Media, Technology, and the Global Technoclass:
Case studies from Ghana

by

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Dedication

To Sebastian and Julia Avle

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List of Acronyms

BBC - British Broadcasting Corporation

BRICS – Brazil, Russia, India, China, South Africa

CBS – Citi Breakfast Show

FDI – Foreign Direct Investment

FM – Frequency Modulation

G-7 – Group of Seven nations

IBM – International Business Machines Corporation

ICT(s) – Information Communication Technology (-ies)

IMF – International Monetary Fund

KNUST – Kwame Nkrumah University of Science and Technology

MEST – Meltwater Entrepreneurial School of Technology

MICTs – Media and Information Communication Technologies

MIT – Massachusetts Institute of Technology

MNC – Multinational Corporation

NAM – Non-aligned Movement

NCA – National Communication Agency

NITA – National Information Technology Agency

OECD – Organization for Economic Co-operation and Development

OPEC – Organization of the Petroleum Exporting Countries

P&T – Post & Telecommunication

RFI – Radio France International

SIM (card) – Subscriber Identity Module (card)

SMS – Short Message Service

TBI – The Big Issue

TCR – The Citizen Report

UN – United Nations

VCD – Video Compact Disc

VOA – Voice of America

WTO – World Trade Organization

WWII – World War I

Abstract

Extant literature on globalization acknowledges fundamental shifts in the global flow of people, capital and technology. Key among these is the knowledge generated by the various intersections of these flows and their role in social change. In this dissertation, I argue that these forms of knowledge, particularly as they relate to information and communication technologies (ICTs), have given rise to what I call a technoclass in the contemporary global economy. To do this, I draw on four case studies from Ghana's media industry against the backdrop of the confluence of economic and technological globalization, and the country's internal political trajectory in the 1990s. Particularly, economic liberalization, rapid diffusion of new communication technologies and the transition to democracy underscore the emergence of knowledge forms as key arbiters of class.

This can be seen through a juxtaposition of the legacy sector, radio, and the much newer one, ICTs in the media industry. In the first place, the newly liberalized radio sector rapidly transformed into a competitive space in which 'new' media and ICTs became normalized via everyday interactions between radio stations and their audiences. Given radio's importance as a social and cultural institution, it now plays host to valorized and valued knowledge forms that are also reflected in the nascent ICT sector with its privileging of the application of information technologies, particularly the ability to leverage their regenerative and network properties in entrepreneurial ways. Both 'old' and 'new' media, then, are helping to amplify the influence of an emerging technoclass that is largely youthful, urban based and globally aware. These together make class a more layered phenomenon in the country and reflect broader shifts in class formation related to globalization in other national contexts.

Part I: Introduction

Preamble

She's my assistant for the day" Bernard joked to explain my presence to the room of technologists as they shook hands and prepared to conduct a group interview. Those who had met either of us separately knew he didn't travel or do interviews with an assistant and that I was a student conducting research in Accra. Those meeting us for the first time just smiled politely and took their seats around the microphone connected to a tiny recorder in the middle of the room. We were at G | Ghana, the Google sponsored conference for technologists and anyone interested in business.[1] Following his interview with this group, some of whom had just finished demoing their products, he was scheduled to interview the country manager of Google as well as the regional director who was in Accra to participate in the conference. I sat in on that interview as well, dutifully taking notes on what the two executives said about Google's corporate strategy in Africa in general and Ghana in particular.[2] Bernard, a manager and on-air personality at the Accra based radio station, Citi FM, was one of the gatekeepers I relied on to access media workers and technologists in the country while in Ghana. That day I run into quite a few other familiar faces, having been in Accra for a couple of months at that point. At the group interview, I recognize two technology entrepreneurs I had met a few weeks earlier at the business incubator they were housed in at East Legon, an affluent suburb of Accra.

As I made my way back to the other side of the city that evening, inching bumper to bumper in a two-hour traffic jam over a 10-mile distance, I reflected on a city of contrasts. Outside in the balmy evening, street hawkers (who had returned after the most recent

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[1] See https://sites.google.com/site/gghana2012/home (Last accessed on July 22, 2014).

[2] This includes investing in developers and businesses, while making the Internet and Google products "available and relevant" in everyday life.

'clearing' exercise by the city major's office)[3] peddled everything from VCDs to fried plantain chips, to a different set of individuals sitting in private cars of various quality, taxis and the ever-present *trotros*.[4] I imagine most of them will make a few Ghana Cedis that day and go back to the densely populated parts of city, as wearied as the suit clad individuals in their air-conditioned cars and the laborers, government workers, etc. in the *trotros* all moving slowly away from the city center. Everywhere you look, someone is selling or trying to "set something" up; from new university graduates, illiterate shopkeepers, to returnees speaking English with a twang from whatever country they had been living in. Entrepreneurship, broadly defined, is one of the easily distinguishable characteristics of urban life in Accra.

If one thinks of entrepreneurs as simply the self-employed, then in developing economies like Ghana's, this would include most of the work force, especially in the informal sector where everyone from rural farmers selling excess crops, retailers of most consumer goods, etc. could be counted. If, on the other hand, one stipulates that an entrepreneur is not only self-employed but starts a business that employs others, and additionally, creates goods and services that are innovative, then the focus closes in on a smaller set of people (Parker, 2004; Parker & NetLibrary, 2005; Schumpeter, 1949). The group of mostly young individuals selling things outside my window as I made yet another inch down the road in Accra was very different from the mix of business and technology types I had just spent the day with at a swanky hotel decked in the colors of Google's logo and the Ghana flag. At G | Ghana, the audience was also mostly young, but dressed in business casual attire, wielded the latest electronic gadgets or at least had some knowledge of what the latest in technologies are. It's a reasonable guess that all were literate, both generally and digitally, as one had to register to participate online. The conversations revolved around entrepreneurship in general and technology entrepreneurship (henceforth contracted as techpreneurship) in particular. People gave demos of products

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[3] This is a practice by the city to rid its main thoroughfares of street people who were mainly hawkers, children and beggars.

[4] *Trotro* is the local term for public transportation in the form of mini buses and vans that stop just about anywhere to pick up and drop passengers on the roads in Ghana. Most of the city's inhabitants rely on trotros and taxis to get around although the number of privately owned cars seems to have risen in the past few years.

they had created and invited speakers talked about doing business locally, regionally and globally. IBM's country manger spoke of opportunities and Esoko's founder detailed the challenges of setting up a technology company in the country.[5] Both came from the privileged place of having access to global funds, but the general feeling was one of pragmatic optimism – i.e. a strong awareness of the challenges of doing business in technology within a relatively nascent industry in a so-called 'peripheral' country, but also hopefulness about its flexibility and openness for that same reason.[6] Those speakers and indeed, many of the attendees, might be called part of an emerging 'technoclass' – people distinguishable by their acquisition and application of specific forms of knowledge at the local and global levels.

The program Bernard was interviewing for that day at G| Ghana, the Citi Business Report, covered economic policy, business and ICT topics. The group of developers convened made apps for non-commercial purposes like providing access to the constitution to strengthen democratic institutions, as well as purely commercial ones focused on messaging and location.[7] Beyond drawing attention to business and entrepreneurship on their programs, Citi FM sponsors a number of events with Google on tech related topics, organizes and promotes debates between political parties during elections, hosts music festivals promoting local culture and history, and generally carves a corporate image that is focused on economic and democratic governance. Its audience is youthful, much like that of Joy FM, the first private commercial English speaking station, also based in Accra. Both stations claim to be audience focused and listener-driven, both spend a lot of energy on putting news online and engage with their audiences not just through on-air content but

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[5] Esoko's main product is an agricultural mobile phone information service. The company's founder, Mark Davies, a Welshman, started one of the first Internet cafés in Accra in the early 2000s.

[6] I should point out here that the terms 'periphery' and 'center' to describe countries in relation to their production capacities in the global economy has fallen out of favor in some circles. However, the terms 'developing' country and the noxious 'third world' label all operate with the same logic. In this dissertation, I will use the term emerging country/economy to refer to Ghana as it is considered more favorable shorthand these days to describe fast growing low and middle income economies.

[7] An example of the former is 233Law, an Android application built to give immediate access to the Ghanaian constitution, documents and information about citizen rights and responsibilities. Saya, a chatting and messaging application that runs across platforms is an example of the latter. Technologists from both companies were part of the Citi FM group interview at G | Ghana. I attended the launch of the Saya platform in February 2012 and in September that same year, they presented at the Startup Battlefield during one of the popular Silicon Valley conferences, TechCrunch Disrupt in San Francisco.

also via various social media platforms. [8] Both put on several highly publicized social and cultural events every year, co-sponsor public events and generally rework the meaning of radio production in the contemporary Ghanaian media environment.

This rework is entrepreneurial and increasingly corporatized, and came out of political and economic changes in the 1990s. Liberalization ushered in an era of competitive media that is still transforming into an interesting marketplace and democratization gave it the necessary freedoms to operate outside of the state apparatus. Like media in many places, the industry serves as a petri dish of sorts for observing broader changes that have occurred in the society since then. In the scenario I described above, I drew a line between the young people on the streets and those participating in a conference organized by one of the biggest global information technology businesses. This line reflects some of the real separation in classes of urban youth in Ghana and can be seen in the various spaces people inhabit in Accra. This line is also present in who is thought of as part of specific radio audiences and it is visible in newer areas of the economy, particularly ICT production. Essentially, the economic and political changes put into effect early in the 1990s reordered the social strata and these are now becoming visible in specific ways across the media scene.

Unlike pre-liberalization Ghana, today certain forms of knowledge and skills, often with communication technology applications at the center, have become key mediating influences when we think about class. Class distinctions no longer fall solely along political access, income levels or land ownership. Now they include having access to and using certain forms of knowledge that are valued and valorized at the global level. In two chapters of this dissertation, I take a micro look at the professionals who play a role in media transitions post-liberalization and the ways that work within the nascent ICT sector. I show the ways that technological knowledge has opened up class distinctions and made it a much more layered issue by detailing the ways that ICT workers valorize technology entrepreneurship and related forms of knowledge in ways that are not unlike their peers in Silicon Valley, Mumbai and Shanghai. But before I do that, I use what could be called the

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[8] See the 'About Us' pages of both stations for examples of how they frame their corporate identity in relation to their listeners.

'traditional' medium or the legacy sector of the media industry, radio, to what a different part of the overall mediascape looks like two decades after economic liberalization and democratic transition.

Pre-liberalization, radio was the mouthpiece of the government and broadcasting was under the purview of the state, as was the case in many other countries at the time. However, given its reach and flexibility as a mass technological medium, it witnessed perhaps the most dramatic shift in structure and function after liberalization. Since the early 1990s, radio has grown in reach, depth and significance. Indeed it has been said that radio stations, at least in the broader African context, function as 'community telephone', community hub, with communication activities that span publishing, video and even cinema (Girard, Friedrich Ebert, Food, & Agriculture Organization of the United, 2003). In this way, one could argue that radio was 'multimedia' and 'converged' before digital network technologies became available 'to the masses'. In Ghana, radio's significance as a social and cultural institution is immediately visible when one enters the country. It is on everywhere, and there are a dizzying number of stations to choose from no matter where one is in the country. Looking closely at production practices and on-air content, as well as radio stations' interactions with their audiences will reveal to be a key space through which ICTs have worked their way into the everyday, and it is where we can see the legacy media that existed prior to liberalization (i.e. one with a very wide reach but limited in form and function as a state monopoly) merge with the newer industry that came with those 1990s policy changes.

Overall, this dissertation takes a bird's eye view of media in Ghana by juxtaposing two seemingly distinct sections of the industry to show the social implications of key economic and political policy changes that occurred at a crucial point in the country's history. The specific arguments can be summarized as thus: 1) radio post liberalization is a space for normalizing 'new' media and ICT via everyday interactions between stations and audiences, 2) both the radio and ICT sectors play host to valorized and valued knowledge forms that are emerging as key arbiters of class in the country, and 3) the media overall help to amplify the influence of what may be characterized as an emerging technoclass that is largely youthful and urban based.

I begin by situating the historical context within which the current media space emerged from, specifically those economic and political changes that can be traced to wider, more global occurrences, and their relationship to technological changes. This background is vital to understanding the structure that media operates in and how telecommunications and broadcast media have converged even though the liberalization effort initially split them in two. Furthermore, this history emphasizes the localized manifestation of different dimensions of globalization in an increasingly changing world. Ghana's particular political history and internal trajectory may differ from other emerging economies, but in general, it shares similarities with many other countries that underwent significant economic and political changes as a result of globalization towards the end of the twentieth century.

Given the so-called 'youth bulge' that Africa and other emerging regions are experiencing, and declining birth rates in the North and wealthier economies, the current generation of young people, who are alternatively labeled as a threat to the future or its hope depending on who's speaking, cannot be ignored in our assessment of the effects of globalization, leadership, the economy, security, and other concerns with the state of the world.[9] Indeed, to be young in Africa especially is often thought as as "being disadvantaged, vulnerable and marginal in the political and economic sense"' (Burgess, 2005: cf. Jacobs, 2007, p 863). Of course this is not universally true, but unfortunately it does describe a significant portion of both urban and rural youth across the continent in countries both stable and unstable. At the risk of sounding trite, young adults today are tomorrow's leaders and in the increasingly connected world we live in today, their sense of self and place, both in a local and global sense, are crucial to improving wellbeing for future generations. As such, research that examines their lived experiences, be they located in media or elsewhere, should be viewed as an opportunity to understand the contemporary

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[9] The youth bulge refers to the phenomenon where a large percentage of the population is under the age of thirty relative to the adult population. Thought of as a 'stage of development' in which infant mortality is reduced but fertility rates are high, it is more common to see this in so-called developing countries. Technically as this youthful population moves into adulthood, the dependency ration can reduce if they are productive in the economy. The youth bulge is associated with instability in developing countries mainly because often there is unemployment and inequalities that that threaten the security due discontent among the youth. The instability thesis has received both criticism (especially its original association of violence with young men) as well as some support over the years but as a descriptor, all it shows is that many emerging markets have very youthful populations. See Huntington, 1996; Hendrixson, 2003; Fuller, 2004; Sommers, 2011, and Lin, 2012 for more on this.

world's most pressing needs in education, employment and security.

But why focus this dissertation on the media industry and class issues in Ghana specifically? I answer these questions in much more detail later in the dissertation, but the short response is as follows. First, the media industries can often serve as the microcosm of how societies function. An industry's structure, the freedom or lack therein, and its relative reach and effect, can often mimic the broader societal context, be it as it pertains to the governing style, economic system, or cultural values. Situating a segment of a society within the media space, which today is a mix of both 'old' and 'new', then, can be revealing of their relative place in society, show what latitude they have to express themselves, and also reveal fractions within the groups they are part of. Situating substantive issues of a group's social life in media can generally allow one to reflect on their larger context.

Ghana in particular is an interesting site for looking at class dynamics and the media industry. Often the poster child for democratic and economic changes in Africa, the country is currently experiencing rapid economic growth alongside a stabling democracy. It also, like many other countries, has a large youth population that is urbanizing at a rapid pace (Ghana Statistical Services [G.S.S.], 2012). Just like other emerging economies, it is also seeing some changes in migration trends, both in a rural-urban direction and internationally, often in the direction of the global north. However, it is also seeing a reversal of the latter trend, enough to attract state attention as a stakeholder group to consider in elections and policymaking. Slowly, but steadily, Ghanaians who left its shores are returning to the country and with them come different kinds of global experience, knowledge and cultural characteristics. Many of them are elite in stature given their backgrounds and conditions of return and those that end up in the ICT sector certainly reveal another layer of class within the contemporary Ghanaian society. The new dimensions they bring to class open up its implications for how the country functions internally and as part of a global economy.

At the turn of the century, Ghana was at the tail end of a decade of economic changes that would impact just about every industry. Liberalization and the accompanying privatization of erstwhile state owned companies saw changes to how the primary extractive industries like gold mining and the telecommunications sector was structured. Another decade and a half later, both sectors look radically different than they did in the

1980s. This dissertation maps some of these changes and how they intersect with class. In what follows immediately below, I describe the economic, political and cultural changes that set the scene for the new media industries; i.e. the economic policy changes and socio-political trends that can be seen elsewhere around the world but manifest differently in each country. The four case studies that make up the core chapters, two from radio and two from the broader ICT sector, show the ways in which the media have changed, particularly their hybrid structure, form and function, and how young Ghanaians I describe as the technoclass fit within the changing media scene and the country's social structure broadly writ. I start by setting the parameters and boundaries of the dissertation, in terms of historical context, theory and methods, explaining the choices made to set a reasonable research scope without sacrificing important details. Each case study/ chapter tells a different story, but the core elements remain – they elucidate changes to Ghana's mediascape and provide evidence for their relationship to social class.

Chapter 1 – Media, technology, and emerging class dynamics in historical context

Global/local dynamics

Economic globalization and policy roots

Economic liberalization in Ghana was part of a much larger economic transformation taking place in the world in the 1990s. In the early part of that decade, the country was also transitioning from a military dictatorship to a democratic state. Dambisa Moyo (2009) points out that while independence created high hopes for many African countries in the 1950s and 1960s, by the 1980s and 1990s, most nations were once again dependent on the West due to falling trade income, increasing debt burdens, and high interest rates. In the 1980s, a shift in economic thinking towards neoliberalism and an embrace of the laissez-faire paradigm, which privileged private enterprise and devalued government involvement in the economy, became dominant globally. The Asian Tigers' successes lent credence to that thinking, and free market apologists pushed for developing countries to borrow from multilateral institutions. This led to an emphasis on stabilization and Structural Adjustment Programs (SAP) as part of new aid-based programs that both the IMF and World Bank persuaded developing nations to pursue (D. Moyo, 2009). Trade liberalization and public sector reforms were core requirements of loan agreements between these institutions and the countries they financed. Changes in Ghana's economy such as the liberalization of the telecommunications sector, and divestiture of the state owned Post & Telecommunication (P&T) Corporation are directly attributable to these IMF and World Bank dictates. Such efforts allowed the sorts of private investment that characterize the media sector today.

Prior to the period of aid-based relationship with these those institutions international institutions in the 80s and 90s, Ghana had been non-aligned during the cold war. While many members of the Non-Aligned Movement (NAM), largely developing countries from Africa, Asia and Latin America, were in fact aligned with one super power or

the other, Ghana was not evidently in the camp of either the US or the Soviet Union and tried to remain friendly with both. As a consequence, it did not receive as much capital investments as, say, the Asian Tigers did towards the latter part of the cold war from the West, and the Soviet bloc's collapse meant a drying up of funds from that end as well. By the end of the 90s, private capital flows had, for several reasons, replaced aid to many developing countries (especially in Asia and Latin America) except for those in sub-Saharan Africa (Konadu-Agyemang, 2002). Private capital flows operate in a much different way than multilateral or government aid, most significantly is the fact that they do not come with the sorts of policy restrictions (or 'incentives' as the World Bank calls them) that push government action in one way or the other regardless of the actual needs within the country.

