is advanced based on the idea that traditional public schools can never achieve this level of flexibility and responsiveness. Du Bois made an attempt, deploying a unique set of technologies and liberatory values responsive to student feedback. But there were limits placed on what the process and product of that experimentation could be. Irene expressed the charter mission, supported by its infrastructure and against those liberatory values, in raced and classed terms: “[W]e all have to be like the white people because apparently it's assumed that all white people are successful and whatnot.” Experimentation was supported but only on these terms of racial professionalism, and that accounted for the constant, never fully resolved, conflict because school values and charter mission. The state of flux that existed in classrooms day-to-day, what the outside consultants critiqued as a practice of making everything a priority, could not fully extend to the school's five-year plan, hemmed in as it was by the need for quantifiable social mobility.

A similar conflict played out at MLK Library. The entrepreneurial mission of the library of the future, as a training center for knowledge work, constantly clashed with the liberal values of the library's past and the concrete needs of librarians and patrons in the present day—where there was a space for everyone to rest, chat, and play Farmville. That these conflicts are never fully resolved and that this constant experimentation can proceed in some places but not others is a sign that there are stakeholders involved who place limits on the permanent beta process. Some of these stakeholders are internal to the process: Conflicted librarians, dedicated teachers, students and patrons making the space their own to last out the day, or to build a community that can last a few weeks or months, until administrators take notice. Other stakeholders are external. There are the consultants who labeled Du Bois “a turnaround school”. There are the donors and politicians invested in the library's future or its historic architecture, “the nice white people” librarian Grant said he hated cleaning the Digital Commons up for. There are the investors who could call for a “pivot” in Ji or Travis' business model. And there are the state institutions that set standards for test scores, budgets for schools and libraries, or workplace standards for teachers, libraries, and startup employees. Each of these outside stakeholders exert pressure on the permanent beta process, placing limits on the daily feedback and flux in order to align those day-to-day practices with the longer-term goals they also establish and which they judge the institution against. This is the administrative level of the political economy of hope, where exactly what hope means, who it is for, and what it does for the city, is defined with reference to multiple organizations at once, with long-term visions for DC in mind. This is the level on which libraries are spoken of as transformative spaces for hacking and design, or where a vision is sketched out where charter schools could personalizing the education of every child in the city.

To their credit, Neff and Stark recognize there are certain internal barriers to the permanent beta process and the gains which any participant in the organization might receive from it: A lack of democratic participation and responsiveness to it means the organization in permanent beta will not be able to equally reward its contributors, make use of their feedback, or draw them into the next iteration of the process. They argue this can be the product of failed feedback mechanisms within the organization, but, in the expanded, comparative view provided by the present study, these failures can also be the product of inequalities outside the organization, producing stratified access to the process and the resources necessary to participate in it.

With these internal mechanisms in mind, we could think about how many of the planning meetings for the new, transformative MLK space happened without the input of the people who were to be transformed along with the building—often just a few feet away, on the other side of the Dream Lab's glass cubicles. Some homeless patrons absolutely have the political and economic literacy to participate in these discussions but others do not and either way the message is clear that that is a space not for them but for "the nice white people" from outside the organization. The situation is similar in Du Bois school board meetings. All are formally open to the public, but outside attendees were rare. Students never attended and there were never more than three parents at a given meeting, besides the parent representatives on the board. These parent attendees were, in the meetings I attended, always middle-aged, middle-class black women—mothers or grandmothers of students—with years of experience in the school system or similar bureaucracies. Working-class and/or Latino/a parents were absent.

But of course, these parents did not carry the weight of the consultants hired to deliver the bad news, or the municipal government judging Du Bois' test scores. The 'permanently beta' theory thus need to be adjusted to include the stakeholders outside of

the day-to-day life of a particular organization who nonetheless help set the boundaries of experimentation within the organization. Many of these outside stakeholders establish these boundaries through formal democratic participation. The very existence of the public library and public school systems are fruits of this process, and they establish clear limits on the degree to which day-to-day experimentation can disrupt longer-term goals. Both institutions have to accept just about anyone who walks through the door. That simple fact is at the core of their liberal, democratic values. These values are of course not politically innocent. The institutional racism Irene identified in Du Bois' imperative for social reproduction has long been a feature of public schooling (e.g., Kozol, 2012; Shedd 2015), as well as libraries (Luyt, 2001).

My point here is not a normative claim of which model is superior, but an assessment of their relationship: The cultural and organizational architectures of these institutions of the liberal welfare state survive and conflict with the nimble neoliberal reforms adopted more recently. There is a legacy culture built into schools and libraries; often very literally, with structures like the length and timing of the school year dating back to an era when many students needed to be free to work the farm during the summer months. These bedrock organizational forms make their own statements about what the space is supposed to do for the people in it, and it is difficult, if not impossible, to ever fully erase them. Even though take-charge neoliberal reformers, Michelle Rhee being a strong local example, may put enormous effort into disrupting these liberal visions for the function of the space, attempting to erect in their place a model of citizenship more responsive to the shifting needs of the market. The conflict is never fully resolved, even if the infrastructure is overdetermined in one direction or the other.

Of course, outside stakeholders do not only inhibit the flexibility of an organization attempting to operate in permanent beta. They can also provide both

symbolic and material support that makes the state of constant flux easier to manage. This was certainly the case at Du Bois. A strong donor base and designated staff for grant-writing and fundraising helped elicit the sort of outside financial support and political alliances that generated one of the highest per-student budgets of all DC charter schools, let alone public schools overall, and allowed them to absorb the costs from, for example, drastic changes in the one-to-one laptop policy.

This sort of support was more readily apparent for startups even when it was not exactly a reciprocal relationship, as InCrowd missing the election at the end of Chapter 2 demonstrated. The 2012 Entrepalooza startup party, hosted by a commercial real estate firm along with local sponsors and a visit from Mayor Vincent Gray, was a terrific representation of this. As was the June 2014 Digital DC Thank You party, on the rooftop of the not-quite-open CityMarket at O luxury condominium building. There, Mayor Gray awarded several minor tech celebrities for being Tech Ambassadors for the city and reiterated the startup incentives—reviewed at the end of Chapter 2—the city was now offering as guests drank free beer, nibbled on gourmet popcorn, and picked up Microsoft-branded party favors.[26] Real estate was another touchstone, with each speaker toasting the new cranes in the distance and the new (white) workers that had rushed into the city post-recession to fill these buildings and boost the tech economy.

DC's startup incentives and this sort of repeated, public support for tech from the municipal government and real estate capital certainly lent legitimacy to the startup scene and supported the sense of mission that was so important to founders and firms. It also provided the sort of material assistance that allowed businesses to move quickly, add

26 Gray had recently inked a deal with Microsoft to bring a large corporate campus to the former St. Elizabeth's hospital site. He mentioned it in every interaction with the tech community and in many of his stump speeches because of the symbolic value attached to bring a tech giant 'East of the River', i.e., to the largely-black Wards 7 and 8 of DC across the Anacostia River, which had yet to see the sort of investment and gentrification the rest of the city had in the wake of the recession.

personnel or hardware, recoup investment, and 'pivot' their organization in response to changes to their software and its reception in the market. Public support from local representatives of state and capital made a clear statement about startups as the hopeful future of rapidly gentrifying city. It signaled that these entrepreneurs were the leading edge of a city on the way up, and on the way out of the federal government's shadow. As we will see below, as we shift from considering 'permanently beta' organizations to the process of presence bleed, institutional isomorphism may be desirable or even required for public institutions envious of this sort of success and legitimacy. However, it is difficult if not impossible for public institutions to mimic the organizational forms of private institutions with greater outside support for their mission and fewer outside restrictions on it.

Despite the difficulty, schools and libraries do keep trying to mimic startups. That this institutional isomorphism never quite succeeds is perhaps then a feature of the political economy of hope, rather than a bug in it. This hope is not just for individual social mobility but for welfare state institutions trying to upgrade and legitimize themselves for the information economy. Startups embody the good life, surviving and thriving within an otherwise austere neoliberal political moment, and it is towards that example which public institutions are compelled to strive. Reproducing the hope in social mobility through personal computing and the skill to use it, the transformation of the problem of poverty into a problem of technology, then appears as a way not only for individual organizations—Du Bois, MLK—to achieve legitimacy and acquire crucial resources, but a way for a wide swathe of institutions—schools, libraries—to generalize the social reproduction of knowledge work, to include everyone within it.

That schools, libraries, and other public institutions keep trying and failing to become startups is a sign that the hope borne of a specific political economic moment—

the Clinton 1990s—and focused on the 'right' side of the digital divide—tech entrepreneurs—does not fit those institutions. The failure of hope shows that there is not room for everyone within high-paid, high-skilled knowledge work. And as it is presently organized, under the political economy of hope, there never will be. Those on one side of the divide of course need those on the other side. Locally, helping professionals of course need students and patrons to help, and an influx of mobile, flexible, well-paid knowledge workers requires an even larger cohort of precarious service workers to reproduce their life styles (Sassen, 2001; Ross, 2008). Internationally, the value chain that ends at InCrowd's point of sale requires violent resource extraction (Fitzpatrick et al, 2014), dirty industrial production (Ross, 2013), and on-call, contingent customer service or debugging support abroad (Roberts, 2014; Xiang, 2007). They are inseparable.

But still, public institutions persist in their hopeful institutional reform. They keep trying to close the digital divide, remaking themselves and their participants in the process. That this so often fails, remaking people for an unequal system which the vast majority of us can only look at from the outside and continually attempt to revive our faith in, may then be the true purpose of this particular geography of social reproduction. The conclusion of this chapter will return to this idea of who is left on the outside and why, how to relate to a system that renders so many of its participants surplus to requirements. It is enough to note now that this repeated failure, the fact that not everyone can learn to code and that most who do will not be rewarded with a well-paid gig, easily becomes an indictment of these public institutions, a sign of their obsolescence, and evidence of need for further reform and the import of new role models —people, organizations—from outside. This breakage, this uneven geography of social reproduction, is produced not by an implacable, inhuman logic of capital accumulation outside social life, but by the messy interactions within these institutions by people who

really do hope to close the digital divide and really do believe in the social justice mission of their institutions. Their choices matter, and they exercise agency through their choices, but the incentive systems of the institutions in which they find themselves make particular choices more or less desirable. They reproduce the means of securing that hope, even if it is clear that the ends do not exist as they previously imagined them to exist. This relationship between means and ends is at the core of the process of reforming schools' and libraries' time-horizons to be more like startups.

The concept of the political economy of hope is meant to connect, while differentiating between, the increasingly larger scales of individual technology use, institutional reform around new models of work and outreach, and urban development. Power would seem to flow downward in this schema but that is not always the case. Organizations operating in permanent beta operate at the meso-scale, importing models from peers in the same domain but outside the same city. Individuals seeking to thrive in that sector adopt those practices, and macro-scale pressure from elites—represented in this chapter by the Education Innovation Summit speakers, or the political alliances with real estate capital that support DC Tech—encourage other organizations to do the same. The hope in personal computing to power social mobility here appears as the need to model your organization on the practices of the software industry in order to survive. This hope serves different purposes at different scales. Individuals adapt to the breakneck innovation of their organizations as part of their embrace of the mission. Organizations institutionalize this state of constant flux in the hope of keeping up with the demands of the market. Cities hope that spreading this model will help recruit more of the companies and workers most in tune with this practice, and that institutions of social reproduction will operate in permanent in order to draw closer alliances with those companies and transform the city and its citizens in their image.

We have seen this dynamic play out with respect to the organizations who are, or who are attempting to be, 'permanently beta', and now turn to uneven institutional isomorphism in the case of 'presence bleed', where we will first track the similar time-horizons of digital labor in startups, schools, and, libraries, and then review the incentives and pressures that lead to public institutions adopting these private models and the points of failure therein.

Timelines and Boundaries of Presence Bleed

In the previous chapter, we used Melissa Gregg's (2013) concept of presence bleed to understand how schoolwork, for both students and teachers, digitally expanded outside the walls of the Du Bois. Not only were teachers able to live out their dedication to Du Bois' mission of empowerment through the constant contact provided by email especially, but also digital gradebooks, course sites, and cell phones, but students were able to do the same. Presence bleed cut both ways, however. Just as the school day and the work day seeped beyond their usual hours, so too did play time, friend time, and family time. Social media was blocked on Du Bois' intranet, though students figured out ways around that, precisely because certain sorts of presence bleed were understood to detract from the school's mission. These efforts only intensified as my year at Du Bois went on. Against the school's liberatory values, the infrastructure for entrepreneurial education, particular the SchoolForce back-end for grades and behavioral infractions, was focused on disciplining distractions from school time, digital disruptions to the social mobility mission. The locus for all this was of course the ubiquitous smartphone. It became the flashpoint for most student-teacher conflicts about what exactly was supposed to go on during specific periods of the school day.

The permanent beta strategy adjusted Du Bois', and the library's and startup's, to lesser and greater extents respectively, time-horizon so that constant day-to-day experimentation was continually adjusted with respect to new data and new feedback, as long as the ends of this experimentation furthered the charter's mission of quantifiable social mobility, enforced by the state and its board. Nowhere was this more visible than the all hands on deck meetings called mid-year in response to new data. The hope in personal computing to power social mobility here manifested as a push to rework institutions to be as flexible and nimble as possible, to reengineer social reproduction in response to the needs of an uncertain, constantly changing labor market. New data would point towards new successes or failures and the institutional apparatus would shift so that students would always have the most up-to-date curricula that would make them college- and career-ready. Hence the frequent complaints from the first senior class, acknowledged by many of their teachers, that they felt like lab rats, constantly experimented upon.

The library was not this responsive to new data but it was also nowhere near the sort of total institution Du Bois tried to be. At MLK, the permanent beta strategy was most visible in its constant reworking of space and programming—the Fab Lab being one example—hoping to find the right combination that would bring new, middle-class patrons to the library with the same regularity as homeless patrons. These experiments would hopefully align the current everyday use of space with the long-term vision of the transformative, renovated space.

The practice of presence bleed also adjusted institutional time-horizons, but in a somewhat different way. Where the permanent beta strategy aligned changing daily rhythms with hopeful long-term goals, the presence bleed strategy united a whole host of temporalities—work time, home time, play time, family time, etc.—into one cohesive

vision of knowledge work and disciplined temporal intrusions to that vision. At Du Bois, this allowed for a full-court press of digital nudges and training lessons across the length of the day in support of its mission of quantifiable social mobility. Hope here lies in the ways teachers tried just a little bit harder every week to call more parents, or leave gradebook reminders, or respond to student emails, in the hopes that that last little nudge would be the thing that helped get these students over the edge, to the college of their choice and the job of their dreams. These largely white teachers were generally OK with this expansion of the work day across their lives because of their dedication to Du Bois' empowering values, because they were genuinely dedicated to providing the best educational experience they could for their largely black and Latino/a students. Those empowering values, which purported to support students' whole selves, had to be adjusted in the face of the charter's social mobility mission, however, and this is what led to the disciplining unprofessional presence bleed: texting friends under the table, logging onto Twitter on school laptops and the like.

The presence bleed strategy appeared in similar ways in schools, startups, and libraries, but with important differences based on the uneven terrain of the political economy of hope and their different reasons for reproducing that hope. This chapter will conclude with a look at the incentives and influences driving this process of institutional isomorphism, but first it is worth reviewing exactly what presence bleed looked like in these different spaces.

Within DC Tech, presence bleed was *de rigeur* and generally taken as a normative good. This was especially true for social media use by both individuals and organizations, where capturing moments of play 'after hours'—though the idea carried little weight—was a normal part of working life, and entrepreneurs and firms put serious effort into projecting a playful vision of life at work online. Importantly, in order for this sort of

normative heterodoxy to be effective, it needed to, implicitly or explicitly, oppose itself to obsolete, ideal-type professional categorizations of work, play, publicity and privacy: Old Economy firms and workers were supposedly focused on the job at the job and the inner workings of the firm were only revealed in carefully managed moments of publicity; at play, whether at home or at leisure, workers could be themselves and share that self with whomever they pleased, as it long as it didn't intrude into the office the next day. Gregg herself outlines these normative historical comparisons by reviewing classic studies of white-collar labor like Whyte's *Organization Man* (2013), first published in 1956, or C. Wright Mills' *White Collar* (2002), first published in 1951. These comparisons between obsolete, industrial-era organizational forms and their innovative, information economy iterations of course also appeared at Du Bois—where DC Public Schools was the negative referents—and MLK—where the book-centric library, and indeed the aging building itself, was the negative referent.

Through personal computing applications—social media but also email, blogs, and some customer relations management software—New Economy firms and workers could rebel against this apparent orthodoxy—even if its ideal type never really existed in practice—and take a playful approach to work that could be shared with the world as it happened (e.g., Tim live-tweeting Product demos at InCrowd); or, outside the office, turn bars, parties, and breakfasts into not just private networking moments between peers but public displays of connection that draw the mission of the firm, or the local tech community, into new places. The sort of presence bleed that turns work into play and vice versa, especially the public-facing work of social media, is thus a critical tactic for producing and reproducing the postindustrial work ethic that, as Chapter 2 discussed, Kathi Weeks (2011) described as uniting individual fulfillment and the demands of waged labor. Indeed, Alice Marwick's (2013) ethnography of social media firms in San

Francisco demonstrates that these technologies, some of the clearest representatives of the 'new' tech sector as opposed to the dotcom era, are also products of this work ethic and the particular people for whom it best fits. Young, well-paid, white men developed a suite of applications (e.g., Twitter, Facebook, FourSquare) that quantified friendship networks, blurred public work and private play, and united dispersed performances of the self into a single 'brand' because that was how they experienced their professional world.

Most entrepreneurs embraced this blurring of work and play through technologies of presence bleed as a necessary and empowering part of their job. David, a mid-30s social media marketer who rose through several startups to eventually become VP of Digital Marketing at one of the biggest PR firms in the world, said:

> What's the difference between personal and professional? To me there's none. And I made that distinction a long time ago. For instance, on my Facebook page I took off religious and political views. Because at the end of the day I'll discuss issues that are important to me but when I have clients that are on there, when I have media contacts that are on there, does that really need to be on the front page of what they need to know about me? I don't think so...I consider myself something of a public figure. And I don't mean that in an egotistical way. And I'm sure other people you've talked to have said similar things, but when we live a public life when tweeting out photos at night, blogging non-stop, you need to either be anonymous or go all in to do it well. And I decided years ago to jump all in.

The digital blurring of work and play is deemed 'authentic.' “I'm gonna be who I am and I'm gonna say the things I want to say” David says later. It is a source of pride and an important way to connect with peers but it is also framed in work-safe terms: removing religious and political views so that he can be properly public. And while politics and religion may be verboten, broadcasting night-life photos (e.g., industry events that may be partly or wholly a party, what you're eating at a new restaurant) is somewhat expected. This full-on authentic presence bleed was not permitted for the students at Du Bois. While David's job was certainly the sort of work for which they were being prepared, and there were certainly moments of personal expression across the school space and the

school year, this sort of social media playfulness could not fit into the test- and grade-driven charter mission. Not that it was all about numbers. Teachers like Sam would remind their students that the racism ever-present in the offices of the information economy meant they would suffer for slip-ups. They had to master the working day before they could innovate upon it, as David had.

Kevin was a community relations lead at the DC office of a popular ridesharing startup when we first met in 2012. He was always talked about as something of a social media *wunderkind* in DC Tech and was since promoted and moved to a global management position in the firm's San Francisco headquarters. Both his current and previous employer reached out to him through Twitter. He also embraces a discourse of authenticity and a blurring of the personal time and the working day online. Kevin wouldn't have it any other way:

> For me it's like, it's a combination of I don't have anything to hide and I like being discovered. And I feel confident enough in my abilities as a professional that I feel like I can say, you know if all of a sudden [current employer] said "You can't do this" or "You can't say this on your personal Twitter profile", I could basically be like "Fuck you. You can keep me or not. Or I'll go somewhere else." I feel like I can be more selective with what I'm doing, based on whether or not they respect my personal views and ability to communicate those however I want.

Whether discovery is appealing and whether someone has "anything to hide" at work is of course a function of the professional community in which they find themselves. Kevin geared all the times of his life towards his professional success as a way to survive an economic sector dominated by risk and uncertainty, similar to how Du Bois' teachers embraced presence bleed in an effort so secure their students' futures. This management of risk through technology will become especially important in the Conclusion. For now it is important to note that presence bleed is not just a strategy for navigating risk, but one which can itself invite risk. And that these risks are unevenly distributed across tech, let alone across the other institutions hope to live up to tech.

This is especially true for those entrepreneurs and startup employees who, unlike Kevin and David, are not white men. Olivia, a black woman and mother working in mobile development who also leads events to get young woman interested in coding, has nine different Twitter accounts each dedicated to a different part of herself. One for personal reflection, one for politics, several for different businesses in which she's involved, others for different event series, one just for critiquing tech companies who identify as DC Tech but are not based in DC. She takes pains to separate out personal and professional accounts. The former rarely even mention the parts of her daily life touching her family, lest her children or husband, a police officer, catch some of the blowback she's received for certain tech initiatives or policy critiques. While blogging or tweeting, she asks herself over and over "I want to say *this*, how will it reflect on *that*? How will it reflect on me, can I say it here? Do I need to say it as this other person?"