The history of liberalization as a global economic ideology comes from the Anglo-American domination of the world economy following WWII. The strong neoliberal policy bent started in the US in the 70s, Britain in the early 80s, and the rest of Europe later in the 80s, then the rest of the world in the 90s (Hoogvelt, 1997; 2001). Castells (2010) points to the G-7 and its ancillary institutions the IMF, World Bank and WTO, as influencing the spread in the 90s. Through coordinated and interrelated policies, those institutions influenced countries' participation in the global economy. Manuel Castells pinpoints specific policies as "deregulation of domestic economic activity (starting with financial markets); liberalization of international trade and investment; and privatization of publicly controlled companies (often sold to foreign investors)" (Castells 2010, p 137). The Clinton administration was particularly forceful on the IMF to implement common standards in the international economy system by putting stringent rules on loaning. Doing so solidified the US' interests and security in the global economy, or at least that was the thinking behind the push (Castells 2010). The three institutions pressured governments into loans, which often came with conditions that were unsuitable for the countries, leading eventually to various economic crises, including the debt crises in Latin America and Africa in the 80s, and the financial crisis in Asia in the 90s. [10] As has been mentioned by various scholars,

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[10] For details of 'policy incentives' and stipulations of a sample loan agreement see World Bank. 1987. *Ghana - Structural Adjustment Program Project*. Washington, DC: World Bank.
http://documents.worldbank.org/curated/en/1987/03/741979/ghana-structural-adjustment-program-

including a former director and notable critic of the IMF, Joseph Stiglitz, the adjustment policies imposed were ridiculously similar across countries, with no regard for context of the borrowing country, and were essentially a mass produced neoclassic economic plan implemented by economists from elite institutions in the US (Moyo, 2009; Alhassan, 2004; Castells, 2010; Hoogvelt, 1997; Stiglitz, 2002).

By the end of the 90s, the IMF was operating SAPs in about 80 countries in a global move that the UNDP (1999) called "deep liberalization". Castells' explanation of the catch 22, or 'self-fulfilling prophecies' as he calls it, of the loaning schemes is that borrowing was supposed to give countries the credibility for investment from large corporations and other countries. Refusing to participate resulted in lockouts and tariffs then made countries unsuitable for investment and thus avoided by potential investors. [11] On the other hand, accepting the so-called line of credit meant one had to agree to stringent rules on monetary policies that compounded into other problems for the countries.[12] Essentially the three institutions represented the neoliberal interests of the western large economies that they were beholden to, primarily the US government and its treasury department, and was detrimental to many countries and resulted in instability and inequalities all around. It must be noted that while these institutions were pushing countries in Africa and elsewhere to open their markets and privatize their industries, G-7 economies remained closed, with heavy subsidies and investments by their governments and this remains so in many cases.

Ghana underwent its own tough period of SAPs at a time that the country's political trajectory was also undergoing a critical change. The ideological push for liberalization was in line with the 1992's Constitutional goal to build a capitalist democracy. The country's political history, post-independence from the British in 1957, is divided into 'republics'. Each republic marks when a new constitution has been put in force following a

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project. Accessed 03/15/2013. For an internal World Bank report on the program, see World Bank. 1992. *Ghana - First and Second Structural Adjustment Program Project*. Washington D.C. - The World Bank. http://documents.worldbank.org/curated/en/1992/05/7021921/ghana-first-second-structural-adjustment-program-projects. Accessed 03/15/2013.

[11] Trading lockouts and tariffs were used by the WTO if a country did not agree to international trading rules that benefited already industrialized countries.

[12] In the case of trade, countries had to stop protecting local industries that were already uncompetitive given they were already late to the game as was the case for China and India and adopt open trade instead.

referendum. The first, 1960 changed the country from a constitutional monarchy under Elizabeth II to a republic with a president, Dr. Kwame Nkrumah. The second changed the system to a one-party state and gave significant powers to the president. The third took place under military rule, one of many that took place between 1960 and 1981. The final one, most importantly, in 1992, concerned a return to multi-party political system and a separation of powers between the presidency and a parliament. A ruling council that came out of the last military regime led by Flt. Lt. Jerry Rawlings initiated this. By 1992, the country was in dire economic straits as a result of decades of military mismanagement, and was under pressure both internally and internationally to return to democracy (Konadu-Agyeman, 2002; Alhassan, 2004). In an attempt to fix the economic crisis, the state decided to borrow from the IMF, which was granting loans but with the neoliberal focus discussed above, and set up a number of policies in an attempt to move away from the oft-socialist bent policies that guided economic governance up to that point.

In this way the, the internal agenda of the government was in sync with the dominant ideologies in the political economy of the world, to wit, a coupling of democracy and capitalism. The classic understanding of a capitalist democracy is one in which democratic or majority rule is expected to be consistent with capitalism, managed by a strong political system, either by nationalizing firms or giving workers control of some of the capital (Novak 1991, 2000; Streeck 2011). Rarely do those two principles work in tandem. For many countries, such as Chile, Singapore and Spain, capitalism came first and lingered without democracy in sight for many years. China continues its strong marketization even as it holds on to the communist thinking that should technically be at odds with that approach. Indeed, the assumption that democratization and a market economy go together is strong in political, read academic, thinking (Sparks, 2008). The coupling of capitalism, particularly marketization, and democracy, in the post-colonial era where nation states worked to create imagined communities (Anderson, 1991; 2006), indeed went the way of the most powerful nations in the post war period, namely the United States, her allies and ancillary institutions, chiefly the IMF. In a 2000 'occasional paper' by its staff on the Ghanaian state, the IMF said

> In recent years the IMF has emphasized the importance of a participatory approach
> to decision making (Ouattara, 1999). The participatory approach to economic

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development promotes the application of key elements of a democratic environment--consultation, the rule of law, and transparency and accountability--to economic policymaking.

(Leite et al, 2000)

The paper continues to laud democratic reform as part and parcel of economic restructuring, and the military leader at the time who instituted both democratic and economic changes, Flt Lt. Jerry Rawlings, used a similar rhetoric in explaining his choices to the nation (Leite et al, 2000). In seeking to forge alliances following failed attempts at other political economic systems, the perception of the IMF and World Bank, which were originally tasked with aiding countries to rebuild after global devastations, in postcolonial countries, thus went from 'imperialist institutions' to 'development partners' (Alhassan, 2004).

The political transition is an important aspect of the history of policy changes as much as the economic ones because it impacts the media industry directly. A free and independent media is considered a core 'pillar' of democracy (Sparks, 2008), and for that to happen, the media needs to be separate from the state apparatus. Even though the state sets the rules and regulations governing the industry, the latter is supposed to be constitutionally insulated from being used as a government mouthpiece and this is best realized through marketization. At least that's the idea as far as political theory goes (Sparks, 2008); for the marketization process can (and has in some cases as shown by Sparks in his work on post-communist countries) be hijacked by elite elements of the old guard who simply pass power on to their own cadre in a display of privatization. In Ghana's case, the 1992 constitution came with the move to liberalization, something that was not unrelated to the external pressures to attract investments. While financial entities do business with dictators often, and thus was not the military state per se that was unattractive to outsiders, but the country's momentum was also making the military position untenable. Flight Lt. Jerry Rawlings transitioned from a military leader to a democratic one, and the massive privatization and divestiture of state owned media was part of the process of ensuring its functionality.

Overall then, the interplay of global (financial flows, multilateral relations, economic policy) and local factors (changing socio-political landscape) explains why and how

liberalization became the regulatory choice in the 1990s for Ghana. In the discourse on globalization, the particular or the local, are not to be considered as dual opposing forces to the global, but rather as complementary in shaping societies today. The dynamics of "the production and reproduction of difference and, in the broadest sense, locality" require subtlety, especially on the issue of the "global-local problematic" (Robertson, 1994, p 37). Thus, the ideological thrust behind liberalization policies may be part and parcel of the globalization process but they cannot be separated from the economic impact or political effects they can and often do have at the local level. Countries aren't powerless to globalizing forces, but in many cases, the political situations they find themselves in internally force their hands to participate in particular ways in the global economy. Others make deliberate choices, such as Poland, and many others were pressured in various ways, with little political will to resist (Sparks, 2008).

It is important to remember that the 90s overall then marked a different epoch in Ghana's history, one that changed the state's role in economic matters, and changed the political context as a number of global and local factors converged. The 4th Republic as we know it now is not just a newly democratic state but it is also a market one wrestling with a population that expects more social support than the state is equipped to provide. Yet, that implies that policy making is hostage to history, which is not true. How the country manages its challenges today (and there are many) is out of the purview of this dissertation, however. It is more important at this juncture to view the events described here as an outcome of this crucial decade when the post-colonial state navigated a foothold in the global economy while working to build a local base that would go on to have significant impact on not just the political and economic environment but also on the social. While all that was happening, the world was also experiencing that Castells has labeled the 'information technology revolution (Castells, 1996; 2010). In the next section I detail the overly of global and local technology developments that facilitated media transformations in Ghana.

Technological globalization and media transformations

The end of the twentieth century marked an interval in history that has been compared to the significance of the eighteenth century industrial revolution (Castells,

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2010). It was a transformation and a new paradigm in which information technologies became pervasive and form the nucleus around which the converging sets of broadcasting, computing, micro-, nano- and opto- electronics, as well as bio engineering and transportation technology revolve. The decades following WWII saw technology developments across fields, and as televisions sets made quick headway into the homes of those living in industrialized economies, rockets and satellites connected countries all over the world with electronic communications, and computers became smaller and faster (Neuman, 1991). It took about a quarter of a century from when initial inroads were made to the technology revolution (i.e. from the 1970s) for these collective information and communication technologies to go global, a much shorter period than the 18th century industrial revolution that gave Britain and later the United States and Western Europe such strong economic growth.

The global nature of new media is easily taken for granted; however, relative to how long it took other technologies to become as ubiquitous as they are today, the mobile phone and Internet have evolved rather rapidly and quite globally too in such a short time. In the US, radio took 30 years to reach 60 million people, TV reached that in 15 years and the Internet did it in 3 after the development of the World Wide Web (Castells, 2010). Later on, global critical mass would be reached within a decade (roughly from the mid-1990s to mid-2000s) and these ubiquitous communication technologies would go from privately (and sometimes military) funded projects to commercial products in an increasingly competitive marketplace. Digital cellular networks (GSM and CDMA standards) communication via handheld mobile phones that had the capacity to send text messages took a firm foothold in places that are yet to reach equivalent penetration for the much more infrastructure heavy Internet. Today ICTs work within the spheres of other forms of media, like broadcasting, in places that their applications in other areas may be constrained by existing infrastructure. Fiber optics and satellite development changed the face of television, allowing increased channels and variety for audiences. Network computing allowed newspapers and magazines to serve multiple markets almost simultaneously, and radio's numbers blossomed even as it remained very local in programming (Castells, 2010).

While the level of development and sophistication of available tools is not uniform across countries, invariably, technologies used in any country are available in similar forms

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in some other country around the world. Over the last few decades, changes in software, hardware and processes have changed the way we communicate. A large proportion of new products emerge out of Silicon Valley but increasingly, multinational brands like HTC and Acer from Taiwan, and Lenovo and Huawei from China rival the global reaches of Apple, Microsoft, Cisco and other US brands (Chattopadhyay, Batra, & Ozsomer, 2012). These brands from emerging markets create quality products that are accessible in price and features for much of the world's population whereas models from Silicon Valley are often beyond reach for the average global consumer. These emerging markets span various income levels as measured by Gross National Income (GNI) [13], and technically constitute "relatively poor countries with per capita incomes of around US $10, 000 or less, as compared with incomes of US$34,000 or more for the most developed (G7) countries" (Chattopadhyay et al., 2012). As rising middle-income countries, they also benefit from lower labor costs, manufacturing facilities and high economies of scale due to large domestic market volume, even if they do not have the deep pockets or easy to tap financial markets of their richer competitors). They might also have "less-developed managerial systems and knowledge bases" (Chattopadhyay et al., 2012, p), but all of this is relative. Smaller countries like Ghana (a lower middle-income country but also an emerging market)[14] are now building the kinds of infrastructure that, say, China has, have far less income per head, but are unable to compete globally quite on the same scale as larger emerging markets, especially BRICS. That said, Ghana still produces goods and services that do serve international markets and the local communication technology industry is growing rapidly, adding to the nation's steady economic growth.

Countries in sub-Saharan Africa, with the exception of South Africa, tend not to be included in discussions about "high-tech" industries. Often when new media technologies are discussed in relation to Africa, it is through a 'development deficit' frame in which technologies are deterministic and the African subject (nation or individual) lacks capacity

[13] As measured by the World Bank using the Atlas Method http://go.worldbank.org/IEH2RL06U0 Accessed July 20, 2012

[14] The term 'emerging market' is not limited to income levels – generally, if a country's market is undergoing rapid industrialization and growth, it is considered emerging, although this is definitely not unanimously accepted. For instance, see this brief article (http://econ.st/LZeSoK) from the September 18, 2008 edition of The Economist, which discusses the term's origin and use. Accessed July 28, 2012.

either to innovate or use them in a novel way of relevance to the rest of the world.[15] That the uptake of mobile phones on the continent has been rapid and widespread is interesting but tells us little about the ways in which ICTs from the industry perspective are working their way into the everyday. User studies are instructive, particularly in explicating human interaction or how social behaviors and technological processes converge. Less readily available is work on the emerging ICT industries in the global south, which continue to be viewed as the periphery, far from centers of production in the north and merely recipients of technological innovation (Chan, 2013). But that viewpoint is neither realistic, given the so-called globalizing nature (or universalism if you will) of ICTs, nor true, as any real observer of new enterprises around the world, and in our case, Africa, would see. From Nigeria to Rwanda to Kenya, companies are innovating and producing technologies that impact the lives of the people in their countries. Africans do not only consume what the rest of the world throws at it. Innovations like dual SIM cards and the use of mobile phones for remittances have come out of the African context, like MPESA, and have started spreading beyond (Bank & ADB, 2012), as have new messaging applications like Saya, built in Ghana.[16] Beside the fact that the Taiwanese and Chinese companies HTC, Acer, and Huawei have eaten into the market share that was enjoyed by Nokia, Motorola, and other European and American brands, local companies are also joining the global transformations in the production and use of communication technologies and are creating software and in some cases, hardware too, to serve the relatively poorer populations in their countries. ICT industries are truly emerging in emerging markets in Africa and it is necessary to not only document changes, but also theorize on the elements that are supporting such developments instead of solely fixating on the privileged perspectives of established technology centers.

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[15] The 'development deficit' is how I characterize the mode of reference that alludes to broken or unavailable infrastructure, human ability and governing capabilities. Essentially the trope of Africa as a broken place in constant need of repair by more 'advanced' people and economies. It is within this development deficit trope that you find articles such as the BBC's on the IBM Watson computer 'to solve Africa's problems' http://www.bbc.com/news/technology-26065991. Accessed February 10, 2014. You find this even in well-intentioned development projects by public and private entitles alike from all over the world.

[16] Saya is a mobile messaging application that brings 'smart phone like' capabilities to low end mobiles. It is cheaper than SMS which continues to be costly for millions of users in poorer parts of the world. The application built by two of the developers I interviewed in Ghana, one of whom was present at the G | Ghana conference I described in the preamble to the dissertation. www.saya.im

Some of those elements or logics, I argue, include the actions and perceptions of the sector's labor force, especially entrepreneurs and company founders. As useful as state regulations are, in the contemporary global capitalist driven economy, the private sector is largely responsible for industrial changes in much of the world, and in Ghana, this is seems to be the case in the ICT industry, especially since privatization in the 1990s. While the state is making direct interventions, such as financing large assembling plants for electronic parts and building technology entrepreneurship focused spaces, its main role seems to be keeping a watchful eye on the telecommunications providers, of which all six are foreign multi-national companies (MNCs). Different kinds of investors and actors, from young graduates of the local universities, skilled returnees from abroad, non-profit organizations, to giant corporations like Google and IBM all actively participate in creating a vibrant ICT sector in Accra where, as in other majors cities like Nairobi and Lagos, the aim is to expand the affordances of new ICTs beyond their technological functions and translate them into various kinds of social practices by which other aspects of life can be changed. Thus, given the industry's nascent stage, there is a low barrier to entry, at least as far as the skills and capital requirements go.

Mobility and new forms of labor

Migration within and across borders have reportedly increased over the last few years in both South-North and South-South flows (United Nations, 2005). The technological developments discussed in the previous section pertain to transportation as well, such that moving nationally and internationally is now faster and more efficient. Staying in touch while on the move is also now easier, and the array of digital technologies supports the maintenance of social and cultural ties through personal communication, business and entertainment (Patterson, 2007). That said, global mobility needs to be considered in relation to the conditions for stasis, for not everyone is able to move about freely (Hannam, Sheller, & Urry, 2006). Majid Tehranian rightly differentiates between migration that "result[s] from market demand for labor and voluntary migration" (p) and that which is a "consequence of revolutions, civil wars, ethnic cleansing, and forced migration" (or political international migration per his terms)(Tehranian, 1990). In light of new forms of knowledge and skill privileged in the new economy, highly skilled labor also work within a

different space of movements than the unskilled and voluntary migration works differently from forced migrations (Borjas & Bratsberg, 1996; Di Maria & Stryszowski, 2009; Docquier, Rapoport, & World, 2004; Fortunati, Pertierra, & Vincent, 2012; Friedman & Randeria, 2004; Istaiteyeh, 2011). Likewise conditions of rural-urban migration, the more common form of migration within specific geographic borders, work along different parameters.

The 1990s were not only pivotal in laying the regulatory groundwork for the current media technology environment, but that decade also marked a period of change in Ghana's migration patterns. Historically, various ethnic groups moved across the ancient kingdoms along the West African coast that make up modern-day Ghana and neighboring countries, going as far as North Africa along the Trans-Saharan trade route (Anarfi & Kwankye, 2003). The pattern of migration changed somewhat with the coming of the Europeans along the coast and forced migration in the form of slavery took on a Trans-Atlantic turn. Post-independence, Ghanaians moved both around the country and along the West African coast in response to increasingly difficult economic conditions, particularly in the 1960s and 1970s during the military era in the nation's history (Anarfi & Kwankye, 2003; Awumbila, Manuh, Quartey, Addoquaye Tagoe, & Antwi Bosiakoh, 2008). Some of these migrations were to Europe and North America, with a mix of professional and semi-professional migrants moving internationally. During the 1980s, there was a fairly significant exodus to neighboring West African countries, precipitated by a drought, worsening economic conditions and the formation of the Economic Community of West African States (ECOWAS) which made movement across national borders in the sub-region even easier than before. This trend started to reverse in the mid-1990s, and more so in the early 2000s. Ghanaians who had left to seek greener pastures elsewhere and had been able to accumulate some capital and were able to, came back. Capital considerations are important for migrants making decisions on when and how to return home. They may have made some target earnings or may be in specific stages in life (Yang, 2006). Since migrations can be triggered by push or pull factors, when conditions that precipitated a move change for the better, those with the ability, especially those who initially had planned on a non-permanent move return. In Ghana, a main reason for the increased returns was the political stability and improving economic environment towards the end of the last century (Anarfi & Kwankye, 2003; Awumbila et al., 2008).

One way of viewing this return movement is as 'brain circulation' - an alternative to the brain drain/gain debate. In this perspective, migration is rightly viewed as a contingent process that is linked to the pursuit of opportunities. As long as the wave of globalization that we are observing continues, global competition will force firms to place a premium on high skilled labour no matter where they are from; i.e., 1) firms can locate anywhere to take advantage of available labor, 2) firms will solicit highly skilled labor and 3) labor will relocate on its own if it's propelled by the push of forced migration or pull of opportunities (Castells 2009b; 2010). But that applies to only a small set of labor, often at the managerial position or elites. Most labor and indeed firms, even MNCs, operate at the local level even if broadly they are connected to the global system. The parameters within which labor works in the contemporary society have changed, owing to new production functions and increasing individualism, entrepreneurialism, and flexibility (flex work) (Deuze 2007; Castells, 2010, Nadai & Maeder, 2005). The question of who labors, in what ways, and or who profits from said labor, is essentially a class question, a point to which I will return to later. For now, I emphasize that the ability of skilled labour to move internationally does not benefit just the developed country as the brain drain perspective suggests. In fact, it has been argued that restrictive migration policies of countries like the United States serve as a boon to emerging economies as skilled professionals are increasingly taking their higher education and expertise back home (Wadhwa, Saxenian, Freeman, Gereffi, & Salkever, 2009).[17]

Tehranian (1990) argues that global capitalism (or 'The Pancapitalism Regime') needs two different kinds of labor on the two ends of the international labor market: the manual and intellectual. Newly industrialized countries and recently rich ones need cheap manual labor for domestic work, farms, manufacturing work that is routine and repetitive. On the other hand, global pancapitalism needs '"highly skilled, intellectual labor" based on the dependency on knowledge and financial services industries (Tehranian, 1990). Castells

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[17] US work visas are notoriously difficult to procure, and in terms of the H1B category, quotas and very specific rules surrounding their issue and reissue leaves a large number of skilled immigrant workers with tough choices. The current immigration debate in the country separates low skilled immigration laws from high skilled ones with illegality often attached to the former and the latter advocated for by large corporations, mostly Silicon Valley based. See (Wadhwa, Saxenian, Rissing, & Gereffi, 2008) and (Wadhwa et al., 2009) for more on this.

and other scholars have also remarked on the differences emerging in the global workforce along network knowledge and power (Borja, Belil, Benner, & Castells, 1997; Castells, 1978, 1989, 2009a, 2009b; Castells, 2011; Castells, Cardoso, & Paul, 2006). What is at stake here in the division of link between labor, people and classes is the kind of knowledge one has and one's ability to manipulate it to create new forms of knowledge. In Castells' words,

> What characterizes the current technological revolution is not the centrality of knowledge and information, but *the application of such knowledge and information to knowledge generation and information processing/communication devices*, in a cumulative feedback loop between innovation and uses of innovation.
>
> (Castells, 2010, p 31)(My emphasis)

The value of such knowledge, typified by the 'regime of management' and the "managerial rationality [that] invades virtually all the spheres of life from professional careers to private relationships up to social problems of all kinds" (Nadai & Maeder, 2005, p) centers around information processing and communication. One's ability to produce more valued and valorized products (i.e. new knowledge and information processing artifacts and processes) makes one a member of the elites in Daniel Bell's (1973) envisioned post-industrial society, and can be seen in Silicon Valley and its related industries (Wadhwa et al., 2008).

Understand that it is not the use of knowledge and information per se or in general that is being privileged in the contemporary global economy. The age of enlightenment and the subsequent industrial revolution that followed came from (new) rational thinking and the scientific method and both have stayed with us till today. The newness emerges from the centrality of information technologies, and the value (and valorization) derives from the ability to apply/turn knowledge of them into other forms of knowledge across sectors via entrepreneurial activity. As such, those who are seen to have such 'high impact' knowledge are at the top or elite levels of what I am calling the technoclass. For these elites, many who gain admission into such ranks through attendance at elite institutions, global migration and transnationality/cosmopolitanism becomes part of the value they bring to an enterprise or institution. Being able to cross national borders fluidly gives one additional network value, a prized aspect of the forms of knowledge that are privileged today.

AnnaLee Saxenian's work on Silicon Valley and its immigrant populations sheds light on this interrelation of privileged knowledge, network value and the centrality of information processing. She takes a transnational approach by tracing the work and networks of migrant technologists in the valley, (using Jason and the Argonauts in the search for the Golden Fleece as metaphor) and shows how sociological moments interact with technological ones to become infrastructure upon which subsequent developments, like venture capital, rest. In her view, recent economic successes in Israel, Taiwan, China and India are surprising given that they were poor agricultural economies in the post-war boon (AnnaLee Saxenian, 2006b)(p12). Neither the standard accounts of industrialization nor of economic development explains the rise of local or indigenous entrepreneurship in those new technology regions and she credits "the new Argonauts" for the successful global competitive technology firms and many hundreds of smaller ones that helped to build the technology industries in those countries. These 'new Argonauts' or the several thousand foreign born scientists and engineers in US universities following the post-war era who remained afterwards to work in technology companies show the links between the movement of people and technologies (broadly defined as artefacts, processes and forms of knowledge). Their integration into the local Silicon Valley economy by forming ethnic networks supports professional advancements and entrepreneurial success not just in the valley but also in their countries of origin. These extensions or institutional moves together with embedded social structures shape global technology competition. More specifically, Saxenian argues that these new Argonauts undermine the 'old pattern of one-way flows of technology and capital from the core to the periphery, creating far more complex and decentralized two-way flows of skill, capital, and technology' (AnnaLee Saxenian, 2006b)p6). Perhaps necessitated by the scope of her analysis and methodological leanings, Saxenian 'flattens' class in her work on the Argonauts. I argue that even at that level, class and its relationship to access to the global information network is important and will show in this dissertation that 'correspondences' between ideology, practice and social groups are "established by relevant social groups in particular times and places" (Sterne, 1999; Turner, 2006), and that such processes are 'time-bound' and 'local' (Turner, 2006).

But this is not just about international migration and return. Accra's rapid urbanization, much like in other emerging economies, is a rural-urban migration story.

Young people are no longer content to stay in the rural areas of their birth and childhood and move to cities regardless of whether there is space for them or whether the central planning of the government includes or accommodates them. Accra's economy is largely informal, new inhabitants across board form the majority of that economy and yet they are consistently left out of the state's infrastructure building to support the economy (Songsore, 2014). Davis argues that as the twenty first century progresses, human populations will increasingly live in 'megacities' and developing countries of African, Asia and South America which already have rapidly growing cities will continue to grow (Davis, 2011).[18] In Ghana, rural populations are declining, while urban rates are rising and the major cities such as Accra have been increasing in population and expanding into neighboring areas. Indeed, many of the youth selling items on the streets of Accra left their families in other parts of the country to seek their fortune in the city. While both struggle with traffic, crowded streets, etc., their living conditions are different from the youth coming from more affluent neighborhoods in the city. The UN predicts that urbanization will continue till 2050 in the developing world where already we've noted that there is a 'youth bulge'. Rather than venture into the gloomy predictions of violence and anarchy that often accompany accounts of youth in developing nations, I present an alternative narrative; an account of what some youth in one emerging market do, what sorts of futures they envision, how they articulate their aspirations and how some of them go about living those aspirations out. Yes, many youth in Accra are disenfranchised and vulnerable, but many are also moving into the middle class where life is better, becoming part of the technoclass and new elites to which their parents did not belong.

In sum, this dissertation makes central the complex relationship between social variables (like people's educational backgrounds), historical influences (such as government policy), and global trends (like migration), in its narration of changes in Ghana's media and its relationship to class. It proceeds from the understanding that the contemporary global economy is characterized by various kinds of mobilities, i.e.

both the large-scale movements of people, objects, capital and information across

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[18] Davis' definition of urbanization is about the increasing proportion of the population concentrated in urban settlements, not simply the growth of cities; thus cities can grow without urbanization provided the rural population grows at the same or more rates (Davis, 2010).

the world, as well as the more local processes of daily transportation, movement through public space and the travel of material things within everyday life. Issues of movement, of too little movement or too much or of the wrong sort or at the wrong time, are central to many lives, organizations and governments.

(Hannam et al., 2006)p 1)

Mobility, or globalization in the broad sense of the word, is more than just the movement of people, but also people's social status, their skill and ability to navigate different social spaces, all bracketed against the socioeconomic realities of where they originated. Thinking about globalization this way is "not a question of privileging a 'mobile subjectivity'... but rather of tracking the power and politics of discourse and practices of mobility in creating both movement and stasis" (Hannam et al., 2006)p 3-4).

Class distinctions and the emergent technoclass

The substantive areas of concern in this dissertation concern the social impact of economic and technological globalization in Ghana, specifically the ways in which changes in the media industry are indicative of emerging class distinctions, particularly the characteristics of what I term an emerging technoclass. My use of the word "emerging" is a play on the fact that the geographic area of interest is labeled an "emerging economy", but more importantly it underscores the fact that this is still an ongoing process. The argument is not that there is a whole new class in Ghana based on four case studies but rather that the ways in which the media is functioning in Ghana today, and the ways in which those who work in the industry valorize certain ideas related to information technology, reflect global changes in class related concerns as have been noted elsewhere (Harvey, 1995; Friedman, 2000; Robinson & Harris, 2000; Sklair, 2001; Van der Pijl, 2001; Cox, 2004). More specifically, the media's functioning, in both its legacy sector and new sectors, work together to amplify, in the Ghanaian case, their relative influence in society, especially those that count as the elites. Furthermore, while I point to the centrality of knowledge of information technology as characteristic of the technoclass, I make no claims of it causing or changing behaviors or other similar deterministic arguments. The knowledge about and of these things is used to create new knowledge and artifacts, the latter, especially when used for communication purposes can, and often do, take on new meanings by their users.

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As such as the knowledge alluded to are not static, but rather evolve, as Castells (2010) puts it, and generate other knowledge through information technology application and use.

The term technoclass needs disambiguation at this point. 'Techno' is from the Ancient Greek τέχνη (*tékhnē*) meaning 'art', 'craft', or 'skill' (New Oxford American Dictionary 2013; Oxford English Dictionary, 2010, 2013). In philosophy, *technē* is defined as "the knowledge of how to do things and make things" (Oxford Dictionary of Philosophy, 2008). Another interpretation is "craft; practice; making or doing, as contrasted with episteme or knowing" (Wiktionary, 2014). The contemporary use of the word 'techno' is as a prefix for things relating to technology,[19] the latter itself being defined as either "the application of scientific knowledge for practical purposes, especially in industry" e.g. advances in computer technology or recycling technologies; or "machinery and devices developed from scientific knowledge" as in "it will reduce the industry's ability to spend money on new technology". The etymology of technoclass then gets at what it operationalizes, namely the privileging of skills associated with the application of a specific form of knowledge. There are dimensions to this knowledge form as I indicated from the previous section; the knowledge revolves information technologies and their networked components, global or transnational adaptability is important, and entrepreneurial application of such knowledge is valued. The use of the term 'class' in technoclass may be interpreted in two ways. First, it is used as a "general term for any grouping", i.e. that there are characteristics or qualities that distinguish what it refers to from others, and second, much like the word 'emerging' indicates "as a would-be specific description of a social formation" (Williams, 1976, p52).

Class, as a social relationship and instrument of analysis (Mosco, 2009), is a difficult and somewhat contentious concept that is fraught with ambiguities. Take for instance, what we call 'the middle class'. By popular accounts, this refers to the class of people for whom life is less precarious and fragile but not decadent or privileged. An expanded middle class is often used to imply a more prosperous and equal society. However, it is not easy to pinpoint who belongs to this class in any one country, never mind on a global scale. A middle class person in the United States supposedly makes between \$40, 000 and \$100,

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[19] It is also a style of electronic music, which as much as I enjoy, is not relevant here.

000, owns a home, saves for their children's college, has a secure job, goes on vacations, leans towards Democrats, and saves for retirement (Peterson, 2012).[20] This is a very wide range and when adjusted for costs of living in different parts of the country, the income gap reduces, the home ownership changes, etc. On a more global scale, Milanovic and Yitzhaki (2002) have suggested counting people with daily incomes between $10 and $50, adjusted for purchasing power parity (PPP), as middle class. Others have debated that approach, arguing, among other things that incomes do not always reflect private consumption and that criteria underreports the middle class across a range of countries with different standards and costs of living. For instance, as an alternative, Ali & Dadush (2012) propose car ownership as a more 'common sense' approach because cars are "big-ticket items that indicate the ability and willingness to purchase many other nonessential goods" (Ali & Dadush 2012). They argue that because cars in non-rich countries are often older and thus cheaper, one can give a reasonable estimate of relative affluence. The question also remains why consumption is the default way to think about class and if car records are the same across the globe.

Still, categorization is an essential aspect of comparison, which is what social stratification is about. Relative rank or comparison is an inherent part of social class, not just a categorical place of belonging. Often, for the purposes of measuring class, an 'objective' measure, often an economic one, puts groups of people in relation to one another. But that does not account for things that do not so easily lend themselves to being quantified, such as power, status and prestige. These are accorded to people by various measures that include the ability to influence decisions and the lives of others. Weber (1921; 2010 translation by Waters et al) addressed this issue of rank and social status in a society and argued that it stems from one's location and education, although status gets at a different aspect of class. For instance, as Colin Mills points out, income levels in Japan make it one of the least equal societies by class (i.e. not much variation or enough to classify some people as stupendously wealthy and others critically impoverished with most people within the same class). Yet, it is a deeply status oriented society in which inferiority and

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superiority can change one's place in society rather acutely. These come from individual actions and one's behaviors within expected codes of conduct (Mills, 2013). Status, then, is not class and class is not power, even if it can be related to power.

Elites gain power from class and status. C. Wright Mills (1956) famously attributed elitism to those whose actions have national impact. Arguably, some of the power accrued from birth and or accumulated through wealth can be related to the perception of influence, and often it does translate into influence over others. Perception of class points to the fact that at least some of our understanding of the concept relates to identity. Indeed, the term 'working class', beside being a descriptor of certain trades, took on a special meaning for those described as such, hence producing ideas such as 'working class culture' (Williams, 1953; 1963; 1976). Class then, is not just about 'objectively' comparing or ranking people in relation to some external category but an identity construct that takes on special meaning for those who claim it. People can identify with a different class than they supposedly belong to, or, in today's world, "someone can now more easily have multiple class identities" (Dorling, 2014, p 453).

Marx on his part thought of class as a 'formation' (Marx, 1848, 1998; Williams 1976) and his view of the concept run along the relationships between the means of production and economic value. The working class (proletariat) is the waged or salaried workers who use their labor to create economic value for those who own the means of production (the bourgeoisie). Their exploitation results in class conflict or warfare, and, class is formed when people obtain class-consciousness, solidarity and common interests with others with regards to the exploitation of the lower classes. Class formation, per Marx, is about "perceived economic relationships; social, political and cultural organization" (Williams, 1976, p59). That is to say, class "exists to the extent that people are aware and act on their class position..." (Mosco, 2009, p 189). But, as Mosco rightly asks, what constitutes class-consciousness - is it individual awareness, social communication, or organized resistance? There are also questions about conceptualizing class as a relationship (which Weber did, with respect to markets instead of the means of production), that is, thinking of class as being about the connections between people based on their relationship to "the primary processes of social production and reproduction… a relationship that connects capital and the working class, based on ownership of the means of production" (Mosco, 2009, p189).

This also begs the question, what defines the relationship – is it the means of production, reproduction or administration? (Mosco, 2009). This does not mean that there isn't value in organizing class against some basic social relationship. The question is which central factor should that relationship be organized around?

Contemporary work on class especially as it relates to the changes brought on by globalization compare labor in terms of their relationship to the overall economy.[21] Previous work on what we might think of as dimensions of the technoclass have emphasized transnationalism, cosmopolitanism and the ability to influence network infrastructure through knowledge creation (Calabrese & Borchert, 1996; Harvey, 1995; Friedman, 2000; Robinson & Harris, 2000; Sklair, 2001; Van der Pijl, 2001; Cox, 2004). Some of this work separates state power from corporate, technical and consumerist power (for instance, Sklair, 2001). However, at their core, it is individuals who make up these different corps of power and understanding that the various dimensions are attributable at that micro level shows how certain corporations and states come to have their power, in addition to the force of history and the geographic distribution of certain resources that propels certain advantages. Labor in the contemporary global economy is increasingly individualized and how entrepreneurial one is about one's skillset, abilities and ideas supposedly determine how far up one goes up the ladder (Nadai & Maeder, 2005; Deuze, 2007).

Thus, entrepreneurship (in its various iterations), managerial capacity, transnationality and technical skills might demonstrate the various forms of knowledge that are valorized and valued in the contemporary information economy. The increasingly large valuations of companies (and the people behind the ideas that created them) on global stock markets are an extreme example of how these knowledge forms translate into value. The 'high-impact' individuals today across the global economy show these sorts of savvy, from the creators of social network sites to senior management of companies that make the devices that researchers rely on. These are those who are able to control capital and constitute the elite of the technoclass (Castells & Hall 1996; Friedman, 2000; Sklier 2001; Myles 2004)

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[21] An additional component of contemporary assessments of class include Bourdieu's various forms of capital. The most recent that received much commentary both from the general public and in academic circles (particularly in the journal 'Sociology' when the original paper was first published) is Savage et al (2013).

Calabrese and Borchert (1992) speak of "class division on the information superhighway", as emerging out of two basic models, the consumer and the civic. They predicted some uses of new information technologies that will divide along class lines and others that would be consistent across them. In the consumer model, social stratification overlays market segmentation. Those at the lower end of the new class consume and locate themselves via consumption practices, whereas the elites can be found in the upper echelons of management of the spaces that create the technologies others consume. These have what Castells might call the 'network-making power' (2009; 2011) and are involved in infrastructure creation. Castells and Halls (1996) present these as being at the managerial level. In-between those two levels are other distinctions. For instance 'cultural intermediaries' such as software designers who do not manage infrastructure but do influence how knowledge flows on the web might fit in-between the mangers and those who consume or use without generating new forms (Myles, 2004). As these forms of knowledge are normalized globally, the expectation is that the most basic of them will diffuse to all who come into some contact with those knowledge products, whether they are artifacts or modes of interaction.

In the civic realm, one can think of the consumer culture that came with increased media options moving in line with citizenship and participation in the political process. Much was made about the ways in which Barack Obama mobilized youthful voters by using the media they use the most. Instead of being apathetic and disengaged, young voters responded when reached out to. In a broader sense, the new communication technologies are supposed to be anti-hierarchical, but also skeptical and monitorial, such that individualized acts of citizenship are compacted on to consumption, creating what might be called a citizen-consumer (Deuze, 2007). Consuming certain technologies makes you a certain kind of citizen and this theme is evident in the radio chapters that I will discuss later (Deuze, 2007; Schudson, 1999; Ito, 2005).

In terms of categorizing and ranking this technoclass, one can order people according to various levels of skill on those different knowledge areas. Those whose application of the forms of technical knowledge (which by their nature evolves over time) remain at the consumption level (the majority) appear to be on the lower rank relative to those who have the ability to implement infrastructures, connect networks of other kinds

of knowledge application and in general have network making power (Calabrese & Borchert, 1992; Castells and Halls, 1996; Myles, 2004; Castells 2011). One's relationship to the structures that can generate new knowledge, due to the level of skill or application one has, either technical or managerially or both, determines if one has influence or not.

Regardless of where one fits within the technoclass, the globally aware but locally rooted mentality is characteristic. This differs from the mentality that accompanies some levels of technically skilled individuals and new entrants into the business world, for instance in the software industry, whose clients are global and therefore perceive of themselves as "location agnostic" (See Gautam Sonti's 2008 documentary 'Coding Culture'). The returnees discussed in this dissertation may continue to globetrot but show an awareness of being moored to one locality – Ghana. Likewise returnees in skilled sectors across different contexts, for instance in Australia, China and Taiwan, show this similar tendency to build local even as they remain tied to the global (Cassarino, 2004; Dustmann, Fadlon, & Weiss, 2011; Gibson & McKenzie, 2011; King & Christou, 2011; Vogiazides, 2012; Ying, 2013). In this way, the technoclass does not represent a dichotomy but rather a duality in which one sense informs the other. Locality is where opportunities lie for the entrepreneurially focused, and global is where expansion goes.

The point overall in linking class on a global scale to the concerns in this dissertation, to reiterate, is not to take the four case studies as conclusive evidence of a new class. Rather, it is to indicate the ways that the new media industry is functioning, in Ghana at least, as a space for exploring the emergence of and normalization of certain kinds of knowledge that are, linked to the application of information technologies in very specific ways. Attached to those are ideas of what has value in the global economy and those expectations inform how certain categories of people, whose attributes in many ways sets them apart from others, come to think of what influence and social status should be today. These open up established forms of class in Ghana that before liberalization and democratization were related to land, lineage and political access (Hutchful, 1979; Oppong, 1981; Robertson, 1984; Konings, 1986; Graham, 1989; Lentz & Erlmann, 1989; Akyeampong, 1996; Boadu, 2002; Arthur 2005). In the contemporary economy, theoretically, it is now possible to acquire different levels of these forms of knowledge given how normalized they are becoming in everyday life. The extent to which one applies

them to generate more knowledge, something that we cannot quite disentangle from advantages granted by one's belonging to conventional middle and upper classes, help determine how high one goes up the technoclass ladder.