Alan Liu (2004) notes that "there is no recreational outside" (p. 24) to knowledge work, because of the work ethic driving it and the technologies supporting it. This is empowering for some, stressful for others. And that is just within tech. As Chapters 3 and 4 showed, white knowledge workers in libraries and schools adopt a similar work ethic to tech entrepreneurs and use similar technologies to support their mission. All embrace presence bleed, the tactical extension of the digital work day, in support of their hopeful mission. But the precise nature of that mission, the people involved, and the resources available to support it obviously differed from place to place—and so they could not each embrace it in the same way. Public libraries and charter schools were constrained from fully adopting startup practices, including the fully 'authentic' presence bleed David and Kevin demonstrated. This reveals an interesting contradiction: Presence bleed embodies the hopeful future of knowledge work, but it is precisely because that future is so important that schools and libraries must discipline their students and patrons when they

try to digitally import private times—for porn, for Instagram—into work time. The adjustment of organizational time-horizons here becomes an act of discipline, largely because of the demands placed on these institutions by outside stakeholders. The future embodied by the habits of white knowledge workers cannot be granted to black and Latino/a students and patrons in the present. Hope must be withheld until they're ready for it. Anything else is too much of a risk for the entire project.

Teachers like Sam, the Physics instructor and senior team leader who lived down the street from Du Bois, surely embraced the presence bleed that came with the school's use of email, cellphones, and SchoolForce. It was what their mission and their students' needs demanded; recall Sam wishing for more midnight emails from students. Admittedly, some, like Amanda, the Digital Music and Videogame design instructor who had children of her own and threatened to quit during my fieldwork, found this extension of work stressful, futile, and productive of a customer service orientation to education in students'. They were, however, in the minority. The stress that came with the presence bleed of work was normal but it was part of the job. Like startup employees, most teachers not only accepted this but embraced it.

Less so with librarians. They absolutely answered work emails outside of work hours but not with the same frequency or fervor. There was less contact time with specific patrons tracked day after day, less of a specific charge to adjust and assess the performance of individual patrons, and just less data (e.g., grades or behavior reports, in teachers' cases) to review. Their jobs and the infrastructure supporting them allowed them to separate public work and private play, even if most confessed, like Becca, the prison librarian who derided the transition to iSchools, that being a librarian was integral to their identity and they could not imagine being anything else.

But these were work technologies that stretched wage labor into other times of the day, other life rhythms. The story was somewhat different for social media. In tech the use of these playful technologies by individual entrepreneurs was a way to build a coherent identity that could, as Neff and others (e.g., Kuehn & Corrigan, 2013) suggest, help manage the risk of a sector where jobs and whole firms rapidly grew, changed, and died. Of course coherency of identity is always a matter of force, a function of power—presence bleed between work times and play times was riskier for some, as Olivia's example showed.

If schools and libraries were perfect institutions of social reproduction instantly responsive to market demands, then building a personal brand out of tweets and Instagram photos would be built into the programming. This was not the case at Du Bois. Certainly, individual teachers made use of Twitter in particular, creating specific accounts or hashtags which students could follow for homework updates or news stories related to class. But the fact was that most social media was blocked on school WiFi and students' presence bleed was, especially after the mid-year administrative ultimatum and counter to school values, disciplined in such a way that technologies of professionalization (e.g, email, SchoolForce) were embraced and practiced but technologies of play (e.g., social media, phones) were not.

Individual librarians offered introductions to different social media alongside classes on digital publishing, mapmaking, and more. In the Digital Commons, these Web applications were of course permitted; porn, violence, and loud music were the only things worthy of hands-on policing, and even then there were gray areas, especially at branch libraries with a different, less wide-open architecture. But librarians like Grant, the black librarian deeply respected by his peers and deeply disappointed by what he saw as the institutional failure of the Digital Commons, looked at rows of screens filled with

Facebook or YouTube and saw them as evidence of a lack of seriousness, a lack of interest in professionalization, and a choice to mismanage precious time. Grant and others of course admitted that for homeless patrons especially, the choice to spend a session, say, learning Photoshop rather than liking friends' photos on Facebook, might provide a psychological boost, but would not change the realities of the labor market. Grant deeply believed in the social mission of the library and knew his patrons were being failed by other social services. But he told me that in his more pessimistic moments, he thought his role in the Digital Commons was largely that of babysitting—helping people who had little opportunity to work to bide their time.

Successes and Failures of Institutional Isomorphism: Reproducing Inequality

We see then that some forms of professional presence bleed were quite similar across startups, schools, libraries, but presence bleed that detracted from professionalization was extensively disciplined at Du Bois and understood as an index of failure at the library. The story was similar with the permanent beta strategy. There, breakneck innovation at the day-to-day level, the constant flux of reorganization in response to new data and new feedback, was only acceptable if it fit into broader, more regimented visions of social mobility. Institutional isomorphism in each of these domains was incomplete. When it did succeed, there were three primary forces encouraging adoption of the time-horizons of knowledge work in schools and libraries: The normative pressures exerted by demography and professionalization, and the mimetic pressure that public institutions feel when their goals and how to reach them are unclear and successful examples from the private sector are made readily available.

The first and most obvious link between institutions is demographic: The middle-class helping professionals at MLK and Du Bois on the one hand and startup

entrepreneurs on the other are largely white, middle-class, college-educated people who immigrated to DC in the hopes of a new job or for a specific, hopeful one. All had Bachelor's degrees. Many, especially teachers (Masters of Education) and librarians (Masters of Library and Information Science), but also founders and 'non-technical' members of tech have advanced degrees (e.g., Travis holds an MBA from Georgetown, Ji an MA in Design from St. Martin's)[27], or have pursued nontraditional skills training experiences from internship programs like Teach for America or workshops like General Assembly.

Their experience of the labor market is that the skills-to-job pipeline has worked. They feel they made the right choices. The Clintonian human capital enhancement mission thus makes sense and it makes sense for them to view and act on the problem of poverty in that manner. Indeed, in a recent *Washington Post* profile, DC Public Libraries CEO Richard Reyes-Gavilan insisted that the mantra guiding him through the MLK renovation was that “libraries are not their buildings” but “engines of human capital” (Martell, 2016).

These demographic similarities exert similar normative pressures within organizational fields, so that librarians, teachers, and entrepreneurs identify the work habits adopted as they rose through college and their profession with the rise itself. Demographic homogeneity within organizations supports the perception that what worked for one will work for most, even if demographics, luck, investor interest, or other factors were more powerful than these work habits. In schools and libraries, these helping professionals' employment and educational histories obviously differed from most, if not all[28], of their students and patrons. This is a power relation inherent to these professions:

27 In contrast to its self-produced image as a haven for iconoclast dropouts such as Bill Gates or Mark Zuckerberg--dropouts from Harvard, to be sure--tech sector job openings are more likely to list educational requirements than employers at large (Weber, 2016)

28 One of the friendly fixtures of the Digital Commons was an older man who had previously been a

The trained train the untrained in their image. These knowledge workers thus represent the hope of social mobility in their own biographies.

But it is worth noting that their educational experience is not even typical for their own cohort and that some majority thinking—the tendency to identity your and your peers' experiences as representative—may be at play here. My informants in these professions were overwhelmingly 1) white and 2) in the first half of their post-college careers, within the 25-34 and 34-44 Census age cohorts. But only 36% of each of these cohorts and white Americans generally—it is remarkable how consistent that number is across these three different groups—have, at the national level, obtained a Bachelor's degree (US Census Bureau, 2016). Indeed, a recent BLS report (2016) identifies the educational experience of the typical 29 year-old not as having completed college and gone on to a steady career, but having only completed 'some college' and worked a series of jobs in fits and starts. So even before they begin to work with their students and patrons, the experiences of these professionals appear to be unrepresentative of their own age and race cohorts at the national level. Their atypical biographies may represent hope in mobility, even as it shades their thinking about how exactly social mobility works. Irene seemed to catch on to this tic in her teachers' thinking when she said with her usual sarcasm that "apparently it's assumed that all white people are successful and whatnot."

Second, DC's librarians, charter teachers, and tech entrepreneurs are all involved in professional organizations justifying their mission to the public and enhancing communication between members—and thus exerting normative pressure on individuals' professional practice. For librarians there is, after a year of employment, membership in

professor at Howard but was now living rough. He spent much of his days reviewing books on Renaissance art and constitutional law, a good citizen of the library who still frightened some visitors who were not regulars with his constant low-level self-talk. Many other homeless patrons had completed college or attempted some of it and dropped out. I suspect this was not typical, but have no comprehensive data to support that.

the union. Members of Eugene's 'hipster contingent' are generally too new to the profession to learn its politics and participate heavily in the union (Eugene is a noted exception here, participating heavily) and so receive more professional guidance from their iSchool networks or interest groups that also connect with the civic-minded tech community, such as Code For DC. This is more apparent with charter teachers in DC, who are non-union and often involved in interest groups around their particular subject area (e.g, local math teachers) or more organized professional associations such as Teach for America alumni networks, as well as frequent training and sharing events like the Education Innovation Summit.

DC Tech has the fewest formal professional associations; although particular businesses will participate in the sector in which they're 'disrupting', e.g., InCrowd leaders attend many hospitality industry trade shows and hotelier conferences. But it does have a huge variety of interest groups around specific coding languages or subject areas, demo series attended by the hundreds, and frequent parties, pitch sessions, and networking events hosted by legacy firms (e.g, Verizon- or Lockheed Martin-sponsored hackathons), new firms looking to make a splash (e.g., InCrowd, SocialRadar), or the municipal government— through direct sponsorship, in-person support, or venue provision. These networks create normative pressure for homogenous practices *within* organizational fields (e.g., among fellow librarians, teachers, or techies). And then certain of these networks create similar normative pressure *between* organizational fields, so that librarians and teachers begin acting like entrepreneurs. Chief among these are iSchools, acting as a training center for a new generation of librarians, and education reform interest groups and philanthropies, like CityBridge's grant programs for schools and teachers, investing young teachers with a sense of mission and a 21st century skill-set to match.

Third, while startup life is of course stressful and complex, the discursive links between tech work and social mobility are much more readily apparent than the links between patrons' or students' social mobility and the methods of librarians or teachers. The normative pressure exerted by the demographic factors listed above—where social mobility by technological professionalization 'makes sense' to a specific cohort of white knowledge workers—here intersect with a clear mimetic pressure: The mission of schools and libraries is clear, but the means are not and even the operationalization of that mission into specific goals is a matter of much debate (e.g., librarians' uncertainty over the internet porn question, teachers' contentious relationship with the standardized testing regime). In contrast, learning to code, or learning the skills and dispositions of people who are currently paid well to code, appears comparatively simple—particularly to outsiders. When pressed, teachers and librarians always admit that there are no easy answers to what their institutions can and should do about poverty. But answers must be formulated in order for their work to carry on. Librarians must know who gets more or less time on a computer and teachers must know what to do about the student texting in class.