Chapter 2 –Background and Methodology

Ghana

Liberalization and democratization process

  Ghana's specific experience with liberalization following loan agreements in the early years of the democratization process left a lasting impact on how the media industry functions today. Liberalization refers to "the opening up of the market, largely in anticipation of competition' while privatization refers to 'a situation in which the state ceases to own businesses and sells them off to private hands" (Banda 2006, p. 460). Multilateral pressures from the Bretton Woods Institutions are largely responsible for the choice to liberalize the economy, and specifically, due to loan agreements and pressures from the International Monetary Fund and World Bank. Ghana initiated laissez-faire policies in 1983 through the Economic Recovery Program (ERP), which helped secure financing from the IMF and thus began a stringent application of a Structural Adjustment Program (SAP) (Osei, 1999). The ERP was put in place to help repay Ghana's debt that had accumulated over the years, and the SAP's neoliberal focus meant agreeing to, among many things, the divestiture of State Owned Enterprises (SOEs) across different industries (including mining and telecommunications) and restructuring key sectors of the economy like welfare institutions (Alhassan, 2005; Appiah-Kubi, 2001). By the end of the 90s, the hopeful future that was envisioned at the beginning of the decade had dimmed as the country was again plunged into debt and standards of living lowered as the structural changes took effect. Those lowered standards of living most likely affected the more vulnerable of the society and further deepened existing inequalities over the long term.

  In terms of those structural changes by industry, primary extractive ones like gold mining were privatized. Others, like media and telecommunications, were liberalized, although the government has maintained a presence in the radio, television and until recently, the cellular phone markets. Towards the end of the 1980s, it was becoming clear that telecommunications could be much more than basic voice telephony and that it was

increasingly inefficient for governments to operate telecommunications firms. For example, in Nigeria, the Communications Commission offered GSM mobile licenses before privatizing the national monopoly Nigerian Telecommunications Limited (NITEL) (ICC, 2007). In 1987, the government of Ghana started issuing private licenses for telecommunications equipment, (Allotey & Akorli, 1999) but it was in the 1990s that major restructuring took place in the media and telecommunications sector.

The Post & Telecommunications Corporation was divided into two separate entities, Ghana Post and Ghana Telecom. Ghana Post remains a state run enterprise, although international courier services like EMS and Fedex deliver and compete, at least for international shipping. Ghana Telecom tried, unsuccessfully, to manage telecommunications in the country over several years. The Norwegian company, Telenor, first purchased it in 2008, and then a Malaysian company tried to run it. Finally, the British global company Vodafone purchased 70% of the shares in Ghana Telecom for $900 million.[22] Other large multinational firms such as Luxembourg's Millicom (which operates under the name Tigo), South Africa's MTN, and India's Bharti Airtel all operate, and currently, in 2014, there are 6 operators (all foreign MNCs) for the population of 25 million. This is more competitive than the United States and other economies seen as stalwarts of the free market and private enterprise in which the telecommunications sectors are essentially oligarchies.

This particular sector of the technology market sees active government involvement given the current and previous governments' focus on making ICTs a major driver of economic growth. Each successive government since 2000 has published major ICT policy documents and passed a number of bills in parliament focusing on communication policy. The ICT4AD Policy of 2003, the ICT Blueprint of 2004, the Telecom Policy of 2005, and the National Information Technology Agency Act of 2008, all explicitly state a desire to keep up with the rest of the world and to transform the Ghanaian economy into an information and knowledge-based society. Indeed, ICT regulation is the one issue where parliament tends to be bipartisan. Taxation and regulatory fees actually yield revenues because they have

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[22] See http://bit.ly/O9849N. Accessed July 25, 2012. Vodafone's considerable resources quickly made it the dominant firm in the country with this purchase.

proven easier to enforce in this sector as the government keeps a keen eye on sector players. The licensing of various technologies along with the issuing of operation permits to put in heavy infrastructure such as submarine cables and terrestrial lines for fiber optic cables is lucrative for a government that has notoriously had trouble strengthening other public sector institutions.

Still in the 90s deregulation and liberalization period, radio and television licenses were issued, and a regulatory body called the National Communication Authority (NCA) was created to regulate standards and issue tariffs (Allotey & Akorli, 1999). The Ghana Broadcasting Corporation ceased to be the sole provider of radio and television, and in 1994, as part of the broad liberalization effort, the government agreed to license Joy FM as the first privately owned commercial station in Accra (GBC, n.d.). With the new constitution, the state-run media became fairly insulated from state control in its operations and against government censorship (Alhassan, 2005). The Ghana Broadcasting Corporation (GBC) morphed from a state radio into a public service/community organization with various radio stations and a television channel that aim at a pluralistic society (through offerings in the various Ghanaian languages, not just the lingua franca) and contribute to a national culture through local programming (Banda, 2006). Since then, the country's media landscape has been open and very competitive. The broadcasting component overall changed at a moderate rate; the number of radio stations over the years far outpaced that of television (see tables 2 and 3) and by the end of the third quarter of 2013, there were 266 radio stations in operations across the 10 regions of Ghana (see table 4).

In addition to liberalizing the telecommunications sector, successive governments of Ghana have tried, with varying degrees of success, to create an enabling environment for businesses in general in continuation of building a market based economy even as it struggles with social safety nets and basic infrastructure provision. The Ghana Investment Promotion Center (GIPC) was created 1994 under the Ghana Investment Promotion Centre Act, 1994 (Act 478) and mandated to promote investment and be the liaison between entrepreneurs and regulators in the country. The Companies Code, 1963 (Act 179), The

Partnership Act, 1962 (Act 152), and The Business Name Act, 1962 (Act 151),[23] are early regulatory attempts to move towards a more open economy and contain guidelines guidance on who may set up a business and how they may do so. According to The Doing Business Survey, which measures business regulations around the world, the country reduced the number of days and procedures it takes to start a business from 2008 to 2010. Other measures help to enforce contracts and strengthen the business environment in the country (World Bank, 2012).[24]

      While government policy may be necessary for opening up industrial competition in some countries, it is not sufficient to build a successful business climate in which entrepreneurs and big companies alike can thrive. Silicon Valley's success, for example, came out of decades of U.S. military spending on Research and Development (R&D) that initially started in Boston's Route 128 corridor and then migrated to California (A. Saxenian, 1994). Over time, the Palo Alto, Menlo Park, Cupertino, Mountain View, San Diego and San Francisco areas developed a horizontal network-based system of entrepreneurship based on these military investments and the availability of highly-skilled talent that had migrated from the East Coast and nations such as India, China, Israel, and Taiwan to Silicon Valley (A. Saxenian, 1994). The combination of regional advantages, timing in the global movement of skills and laborers, and the US economy's support of private enterprise came together in ways that created Silicon Valley and continue to allow innovation to flourish there at the highest level (A. Saxenian, 1994; AnnaLee Saxenian, 2002, 2006a; Wadhwa et al., 2008).

      The percentage of the Ghanaian population living at the poverty line has been declining steadily for the last three decades. Currently, about 23% of the population is at or below the poverty line (World Bank, 2013), but compared to most of sub-Saharan Africa, Ghana ranks high on almost all indices of the human development index (HDI), and the economy has been growing at an average of about 6% in the last two decades (World Bank, 2013). A lower middle income country (World Bank, 2014), Ghana gets most of its revenue from commodities trading, particularly cocoa and gold, and this leaves it vulnerable to the

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[23] More from the Registrar-General on these processes can be found on the GIVC site here: http://bit.ly/M2RdUq.

[24] See more about the Doing Business Survey here: http://www.doingbusiness.org

vagaries of the global commodities market. The recent discovery of oil has helped boosted the economy, and it is hoped that it will cut down the cost of importing fuel as the industry grows, although in 2014 the country appeared to still be experiencing fuel crises through the government's taxation policies.[25] There is a large informal sector in Ghana, as is the case for most developing countries.

In addition to those changes, other supporting institutional adjustments have been made in the last few years. Insolvency laws were put in place to protect creditors, a private credit agency was allowed to operate and a centralized collateral registry was established – all to insure creditors. Changes were also made at the Port Authority to reduce cross border difficulties in trading, commercial courts were established to help with arbitration and mediation and new High Court procedures were also introduced. These help to enforce contracts and together strengthen the business environment (World Bank, 2012).[26]

Overall, the Ghanaian economy today has been transformed from what it was three decades ago. It is more diversified and grew at an average of 5% between 1991 and 2010.[27] These days, one is likely to see young educated Ghanaians (and indeed around the emerging world) going into newer forms of professions in finance, technology and education, and less into agriculture or even manufacturing.[28] Since the country participated in the wave of liberalization that swept the rest of the world, its economy has since started to diversify away from the primary commodities base towards a more information and knowledge base and sectors like telecommunications have experienced what has been described as 'unprecedented growth'. Most significantly, the media experienced widespread changes in which the state gave up monopoly on and telecommunications broadcasting, creating a competitive marketplace where radio grows the fastest and sees the most new entrants. As at mid-2014, Ownership of radio across the country is spread

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[25] Aspects of this are referred to in chapter 4's discussion of the news that Citi FM covers.

[26] See more about the Doing Business Survey here: http://www.doingbusiness.org

[27] Compare this to Brazil's average of 3%, Russia's 0.6, India's 2.5% and China's 10%. The United States, Germany, Japan and Canada on the other hand averaged 2.5%, 1.4%, 0.9% and 2.4% respectively. All figures from the World Bank's World Development Indicators Databank (URL: http://data.worldbank.org/data-catalog/world-development-indicators. First accessed January 19, 2013).

[28] The Ghanaian population is employed mostly in the agricultural and informal sectors while manufacturing capacity in the country overall is low.

over 200 hundred companies and individuals and the state company, the Ghana Broadcasting Corporation (GBC), was the only company with a radio station in all 10 regions of the country. Multimedia Corp., the parent company of the first private radio station, Joy FM, was the next highest number of radio stations across the nation.

Media post-liberalization

Joy 99.7 FM was the first station to receive a commercial license in Accra in 1994. Its early days were a mix of news and lifestyle programs. Afternoons and late afternoons were also often RnB, jazz, pop and top-40 music, largely from outside the country, interspersed with advertisements on all kinds of products. For the first time, programs like 'Drive Time' and 'Cosmopolitan Mix' were playing 'smooth' jazz, talking entertainment news, and taking song requests from listeners. Soon, other radio stations received licenses and by 2000, there were 219 radio receivers per 1000 people, compared to 13 television receivers per 1000 people (Abbey-Mensah, 2001). In 2002, there were about 100 private commercial FM stations 100, outnumbering television stations by about 10:1 (Avle, 2011). The fact that it is easier to deploy radio than it is television, at least in terms of infrastructure set up may explain this difference (International Telecommunications Union ITU, 2009). In any case, by 2009, the number of radio stations on air in the Greater Accra Region was 24, Ashanti was 29, Central was 9 and northern was 4 – all increases from five years before.[29] The NCA reported in 2013 that they had authorized a total of 328 stations as at the third quarter of that year. 266 of them are in operation and the rest are yet to begin. Of those operating, 36 are public, 52 are labeled by the NCA as community radio, 12 are on the campuses of tertiary institutions, and 228 are commercial (see table 4 for more details, including regional breakdown).

While the increase from a handful to around 300 FM radio stations a little over a decade for a population of 25 million indicates an increasingly competitive (and perhaps saturated) market, there is some evidence pointing to more niche stations and horizontal integration. For instance, The Multimedia group, owner of *Joy* FM, now has 6 radio stations, a television station (MultiTV) and news website myjoyonline.com. The Despite Group of

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[29] Ghana is divided into 10 administration Regions: Greater Accra, Ashanti, Eastern, Western, Central, Brong Ahafo, Volta, Upper East, Upper West, and Northern.

Companies owns the most popular Akan language speaking[30] station in Ghana, *Peace FM*, three others (*Asomdwe*, *Okay*, *Hello FM*), as well as one TV station (UTV) with a veritable web presence on peacefmonline.com. In addition, it is perhaps best known for its music business which first started as a cassette distribution chain and then a music studio.[31] Likewise, Omnimedia, the parent company of *Citi FM*, owns The Globe and Weekend Globe newspapers. This could be viewed as increased consolidation or a shift to serve more diverse audiences depending on one's perspective. The evidence in terms of market share does not amount to much and therefore the argument for the former would be a bit tenuous. It remains to be seen how much of the entire market will accrue to a few owners in the next few years and how much vertical integration will take place given the dynamics of convergence and business regulation.

Here, I pause to point out a key characteristic of media ownership in Ghana. Across the globe, large multinational (MNC) firms are increasingly acquiring interests in different markets, with claims of a global conglomeration and amassing of media power (Herrmann & McChesney, 2001). In Latin America, Globo and Televisa dominate markets beyond their respective domestic markets of Brazil and Mexico (Waisbord, 2002). Elsewhere, News Corp, AOL-Time Warner, and the like continue to expand into countries on just about every continent. The trend towards global conglomeration is very evident in the mobile service in Ghana where all six mobile companies - Vodafon, MTN, Tigo, Bharti Airtel, Expresso, and Glo - are part of MNCs and are major competitors across Africa and the Middle East.[32] On the other hand, more 'traditional' forms of media - radio, television and newspapers-

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[30] Native speakers of Akan are about 60% of the population, with a lot more using it the lingua franca in urban areas, particularly in the Southern half of the country. It is one of 9 government-sponsored languages in addition to the official English language.

[31] See http://www.enewsgh.com/magazine/2013/08/16/adakabre-quits-adom-fm-joins-newly-established-despite-group-station-100-9-fm/ , http://www.ghanafilla.net/new-baby-for-osei-kwame-despite/, and http://www.modernghana.com/music/20849/3/accra-welcomes-asomdwe-fm.html Accessed September 7, 13

[32] Capital requirements are similar (towers, masts, etc.) so the question remains why are local firms not part of this 6 and why is radio more domestic owned and operated? Spectrum allocation and technicalities may differ slightly, particularly at which height waves are supposed to be sent but it appears the difference is capital at onset since mobile service provision includes network infrastructure that smaller local firms may not be financially able to bear, despite claims by the government to support local participation in telecommunications. This claim came through my interview with the then Minister of Communication, Haruna Iddrisu (see details in Appendix A).

remain largely domestically owned across Africa (source) and this is true for Ghana as well. Further, while it is not uncommon to find imported programing such as Hollywood films, Latin American *telenovelas* and the occasional Bollywood movie on television, the only foreign programming for radio is largely news and feature programs from the British Broadcasting Corporation (BBC), and to a lesser degree, Voice of America (VOA), as well as football coverage from the English Premier League, syndicated to specific stations in the nation. In general then, radio stations are owned and managed by Ghanaians and programming is often in local languages specific to location and in the official language, English. Radio and print are the most crowded/competitive spaces, with print media having a longer history and estimates of over 400 newspapers, journals and magazines in circulation across the country (IREX, 2013).

When private entities like the Multimedia Group were issued radio licenses in the 1990s, other areas of the telecommunication industry, particularly in telephony, were opened up as well. First, the national monopoly, Ghana Telecom, got a new competitor, Westel, and forming a duopoly were tasked with deploying 275, 000 fixed lines across the country within 5 years; however, by 2002 it was clear that even that minimum installation count was not going to happen (Essegbey & Frempong, 2011). Mobile telephony through a combination of factors then began to fill a crucial gap in the communications infrastructure of the country. In the first few years of *Joy* FM's operation, only a very small percentage of the Ghanaian population had access to telephones beyond the few public payphones dotting the landscape. A majority of those had it at their workplace and a precious few at home. Over the next few years, mobile phone access would increase exponentially due to increased competition in the industry via regulatory changes, with four operators by the turn of the century. With more providers and more handsets available, user costs generally began a downward trend that together help mobile phone penetration to about 70% by the year 2010. This increased usability was incorporated into programing across board in radio. As more people got on the mobile, listener calls and text messages became the norm and it is now hard to find a single program (including news based ones) that do not include calls from experts, government officials, and/or the general public.

As mobile users increased, the devices most commonly used changed to reflect global trends in manufacturing of telecommunication and electronic goods. Chinese and

Taiwanese companies like Huawei, ZTE and HTC overtook the European incumbents (Nokia, Ericson, Motorola, etc.) as the major exporters of cheap hardware most commonly used in developing countries. Overall, there has been an influx of affordable handsets with a range of options available on the streets, in stalls, all outside the providers who mainly provide SIM cards and the service to go with handsets one gets from elsewhere. One feature of these handsets, which to some might seem a strange convergence of forms, is one that allows mobile handsets to access radio frequencies. One can now tune in to a local station while on the go, and with the number of radio transmitters and masts dotting the landscape, one is never out of range of a radio station while on the move. This widens the interactive access points for listeners and radio is now 'mobile'.

In addition, given the prevailing norm of including audience calls and texts in programming content, the space for participation also theoretically opens up as well. Each of these offers a variety of shows, and while many follow the same formats, they each cater to their audiences that are specific to the localities and whatever the extent of their airwaves is within the country. So for instance, while *Joy* FM targets a very small demographic of the Ghanaian population, the variety in radio stations across the country caters to people of different classes and socio-economic levels. *Peace* FM and the popularity of other local language speaking stations on the one hand, and *Citi* FM's niche within *Joy* FM's locality on the other, and indeed two hundred plus stations that operate as commercial, community, public and campus radio stations offer, at any given moment, content that Ghanaians across the spectrum of political leaning, economic status and educational background can access.

Liberalization, then, had a twofold outcome in terms of radio specifically, and media more generally. First, as indicated above, the number of stations that began operating with commercial licenses shot up. This also meant that more programs were made available, although their diversity in genre and content may be similar given industry's tendency to stick with specific types of popular programming like morning variety talk shows. Regardless, the variations that also invariably come with specific talk show personalities, producer preferences, station affiliations, etc. still provide options to listeners. Second, the ways in which listeners could access radio frequencies changed, and mobile phones were central to this change. Mobile phones have since become standard in radio practices and

now it is 'social media' that is playing a role in defining how radio is done and what its role is in public discourse. In a way, even though liberalization separated broadcasting from telecommunications, today in content production and audience engagement, the two industries converge again. In chapter 1, I look more closely at Joy FM as a means to examine how specific artifacts and associated practices that together make up radio as an industry, technological form and social institution in Ghana have changed. Following that, I examine one of its competitors, Citi FM, and how its use of new media and production practices make it an elite station and space for the socialization of a young up and coming technoclass. The structure, form and function of radio, for the elite, works in ways that are consistent with technology's use in other economies.