Examples are thus extraordinarily valuable here, both in these sorts of day-to-day operations and in order to meet longer-term needs such as proving legitimacy and activity to powerful outside stakeholders such as parents, donors, and state review boards. And examples are forthcoming from the tech sector, whether those examples are found in the media or within helping professionals' own institutions. These examples might occupy the same space in which librarians and teachers work (e.g., the Dream Lab or the DC Tech demo series that brings hundreds of entrepreneurs to MLK every month). They might come from personnel transfers between the tech sector and education or librarianship or training spaces shared by both sectors (e.g, iSchools). Or they might be

presented to personnel by powerful members of their professional networks (e.g., the Education Innovation Summit keynotes). Even if, as most tech insiders readily admit, 80-90% of startups fail, most in their first year.

These examples are not only made available in times of institutional flux, uncertainty, and looming illegitimacy. They also garner the sort of support from state and capital that teachers and librarians can often only wish for. The school turnaround expert who raised some teachers' hackles at the Education Innovation Summit had had a successful corporate career, then a successful career as consultant to public school districts, before finally trying his hand at charter management. At the same event, Jim Shelton framed his disruptive ideas in the context of his move from being Deputy Secretary of Education to 2U's Chief Impact Officer—after a year in which 2U produced $83 million in revenue (though no profit) and had a very successful Initial Public Offering which left their valuation at approximately $1.4 billion (Kolodny, 2014). For relatively lower-paid, over-worked knowledge workers in libraries and schools in search of clear answers to overwhelming problems, these examples are not only available but meaningful. CityBridge not only presents teachers with these examples but funds an annual class of fellows—who gave the Starbucks order presentation—to act as examples in their own schools.

But the mimesis is never perfect and there are clearly members of these institutions missing from this schematic—students and patrons. Even with the startup world, there is a good deal of friction to the playful process of presence bleed for women and people of color like Olivia and Lisa. And as Chapters 3 and 4 showed, the digital migration of playful selves into work spaces is tolerated in the library as long as it does not disrupt the institution's new, entrepreneurial mission; the same migration, especially at the site of the phone, is rigorously disciplined at Du Bois, sometimes counter to its

stated values but in support of the mission for quantifiable social mobility against which all charters are judged. How can we account for the uneven success of institutional isomorphism across lines of race, class, and gender, the uneven reproduction of entrepreneurial presence bleed and the innovative pace of the permanent beta strategy across the people serving and being served by these organizations?

The answer goes back to the Clinton administration's framing of the problem of poverty as a problem of technology in the 1990s. As the Introduction and Chapter 1 showed, successfully framing the problem in this manner shaped the political possibilities of technology transfer not only for researchers interested in access but also for the institutions extending it. 'Access' became not just a technology or skill but the opportunity to compete in the information economy. In an era of austerity for public institutions, this charge becomes not just a mission statement and a political lifejacket in which to weather the storm. Librarians and teachers adopt technologies of professionalized presence bleed and discipline their patrons' and students' digital intrusions to the working day because the latter have not yet reached the level of competitiveness, embodied in the examples of tech entrepreneurs, necessary to survive the information economy. And time is of the essence. If the digital expansion of working time helps entrepreneurs survive an uncertain economy by building a cross-platform personal brand, students and patrons must first be prepared to do 'the basics'. The hope embodied in knowledge work must be presented to them in an incomplete, regimented fashion if the larger project of encouraging social mobility through technology transfer and training is to be preserved.

There is of course an element of racism here wherein those poor and working class people of color working with largely white helping professionals are not afforded the technological freedom the latter enjoy because they are not 'ready' for it. This is

inherent to technology transfer programs under the broad umbrella of modernization theory, as, recalling Chapter 3, Madeleine Akrich (1992) outlined with reference to the "television problem" in development work. At its darkest moments, this incomplete institutional isomorphism can appear to these helping professionals, recalling librarian Grant's disappointment with his "babysitting" role, as a charge to manage those people unfit for knowledge work and surplus to requirements in the information economy. This assessment may be true in certain times and places, but when approached as an indictment of character rather than of structural trends holding down wages and increasing long-term unemployment, it undoubtedly insults the ability of patrons and librarians to control their own lives (Johnson, 2015). It also undersells the cultural and economic role of these institutions of social reproduction (Farris, 2015; Vogel, 2013).

Widening inequality has been a persistent feature of the information economy, and this inequality is persistently racialized. Black unemployment has remained high throughout DC's uneven post-recession boom. Culturally, it is important to garner individuals' consent to this inequality by training them in tactics like professionalized presence bleed, this habit of hope, and by assuring the trainers of their crucial role in managing the problem (Darity, 1983). Even as many of these trainers—recall the hipster contingent or the mass firings of black teachers during Rhee and Henderson's tenure—adopt this culture precisely at the moment they replace black predecessors. Within DC's political economy of hope, disruption is often focused on professions (e.g., education, healthcare, librarianship, clerical work) dominated by black women, rendered obsolete in the rush to the information economy. Economically, it is important to reproduce labor power for the market even if these workers are surplus at the moment—whether unemployed, or working in the low-wage service sector that reproduces the labor power

of higher-wage knowledge workers—so that future needs can be filled and the wages of current workers can be suppressed, as Alan Greenspan admitted in the Introduction.

The incomplete isomorphism of libraries and schools with respect to startups institutionalizes this uneven political economy. It turns the digital divide into a feature of the information economy precisely by presenting it as a bug ever in need of repair. An ongoing crisis that cannot be solved because, as the Introduction showed, the labor market stratification and urban poverty at the core of the political economy of hope cannot be resolved through a program of human capital enhancement. What the everyday life of these public and private institutions shows is that the hopeful mission driving that program forces them into a state of constant flux and a continual presence bleed that extends work into other moments of the day. Public institutions cannot live up to their private role models in this regard, but failure is only ever a sign that more work is needed.

This pattern of imitation and failure is perhaps a more effective architecture of social reproduction than that of American industrial capitalism, where the working class, especially its nonwhite members, were explicitly segregated into institutions geared to reproduce laborers rather than thinkers or managers (Laslett & Brenner, 1989). Today there is a confluence of forces producing something different. Organizationally, the successful, relatively uniform bureaucratization of public institutions identified by DiMaggio and Powell professionalizes these institutions and, as the comparative perspective shows, encourages them to approach their challenges as one of professionalization. Economically, a volatile, global information economy demands rapid change from the organizations within it, while rapidly redefining who and what comprises socially necessary labor. Politically, a neoliberal political culture defines the problem of persistent poverty within that information economy in terms of a lack of

human capital and a lack of access to opportunities for competition; it also tasks institutions of social reproduction with enhancing that human capital and providing those opportunities.

What emerges is a system of social reproduction where public institutions must reproduce the hope embodied in the tech sector, and adopt the practices that startups use to link their everyday means with their hopeful ends. The strains on this system and the frequent failures of it are apparent to most, it is in the very nature of schools and libraries that they cannot fail to live up to the startup model—though that does not mean neoliberal reformers will not continue to try. But even the conflicted members of these institutions, skeptical of digital hope but invested in helping others, must continue reproducing this hope if they are to survive in the present political economy. The common sense of the digital divide is at once forced on them and embraced by them. It is the only way to make things work.

The digital divide frame garners widespread consent to the landscape of inequality produced by this political-economic confluence, dedicates institutions of social reproduction to finding entrepreneurial solutions to these bugs in the system, and enlists those on the 'wrong side' of the digital divide in that entrepreneurial project. Our institutions begin to look more and more similar, at least in terms of their methods and goals. They speak with one voice, or at least sing the same song. These institutions and the people within them are remade in the service of that hope because we know that the right tools and the right skills will help us close the divide. When those tools and skills fail, it is because the hope itself was imperfectly reproduced, the beta-testing process not fully executed. So millions of dollars are spent separating the Dream Lab from the Digital Commons or reissuing laptops and hiring new teachers at Du Bois. But the hope remains intact.

Coda: The problems of scale and choice in the political economy of hope

If these public institutions fail in their attempt to mimic their private role models, if the incentive structure within the political economy of hope makes these choices so attractive that hope persists not in spite but because of these failures—then how much do any individual choices matter in this story? What does an individual patron's dedication to the library's classes mean, how valuable are Amanda's efforts to make coding not just valuable but meaningful to her students in Videogame Design? This is the thorny question of 'agency', or the capacity of individuals to exert meaningful control over their social world. Academic debates about 'agency' often sidestep the empirical question of who did what, where, under what circumstances, with what results, in favor of a more conceptual debate about the nature of that capacity. In the present study, individual capacities are nested within a broader conception of social life, reviewed in the Introduction, where individuals strive to build institutions that outlast their current membership, institutions that then provide instruction and incentive to future participants and which are themselves subject to instruction and incentive from larger structural dynamics in the market, the state, the environment, etc.

Walter Johnson (2003) traces contemporary debates over 'agency' in the humanities and social sciences to the New Social History movement of the late twentieth century, principally in its demonstration of US slaves' political activity against slavery[29]. It took as its point of departure the experiences of everyday people and their relationship to the power, rather than the powerful's version of history. As Johnson notes, this is often an effort to 'give humanity back' to oppressed peoples, but the attempt, in its abstract consideration of human 'agency', often empties the agents of their social, historical,

29 Since both history and politics involve projects of recovery, it is of course worth noting that this turn was prefigured by WEB Du Bois' magisterial 1935 study of 'the part which black folk played in the attempt to reconstruct democracy in America', the subtitle to Black Reconstruction (2007), and the rebuke therein of Dunning School historiography and its Confederate apologia.

political, and economic specificity—and thus the values, incentives, and dangers that made their actions meaningful to them in their time—or worse, substituting that social world for the writer's and their understanding of humanity. Ruth Wilson Gilmore's (2007) approach to the state, space, and neoliberalism has been crucial to this project thus far and her Marxian take on the problem of scale and the abstraction of 'agency' beyond empiricism has guided my own thinking on the matter:

> We simultaneously make places, things, and selves, although not under conditions of our own choosing. Problems, then, are also opportunities. The world does not operate according to an analytically indefensible opposition that presumes that 'agency' is an exclusive, if underused, attribute of the oppressed in their endless confrontation with the forces of 'structure.' Rather, if agency is the human ability to craft opportunity from the wherewithal of everyday life, then agency and structure are products of each other. Without their mutual interaction, there would be no drama, no dynamic, no story to tell. Actors in all kinds of situations (farms, neighborhoods, government agencies, collapsing economics, tough elections) are fight to create stability out of instability. In a crisis, the old order does not simply blow away and every struggle is carried out within, and against, already existing institutions (p. 27-28).