But media in Ghana is more than radio. Television stations have also increased, the industry around mobile phones and Internet related technologies has grown. It is not useful to keep thinking of these different technologies and associated industries as separate because in reality there is much overlap in their uses. I focus on radio in this dissertation because right from its onset in the newly liberalized environment, new technologies were conscripted as part of the armory to reach a certain public, not just the general public. As one of the legacy industries, it innovated rather quickly in its switch into private hands and what has happened over the course of the last two decades is a market segmented by various factors, language, technology use, content; all of which have class dimensions. The structure of the market today also looks different largely because there is small but increasing number of partnerships, soft diplomacy stations for foreign governments like British Broadcasting Corporation (BBC), Voice of America (VOA), and Radio France International (RFI) have also entered the market (NCA, 2013). [33] Multimedia Group Ltd, the parent company of Joy FM is slowly transforming into a conglomerate with holdings across radio, television, marketing and event planning. Peace FM, the most popular Akan speaking station, is part of the Despite group of companies, which owns assets in the music industry. Citi FM is owned by Omni Media, which also runs a newspaper, the Weekend Globe. So even as individual stations are increasing, some of the corporate structure at the top is changing

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[33] RFI operates 2 stations, one in each Alliance Française (located in Accra and Kumasi), BBC has 1 designated frequency in Accra, and as does VOA.

hands, and with partnerships and syndication, some stations' programs have more reach at the national level than others. Yet, even though I did not find any rules barring foreign ownership of radio, the relatively small number of foreign broadcasting forms operating keeps radio a very local industry, especially in light of the foreign ownership of all mobile service providers. Overall then, liberalization in the media industry did what it was "meant" to do: it turned a government monopoly in media and telecommunications into a vibrant competitive sector that was also innovative, with a mix of both foreign and local investors that includes a revamp of the former state monopoly.[34]

Methods

The research for this dissertation was conducted using multiple methods of data collection and analysis. Based on the initial research question, the study used a combination design (Miller & Crabtree, 1994) that brought together participant observations, in-depth interviews, textual analysis and an online survey. Using a case study approach, I analyzed my data thematically, coding and categorizing emergent themes from across and within each dataset collected via those different methods. The main research site, i.e. the physical location in which I undertook participant observations, was Accra, Ghana. However, I also visited virtual sites like the websites of all the companies and stations included in the dissertation, as they constitute social spaces and informative areas that I used to develop their portraits and case studies. I also collected information from industry and trade press, many of them online and looked at policy documents to triangulate the data I found in the literature about Ghana's economic and political history.

Overall, the research may be characterized as a geographically bounded multi-sited ethnography (Marcus, 1995; Falzon, 2009) presented in case studies. My initial research question, intentionally broad, asked, "What is going on in the media in Ghana, particularly radio?" This question led me across various spaces, specifically radio stations, technology incubators, media and technology conferences, and the offices of several technology companies. I visited Ghana on two separate occasions, first in June 2010 for one month and then from December 2011 to April 2012 (5 months). Before, in-between and after those

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[34] See a history of the Ghana Broadcasting Corporation (GBC) on its website: http://www.gbcghana.com/aboutus (Accessed September 14, 2014)

visits, I kept collecting textual data and visiting virtual sites to stay current with developments and the data included in this dissertation includes information as recent as July 2014.

Mapping the research site(s)

Following a broad question such as "what is going on in the media in Ghana" could be a recipe for disaster giving the multiplicity of places and themes. The question was however anchored by what led me to the question in the first place, media coverage of the 2008 presidential coverage, which I followed from the United States. I detail the circumstances surrounding those events in chapter 3. It narrowed the initial area of concern to Joy FM, and its central role in covering the elections. From there I looked more broadly at the radio sector to be able to locate Joy's place. Looking over initial data that led to the role that communication technologies played in the station's construction of audience and production practices, a combination of practical issues (such as access via my primary gatekeeper) and access to various individuals expanded the question to the role that new communication technologies at large were playing among the young urban middle class youth I encountered on a daily basis. The evolving complexity of the research site, in light of other practical issues like taking courses in Ann Arbor, necessitated a virtual component that worked well with the participants in Accra given their interactions and internet use. The combination design of using tools that work well for the emergent questions and issues as I went along made it an ideal approach for the overall complexity of my research setting (Miller & Crabtree, 1994).

In sorting out what might be included or excluded in what was essentially a networked field site, I take cue from Burrell (2009), who in turn draws on (Marcus, 1995) view of multisite ethnography and the shift towards considering culture and the social as "constituted by intersection and flow (Clifford 1992; Hannerz 1992b; Appadurai 1996; Castells 1996; Ong and Nonini 1997). I paid close attention to the relationships between various entities and their components, situated within their economic and cultural spaces, such as the context of urban and industry spaces in contemporary Ghana, bracketed by an awareness of individual action as well as the importance of historical factors. So, for example, as you saw earlier in the introduction, I began at the supranational level, the

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multilateral agreements that Ghana adopted following international or multinational trends, and worked my way down to the country's specific experience to set the stage for the current media industry. To explore questions on the technoclass, I followed key actors and their networks. Using both in-depth unstructured interviews with a small group of principal agents and their networks and triangulating their descriptions of industry with trade press and policy documents, I was able to get not just individual perspectives as well as industry wide view of media in the last two decades.

I approached the initial research process with the understanding that media and technology are connected to society at different levels: the micro or individual, the meso or small group, and the macro, i.e. the national and global. I sought to develop an understanding of social processes in Ghana within one site (the media industry broadly defined as both 'old' and 'new' media) that are linked to broader occurrences at the global scale. As such, I took seriously the "embedding of people (or social 'entities') into larger groups of people and/or entities, the important interdependencies of both individuals and the relationships between them, and the complexity of considering all of this at once" (McCranie, 2011). This network inspired approach took on the ethos of multi-sited ethnography in the sense that followed the question from site to site based on what had been discovered in previous ones (Falzon, 2009; Marcus, 1995).

Gatekeepers give access to research sites ((T. Lindlof & Taylor, 2002; T. R. Lindlof & Taylor, 2011). My brother Bernard Avle works as a manager and journalist at Citi FM and by 2012 he had been working in media for a total of 10 years, having worked at the University of Ghana's campus station in various capacities while an undergraduate there and then picked by his former manager to work with at a new station he was spearheading. He took a year and half pause to get an MBA from Warwick University in the UK and returned to manage content at the station and continue hosting the Citi Breakfast Show. Beyond that he often acted as a master of ceremony for everything from World Bank seminars, presidential debates, business meetings and conferences, etc. and as a result, he had built a respectable network of contacts across media, business and other sectors. Given my relative place as an outsider at many industry events, it helped that he could introduce me to people he already knew whom I could follow up with later. Sometimes these turned into interviews, other times people were too busy or scheduled events fell through. Beyond

introductions he never pressed anyone and I knew I had to earn the interviews and follow the research protocol of first discussing what I was interested in, providing additional information and then following that with a consent form.

My other gatekeeper, Ato Ulzen-Appiah, worked for Google Ghana at the time and was a friend I knew from our undergraduate days in Boston (he attended MIT and later Stanford). We also worked together on a non-profit organization called The GhanaThink Foundation, in volunteer capacities for about 5 years. An extremely sanguine person who is a consummate networker, his profession and passion was technology and entrepreneurship and Ghana focused work. I tagged along to industry events and he negotiated access to crucial sites like MEST and kept me informed conferences, etc. Ato, just like Bernard, simply introduced me by stating our relationship, "a friend from Boston who is a student in Michigan now" and reason I was there "PhD student interested in media and technology" and often that generated conversation (for Bernard, it was often "my sister" and if I had indicated I was interested in interviewing the person I was being introduced to, "she's a PhD student doing a project..."). Ato was particularly instrumental in getting my online survey to the techpreneurs in Ghana when I had returned to Ann Arbor. He emailed his list of contacts and the days following his emails and tweets, I saw a surge in responses via the Qualtrics site that I was monitoring. Between the two of them, I got information on programs and events related to media and technology, got introduced to people (who if they could not meet, would suggest someone else through their own network).

Data and processes

Specific data collection activities were participant observations, in-depth interviews, textual analysis and an online survey. The interviews were semi-structured, which gave me more flexibility in my line of questioning and allowed respondents to "change the course of the conversation and bring up new issues that [I] had not preconceived. This flexibility is much more likely to yield new hypotheses than highly structured surveys" (Axinn & Pearce 2006, p 6). At the same time though, surveys enable data to be collected from a larger number of people in order to note patterns across different scenarios. In this particular case, they followed key themes I had uncovered after my analysis of the interview data. While the interview questions allowed me to delve deeply into the individual backgrounds

and perspectives of certain technology entrepreneurs, the survey allowed me to reach out to a wider group that had different backgrounds and whom I otherwise would not have the opportunity to speak to face to face due to time and space constraints.[35] It also helped me to get a 'big picture' view of the people who work in the ICT sector and techpreneurs in particular.

While in Accra, I made sure to interview people at their place of business and where that was not possible, in public spaces. By visiting their offices, I added 'meta-data' to the interview context for I did not have the opportunity to be embedded or do long term observations of those places of business. The only space in which I was able to go repeatedly for observations was Citi FM, due to the access provided by my gatekeeper. I also went to the tech incubator, MEST a number of times to interview different techpreneurs. That allowed me to observe how both the school and incubator worked and I was given a tour of the place by the communications person, who I also interviewed to understand how the school was operating, and why it was doing so. Ultimately the data collected via these different methods allowed me write case studies that are detailed but also have history and context based information to present a fuller picture. I was able to make connections at both the macro and micro levels as I moved across various spaces and followed news on social, political and economic issues taking place in the country over a period of 3 years.

Participant Observation

Data from observing the industry, its organization, and functioning, and specific companies came from two separate visits, first in June 2010 for one month and then from December 2011 to April 2012 (5 months). Even though I arrived in September of 2011 in Accra on the second occasion, I did not technically begin 'observing' till December when I began attending public events and conferences taking place in the city related to media and communication technology. The first months were spent reacquainting myself to the city, finishing up literature reviews and compiling lists of sources, documents, and places that I anticipated I would need. A lot of preparation in terms of finding places, figuring out how

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[35] The online survey was sent out after I had returned to Ann Arbor. Both interview guides and survey questions were reviewed by the University of Michigan's Institutional Review Board (IRB) and deemed exempt from their oversight. These questions are provided in the appendices.

to get about town on my own, etc. took a relatively short time whereas navigating spaces, getting access to contacts only began happening in January after I had noted who was who in the industry after attending events and reading up on the industry in December. This does not mean I ignored anything I saw or heard between September and December, rather they helped me become comfortable navigating spaces on my own after my initial introduction by gate keepers. During those early months I also paid attention to political, economic social events and altogether they helped the 5 months of 'active observation' better in pinpointing spaces and persons to see or speak to and informed my understanding of various interactions in the city. Practical things learned within those months prior to 'active observation' included knowing how to schedule events in the day such that Accra's truly remarkable traffic situation did not lead to cancelations and delayed meetings. I also learned how to effectively access Internet in most of the places I needed to go to as I continued my schoolwork remotely. The earlier visit in 2010 served as a pilot of sorts, where I interviewed a number of individuals from radio and the tech industry as well as other sectors like finance to compare their experiences with those within the areas of concern.

Interviews

Three of the case studies draw on semi-structured in-depth interviews. The total number of individuals I spoke to either face-to-face or online (via Skype) across different time periods is 30. Face-to-face interviews took place in Accra at participants' place of work or other public areas such as the lobby of a hotel (with the exception of the last one which happened in Ann Arbor as the participant was visiting the university). Four Skype interviews were conducted at points during the research process that I was back in Ann Arbor and was given times that would not permit face-to-face interactions. Appendix A provides the names and companies of those interviewed (some are pseudonyms at the request of the participants), as well as specific dates and locations where they took place.

Participants were selected primarily from their involvement in prominent businesses in the sector as determined from industry press and events. For instance, I asked my gatekeepers for introduction to speakers at industry events and tried to set up interviews with them after explaining the questions I was interested in. Using the

'snowball' method, I got access through others through the network of those already interviewed. I followed up initial contact with emails and phone calls, making sure to include an overview of the research and consent form in the emails. Participants only signed forms in-person after I had explained some more and made clear what their participation meant in terms of content and publication. The semi-structured interviews averaged about 45 minutes, with follow up questions sent by email. Beyond these, some participants spoke with me off record, providing their opinions on issues discussed in the interviews, allowing me to seek more information from industry records and online and offline press. The tenor of the conversation followed issues both in the question guide and additional ones brought up by participants. All participants gave informed consent via a signed form after speaking with me about the research project and what their participation would involve. For the most part I use real names of people and their businesses, unless a participant either asked for a pseudonym or remained ambivalent about how to be represented in a publication. Most participants said they had no problem with their real names being used because, if nothing at all, it would bring some attention to their work in Ghana.

The case study on Citi FM does not contain interviews for the reason that what led me to take a close look at the station was a combination of their corporate identity, gleaned through their marketing material and actual content. In seeking to present the content as is, I chose to omit interviews in the interest of seeing what would emerge out of the various programs in relation to the identity the station has built in Accra and beyond. Secondly, given that my brother was my gatekeeper and also a manager at Citi FM, I wanted to minimize the possibility of awkward interviews. While everyone there was friendly and open, given that most people I would be interviewing think of him as their 'boss', even if they responded candidly to probing questions or even if my questions would not be personal in nature but rather on the work process, as I did with the staff of Joy FM (who it should be noted no longer work with that station the last time I checked), I had to decide if what I needed to know could be gleaned elsewhere. Indeed, the value in 'observing' publicly available information lies in the fact that the data can be assessed anytime online by anyone and my interpretations matched up to the content. Indeed this allowed me to tell

a different side to the radio story even though Citi is in some ways is similar to Joy as an elite station.

Survey

The online survey took place in March 2013. Respondents for the online survey were sought via email, primarily through contacts I had made in Accra during my fieldwork the previous year, and as mentioned, through my technology sites gatekeeper, Ato who forwarded the link with a personal note to encourage members of the various list serves he was on to participate. Other contacts passed on my emails and I sent a few out to technology list serves and institutions I knew of. Since I did not track personal information, I cannot say who in particular responded to the survey but in total, 70 surveys were started and 40 completed all questions and the remaining 30 dropping off at various points when they took it.

The response rate might be attributed to the slow Internet speed in some areas in Accra, where slowly loading pages might discourage people from completing or it is possible some respondents lost interest halfway through. At this point it is unclear why some did not complete. During the pre-test, the survey took an average of 6 minutes based on broadband speed at the University of Michigan and some offices in Accra. However, overall, users took between 3 to 30 minutes to complete according to the Qualtrics metadata collected. The survey questions collected information such as age, gender, education and skills. Questions addressed business experience or history, experiences in the mobile industry, and their views and attitudes about the technology sector and doing business in Ghana generally. No identifying information was collected. The survey questions, which were sent to the University of Michigan's IRB and declared exempt from their oversight, are provided in appendix E.

The main reason for recruiting/sampling the way I did was to get as much coverage as possible given that no central repository exists for people in this sector, and the fact that participating in the survey is completely voluntary. Additionally, given the nature of work they do, and my knowledge of the spaces they inhabit, techpreneurs are likely to be online and routinely use the Internet for their work, despite the overall low Internet penetration rate for the country. This makes a web survey a well-suited tool for collecting data

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remotely. Individuals who clicked on the link were taken to an anonymous Qualtrics survey. I did not post the link on public forums on Facebook or Twitter to minimize non-technologists taking it. However, the link was sent directly over Twitter to known technologists to invite them.

Survey analysis was done via the statistical program Stata where I calculated cross tabs and took descriptive statistics of the sample. Since the data collected was not from a probabilistic sample, I did not conduct any analysis that required such a sample and simply restricted my data analysis to converting the questions to variables in the program, evaluating both complete and incomplete surveys, running cross tabs on key variables and making sure of data integrity.

Textual Analysis

The case studies in chapters 3- 6 include analysis and review of industry material (i.e. publications from the industry about itself), press coverage on Ghana, and most importantly actual content from the radio stations I analyze, their websites as well as their social media pages. My initial analysis of one of social media sites, Twitter, used Nvivo's NCapture tool that turned out to be inefficient and not the most useful for my purposes. Still, it led me to gain access to the Sysomos tool via my department which allows me to search Twitter for up to a year. Facebook pages are downloadable from the website and culling these various sites helped me triangulate data from other registers and generally get a better sense of how newer media work within established ones like radio. Twitter also helped provide a detailed and contextualized look at how radio audiences interact with the radio station through tweets. The goal is not to provide a generalizable account of the audience, and given that social media, especially Twitter, is a 'noisy' environment (Honeycutt & Herring, 2009) that is subject to variability which could be attributable to any number of factors, I drew from the stations' accounts and those of their on-air personalities.

Analysis

In my analysis, I made central the complex relationship between social variables (like people's educational backgrounds), historical influences (like government policy), and

global trends (like migration). This proceeds from the understanding that the global economy is characterized by various kinds of mobilities, i.e. the movement of people, capital, information, and ideas across the world and locally, (Hannam et al., 2006)p1); and in their application here, rooted in the ways that people' social status, skills and ability to navigate different social spaces, are bracketed against the socioeconomic realities of where they originate from. In other words, the expressions of class and class mobility are the broader social issues that are examined through the media industry. By media industry, I mean a much broader conceptualization than just the institutions that produce entertainment and news content via television and radio. I included the various ICTs that people use to communicate, such as mobile phones, social media, and the various communication artifacts that connect people in multiple ways today. Part of the argument that will unfold in chapters 1 and 2 is that it is not useful to think of radio and say, mobile phones, as discrete parts of the media industry because radio practices include extensive use of mobile phones and have been since private entities were allowed to operate radio in Ghana. Radio, by the time it became more than the government's mouthpiece had to include 'the voice of the people' as it is at its core, a medium for communicating between two sets of people or publics, not very different from the basic function of a mobile phone or many of the new ICTs and applications arising on an almost daily basis. In general, in my discussion of how radio and new ICTs overlap, not just in form but in practices and symbolism for some urban youth, I point to convergence, not just as a 'coming together' of technological forms or digital us, but as a 'shift in cultural logics' in terms of how audiences and producers interact in the market place (Jenkins, 2008).

Because qualitative research is a journey, sometimes the "research problem may not even be known until the data analysis is well along" (Lindlof & Taylor 2002, p. 209). Indeed, by beginning with a broad question, my data analysis opened up new questions to which I went back to collect more data. This was especially true for my analysis of interview data that led me to put out a survey to understand just how the ICT sector was growing, who the principal actors are and how they compare to those I had interviewed. Qualitative data analysis in general is admittedly a challenging process. Often, the amount of data alone is daunting, and it was for this dissertation, and the realization that findings may be interpreted multiple ways poses a mental challenge (Lindlof & Taylor 2002). This was

especially true as I thought of myself as both an outsider and insider during the data collection process. My insider status was simply that I knew the city, was familiar with the country and was personally attached to the research site via family and friends. I was an outsider in both the radio and ICT sectors that I went into and having left Ghana as a teenager with only brief trips in-between, sometimes I was starkly reminded of how much some things had changed and how some of the more enduring rules of interaction remained. Constantly being aware of my position made data collection a bit more challenging as I had to factor in my presence as possibly intrusive as well as gaining access to certain people by dint of being a university researcher from the United States which held a certain amount of cache as I went in and out of different spaces.

Lindlof and Taylor (2002) recommend that qualitative researcher question themselves along the lines of "can I manage an effective dialectic between what I personally feel as events happen around me and how I present my researcher face to others? Can I create a constructive interpersonal dynamic out of the apparent "differences" between me and the other? (p 78). I found these important as I navigated the city, conducted interviews and analyzed my notes, transcripts and survey responses. I had to ask myself on several occasions, if my background was making me read things in a certain way. Was I being critical enough? Self- reflexivity made the writing process longer but in the end, these are the sorts of questions that any qualitative researcher must ask of themselves and of their data to bring integrity to the work.

In my analytic process, essentially "labeling and breaking down (or decontextualizing) raw data and reconstituting them into patterns, themes, concepts and propositions" (Lindlof & Taylor 2002, p.210), I used open coding in both in a simultaneously inductive and deductive process based on my initial question and the those that came up over the various stages of research. So for instance, even as I detailed the findings from radio and ICT, the core concept, whose dimensions I detailed in the introduction came through several rounds of coding and categorization. This main category or code that emerged was of class elements and the concept of the technoclass came out of further iterations of analysis that went back and forth between the literature and my data. For example, in looking at the backgrounds and activities of the people I observed, interviewed and listened to, their middle class roots were evident but they differentiated

on several categories that matched and made sense in light of other work and observations on social strata within the context of a transitioning society. This meant going back to see how previous work examined class through the categories I saw from my data and making reasonable links between the literature and evidence before me.