The Gramscian approach to common sense outlined in the Introduction overlays this approach with a critique of an historically-specific cultural milieu: All choices matter, but both the powerful and the powerless draw their choices from a menu not of their choosing, choices produced by the history in which they find themselves. This approach to power, freedom, and activity—what the German philosophers who preceded Marx called the interplay between 'freedom and necessity'—takes 'determination' of human action not as the manipulation of choice through essential forces (e.g., economics, nature) outside human history, but as the setting of rules, limits, and consequences for human action. It is opposed to either libertarian conceptions of agency which individualize politics as a problem of choice between particular options, or liberal understandings of the same—which take human freedom as the product of particular structures, and then work to find the best model of governance that produces the best

results for humans[30]. In contrast, for Marxists, the problem of politics is always the organization of human choice into a collective instrument that attempts to change the rules, or to craft collective freedom irrespective of individual consequences. The question then becomes, to return to an example from the institutions of the political economy of hope, not whether parents and students could or would change Du Bois to meet their needs—whether they exercised 'agency'—but how they interacted with an institution that is inevitably more organized than they are and what results that interaction produced. In fact, we saw that process play out above in the school board meetings. These were open to the public, spaces where the democratic spirit of the school should have shone through. But parental involvement was ever limited to the one or two black, middle-class parents who had experience navigating bureaucracies professionally and now did so in defense of their children. Working-class parents of color had were often working during these meetings, no translation services were provided for Spanish speakers, and the dress, slide shows, and technical language of the outside consultants made it a difficult conversation to intervene in if you did not possess similar cultural capital.

The same could be said for public hearings about MLK's renovation. Patrons certainly reshaped the space every day—into places of collaboration, play, and rest, as Chapter 3 reviewed—but the $200 million renovation was organized by a professional, technical, and financial network that patrons were not in a position to challenge. It would have taken months of campaigning and networking among homeless patrons and advocates outside the library to produce such a challenge. But DCPL and MLK were simply better organized, by merit of an already-existing institutional structure connected to other institutions (e.g., the Mayor's office, the Friends of the Library, private donors). So the entrepreneurial vision of a transformative space won out.

30 Many thanks to my colleague Griffin McCarthy-Bur for writing and organizing around this taxonomy of 'agency'.

To return to hope and failure, individual political action is often visible in the process of institutional isomorphism reviewed above. This is true for both the relatively powerful and the relatively powerless. Bill and Melinda Gates have, for example, reshaped the technological policies of US public schools, charters in particular. Du Bois is able to operate in permanent beta precisely because of generous outside support of this nature. It allows them to 'pivot' to new goals and strategies. This is institutional change enabled by powerful individuals. But individuals can also constrain institutional change, especially if their political efforts take aim at the liberal institutional infrastructure underlying contemporary neoliberal transformations. That DC Public Libraries can only kick out sleeping or violent patrons is in large part due to the 2001 lawsuit brought by homeless man Richard Armstrong against the system's rule, in place since 1979, to kick out those with "objectionable appearance." A federal court of appeals ruled that this violated Armstrong's First and Fifth Amendment rights. Both Armstrong and the Gates were able to "craft opportunity from the wherewithal of everyday life", in Gilmore's words, but their freedom to do so, and the choices available to them, were determined by their different relationships to political and economic institutions.

This differential ability to craft opportunity is an important caveat to keep in mind as we reflect on the relationship between hope and failure. Both hope and failure are, in this project, understood on the *institutional* scale, though their effects play out among individuals. Grant admits the Dream Lab fails because homeless patrons have not taken up the high-tech tools offered to them, and the new tools have not helped them solve the problem of homelessness in the library—and whiter, more well-heeled patrons have been kept away from them. Du Bois' consultants tell the board their school has failed, even though students and staff feel they're thriving in it, because test scores have fallen year over year and the graduation rate is not sufficiently outpacing DC Public Schools'.

Failure is on the terms of these hopeful institutions, in the method of immanent critique explored in the Introduction. But the library remains a wonderful community space, and Du Bois a terrific school. And individuals *do* succeed within them. Patrons carve out spaces of play, collaboration and rest within the library—against librarians' plans for the space. Amanda and other teachers at Du Bois helped Irene cultivate her artistic side and get into a college where she could explore it further—even though those activities were on the margins of the school mission. 'Failure' is here not an indictment of the hard work of poor and working-class Washingtonians crafting opportunity within the political economy of hope. Rather, it is an indictment of a particular common sense structuring institutional choices in a way that constrains those opportunities.

Conclusion: Technologies of Inequality

Abstract: This chapter reviews the arguments presented thus far, tracking the reproduction of hope and the inevitability of institutional failure in the political economy supported by that hope. It reflects on the capacity of digital divide studies specifically, and media and technology studies more generally, to intervene in the 'big questions' currently dominating politics—chief among them growing economic inequality. Towards that end, I present a methodological and theoretical approach called *technologies of inequality* that uses digital media as a privileged point of entry, a stable empirical object, into an economic world dominated by risk and uncertainty. This allows us to distinguish between those who experience this risk as a series of *flexible* opportunities, versus those who experience it as a overwhelmingly *precarious* series of challenges and hurdles. The technologies of personal computing allow us to explore the precise relationship between flexibility and precarity for different people and institutions in this particular historical moment.

Accessing Good Jobs

In 2012, Lisa and I were meeting for our second interview in the sun-soaked atrium of the National Portrait Gallery downtown. Even before we sat down, it was clear she was more anxious than usual, that there was something she wanted to get off her chest. We both recognized that it was a little odd for Lisa to be coming to me for answers. She was a partner in a boutique public relations firm, specializing in social media, with a high profile in DC Tech and the city at large for her leadership in the sector and because of her long-running tech and culture blog. She took pride in advising peers and clients on

the thorny professional issues that came up when you had a public presence in a demanding, rapidly changing sector. But she was at her wit's end today.

Her firm dedicated a work day every so often to a 'day of service' spent volunteering in some capacity. The most recent was a workshop of sorts they held at MLK library, a block away from where we were talking. There, the internet- and office-savvy PR specialists guided and advised job-seekers as they composed resumes and navigated job applications. Some job-seekers were homeless, some were living with mental illness or substance abuse, others were recent immigrants, some had worked in offices years before and were either trying to return to jobs for which they no longer qualified or were resigning themselves to service work. Lisa spent almost all of her available time with an older Ethiopian man who had recently immigrated and wanted to work at Whole Foods. The online application made them apply to each store and position separately. Its interface garbled his resume. And when they thought they were finally done, a mandatory 100-item personality questionnaire popped up.

The application could not be completed in their allotted three hours and Lisa, grasping at straws, encouraged the man to bypass the website altogether and instead plumb his social network for leads, hoping that someone in the Ethiopian community would have something more concrete to go on than this impersonal site. She told me how nonsensical it felt to have a complex Web-based application for a job that itself required no digital skills. It was a shock to her, not just for the sheer inequity but because the whole series of events was outside her social world. The last time Lisa was looking for work she was not out of work; she was looking to start her own company. The Web came in to play in terms of the emails, social media posts, and LinkedIn connections she flexed to secure 'talent' and clients for the firm, and to present their best face to the world. Even before that, securing her previous job had required backchannel, person-to-person digital

connections, not the formalized submission of private data and personal opinions to a faceless third-party firm managing applications for the destination corporation.

Lisa sighed and shook her head. She recognized that, given the slack labor market for people without a college diploma, these grocery stores likely had no shortage of applicants. They could require whatever they wanted from them. She knew it was not just an issue of literacy; though her example of computer illiteracy, an older contract lawyer who could not grasp the folders metaphor on contemporary desktop interfaces, was clearly built from her own social world. I was the one Lisa went to for advice: Should she start a petition? A boycott? What would get these grocery stores to change a practice that basically amounted to a poll tax? But we knew that, given the uneven recovery following the 2008 recession, there was little pressure that could be exerted on these companies. It was a hirer's market.

Failure in the Political Economy of Hope

I offer Lisa's example not to dramatize the sharp divisions between her and her companion for the day, but to point to how these divisions were concretized in a single, unremarkable piece of the Web: The online job application. So much came together at that single point: labor market segmentation and the relationship between formal and informal economic sectors in periods of crisis; employers' power to demand credentials or tests over and above their actual impact on job duties; stratification processes linked to race, immigration, and the neighborhoods and schools that had digital resources available or not.

Growing economic inequality has been a touchstone political issue in the US since at least the 2011 Occupy movement, when 'the 99% versus the 1%' entered the cultural lexicon. The stratification processes driving that growing inequality have also

become targets of increasing, organized political action. Strike Debt has attacked student and medical debt. Fight For $15 has won a string of 'alt-labor' victories attacking the decades-long stagnation of the median wage and historically-low union density. And some of the organizations loosely linked by the #BlackLivesMatter slogan have called for redistributing public funds destined for policing and punishment to the funding of black futures.

Something like the digital divide can seem a petty concern in the face of these life-or-death struggles. Even under the purview of this project, where the scope has expanded to include those institutions that make the problem of poverty into a problem of technology in order to secure legitimacy and resources. That the library, for example, uses the digital divide frame to understand homelessness and sort good patrons from bad is, at its core, an indictment of the scale of the problem of homelessness in DC and the failure of our current housing policy and social service agencies. It is a problem too big for librarians to handle, especially when their own institution struggles for legitimacy in the internet era. They adopt the digital divide frame in order to understand the problem and make it actionable. The Introduction framed the present study as push for digital divide scholarship to address bigger questions than penetration rates and skills measurement, to use our tools and skills to dig into the technological-institutional changes that drive stratification processes. Like why a grocery store would require an online job application that takes three hours to complete. But how could this project began to approach, much less intervene in, a massive scholarly conversation like that around economic inequality, given its historic domination by economics and, to a lesser extent, political science? And how can we connect those massive shifts to the human toll they wreak, the stories and conflicts that ignite social movements?

It is worth reviewing how we got here. This project explored how the problem of poverty is transformed into a problem of technology, and how the institutions addressing the problem are themselves transformed in the process. This problem is mostly commonly framed in hopeful terms as a digital divide: The gap between high-skilled knowledge workers with access to personal computing resources and those without such access, a gap resolved by sending the resources and skills common in one side over to those on the other side so that the divided can become more like the connected. This frame was borne of 1990s Clinton-era politics, when the persistent poverty visible within the New Economy was framed as a lack of opportunities for competition, opportunities secured through digital means. This was part of a broader reshaping of American political institutions around the ideal of market citizenship, where the state was charged with either ensuring opportunities for competition and broad participation in them, or policing those who could not or would not compete so as to preserve the smooth functioning of markets.