Overview of remaining chapters

The rest of the dissertation is divided into two parts. Part 2 presents the two case studies from radio. The first case study, is a narrative on the first private radio station in Ghana, Joy FM, midway through their growth and conceptualization of audience in post-liberalization Ghana, rising out of the newly formed commercial private radio industry, and how it served as a model of socialization for others to come. The story begins in 2008 with a pivotal election and the role of Joy FM in it, and unfolds backwards into the station's history and then moves to its current state as the flagship station of an ever-enlarging media conglomerate. I argue that the ways in which the station constructed its audience, early on, showed the liberalized media space as one that normalized newer communication technologies and show where we can locate the technoclass within a media space that is both old and new. Following that, in chapter 3, I look more closely at just how the new radio (in this case based on a study of Citi FM) created in this era functions and speaks to the technoclass. Its corporate identity captures what the technoclass looks like in organizational form, and its content and operations are telling of the kinds of socializing via media take place for the technoclass. The analysis comes from a textual analysis of sociability and interactivity on-air and online, as well as interpretive analysis of the station's corporate identity as shown online in their public relations documents, public events and my on-site observations.

The third case study (chapter 4) moves the discussion to the newest sector of the media industry, ICT production. I use a cross between a prosopography and detailed biography to show the personal characteristics of techpreneurs, their backgrounds and activities in the mobile industry. In the final case, I narrow down on the elites of this technoclass and how they construct ideological spaces for themselves via their labor in the new media industry. Their status as returnees also underscores the very global

components of the technoclass, i.e. the movement of people between countries, beyond the attachment to specific technological affordances.

In both chapters 3 and 4, I show how socio-political phenomena like migration of skilled labor in and out of a country can significantly impact the overall pool of labor available for specific sectors, and how young local technology entrepreneurs use new technologies as a space for the expression of motivations and aspirations that, from their perspectives, differ from the previous generations'. I argue that because ICTs are not just constitutive of artifacts, but also the practices and social organizations or arrangements that form around them (Lievrouw & Livingstone, 2006), the activities, concerns and outcomes of the ICT industry from the perspective of the entrepreneurs who work in it are important aspects of understanding their impact. Chapter 4 centers on a subset of these entrepreneurs, specifically returnee technologists, to locate them in both the local and global flows of skilled labor and media technologies. These are the elites of the technoclass and the chapter shows another contour of the technoclass in Ghana. In the concluding chapter of the dissertation, I sum up my arguments and findings and highlight questions and areas for further research. In particular, I emphasize the layered way that class is seen in the media industry, and how the various layers of the technoclass, on a global scale demonstrate important aspects of the social implications of globalization.

Part II: Radio

Chapter 3 - 'Discerning listeners': Joy FM and the construction of a new audience

On 28 December 2008, Joy FM, an Accra-based radio station in Ghana decided to 'call' the ongoing presidential elections and announce Prof. John Atta Mills, candidate of the National Democratic Congress (NDC) as winner (Joy Online, 2009). The ensuing furor was mainly a function of how close the race was and the particular prestige of the radio station on the Ghanaian airwaves. Already, there had been a run-off in the election race and with one constituency yet to vote there was now, as it were, a run-off to the run-off. Predictably, the party that was projected to lose, the incumbent New Patriotic Party (NPP), immediately issued a strong statement denouncing Joy's action calling it 'highly speculative and premature'.[36] On the streets, NDC supporters immediately began celebrating the perceived win, while radio stations all over the country joined in the pandemonium by either calling for reason or inciting listeners, depending on their particular political bent. For those of us outside the country and following online via either live streaming, Twitter or 24/7 news updates, it was clear that the Ghanaian media, especially radio, and in particular Joy FM, were playing a key role in these pivotal elections.

The NPP's response to Joy FM's actions and the subsequent response from all parts of the country, even in places where the station's frequency could technically not reach, was an indication of its impact. Other radio stations and some television channels re-broadcast their prediction, sparking off a nation- wide debate about what it would mean if the Electoral Commission (hence- forth referred to as The EC) results matched or did not match Joy's prediction. On their website myjoyonline.com and other popular sites like Ghanaweb.com, comments were forthcoming from all parts of the country and the diaspora

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[36] 1. Jake Obetsebi Lamptey, NPP Campaigns manager, 28 December 2008 as quoted by the Chronicle Newspaper in Ghana (Accessed June 2009, via Allafrica.com) http://allafrica.com/ stories/200812300823. html). See also http:// www.ghanatribune. com/Joy-fm-calls- election-for-mills-npp- disputes-claim/

(mostly the United Kingdom, United States, Europe, and other parts of Africa).

Such active and engaged commentary from different parts of the political and national divide based on one private broadcaster's actions provides impetus for examining the role of media in a relatively young democracy today. When one considers Joy FM's initial appearance in the Ghanaian media market and how they evolved into the media giant that was confident enough to say their system of tallying results was parallel to, perhaps even better than, the national institution put in place for that purpose, one sees an indication of how transformations in the media landscape in Ghana have led to important shifts in the form and nature of public discourse.

Further, the media industry in Ghana, following liberalization in the 1990s, has gone through a transition wherein both the old and new media industries have been structured in new institutional and cultural ways. These changes include a segmented radio space in which radio includes audiences as core to its practice as well as extensive offline/off-air activities to remain relevant as a social institution. Within this new space, we can see evidence of broader class changes as the expanding middle class and new elite becomes more visible in setting the public agenda.

In this chapter, using Joy FM as the focal point, I situate this new media space within Ghana's economic and political reforms and argue that the way in which Joy FM and other broadcasters responded to technological and cultural changes, particularly as a result of globalization, led to the creation of a hybrid mediascape in which radio remains prominent. Further, I show that these changes need to be examined alongside the emergence of a new cultural elite, comprising of a class of 'glocal' entrepreneurs and a young, educated, and urban population that is key in setting the public agenda. By situating Joy FM at the locus of what has become a vibrant independent and influential media landscape in Ghana, I will provide both a historical and contemporary basis for understanding how these forces have together transformed radio and redefined the listening public in Ghana.

Center stage in an election

The events surrounding the December 2008 elections and *Joy*'s prominent role began with a closely contested presidential race. According to the program manager, Kofi Owusu who is responsible for major decisions on what is aired, these elections were "particularly

important and almost dangerous because the stakes were very high" (Owusu, K., personal communication, 2009). Certainly, the close nature of the elections had raised tensions and the nation was aware that the rest of the continent was closely observing the proceedings. According to Owusu, there were "loads of calls coming in" from listeners and the station's website experienced a few outages because "many people were going to the site for up-to-the-minute information". The volume was so much that they had to upgrade their bandwidth to stay online. Initially, in Owusu's words

> we had pictured bandwidth for 2000 concurrent users. So when it was crashing and people were complaining, we really had more, had more than 2000 people accessing the site. And then we increased it to 4000; 4000, which sort of worked, till the election was over… listenership was heightened, this number of people were listening in Ghana and beyond

<div align="center">(Owusu, 2009)</div>

From Owusu's account, it appears that it was not only the station's regular listeners but also non-regulars who were going to their website for information. There were many other avenues for news updates: radio and television for those in Ghana and multiple online resources (Twitter, the Electoral Commission's website and the hugely popular news site Ghanaweb.com) for those outside the country. Yet, the fact that other media reported *Joy*'s news suggests that there may have been some redirection of listeners and readers to *Joy*. It is conceivable that overall, more people were tuned into various radio stations across the nation during that time; thus *Joy*'s reported increase in and of itself is not that significant in terms of sheer numbers. However, it is the fact that close to 40 other stations within *Joy*'s network carried the news that suggests that perhaps what many Ghanaians heard across the country during that time came from this one station based in Accra.

As far as the station was concerned, they had invested much into their coverage system to ensure that they would "know the outcome of the elections way ahead of [their] competitors" (Owusu, 2009). Detailing their process to cover each stage, Owusu revealed a system parallel to that of the EC's. Their real-time updates made them highly relevant to the anxious people waiting to find out how voting was going on in different parts of the country. This being the third consecutive time they were using this system to track the

<div align="center">57</div>

nation's few democratic elections, Joy was extremely confident in the system they had put in place. They worked with their affiliate stations and hired equipment that 'could easily and quickly capture data'. They had "key stringers around the country …so … could cover the major consensus almost simultaneously" (Owusu, K., personal communication, 2009). Each constituency had a reporter who stayed at their base throughout the elections and there were others who went to the polling stations just to observe activities during the day. They pooled reports from these stringers into one database, along with the contact information of each reporter, and sent that across to all their co-owned stations and affiliates across the country. That way,

> any station in our partnership or our network can pick the sheet or can go to the computer and say 'I'm looking for *Bantama* constituency, the results, who is the reporter there?' You can find the name of the person, find his phone number, probably more than one number, call the person and get the information so that you always stay, you know, on point as to what is happening here, what's happening there because listeners will be calling, and be waiting for us have to tell them some- thing on air.

> (Owusu, 2009)

The fact that these updates were put on-air and online in real-time made Joy's coverage more current and consistent than the EC's. According to Owusu, Dr Afari-Djan (The EC commissioner) had no problem with that because "if you wanted to call the results, you should be ready to defend it […] if you have a good means of catching the data, why not?" From reports about the elections, the political parties as well as other media were all tracking the election proceedings. Anecdotal evidence suggests that even voters were also tallying the results based on what they heard from different sources, with people comparing, writing down and adding up the figures they heard from different sources. None of the media, though, was bold enough to call the results before the EC, and the political parties gave the impression that it was not the accuracy of the prediction they were worried about per se, but the implication of the actual announcement on how the overall elections would turn out.

Could this whole scenario have played out the same way prior to the Fourth Republic

(1992 – present)?[37] The country's media history suggests otherwise. Private media ownership is relatively recent, having only been allowed in 1994/1995 and the circumstances that led to the very liberal mediascape today is essential for understanding how that has changed radio and redefined the listening public in Ghana. With privatization came a new form of social interactivity that made media a more crucial part of the lived experience in Ghana, especially in an election.

Radio in the Ghanaian mediascape

Radio is said to be the most widespread medium across Africa (Afrobarometer 2008) and that is certainly the case in Ghana (GSS 2007). It plays a preeminent role in Ghana's broadcast mediascape, compared to television and the print media. In fact, private radio stations outnumber privately owned television stations by a ratio of about 10:1.[38] Print media, especially newspapers outnumber television stations but still fall short of radio's large numbers. In the past decade or so, the nation has grown to have one of the most liberal and independent media environments on the continent. In 2007, Ghana was the second highest-ranking African country on the World Press Freedom Rankings (Freedom 2007). This has not always been the case. For decades after Independence, the nation was under military rule, where dissent was brutally squashed and state-controlled media were the only source of news and information. In fact, up until the early 1990s, media, especially broadcast media, were always the under the purview of the ruling government.

Liberalization played a key role in why Ghana has such a high standard of press freedom, and why radio is still important as a social and cultural institution. Here I am underscoring the impact of a decade of regulatory reforms that took place largely in developing countries during the 1990s. While countries like India, Hong Kong and Ghana were embroiled in negotiations with the twin Bretton-Woods institutions (The World Bank and International Monetary Fund), others, such as South Africa, were slowly succumbing to

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[37] Ghana's historical timeline post Independence follows the number of changes to the constitution. Each republic reflects a major change and the last time this was done was in 1992, the fourth time since 1957, the year Ghana ceased to be a British colony.

[38] According to my calculations, which are based on a count of radio and television stations as well as newspapers. See Tables 1and 2 for more details.

globalization pressures that required changes in governance and policy. The impact of those changes were not the same across countries, and as Banda shows, two countries within the same region (for instance Zambia and South Africa) sometimes had two very different results based on the pressures globalization and local structures exerted on local policy. In Ghana, regulatory changes were primarily focused on privatization of erstwhile state-owned industries with media liberalization forming part of a push to open up the economy. This was partly a function of the government's dalliance with the IMF and World Bank, and partly due to internal political changes.

Media and politics in an era of state control

Radio broadcasts began with colonial rule when, in 1935, the British government, in the then Gold Coast, set up a relay service in Accra and Cape Coast to broadcast the Empire Service from London. This service, called Radio ZOY, reached a limited number of subscribers (about 300) via a wired distribution system in Accra (Ghana Broadcasting Corporation [GBC], 2009). Records show that a few years later, the governor, Sir Arnold Hodson, asked the Colonial Office in London for a transmitter in Accra to facilitate "independent broadcasting to reach out to 'members of the community in addition to teachers and school children whom it is intended to reach" (Hodson 1939, c.f. (Alhassan 2005). The transmitter enabled the relay system to be extended to other parts of the Gold Coast and even neighboring territories in West Africa (GBC) and facilities were put in place for school children to listen to radio broadcasts in seventeen towns. This rhetoric of education (Alhassan 2005), that is using radio as a tool to educate the citizenry, was the rationale for keeping radio under state control.

When Ghana became independent in 1957, Kwame Nkrumah's government used the same rhetoric of education to justify keeping media, and radio in particular, under tight government control. It was necessary to re-educate the citizenry and build the nation in terms of a national and African consciousness, he argued. However, due to the fact that this government had a huge developmental agenda relative to its available funds, radio expansion (in terms of infrastructure) slowed down. In 1966, Nkrumah was overthrown

and the subsequent military governments kept a tight control on media.[39]

Military rule came with economic hardships, which, in turn, gave the governments a reason to go to the IMF and World Bank to borrow funds. Those two institutions gave loans with tight restrictions, least of which was requiring loaning governments to make major regulatory changes. Many state-owned media were diversified with the government retaining less than 10 per cent interest in many industries. Even though different military governments borrowed money from these two banks, it was not until the early 1990s that the Provisional National Defense Council (PNDC)'s Economic Recovery Plan (ERP) under Jerry Rawlings, brought on the Structural Adjustment Programs (SAP) that liberalized the media industry.

Media liberalization amid structural adjustments

Alhassan argues that the state-owned media has always been viewed with apprehension in Ghana, and justifiably so, given its close association with 'abuse of civil liberties' (Alhassan 2005: 224). Up until the time the PNDC transitioned to a multi-party system in 1991/92, there was what historian Adu-Boahene called a 'culture of silence' (Gocking, 2005) in which people were afraid to voice their dissatisfaction with or disapproval of the military government. The murder of high court judges in 1982 had sent a chilling message that the military government did not tolerate a plurality of voices. However, eventually, the combination of the government's need to make regulatory changes, amidst internal decisions to turn to a multi-party system led to the freeing of independent press like the *Chronicle* and *Catholic Standard* to operate. Between 1983 and 1986, the PNDC's Economic Recovery Program (ERP) led to a devaluation of the currency and a restructuring of the economy according to World Bank and IMF guidelines. One could say it was a combination of the importance attached to privatization by the World Bank and 'shifts in development theory and ideology as well as the political liberalization of the 1990s' (Appiah-Kubi 2001) that led to this change in policy. In any event, radio, for the first time was allowed to operate outside the state-controlled system along with the new 1992

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[39] There were a number of coup d'états continuously for two decades after that.

constitution that guaranteed freedom of speech.

Consequently, in 1994, the Multimedia Group, formed by Kwasi Twum, a Harvard Business school graduate, was authorized to operate the first private radio station. They named it Joy FM, and a year later launched its website called Myjoyonline.com and described it as the 'first Ghana based news site streaming live radio' (Multimedia Ghana Ltd, 2009). Joy FM, according to the founders, 'went on air [...] to provide alternative news and programs to listeners in and around the Greater Accra Region'. In 2002, the Multimedia Group 're-organized, formed [a] corporate centre and [...] radio stations became decentralized business units' (Multimedia Ghana 2009). By then the Group owned two other stations (Adom and Luv FM in Tema and Kumasi respectively) in addition to Joy and Myjoyonline.com and has expanded since then. According to the group's website,

> What began as a single radio station in 1995 is today the nation's largest radio, television and online network and sub Saharan Africa's biggest media entity. MGL operates six local fm stations broadcasting mainly in two languages and from the two largest urban capitals in Ghana. Riding on the back of our six fm stations are over 40 affiliates and partner stations across the country.
>
> (http://www.multimediaghana.com, accessed June 25, 2014)

Joy FM has become the Multimedia Group's most recognizable brand because, in addition to its longevity on air relative to other stations, its offline activities ensure that it remains salient as a brand and cultural presence to its audience. The station hosts several annual events that have become part of the Accra scene. For instance, the hugely popular 'Old Schools Reunion' event brings alumni of the nation's secondary schools together for a funfair every year, and the first few year it was held, was *the* social event for young people of all classes. The station also holds charity events for street children and runs annual donation drives by stressing philanthropy as a social responsibility on air. Joy's off-air (or on the ground) activities have helped to establish it as one of the most influential private media corporations in Ghana right now.

Tables 2 and 3 compare radio and television in Ghana across a number of years. The media landscape in 2014 is similar to what it was 10 years ago, with more radio than television, which makes sense; given how much easier it is to deploy radio than it is television (ITU 2009). Joy FM's share of the radio listening market in Accra as of January

2010 was 9%, second to Peace FM (19%), the popular Akan language station whose meteoric rise to the top of the airwaves deserves a full paper on its own. Adom, Joy's sister Akan station that Multimedia established to compete with Peace FM also had a 9% share of the Accra market, totaling 18% for the Multimedia Group covering both English- and Akan-speaking listeners in Accra alone (Synovate 2010).

Media, networked publics and new cultural elites

'Glocal' expertise and new elites

In addition to the structural and policy changes described above, we need to also understand the interplay of global phenomena such as technological changes and the movement of highly skilled labor and financial capital on Ghana's media landscape. Globalization draws our attention to the constant movement, interaction, change and interconnectedness of countries, individuals, cultures, economies and ideas. One could use people (individuals) as a basic unit of analysis, seeing how they often carry with them knowledge and information, capital and technology. However, the movement of all of these things does not require the physical movement of people. Technology, particularly the Internet, affords the flow of ideas, capital and intangible goods. That said, the issue of people moving back and forth between countries and cultures must not be underplayed. Policy changes in recent years have given us new ways in which to examine migration and the impact of this flow of people has been given much attention in the literature, showing its impact on the source and destination countries of the people crossing borders.

In general, the flow of people is not commensurate with the flow of ideas, capital, technology, services and information in today's globalized world. The apparent tension between states that must promote local interests and private enterprises that must compete globally creates many complications for skilled professionals who are constrained by the bureaucratic process (World Bank 2006). Dani Rodrik finds that labor from the South is effectively shut out of the North's markets (Rodrik 2007). This presents interesting implications for how migration affects industries in developed countries that have over 60 per cent of the world's migrants (United Nations 2005). The number of foreign-born residents in developed countries has generally increased but the UN report found that

South–South migrations have also increased. Further, Wadhwa et al. (2008) show that skilled migrants have had tremendous success in engineering and technological start-ups in places like the US and have contributed significantly to the country's economic development and global competitiveness.

The ability of skilled labor to move internationally does not benefit just the developed country and increasingly restrictive migration policies in the north are serving as a boon to countries in the south as skilled labor are taking their higher education and expertise back home (Wadhwa et al. 2009). Some leverage their diaspora networks while in the developed country and over time invest in industries directly by moving back or by providing the capital needed for entrepreneurs back home, as, for instance, was the case for many South and Eastern Asians (e.g. Indians, Taiwanese, etc.) in Silicon Valley (Saxenian 2006). In recent years, the increasingly difficult nature of the US immigration system has precipitated a reverse brain drain that has been discussed as 'America's loss' but 'the world's gain' (Wadhwa et al. 2009). It seems paradoxical that scholars would report a simultaneous increase in migration and a tightening of migration policies and yet the Global Commission on International Migration also reports this trend (United Nations 2005).

As Saxenian points out, 'highly skilled emigrants are now increasingly transforming the brain drain into 'brain circulation' by returning home to establish business relationships or start new companies while maintaining their social and professional ties to the US' (Saxenian 2002). These people have been called 'talents' or 'individuals of high impact' whose impact can felt in science and technology, business, culture and politics (Yevgeny Kuzenetsov, 2006 c.f. (Patterson 2007) or telecommunications and media. They embody the flow of knowledge, information and capital across regions. In Colin Sparks' words,

> at best, the 'cosmopolitans' who inhabit global culture are a relatively small number of people, at least at present, but they are relatively influential, since they tend to be occupationally involved in intellectual and cultural niches. They, and the products that they produce, dominate the international circulation of cultural commodities.
>
> (Sparks 2007)

Further, these 'entrepreneurs and their far-flung networks now play a vital role in the

technology industries' global expansion – and make an increasingly important contribution to economic growth and development more broadly' (Saxenian 2006).

Ghana is an especially interesting case given its democratic and economic progress relative to the rest of the African continent over the past twenty years. The brain circulation that happens with respect to Ghana takes place independently of a specific policy to leverage their talent and resources, a prerequisite for brain circulation to be effective according to Patterson (2007). These 'new Argonauts' (Saxenian 2006) or global cosmopolitans are at the forefront of what is becoming a new cultural elite in countries like Ghana and are contributing to a small but growing brain circulation between Ghana and the United States, United Kingdom and other western countries.

Some of the biggest and most successful business corporations in Ghana were set up by new Argonauts. The Multimedia Group (owner of the first private radio station, Joy FM), Databank Group (first and largest private capital market firm), Ashesi University (internationally known private liberal arts college), SOFTtribe (first and largest software company), among others, were all started by individuals who either went overseas for their undergraduate or graduate degrees, worked a while in the West and returned to Ghana to start up these companies. They returned early, at the onset of liberalized policies, leveraged their global contacts, dug deep into the local networks and till today continue to collaborate on a transnational level with their contemporaries. This is not unlike cases in India, Taiwan, Thailand, etc., where Silicon Valley entrepreneurs have been documented to return and set up some of the most competitive and lucrative local (and increasingly global) businesses that rival their western counterparts.

Keeping our focus on radio and Ghana's first privately owned station, I present here the singular case of Kwasi Twum, the founder of Joy FM and current chairman of the board of the Multimedia Group, who received his Bachelor's degree at the University of Ghana and his Masters of Business Administration (MBA) at Harvard Business School.[40] Twum

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[40] Bloomberg Businessweek has his profile as "the Founder, Chief Executive Officer and Director of Multimedia Group Limited. Mr. Twum served as an Executive Chairman of Ridgecrest Services Ltd. He is an Executive Council Member of the Ghana Employers' Association (GEA) and a Member of the Board of SOS Children's Villages, Ghana. He has participated in several international media conferences. He is a Fellow of the Africa Leadership Initiative, an Aspen Institute Henry Crown Fellowship Initiative. Mr. Twum holds a Bachelor of Arts Degree in Economics from the University of Ghana, Legon and is an alumnus of Harvard Business School."

returned after getting an advanced degree in a wealthier country and chose to return and invest in a market that had hitherto been untapped. The network he created overseas, combined with his knowledge of the local economy positioned him well to take advantage of policy changes. As a 'glocal' entrepreneur, his ability to tap into a global network and use that in a local setting has profited him and others like him who made early investments in the Ghanaian economy as it began to open up. I characterize him as part of the first wave of returnees in media and ICT because they were the first on the scene post policy liberalization of the 1990s and about the time the Internet was booming as a new medium and mobiles phones were still privileged possessions for a select few.

As a cultural elite, Kwasi Twum's business model does not allow him to perpetuate the old status quo but, in fact, creates a new one that complicates what we know of the nation's media history. No longer is it the sole purview of the political elite \ to determine what is heard by the nation. Instead, a young urban group of people may now have its voice heard, quite powerfully, over the airwaves. This educated and fairly wealthy group is defined by its education and access to information and by the dint of technology is a vocal co-creator of what goes on the airwaves. The young people who listen to Joy FM and participate in programs, both on air and online, are neither spectacularly disadvantaged nor marginal compared to the majority of the (largely rural but increasingly urban) Ghanaian population. They are secondary school or college educated, live in the city (but are not hustling or sleeping on the streets) (Jacobs, 2007) and have extensive exposure to other cultures. It is they, and the 'glocal' entrepreneurs who set up the media (and telecommunications) companies that enable them to participate in agenda setting and decision-making who together constitute this expanded middle class and new cultural elite.

New communication technologies and new publics

Joy's affiliations with 40 stations outside the seven that they own (and expanding television holdings including Joy TV), means they technically reach as potentially as vast an audience as Ghana Broadcasting Corporation (GBC) radio – the national/state-owned radio – which has programming in all the local languages. In many ways, GBC still reaches out to

(http://investing.businessweek.com/research/stocks/private/person.asp?personId=247123512&privcapId=246887053, accessed June 25, 2014). This appears to be taken from the Multimedia Group website which has the same profile posted verbatim.

that 'national' audience and takes the primary function of informing and educating the public. That listening public plays a somewhat different role from Joy's if only because they are not as involved in the public discourse generated by the station. Arguably, the use of mobile phones to call into stations like Obonu FM (the GBC's Accra Ga language station) gives them some degree of interactivity. However, Joy's interactivity goes a step further to include the Internet and a more responsive audience that includes Ghanaians overseas. This interactivity, combined with Joy's status as an influential station that government and policy-makers take seriously gives its participatory audience a greater influence on public discourse.

The station claims that 'radio is about the people and nothing else' (www.myjoyonline.com, Accessed March 2009) and its success can be linked to how well it defines, imagines and constructs a listening public. The state-owned radio views the whole nation as audience, and until the fourth republic in Ghana, the colonial power, first Ghanaian government and subsequent military rulers certainly saw radio's audience as one homogenous nation whose only role was more passive. Even though media studies in general have moved from the assumption that 'the audience' is one 'unified aggregate that receives a fixed message' (Spitulnik 2002), it nevertheless does not preclude the fact that state broadcasters viewed their listening public as such. Radio prior to liberalization could be described as a 'ruling party propaganda mouthpiece' (Banda 2006), solidified through the rhetoric of education used by both the colonial powers and the first Ghanaian government. On a very basic level then, there simply was little if any interactivity in Ghanaian radio prior to Joy FM.

Joy introduced 'phone-in' programs and SMS text-ins at a time when both land lines and cell phones were limited to the wealthy and urban population. This use of communication technologies is currently standard on the Ghanaian airwaves but Joy's introduction changed the lack of interactivity that existed up until that point. Even more significant was the difference in Joy's target audience. They focused on a very specific group of people, one that fell within a particular demographic: a higher educated ('at least secondary school' as stated by Isaac Yeboah (Personal Communication, June 5, 2009) the online editor), middle class, between the ages of 18 and 45 years, and mostly based in the capital city Accra.

In addition, according to the programs director, Kofi Owusu, many Joy listeners 'listen from their cars', on their way to work early in the morning and have jobs that may not allow them to listen to the radio in the office (Owusu, K., May 11, 2009). They, however, have access to the Internet at work or elsewhere and daytime participation via the Internet is consequently higher than live on-air participation (which is not surprising given the fact that only a limited number of people can be allowed to talk and text live per time anyway). The interesting point here is what it reveals about their ideal (and it appears, actual) listenership – an affluent urban white-collar population in the nation's most thriving city.[41]

During colonial times, the elite comprised a mix of traditional rulers and British-appointed public officers (under the policy of Indirect Rule). In the early post-colonial republics,[42] the cultural elite was also more or less the political elite, related to the new powers accrued to a specific class of people during the fight for independence. The parties that developed over the years along the political fault lines, even during military rule, have always been seen as the cultural elite in Ghana. While it is true that prior to British rule traditional rulers held a lot of sway, their influence has diminished over time. The new political elite is now an established older order that holds much influence in decisions affecting a large number of people at different levels. This group also extends to the few in Accra and every now and then the rural wealthy who may or may not have a high level of education but are certainly wealthier than the average Ghanaian. This wealth may have been handed down generationally, but as the 'Matthew Principle' goes, their education and networks have further increased this wealth.

On average, the age demographic of this group of people, by the time they got into politics was around 45years, but often higher. There is an overlap between this group and those dwelling in the urban centers, with the commonality being their high education, often received outside the country. What is qualitatively different about the elite that *Joy* is reaching out to then is that it is a younger (very urban) demographic, which, while the majority may not have generational wealth bequeathed, are upwardly mobile in a time

[41] Joy's primary group of listeners is primarily based in Accra, where most of the nation's most sophisticated socio-economic networks can be found. Accra is also the most diverse city in Ghana, with the most number of different groups of people from other regions and countries.

[42] Ghana's political history following independence from the British in 1957 is divided into 4 republics, based on revisions to the constitutions. The current republic relies on the 1992 constitution.

where the Ghanaian economy is increasingly being integrated into the global one and is growing at a fairly constituent rate of about 10% per year (World Bank, 2013). This group defined by its education and urban location, with access to information and technology is a vocal co-creator of what goes on the airwaves. This slice of the Ghanaian population with access to a more hybrid form of mediaspace lives separately for the rest of the largely rural nation where, even though access may have increased, by dint of program formats and the industry's distribution system, are often spoken *to* rather than spoken *with* on radio.

It is not that Joy is unaware of how small this actual demographic is (relative to the rest of the nation), but rather, that it is a manifestation of *how* they intend to 'influence not just society, but decision makers' (Owusu K., personal communication, May 11 2009). To them, anyone who listens to Joy FM is a 'discerning listener' who is able to 'discern' first, that Joy has a quality that sets it apart from other stations, and second that the issues and agenda set on-air must be engaged in a way that will influence public discourse in Ghana. Joy values its audience as a key player in public discourse, and sees it as one that also has the power to make changes. We see this in the ways in which the website and programs are structured. On the myjoyonline.com website in the early days, there were comment spots for every news item posted and the most popular show on the station, the Super Morning Show (SMS) was and remains highly interactive in both the on-air dialogue and the use of interactivity on the website (polls, comments, text-ins, etc.) and most programs featured the now ubiquitous call and text ins.

The Internet is another space where 'the discerning listener' is even more narrowly defined. The audience there must have access both to the technologies as well as the skills to use them in order to access information and participate in discussions. These already relatively better educated people characteristically are more informed than the average Ghanaian and *Joy*'s online platform allows them to take part in the news-making and agenda- setting processes. According to Joy's online team, they often take news investigation and reports further than the on-air team by putting up complete interviews, follow-up pictures and comments; things that airtime restricts. The ever-open comment feature allows them also to gauge what the audience is paying attention to or considers important, which may, in turn, trigger further reports or more detailed investigation. In this

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way, the interactive nature of the Internet made the *Joy* audience co-creators of what eventually became public discourse.

I use the past tense because the website has changed between 2009 and 2014. Today, instead of comment boxes, there are sharing widgets to Facebook, Twitter, LinkedIn Share, Google + and email. In the earlier days, comment boxes were very active and played a key role in the web team's decision making. According to Isaac Yeboah, he and his team kept in mind readers based in other time zones and updated the content 24 hours/7 days a week in order to stay current even as they are aware that their core readers are actually based in Ghana. About 80 per cent of all site hits came from within Ghana (myjoyonline.com's Google Analytics, 2009), likewise advertising revenue. He listed the United Kingdom and the United States in second and third place, respectively, while other countries in Africa such as Nigeria, in Europe (particularly Germany) and even China all have hits. The relevance for Yeboah thus, was making sure that the news and related comments are timely and in-depth in order to keep readers coming back to *Joy* even though they could get the news elsewhere. He found the comments as important as the news articles, and made sure those are not outdated in relation to the news items. As far as he was concerned, 'you're relevant only because people think they will get what they are looking for from your end' (Yeboah, 2009), suggesting that they also anticipated what readers look for.

Myjoyonline.com ostensibly competes with a wider market than *Joy* FM does on the Ghanaian airwaves. International news agencies (like BBC), as well as social media and user-generated content technically have the same reach as the website within the country. To make sure that they are perceived as a credible source of information for news on Ghana, *Joy* must constantly update their online content – both news items and comments by readers – such that the asynchrony of the Internet closely mimics the 'live-ness' of the radio and does not necessarily push away 'traditional' media but rather enhances and facilitates its use. Specifically, myjoyonline.com complements on-air content that constructs an ideal, engaged audience by giving them a platform to engage in dialogue with one another in a public space.

Divided publics

The Habermasian notion of a public sphere (Habermas [1962] 1989), in its very basic form, is seen here in an almost egalitarian way in which listeners and readers discuss policy and cultural issues outside of a central authority. On myjoyonline, the asynchronous affordances of the Internet allow people who may not have the time to immediately respond to on air broadcasts to engage with each other on matters of importance to them. When the website allowed comments, it widened the space of public discourse and hybrid media space brought on by the web enabled radio texts to be discussed and debated in ways that created a more participatory culture. Today, social media plays the role of those comment boxes and in the next chapter, I will look in depth at a similar station and how it interacts with its audience (also similar to *Joy*'s) and the implications for public discourse. For now, I want to point out that as participatory as the new media and new radio is in Ghana, it is not necessarily pluralistic.

The dominant voice that emerges from a combination of *Joy*'s audience and its influence both within the mediascape and more broadly as a well-known social institution is one that is disproportionately from a socio-economic class with a higher education attainment and income than the rest of the nation. So, while people in say a rural area in the northern part of the country may hear a *Joy* or *Adom* FM newscast through their local station, they cannot necessarily respond to what is sent out, not just via technology but by the kind of language fluency that say a recent college graduate sitting in an air-conditioned office in Accra has, and whose online questions might have led *Joy* reporters to dig deeper into a story or chase a different angle. The use of English is a deliberate choice that emphasizes the station's preferred audience. While English is the official language of Ghana, the lingua franca, depending on the region is often a local language. So even though many Ghanaians understand some English, their fluency depends on their education level, where they live and whether or not they need to use it everyday in their business or professional lives. Hence, solely using English, at the proficiency of university graduates rather than, say, a mix of English and Akan (the lingua franca in the capital city) puts *Joy*'s broadcasts along a socio-economic line. Overall, this close association of the gains from convergence with the socio-economic status (SES) and precise demographic of *Joy* FM's imagined audience, combined with the structure of the station's influence in the nation,

creates some tension between our understanding of the liberal public sphere and what exists in contemporary Ghana.

When Joy began broadcasting to that very narrowly defined audience, the Internet and cellular phones were not as available as there are today. Shanti Kumar, in her discussion of television, reminds us that (digital) convergence of communication technologies that were traditionally distinct enable media networks to broadcast globally, locally and simultaneously for multiple audiences. Jenkins and Deuze (2008) also argue that this digital convergence goes beyond technological forms, but indicate shifts in cultural logic. In Ghana, the shift to privatization of radio, via economic liberalization, brought on new forms of relationships between private media and its listening audience. Layered within this symbiotic relationship is a re-definition of the public space and a re-writing of cultural scripts, specifically who is considered a 'discerning' listener and their ability to influence public discourse.

Joy's affiliations with 40 stations outside the seven that they own means they technically reach as potentially as vast an audience as Ghana Broadcasting Corporation (GBC) radio, the national/state-owned radio, that has programming in all the local languages. GBC's listening public plays a somewhat different role from *Joy*'s if only because they are not as involved in the public discourse generated by the station. The use of mobile phones to call into stations like *Obonu* FM (the GBC's Accra *Ga* language station) gives them some degree of interactivity but *Joy*'s interactivity goes a step further to include the Internet and a more responsive audience that includes Ghanaians overseas. This interactivity, combined with *Joy*'s status as an influential station that government and policy-makers take seriously gives its participatory audience a greater influence on public discourse**.**

Furthermore, given the overlay of SES and class on technological affordances in Ghana, convergence and/or the hybrid mediaspace has given the cultural elite a louder voice in public discourse. The basic premise of the public sphere is that reasoned public debate should exist for democracy to strengthen. While this is true in the very vibrant media all over Ghana, Joy's initial presence as the first private radio The very narrow definition of *Joy*'s audience, and that audience's very active engagement with the station affects what *Joy* currently produces and even if that is further transmitted across the

nation, it is to an audience that is relatively less empowered by technology to re-engage. *Joy*'s history as the first private station and leader in innovative technologies, production techniques (including a relatively sophisticated method of tracking presidential elections), and overall social capital means they are able to influence public discourse more so than other radio stations. The station in some ways sets the agenda for other private radios and their listeners/participators get to directly and indirectly partake in that influence, one that extends to other listeners across the country. *Joy*'s model of demarcating its audience by class, on the surface, seems like a straightforward rational business move. However, in understanding the rhetoric used to describe their station, their programs, place in society and crucially their imagined audience, the result is a socially divided public sphere that privileges some participants over others.

Conclusion/Summary

Liberalization of the broadcast industry in Ghana first of all made radio a key arbiter in shaping public discourse. Radio became a site for engaged participation; where as before it was merely an informational tool for the political elite, it became a site for public discourse, the theoretical inclusive coffee shop in Habermas' notion of the bourgeois public sphere (Habermas, [1962] 1989), but with participants who are drawn from a percentage of the population that is urban, young, educated, with access to a hybrid mediaspace and not particularly representative of the nation's largely rural population. I have argued that that the demographics of Joy's listenership shows a cultural elite that is different from the one that existed prior to the 1990s.

Further, global flows of highly skilled labour suggest that people such as the founder of Joy FM, Kwasi Twum and others like him, play a key role in that they accompany the flow of ideas, capital and technology in and out of the country and help to position changes in who gets to engage in the public discourse. As a 'glocal' entrepreneur, Twum, and others like him, allow us to look at different dimensions of globalization, especially the interplay of return migrations and skilled workers in media and ICT industries.

This chapter is an initial attempt to bring these different analytic mechanisms together to show a more holistic view of the changes in Africa's mediascape over the past two decades. I used one radio station in Ghana as a case study to illustrate the

interconnection of these different mechanisms situated in the context of 'brain circulation' of global talent and networked publics. The latter is related to the idea of 'mobile publics', which 'on one level [...] relates to the emergence of a hybrid mediascape and the development of technological and cultural capacities to circulate and share ideas, images and information in ways that were not possible earlier (Punathambekar, 2010).

Aswin Punathambekar's view of 'mobile media' draws our attention to the need to recognize how technologies like mobile phones and the Internet expand and re-configure the communicative affordance of radio in ways old and new. In the next chapter, I will delve into some of these ways, particularly emphasizing how the sociability of radio maps on rather well with social media, even in a what I argue, is still a divided public in Ghana. These areas of overlap between the 'old' and 'new' media are simply reincarnations of what we know of radio as an institution in Ghana but it is also a site for the production of a new elite.