However, this frame for understanding poverty is not absorbed by political pronouncement, it is reproduced daily as a means of understanding poverty and acting on it. At the level of urban politics, where most of my research took place, the apparatus for reproducing this common sense is called the political economy of hope. It solves the problem of development through the digital divide and similar frames, soliciting outside capital and talented outsiders to resolve the skills gaps present in the locals. The geography of the city is remade to support these moves, and institutions for keeping citizens alive and teaching them how to make a living are remade in the image of these outsiders on the 'right' side of the digital divide.

In startups, we saw that the hopeful frame for social mobility powered by personal computing is reproduced in order to legitimize the firm for its own overworked

employees and for the political and economic networks that provide them with the resources and support they need. In the library, we saw that this hope is reproduced as a way to legitimize the new direction of the library as a training center for knowledge work, and to make the problem of poverty, particularly homelessness, it is confronted with as one of the last public spaces in the city knowable and actionable. At Du Bois Charter High School, we saw that this frame is reproduced within the very infrastructure for entrepreneurial education. There, the hope for social mobility must be quantified and policed, and it forces a departure from the liberatory values that gave the school its identity—and indeed a departure from the playful digital freedom present in the startups which the school attempted to emulate.

Institutions of social reproduction are thus pressured not just to perform hope as part of their labor, but to build it into their infrastructure and architecture. In Chapter 5 we saw two primary examples of this institutional isomorphism in action, focused on the time-horizon of schools and libraries. First, they attempt to become organizations in 'permanent beta', modeled after software production, where both ends and means are constantly innovated upon and iterated beyond in response to new, ever more granular data from within the new organization and new stakeholder pressures from outside. Second, their personnel attempt to model and train their participants—students, patrons—in the habits of 'presence bleed', where moments of work are spread, digitally, beyond the work place in pursuit of the institutional mandate.

These were the concrete institutional changes that came of reproducing the hope in personal computing. They had three primary causes. Demographic similarities across knowledge workers and helping professionals leads to a faith in the power of skills training, because it appears to work for them. Professional networks help train these workers in these organizational models and the ideas supporting them, and the networks

for teachers and librarians increasingly bring in technology entrepreneurs either as models or as leadership figures. Finally, given the overwhelming uncertainty that comes from confronting a persistent problem like urban poverty, the comparative and highly visible success, and apparent, if not actual, model to reach that success, presented by startups provides a clear model for the institutions charged by the state with managing that poverty.

However, this institutional isomorphism never fully succeeds. Efforts to make schools and libraries like startups, and to train their participants in those cultural dispositions and professional habits, keep failing. They fail because these public institutions have limits placed on their flexibility by outside stakeholders who require public spaces to be open to all, or for public schools to meet certain testing benchmarks. The hope in personal computing may fit the needs of schools and libraries but it does not fit their political networks. In some cases, this is just a matter of sheer resources available to technologists versus helping professionals. This also engenders differences between institutions, Du Bois is more nimble than the traditional public school down the street precisely because its active fundraising gives it one of the highest per-pupil funding levels of any school in DC. In other cases, failure is due to the lack of fit: That hope in bootstrapping a digital future may fit white middle-class InCrowd employees or the librarians at MLK, but it hardly fits black patrons whose first priority is housing. Finally, failure may emerge from a conflict between liberal organizational culture and attempted neoliberal reforms, a conflict never fully resolved but which prevents the latter from ever winning out entirely. With some limits, MLK has to accept everyone who walks in the door. This is never true of the startups inspiring the next generation of digital libraries.

The push for hopeful reform and its repeated failure results in the uneven terrain of the political economy of hope. School systems are taken apart and put together.

Homelessness proceeds apace. Institutional reform gives tacit (or explicit) approval to gentrification because the reforming professionals are part of that migration wave, because the space of the institutions of social reproduction is reformed in the image of these new private sector employers, and because those employers and developers pressure these reforms in new directions. Recall, for example, the conferences, hirings, and spatial re-arrangements MLK undertook once the Mather Studios condo building complained of "the degrading situation in front of the library."

The inequality within the political economy of hope is only possible and acceptable because individuals cannot navigate these institutions without the hope for social mobility via personal computing as their guide, and because these institutions reproduce that hope as a condition of their survival. Hope is the thing that makes these institutions make sense for the people within them, attempting to survive urban inequality. And hope is the thing that makes inequality make sense for these institutions. It is as simple, to return to the library again, as a schema for who should or should not be kicked out of the library: A sleeper should, someone typing away at a job application should not.

That these institutions continue to fail is rarely understood, by them or those elites making demands of them, as an indictment of the political economy of hope. Rather, the everyday labor of care and maintenance they perform for the public always falls short of the breakneck innovation demanded of them. What is required then is further professionalization of staff, further privatization of administration, further personalization of services—rather than support for the public mission or a questioning of the terms of the political economy in which there is never enough room for everyone to enter the heights of the labor market. That the hope doesn't fit every student at Du Bois or every patron at MLK is a sign that no space is made for them within the political economy of

hope—that they cannot collectively fill the STEM gap, that learning to code cannot boost stagnant wages or lower the cost of housing. Reproducing hope will continue to reproduce inequality precisely through its false universalism and the damage it wreaks on institutions of social reproduction. This broken model is perhaps a more insidious, if ever-optimistic, mode of social reproduction than that of the industrial era, where institutions for social mobility often explicitly segregated the people within them with respect to their employment prospects.

That this hope does not fit is not an indictment of ignorance or propaganda, but the institutional apparatus where that common sense makes sense. What we see in this expanded, comparative view of the digital divide is a set of precarious social relations reproduced by these institutions, coming together at the point of the PC. This was after all what my fieldwork followed: How powerful ideas and structures about what social mobility is and how it works are visible in the simple act of searching for a job online. The whole network of individual struggle, institutional mandate, and political-economic conflict converges at a patron's session at boxy black Dell or a student's valiant efforts to defeat the firewall blocking them from their social media during class. It is at this point where digital divide studies specifically, and media and technology studies more generally, can provide a valuable intervention into contemporary debates on economic inequality and the stratification processes expanding it: How it works, who it affects, what we can do about it. I call this approach *technologies of inequality.*

Precarity, Flexibility, and Technologies of Inequality

By 'precarious social relations', I mean a relationship to economic life dominated by uncertainty: Where the next paycheck is coming from, what hours or duties that entails, where to live and how to train to support that goal, whether or not you have the

resources—from state, family, or elsewhere—to make that work for you and make it work for the people who depend on you. This is often shorthanded as a general condition of 'precarity' dominating the individual experience of contemporary capitalism. Institutions of social reproduction train us to survive within these conditions. For some people, this uncertainty is a rush, even if it is stressful. 'Free agency', can, if you are able to live with the risk, be empowering and fulfilling. Much of Neff's *Venture Labor* (2012), one of the primary texts I am in dialogue with throughout this project, is concerned with risk management strategies within the tech sector and the cultural embrace of risk. The latter might include investment in specific 'projects' instead of alienation felt within an unchanging career in an unresponsive office, or the freedom to pick up and go as you please. The culture of social mobility InCrowd built was partly in response to these conditions of risk. Their work culture helped employees embrace the shifting demands of their sector as an empowering collective effort.

As Neff notes in her conclusion, this embrace is only possible if these entrepreneurs have the resources and support—usually from families, but I would also add the state, missing as it generally is from her account—to take risks, fail, fall back, and regroup. Most cannot afford that failure. They may have children who depend on them, or they may not have the savings built up to provide a cushion. Such distinctions between who can and cannot take risks points to the need for greater precision in who and what we are talking about when we talk about 'precarity.'

By way of conclusion, I want to map out how media and technology studies can, by focusing on the technological points of interaction with economic institutions, unravel the networks that either support risk or punish it. Those who are supported in taking risks within an uncertain, unequal economy are not *precarious*, rather they are *flexible*—a state where mobility and rapid change is empowered by political-economic networks and

concretized in the tools used for production and reproduction. But my primary goal here is not to build a new taxonomy, a new digital divide, between the precarious and the flexible. The goal of a technologies of inequality approach is not to generate another set of sociological categories into which people can be fitted, but to 1) provide adequate, materialist theorization of the rich contradictions we all live with in the information economy and 2) locate a stable empirical object that captures those contradictions. With this approach in mind we can begin to understand inequality not as a digital divide betweens haves- and have-nots based on what they have or need, but a result of how the digital divides us; how the institutions in which we make a living or are taught how to do so are transformed by an unequal, uncertain political economy and how those transformations are made permanent in code, plastic, and pixels. This then is a methodological reflection that is also necessarily a theoretical one.

Bourdieu used 'precarite' in the 1960s to describe the French colonial working class. The neologism 'precariat', combining 'precarity and 'proletariat', first emerged in the 1980s in French unionist agitprop. It travelled in similar circles in Italy and then Spain, before being taking up by European migrants rights movements in the 1990s, and then by global justice movements of the 2000s (Jørgensen, 2015). Guy Standing's (2011) formulation of the precariat is perhaps the most influential. For Standing, the precariat is the vanguard of historical change that succeeds the industrial proletariat. They are a class-in-the-making, not yet a class for themselves, identified by a relation to production "associated with casualization, informalization, agency labor, part-time labor, phony self-employment, and the new mass phenomenon of crowd labor" (p. 11, 2014). They are situated in opposition to the other six classes Standing defines in the new world order, especially the stable pensions and 40-hour work weeks of the 'salariat' employed by the state. As Jørgensen, (2015) notes, such categorical definitions largely focus on who is

precarious and what counts as precarity, rather than what social conditions create precarity, how they're historically produced, and what they do to people.

This definitional anxiety has naturally prompted critique of the political and empirical projects mapping 'precarity'. Goldblatt (2014) notes that what appears at first to be an explanatory category is functionally a descriptive one. Because of these hazy goals, the end result of the project is usually adding, or at worst substituting, a newly insecure class of "displaced professionals" (e.g., the dotcom workers Neff studies) to the traditional industrial proletariat as the subject of history. There is something like a methodological tautology here: Conditions of uncertainty result in an unceasing cycle to ascertain exactly who is uncertain and to what degree but the attempt fails because what exactly is meant by uncertain is, well, uncertain. Standing's solution is to fine-tune a taxonomy of the classes involved in the "Global Transformation." The precariat is but one. Their centrality is obvious from his description of the lumpen-precariat as "sad people lingering in the streets, dying miserably", arguing that "Since they are effectively expelled from society, lack agency and play no active role in the economic system beyond casting fear on those inside it, we may leave them aside." (p. 10, 2014).

Theoretically this is a far cry from the systemic vision of capitalist totality that characterized the mature Marx, much less the humanism that drove his politics. But the problem is not unique to Standing. As Rossiter and Neilson (2005) argue, the difficulty with categorizing the precariat is intrinsic to the hazy boundaries of information economy, where exactly where value production occurs is often difficult to pin down:

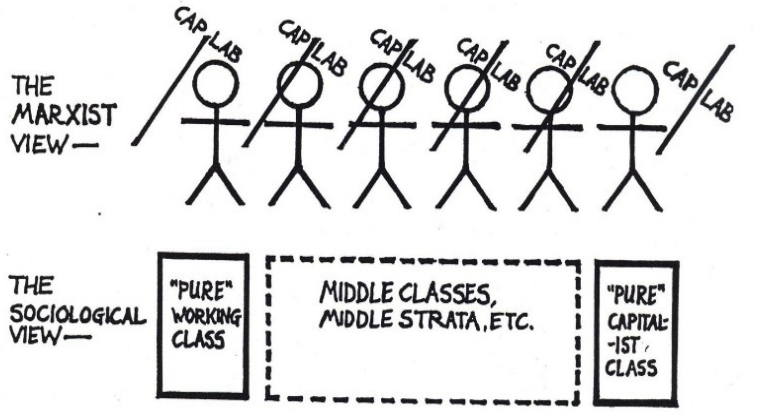
> The political challenge is to determine whether the uncertain, unpredictable condition of precarity can operate as an empirical object of thought and practice. Precarity would seem to cancel out the possibility of such an undertaking, since the empirical object is presupposed as stable and contained, whereas, the boundaries between labor, action, and intellect appear increasingly indistinct within a post-Fordist mode of production.

They go on to note that the search for the perfect subject with which to identify precarity —frequently the undocumented migrant—is an act of fetishization that functions as an empirical hedge against systemic critique and a political hedge against institution-building and organizing. The reverse is equally true. Identifying a class of workers opposed to the precariat—as either stable state employees or empowered risk takers—can tell us a lot about them, but less about the networks reproducing them. The solution is to stop drawing these boundaries, or at least stop starting there.

The specter of who counts as working class and where to fit those who are neither laborer nor capitalist has haunted Marxist theoretical debates since the beginning. The vanguardism and category proliferation of precarity theory is only the latest iteration. Gunn (1987) describes this sociological imperative to categorize people and locate their spot on some revolutionary spectrum as a departure from the historical, relational approach that gave Marx's critique of liberal political economy and the contradictions of the capitalist system such power in the first place. For Marx, class was not a pre-given group of proletarians and capitalists. Such descriptive analysis inevitably leaves people out—whither the middle classes? employees of the state? the homeless?—and so generates a constant need for new categories. The sociological imperative for categorization also makes it seem as though the historical process produces capitalists and proletarians, rather than being something they participate in, in a vulgar determination of subjectivity.

In contrast, Gunn (and Marx) endorse a relational view of class, identifying the idea of class not with specific people but with class struggle itself. Class is the labor-capital relation. Individuals are not placed on one side or the other of the labor-capital divide because we live our lives within that conflict and we internalize that conflict, in

different ways in different times and places, within ourselves. Gunn schematizes the relationship in this famous diagram:



The crowd is structured by the conflict, as are the individuals within it. There is no 'pure' worker or capitalist. The differing placement of the line in the diagram symbolizes the differing class contradictions we all undergo depending on where, when, and who we are.

Marx identified this conflict within the proletariat through the obfuscation of the wage. Within the workplace, the worker's subordination to capital is clear, but in the marketplace for labor, the wage makes it seem as though she is engaged in a like-for-like transaction with the capitalist—trading money for labor power. Today we could think about the dynamics of financialization in the same way. Anyone with a 401K or a pension placed in a managed fund is invested (literally) in being a capitalist, even as their everyday life is experienced as something different. The sociological imperative for categorization reduces individuals to their specific location—especially around election time we're used to hearing that 'demographics are destiny'—where the Marxist view reveals the contradictions within individuals and tracks how that internal struggle materializes in the real world.

This is not to say that social life cannot be understood as a conflict between different groups, because it inevitably appears as such. Or that class struggle is equivalent to individual struggle. Rather, there is no pre-given, pre-political social trajectory for the groups in conflict and the disposition and orientation of those groups is produced through their negotiation of capitalist contradictions. People must make choices and groups can be taken apart, formed, and reformed. This is precisely the empirical and political program Gramsci dealt with from prison: Why did a revolution not kick off in Italy in the same way it did in Russia, and what accounted for the alliances made in 'civil society' that tempered the class conflict that did emerge? A specific common sense provided the path for individuals to navigate this conflict and defuse it for the time being, and local arrangements of hegemony aligned those individuals with different relations to the labor-capital conflict together.

Which is all very interesting, but what does all it have to do with the digital divide? The line in Gunn's diagram symbolizes the specific relation specific individuals have to class struggle, to the labor-capital conflict. For Marx, and Gunn, this is mediated within the sphere of production by things like the wage relation, which turns exploitation —the worker must sell their labor power to live, but produces unpaid surplus value beyond it—into a like-for-like trade. Arrangements less metaphysical than the wage relation could also be imagined here: The length and intensity of the working day, the machinery on which you work, the education required of you. All of these symbolize a shift in one's position within the labor-capital relation, in one direction or another. Many other such relations cut through us: White supremacy, patriarchy, normative ability, etc. One of these relations could today be imagined as that between precarity and flexibility. The point of mediation, the line between the labor-capital relation in Gunn's diagram, would be their point of interaction with economic institutions. We each experience

different degrees of precarity or flexibility, an uncertain economic life positioned as a series of opportunities to jump between and failures to learn from, or a series of struggles to find the next small chance to make a small living for a little while longer. It is at the point of the online job application or the library PC on which they are completing it that individuals interact with the labor market and institutions of social reproduction that prepare them for the labor market. It is by looking at those technologies that we can see how a generalized economic condition of risk and uncertainty is experienced by individuals and reproduced by institutions.

Digital media is not only a micro-site where larger politics are inscribed (e.g., Akrich, 1992; Winner, 1980), placing limits on users and uses. It is also a site from which we can trace out our social relations, to the institutions that positioned that person and that technology at that place at that time doing that work. In this way, we can find a stable empirical object—the PC, the job application—with which to pin down an economic and social condition that is defined precisely by its instability. It helps us disentangle the experiences of the empowered, mobile, risk-taking professional class of knowledge workers moving from one competitive opportunity to another from the un- or under-employed who experience that same, broader context of uncertainty as either an inability to move from a particular place lest things get worse or a desperate abandonment of one place in favor of another where things might just be a little better. Neither group is wholly precarious or wholly flexible. They sit at different points of the precarity-flexibility relation, points mediated by their personal technology. It is there that we can see the institutional support—from state, family, capital—or lack thereof that reproduces the relation and makes conditions of uncertainty empowering or paralyzing.

This perspective, what I call the *technologies of inequality approach*, does not approach digital media as an object delivered unto a specific category of people in order

to move them from one class to another. Rather, it asks about the conditions that make particular digital media useful or necessary, and how particular use cases reveal the reproduction of particular social locations in a particular political economy. The perspective is shifted from the modernization mission driving the current theoretical and empirical discussions on technology and inequality—the digital divide, the skills gap, etc.—to the material base of that mission and the everyday technological reproduction of inequality. We can illustrate this perspective shift with a few examples, two drawn from the present ethnography of the political economy of hope, one from innovative new work in the digital divide studies tradition.

Thinking back to Lisa's shock and disgust at the online job application process, it is clear that that website contained within it a wholly different relationship to the labor market than what she was used to. As Marx (1990) argued in the first volume of *Capital*, the differentiation process in the marketplace, where new commodities are constantly developed to fulfill and generate new needs, extends into the reproduction of the labor power commodity. There, capital

> develops a hierarchy of labor powers, to which there corresponds a scale of wages. The individual workers are appropriated and annexed for life by a limited function; while the various operations of the hierarchy of labor-powers are parceled out among the workers according to both their natural and their acquired capabilities (p. 469-470).

So we see that the differentiation between skilled and unskilled labor is not a natural one, but an active selection process carried out by capital in response to historical needs and then reproduced socially. The assignment of specific slots within the labor market is comes from both 'push' factors encountered in institutions of social reproduction—the historic segregation of working-class people of color into vocational education, for example—but also the 'pull' factors that signal who is fit for what and why, definitions that are always the result of class struggle within and without the process of production.

The high value of Lisa's work, relative to her partner for the day, was a sign not just that her skills were rewarded with higher wages but that there was a whole apparatus of support for her, empowering her risky choices to start a new company or venture into the labor market as a free agent. She could list her educational credentials, received from state-funded public universities, on her LinkedIn page. She could write off the expenses for new hardware, software, and training programs on her taxes—since there was no practical divide between technologies for work or personal use. She had the disposable income and cultural capital to turn her nightlife into a powerful personal brand, so that people knew and trusted her as a representative of DC Tech.

This was the sort of support that allowed her to navigate the labor market as a free agent reliant on relationship. As Neff notes, entrepreneurial risk-taking—jumping between sectors, starting a company—is often only possible with the financial support and emotional labor of the family. I would also add the state to this, and not just in the short term of tax credits like Lisa's. Mark Zuckerberg and Sergey Brin may have dropped out of college to found Google and Facebook respectively, but both attended well-funded public school systems and studied in computer science programs receiving significant federal funding.[31]

In contrast, the man with whom Lisa was working had a different experience with the labor market, wholly alien to her, mediated by that application system. Because there were many, many out-of-work people like him—'unskilled' workers lower in Marx's hierarchy—he became an anonymous applicant hoping to get a green light from Whole Foods' algorithmic filter, trying to second guess the personality questionnaire that was searching for particular mental and cultural profiles that could be quickly slotted into the

31 For more on the relationship between state and technology entrepreneurship, particularly how the former makes the latter possible, see Mazzucato (2011).

abstract needs of the firm.[32] For him, uncertainty was anonymous and paralyzing; for her, personalized and empowering.

The simple act of trying to get online and stay online in the city reveals another version of the precarity-flexibility relation. This project, and others like it, show that internet access is not just the delivery of content but the maintenance of relationships to people and institutions: homework, social services, and more. The tenor of those relationships shift with the quality of access, but stronger networks of support from state and capital will inevitably create more and better opportunities for access in the first place, as well as decrease the reliance on those outside relationships. Working-class students of color at Du Bois may have had access to anonymous help systems and YouTube tutorials to access through their school laptops and get them through calculus, but students at the prestigious Sidwell Friends School on the other side of the city, where the Obamas and Clintons sent their children, surely had access to flesh-and-blood tutors with which to accomplish the same.

Not just the ends of access but the everyday means of it reveal shifting relations of economic uncertainty. The entrepreneurs I worked with were rarely without a signal. Whether paying for WiFi in a coffee shop, requesting the access code at a party, or rolling their own with a mobile hotspot, access was largely assured and it was breaks in access that were remarkable. It was unlikely they would be accused of loitering by the police if they were reading on their phones in the park via 4G for a few hours, or shooting off some emails from their laptop in one of the DC neighborhoods experimenting with free WiFi. They could rely on getting online.

32 Notably, CVS settled out of court in 2011 over charges that their online application system filtered out disabled applicants. Similar suits brought against Unicru (who manages application systems for large chains such as Kroger) have been rolled into an ongoing Equal Employment Opportunity Commission investigation (Weber & Dwoskin, 2014).

In contrast, outside the library or the school, patrons or students often had to struggle for access. Once MLK closed for the night, Ebony and Terrell would sometimes sit on the sidewalk outside of Subway, catching the signal they sometimes left on after hours. Josie would plug her laptop into a spare outlet outside the Chinatown Metro station, used for cleaning equipment and displays, and sit on the sidewalk watching movies as hockey fans streamed by her on the way to the Verizon Center. Du Bois' teachers never knew exactly how many of their students lacked internet access at home, but generally estimated it to be between 30 and 40 percent. Irene was one of those students. She would bring an empty Starbucks cup back to the cafe so she could sit, log on, and finish her homework. She and Corinne taught me to look under the cement benches in DC's subway stations for plugs that most commuters did not know where there.

In order to get online and stay online, they had to find—or build—what Katz (1998) calls the 'hidden city of social reproduction.' This is the network of support that keeps working-class city dwellers going day-to-day and which is often marginalized, if not outright destroyed, by top-down efforts to remodel the city to reproduce the specific cultural geography of white knowledge workers. It is of course not just WiFi itself that keeps patrons or students from joining librarians, teachers, and entrepreneurs in knowledge work. Rather, the struggle to find WiFi and charge the device that accesses it is indicative of a whole precarious relation to urban space, where the city is being redesigned with white emigre knowledge workers in mind and others are being left out.

Other recent work in digital divide studies adopts a similar approach to technologies of inequality as a point of access to the precarity-flexibility relation, even if these researchers are not working under those precise terms. Empirically and theoretically, they push the field away from counting computers and surveying skills and

towards the economic relations that drive those gaps in the first place. Van Dijk's (2012) theoretical push for this relational perspective was mentioned in the Introduction. Amy Gonzalez's (2016) work on technological maintenance provides another, empirical approach. Her interviews with low-income families focus on their particular, personal relationships to their phones and PCs over the course of months and years. She finds that low-income users' personal digital tech is marked by cycles of 'dependable instability': things break, service goes out, signals drop when the library or the Starbucks are your best bets for internet.

Maintenance is a lot of work, and the phone and laptop, in this perspective, becomes a point of mediation for other institutional relationships that can attenuate or reproduce precarity: Who has access to a bank account so as to enroll in automatic billing, whether bandwidth caps should be placed on public access points. Gonzalez's work shows how something as simple as a Walmart Tracfone is thus a concrete point of entry for complex, interacting dynamics of stratification. In the context of the present study, it always shows that the labor of maintenance and care—carried out among students and patrons but also, and with particular institutional mandates in mind, by librarians and teacher—often goes under-appreciated and under-supported in the rush to get everyone online or trained in the latest, greatest technology. The point of mediation then appears to be the point at which force can be applied to shift the precarity-flexibility relation further in one direction. If one ingredient in the cycle of 'dependable instability' is the lack of a bank account that ensures steady billing for smartphones in order to keep them active, then we see the need for providing access to (less predatory) financial institutions and financial literacy training in areas lacking them as one avenue of intervention—in addition to providing the smartphone in the first place.

Risk and Digital Divisions

This project has modeled a technologies of inequality approach to digital media studies and economic inequality, in an effort to push digital divide studies in particular, and media and technology studies more generally, to turn their theoretical and empirical tools towards the 'big questions' currently dominating political debate. That methodology served as a point of reflection on my ethnography of the political economy of hope, where we saw that focusing on the technology serving as the point of interaction with the labor market, or the point of reproduction for it, mediates individual relationships with an economic world dominated by risk and uncertainty. Some flexible knowledge workers experience this risk as an empowered environment of constant, hopeful mobility, moving between opportunities for competition. While those on the margins of those professions, or on the outside looking in, may experience the volatility of the information economy as an environment of threat and social dislocation, where even the smallest ventures—say, running out of time to complete an online job application at the library—carry high stakes. This approach uses a focus on specific technologies and the institutional networks connected to them, or not, to turn the the uncertainty of precarity into a stable empirical object. It can reveal the social relations converging to generate a field of economic risks, and thus point to the precise location to which we should apply political force.

My point here is not to draw sides, to generate a new sociological taxonomy of the precarious and those well-supported, risk-taking knowledge workers wrongly grouped under it—whom we might call the flexible. Rather, I hope to show that the problem of technology transfer is inevitably much larger than the individual at their desk. It opens up wider questions like who is surplus to requirements for the information economy at present, and how those requirements are reproduced through the institutions that guide us through the social world. This is the work I believe digital divide studies is more than

capable of doing. I did it through the political economy of hope, showing that the transformation of the problem of poverty into a problem of technology is a way for institutions to survive political-economic pressure and a way for individuals to navigate those institutions.

Digital divide thinking provides a map and compass for an economy dominated by risk and uncertainty, and even if those hopeful directions do not work out—as they inevitably will not for most—they at least provide an explanation for failure and a natural response to it. An individualized response to institutional failure in a political economy whose system of social reproduction has thoroughly broken, but a response nonetheless. And we need that. We need to know that if we are out of work, we can seek sensible alternatives: A certificate program, a MOOC, a personal branding venture on social media, a pitch for a new startup that could scale up with the right support.

I am far from the only researcher who has tried to push digital divide studies in this sort of direction. Others have pushed for successive quantitative changes in the empirical project might bring about a qualitative shift in the questions that project asks, beyond counting computers and surveying skills. Gonzalez's work on 'dependable instability' is a recent addition, focusing on the invisible labor of maintenance and the culture of economic uncertainty it generates. Straubhaar and his team (2012) explored the digital divide not just as an issue of technology transfer, but as a problem of regional development and gentrification. And of course Van Dijk (2012) has theorized the issue less as one of modernization than of political-economic compulsion—the threat that we must learn to code or else.

I suspect I share with them a general distaste for the 'digital divide' frame with which we continue to label our work. It reifies a simplistic binary with the classic racial, classed, and colonial overtones within all development projects and most liberal projects

of education and charity that seek to treat the symptoms of a capitalist mode of production that readily discards the people in it, rather than the disease itself. In presenting the problem as a gulf *we* need to move *them* from *there* to *here*, 'digital divide' conceals more of the problem than it reveals. But it is the label we are stuck with and it is not one I would wish to discard at this stage.

This project opened with reference to how the collective behind *Policing the Crisis* (2013) traced the invention of 'mugging' as a political problem in 1970s Britain. They noted in their Introduction to first edition that they would love to "abolish the word" because "[i]t has done incalculable harm—raising the wrong things into focus, hiding and mystifying the deeper causes" (p. 1). But the problem of the 'digital divide', as with the problem of 'mugging', is as much about the label and the political-economic apparatus it brings to bear on the problem as it is about the problem itself. So I side with Hall et al's conclusion that "Unfortunately you cannot resolve a social contradiction by abolishing the label that has been attached to it" and so you must include the label within your examination of those contradictions (p. 1). That political-economic apparatus is not going anywhere. And if the 'digital divide' label helps us build a research culture critical of that apparatus, one attentive to the contradictions driving the construction of the problem, then I would not soon do away with it.

It is precisely because that apparatus, what, at the municipal level, I have called the political economy of hope, is not going anywhere that the problem of the digital divide will continue to exist. Because it continues to exist, the measurement project mapping it and the helping professions devoted to reproducing it, explored in Chapters 1 and 3-4 respectively, will continue to accompany it. Digital divides in new technologies will be announced as those technologies (e.g., 3-D printing, virtual reality) enter the market, and new crises in new literacies will be declared. The political economy of hope

could not function without this work. So while I am greatly encouraged by new, critical work in this field, I hold some old-fashioned cynicism that this research superstructure will not shift without a change in its political-economic base.

My research practice has been very much informed by Haraway's (1997) observation that ethnography “is not so a much a specific procedure in anthropology, as it is a method of being at risk in the face of the practices and discourses into which one inquires” (39). So it has been important to reflect throughout on how my own institutions are forced to reproduce this broken cycle, and will continue to do so unless the relations of force change. This became especially clear as I emerged from the academic job market traumatized but relatively unscathed and perhaps even victorious. The anxious fall ritual of scanning academic job listings revealed a culture of hope in an institution of social reproduction grappling with an austere political economy, surely a privileged position but an increasingly precarious one nonetheless. Perhaps digitizing the humanities will save them. Perhaps a shadow resume filled with design skills and steady blogging will help secure a technical 'alt-ac' position advising the remnants of the tenure track professoriate. Perhaps bending to political pressure and gearing our degree offerings towards solving the STEM gap will save our institutions and the economic destiny of our state. Perhaps not. The hope remains; we struggle to move without it.

I do not mean this to be dim view of the future, only, in the materialist tradition, a 'ruthless criticism' of the conditions facing us and the work hope does within those conditions. There is no pre-determined political-economic future, written in code or law, only a balance of force that can be shifted one way or another by the choices we make together. This is the perspective opened up by the technologies of inequality frame. We stop seeing something like the digital divide as a bug in the system, solved by wireless access points or hackathons. Rather, it is a feature of a system where, zooming out from

the access point, we see that many are marked as surplus to requirements, held in hopeful reserve by the information economy in case they are needed. We build these coping strategies in order to make this massive inequality sensible and navigable. But if 'access' within our neoliberal political imaginary means, fundamentally, an opportunity to compete, then an alternative should not be so hard to imagine. Because if the world as it currently exists is one where we must be granted the tools necessary to strive for excellence, to innovate beyond our current dire straits, to outcompete inequality; then surely another world is possible where innovation is boring and excellence is unnecessary because the good life is an ordinary one. What would we compete for, if so many of us would not starve for losing?

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