Chapter 4 – Networked radio: Sociality and interactivity on Citi FM

In over the 100 years since the first radio station was founded, "radio is still the most pervasive, accessible, affordable, and flexible mass medium available" (Girard et al., 2003)(p10). Since the widespread neo-liberal changes to the economy in the 1990s, radio has remained an important source of information dissemination and exchange in Africa (Mudhai, Tettey, & Banda, 2009). It is also the most local and in Africa, its widespread accessibly, relative to all other media, is premier. The growth of commercial radio in Ghana, by sheer numbers and access to listeners outpaced the mobile phone and certainly Internet use and the point at which all three uses converge is one that demonstrates the deeply embedded radio culture in the Ghanaian society, as well as the emerging integration of new media practices (See Tables 1 - 4). Just like in any competitive market, stations have to carve a niche for themselves, or try to appeal to a broad base of listeners. Given the technical limitations on how far a station's waves can be heard from the towers, syndication and sharing of content appears to be the strategy of choice in spreading one's brand across different parts of the country. Rather than being a casualty of the proliferation of information and communication technologies (ICTs), radio has survived and in fact been entrenched as a significant component of the socio-cultural and political landscape in Africa (Mudhai, 2011). It has been argued that since the increased use of mobile phones, audiences have used them to contribute to radio panel discussions (RPDs) as part of a culture of self-expression, motivated by ideological formations and expressions of dissatisfaction about personal, social and national issues, among other things (Coker, 2012).

Commercial radio in the country is very much still in 'industrial production' (Bruns, 2008) and, is altogether a vibrant, lively space for debate on (most often) politics, sports, entertainment and lifestyle topics. There is certainly no lack of opinion on radio airwaves – from politicians defending their actions or making accusations, to people reporting incidents on the streets and program hosts clamoring for one thing or the other. Joint consumption practices, i.e. listening with others, either in a private or public space, are

fairly common (Mudhai, 2011) and one is wont to hear radio in public transportation (especially the minivans called *trotros*), in open market places, hairdressing salons, etc. in both rural and urban spaces. As a social institution (Girard et al., 2003), and an industry with its own norms, understanding how certain aspects of radio behave in relation to the rest can reveal broader social issues and changes, including the prevailing concern of this dissertation, class, which on its own can be perceived as an aspect of identity. What transpires between station and listeners also acquires particular norms that can be specific to the station's viewpoint on how the audience fits into their production practices.

Institutional changes in radio, particularly in programming and broadcasting conventions, and the broader use of the telephone ushered in another space where private and public lives of audiences could come together. Broadcasts from the mass media (studio) came into homes, but were increasingly accentuated by voices of listeners who could then share their concerns with other listeners and unknown others in a simultaneously public and intimate way. This was especially true for talk shows and variety shows where audience participation was part of the content that spoke to audiences 'for the sake of sociability' (Scannell, 1996). Regardless of the fact that gatekeepers (editors and producers) limit true access and time constraints (allotted on-air time) within an institutional context (how many calls are allowed in in order for show to go on), this is still participation given that audiences' are heard as part of content produced.

The rapid uptake of mobile phones, within radio's specific institutional and industrial milieu changed the options available for participation. In theory, more people, at least in places where landline telephones relative to mobile ones are not as available, can now contribute to radio programs through calling and texting. The number of calls or texts that can be read out or picked up though, remains as an add-on to programming content, unless the entire program is about speaking with as many listeners as possible. And even then, only a limited number of people may be heard per time on air, relative to how many are sent in. Regardless, for those listeners who were constrained by the inability to call in from a landline, especially in parts of the world where access is limited, mobiles provide a way to talk to one's favorite station, send a message to a politician, wish someone a happy birthday, complain about a situation in their specific locality, etc. (Coker, 2012); and having the satisfaction that those wishes or messages have been sent out.

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The changing social behaviors around radio consumption due to new electronic media reinforce the necessary social engagement between broadcasters and audiences. As such, commenting, listening, texting and calling are part of the production process. The feedback loop that remains open in radio, through appeals to the listener and direct solicitation to call, text or tweet one's thoughts in response to some content or topic remain integral to how radio imagines its audience's relationship their products (Bruns, 2008). Formats and production constraints such as air-time, advertising windows, etc. may persist, but 'traditional' media content is now more flexible, more composite, i.e. made up of the studio or station's prearranged content, plus whatever the audience decides to contribute, reuse and remix via comments, sharing, or editing on various platforms.

Since Joy FM began the practice in the early 90s with its phone-in song requests (where listeners called the station to request songs for friends and loved ones), new and networked media have steadily become part of industry practice over the last two decades in Ghana. At first, it was a privileged few with landlines who could call into the station. As mobile phones became more affordable and service extended across the country, any listener could call in and if they got lucky, were spoken to on-air. Soon, calls were limited to interviewing people relevant to content, such as politicians, musicians, public officials and audiences joined via text messaging as more could be received per time. Many local language stations still receive calls from listeners, but many also translate texts received in English or read out English language texts to listeners. A handful of urban stations now have social media as part of their production, incorporating tweets, Facebook and Google +comments to on-air broadcasts, and posting in-studio photos on their pages on those social network sites (SNSs), as well as other web sharing resources like YouTube and Sound Cloud. Those stations that really focus on SNS incorporation are largely youth targeted, are urban based and even though produce different content are part of the new radio landscape, changing radio into a much more networked entity by stressing sociality and interactivity. However, by dint of access and content, only a few of these stations speak to the new elite and function as an elite media institution. Below, I will discuss how networked media have changed radio and how specific practices are oriented towards elites unlike others.

Sociality and interactivity

At its core, the relationship between broadcasters and audience is one that is social. Regardless of the particular aim or manifest content, there is a prior sociable commitment in the communicative form of every program (Scannell, 1996). While, for instance, news may intend to inform, and thus the modes of address used are different from say, a variety talk show, the point is that even though there are different motives in broadcasting's communicative ethos, there's more to it than that. It is this necessarily sociable relationship between broadcasters and audiences, an unforced or unenforceable one at that, which lies behind every program. As such, broadcasters consider how they talk to both people who have no particular purpose or intention for tuning in and those who do so on purpose because the behavior of the listening or viewing audience cannot be managed (Scannell, 1996). Consequently, the communicative manner and style of radio is conversational, i.e. "orienting to the normative values of ordinary talk in which participants have equal status and equal discursive rights". You speak *to* listeners as opposed to *at* or *down to* them or else they will simply switch off. Radio must speak to the listener "as someone in particular" (24).

Clearly not all broadcasting is *just* for the sake of sociality/sociability but it is present in people-centered programs. For instance, sports talk, variety programming like morning shows, or 'drive time shows' which are partly informative, partly about talking to an audience out there for the sake of having a good time, involves interacting with those in the studio and the audience outside of it. Informal discursive styles show the sociable intent in programming output and are heard in the encouragement of and engagement with audience participation. The back and forth between producers/broadcasters and audiences/listeners/readers is interactivity, a term that is easy to take for granted in the contemporary mediascape. It denotes a two-way flow, where one thing influences the other and also refers to the act of responding to a user's input, be it a computer or broadcaster on air (New Oxford American Dictionary, 2013; Oxford Dictionary of English 3rd Edition, 2013). The ways in which interactivity takes place on radio, who participates and how they do so via new media are ongoing processes across a range of contexts.

In the last decade or so, social network sites (SNSs) have facilitated new forms of interactivity online and more recently, on air. Ellison and boyd define an SNS as a

networked communication platform in which participants 1) have *uniquely identifiable profiles* that consist of user-supplied content, content provided by other users, and/or system-provided data; 2) can *publicly articulate connections* that can be viewed and traversed by others; and 3) can consume, produce, and/or interact with *streams of user- generated content* provided by their connections on the site [emphasis theirs].

<div align="right">(Ellison & boyd, 2013)</div>

The use of the noun form of the word 'network' instead of the verb form ('networking') is a crucial aspect of understanding how such sites serve as a platform (or space) for different kinds of sociality to take place. It also highlights the centrality of one's network, one that is (often) publicly articulated, and the ability to view others' networks. Furthermore, Ellison & boyd's inclusion of 'user-generated content' is also relevant; SNS users write, post, remix, forward, and share in all kinds of content that they find relevant to their lives and in their estimation, to their 'friends' or 'followers'. SNS users are not just individuals; institutions, corporations, businesses, etc. use them in the same personalized ways that individuals do. Sites like Facebook and Twitter are increasingly a space where producers and consumers of all kinds of goods and services interact, in addition to the 'traditional' ways of reaching out.

Gathering a large number of 'followers', 'fans' or 'friends' on SNSs represent a potentially large listenership or broad audience. The producer or program host now, again, has more content (text messages, tweets, Facebook posts) to parse through for selection, and can simply read or take what comes through first or sounds most interesting. Social media participation is an added entry point that could result in conversation with a listener, which in turn may or may not get included in the content that is put on air. Responding via a tweet, however, might increase the audience beyond those listening live to include those following the station's activities and on-air broadcasts asynchronously. Conversations continue on SNSs after they have been started on air. The topic might dissipate when a new one starts or as time goes on, but in the hour or so following it, at least from my analysis of radio stations' tweets and comments, it continues as listeners respond to each other and the station personnel. This functions in a similar way to for instance, comment boxes on Joy FM's website in the early 2000s, except now the feedback

sometimes comes attached to live content that remains for a while, even if live on-air feedback is still largely ephemeral.

From the audience's perspective, there is an added level of 'publicness' to interacting with a radio station via a SNS like Twitter. There is the potential on-air audience that might hear your contribution if it is read out, in addition to those at the particular station who act as gatekeepers and presumably have already viewed the content you sent in. It might matter if one's tweets are not read, in which case the listener might send in another message to complain (as seen in tweets sent to Citi FM), or it might just be a desire to send something out and be satisfied with the potential for it be seen or heard by someone. In addition, one's followers or fans (i.e. network) on the SNS are an (imagined) audience, as is anyone with access to the particular platform if it is public. Just as one writes or speaks to an imagined audience that may or may not read the content of a book (Ong, 1982) or a blog (boyd, 2006), so too one's tweets or status messages may function as an expression of self, broadcast to imagined others who may or may not seek one out or respond.

Regardless, the affordances of social media in general and SNSs in particular allow more flexibility for the audience. In one way, a tweet functions the same way as a text message that a radio show host can decide to read out loud within the program or not. The same goes for other asynchronous messaging forms like email, Facebook posts and website comment boxes, when they are used. Moreover, SNSs lower the barriers to the desire to communicate and share information with both known and unknown others. Unlike the broad sociological interpretation of human cognizance as inherently social because it relies on things and ideas generated by other humans (Fuchs, 2014), the actual exchange and possible collaboration through information, i.e. interactivity, are at the core of the sociality that SNSs represent.

Sociality in general then, and media interactivity particular, is about human connections and networks. As a noun derivative of the word 'social', 'sociality' means, among other things, "the tendency to associate in or form social groups" (Merriam Webster, 2014) and "of or relating to rank and status in society" (The New Oxford American Dictionary, 2014). Both of these definitions sum up this chapter's approach to examining class dynamics through the new media space in Ghana. In the previous chapter, I showed

how Joy FM's imagined audience intersects with new technologies as an indication of class and a new kind of radio, and how its founder represents a new (entrepreneurial) class and cultural elite. In this chapter, I hone in some more on radio and its intersections with class through another elite station's practices, its audience and use of new media. Specifically, I present the case of Citi FM, another Accra based English-speaking radio, and argue that its displays of interactivity online and on-air mark it as a space for the new cultural elite to be socialized. The station's activities also show elite institutional attachments and while many of the production practices are standard in the industry today, the nuances of how they put their mark on those practices put them in the same category as Joy. In what follows, I begin with an overview of the station, present the factors that contribute to its elite stature, and then discuss the evidence towards how this is translated into a space for new elites and the expanded middle class.

Citi FM

Corporate identity

Citi FM is an English-speaking Accra-based private radio station that started broadcasting in November 2004, operating out of a busy part of the city near the central business district. Using a 5kilowatt transmitter, the station has a reach of about 90km radius and can be heard on 97.3 megahertz. It was founded by Nik Amarteifio, a Ghanaian businessman with an MBA from Harvard and undergraduate degree from Wesleyan University, who is also the chairman of a number of corporate boards across mining, pharmacy, banking and construction. Citi is managed by Samuel Atta-Mensah (a.k.a. Sammens) who was part of the Joy FM team early in its days in the 90s. Sammens brought on a young team of journalists and producers from the University of Ghana's campus station, Radio Univers, as well as a few individuals with international education and/or experience such as the popular Jessica Opare-Saforo (known on-air simply as Jessica), and set out to carve a niche for the station in the same market that Joy FM dominated.

Citi's corporate identity falls along two main lines: journalistic values and audience engagement. Journalistic values are articulated as "a comprehensive and credible news function", a "strong advocate for consumer issues ... ", and covering "the vibrant Ghanaian

political scene with objective and balanced live reports, news features and documentaries as well as regular round-table discussions on pertinent issues" (About us page, accessed June 6, 2014).[43] The station's programming, both on-air and offline, appears to be heavily focused on business and public affairs. The website claims that their "commitment to analytical business news has gained the confidence of listeners and advertisers alike. We have championed the cause of healthy discussion with our Citi fm roundtable which is a platform for in-depth discussion of important issues, with divergent views being represented." The station produces and airs its own documentaries on historical matters and frequently designates monthly themes that cut across programmes, e.g. management development month in June 2014. Like other commercial stations, it is run primarily as a business that sells audiences to advertisers and traditional journalistic values, as they operationalize it, is part of the product value chain.

Various issue driven programs are supposedly "backed by innovative listener-driven on air programmes, and exciting promotions with vibrant audience participation" (About us page, accessed June 6, 2014). The claim that "[t]he station is well-noted to be listener-focused with innovative on-air programs, promotions, outdoor events and comprehensive news" is supported by a list of awards, such as the 2012 "Most Innovate Newsroom in Africa" at the 16th Telkom Highway Africa Awards, "Best Radio Program" for Eye Witness news by the Chartered Institute of Marketing Ghana, "New Radio Station of the year" and "Talk/Interactive show of the year" for the Citi Breakfast Show, both in 2007 by the BBC.[44] They also mention individual journalists who have received awards for their work, such as "health report of the year", "1st prize in radio for peace building, and radio newscaster of the year", etc. In addition, "Citi 97.3 FM has also been acknowledged by the Ghana Journalists Association for its objective and balanced coverage of political stories in

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[43] This is my reading of the website PR and marketing material found on their website www.citifmonline.com (Accessed June 6, 2014).

[44] The Highway Africa award is given at the eponymous conference hosted by Rhodes University in South Africa and supported by Telkom for "innovative use of … ICTs in journalism that serves Africa and its citizens" (http://www.highwayafrica.com/?page_id=8, Accessed June 6, 2014). The Chartered Institute of Marketing Ghana (CIMG) has annual awards that among other things, are meant to "promote healthy competition among organizations [and] to ensure an improved quality of products and services being offered by businesses" (http://www.cimghana.org/awards/about-cimg-awards, Accessed June 6, 2014).

the interest of good governance and peace building." Such a listing of accolades is fairly common business websites and radio stations in Ghana are no exception. They form part of the image the company wants to present and such online spaces are where a company can carefully script its identity.[45]

Every organization has a corporate identity that is "revealed through behaviour, communications, as well as through symbolism to internal and external audiences" (van Reil & Balmer, 1997, p 341). Essentially, corporate identity is "an organization's unique characteristics which are rooted in the behaviour of members of the organization" (van Reil & Balmer, 1997, p 341) and consists of "an organisation's strategic choices and its expression thereof" (Abratt & Klyne. 2012 p 6). As such, how organizations describe their brand or strategy on their website can be read as an expression of identity, much like the activities they undertake. For example, if a company claims to be socially responsible, and that it is invested in some way in the social milieu within which it operates, it can do a number of things to support that claim. It may engage in activities like distributing leaflets and promoting specific activities to highlight (or obfuscate) key issues around their operations (Fig, 2005) and it can bring media attention to activities that look socially responsible, and it can simply go out and do those things. In the end, that corporate 'face' is the 'positive value' they claim for themselves and is an 'image of self' that others may or may not share (Goffman, 1967). In the networked age, web pages and online profiles, as a communicative tool, "provide more opportunity for 'embodiment' though less for interaction" and "provides a locus for electronic self" (Miller, 1995).

Web use by businesses in a country with relatively low internet penetration like Ghana is often only at the level of "interactive e-commerce" (Boateng, Molla, Heeks, & Hinson, 2011; Molla & Licker, 2005). That is, business websites often allow for some feedback via email (or the ubiquitous but much underutilized comment boxes), but in general, are meant to primarily inform about the identity of the company and what they do. Hence, beside the face-to-face and telephone (or on-air) interactions with customers (or audiences), web pages are how businesses (radio stations) represent themselves to the

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[45] This isn't to say such a script cannot be misread, especially when held up to its actions, but the point is that this is where the controlled public relations strategy to manage one's image is most easily accomplished.

larger world and is the first "face" people unfamiliar with them may see. What they include on their web pages is telling about how they want to be perceived as a company and those words and images forms part of that self-representation. In addition, media corporations like radio stations and television stations often include broadcast content as well as general news to showcase their core business. Thus, the general website of a radio station can be very informative about its identity, in as much as an examination of its actual activities and broadcasting practices can reveal what it perceives of itself, its audience and the public it is trying to reach.

Radio stations in Ghana place a range of content on their websites that can be used to differentiate them on by operation and audience. In general, their websites have generic declarations about the station's history, mission and vision. For instance Radio Gold, a fairly partisan station based in Accra has its mission statement as being 'civically responsible' and

> well versed in our commitment to the growth and development of a society through our unique programming and professional delivery. Our mission is to develop the citizenry objectively through information and music and offer them the power of discernment in a FREE DEMOCRACY."

(Radio Gold, Accessed June 6, 2014)

Happy FM, a dual language sports station simply gives a history of the station and appears to rely on that as self evident of its vision. These stations, in my estimation, like Peace FM, the most popular Akan speaking station in Accra, aim to reach 'the ordinary Ghanaian'. Their business strategies and concerns are tied into how they articulate this on-air, online, and offline. Generally, they have limited online interaction with audiences, some constrained by language as not many people are literate in their local languages or how to use them online, and put relatively scant information about the station or its content.

Elite stations, such as Joy and Citi, take a slightly different web approach. Their 'About Us' pages are far more detailed, their websites have more diverse content, and their social media presence is more palpable. The social media pages in particular are dynamic, partly due to the formats of the popular SNSs that use the same interface regardless of country. More importantly, it is where one can assess interactivity between the station and its audience, in conjunction with what goes on-air, and get a better sense of who that

audience is. On-air, even though all stations include phone calls and SMS messages from their audiences and interviewees, elite stations draw from social media more and incorporate that content into live programming. Unlike Joy, Citi does not explicitly make claims about who constitutes its audience. However, one can make inferences by analyzing the modes of communication between the station and its listeners, as well as the offline activities it promotes on its web pages and on-air. Online, those most likely to use the social media tools the station prefers fall within the same demographic bracket as Joy's listeners – urban based youth between the ages of 18 and 35. Facebook's analysis of the station's most engaged 'fans' and 'friends' are between the ages of 18 and 24, and Sysomos reports that its Twitter follows are about 75-80% male and 90% based in Ghana. How these youth respond to the station on social media is related to what goes on on-air.

From looking closely at the station's official pages and those of its on-air personalities, there appears to be some difference in how listeners respond to tweets from the station's Twitter handle and how they talk to whoever the on-air personality is. Often, @citi973 tweets general news items or reminds listeners to tune into the station. These tweets get retweeted or commented on. The strategy is also used on the Facebook page also. However, one can get an easier read of commentary by clicking on the post and reading users' response to the station and to one another.

Citi FM has five places on the web to present news and interact with audiences: the 'official' website citifmonline.com, Facebook, a YouTube Channel, a Google Plus page and Twitter. Two other places serve as streaming services and archives of recorded shows, TuneIn Radio and SoundCloud respectively. The website, Facebook and Twitter pages facilitate multimedia presentations and seem to serve different purposes. The website hosts all news items, including those covered on air, headlines culled from their own programming, wire stories mixed in with some press releases and what I call indirect ads. Indirect ads are essentially press releases and advertisments written in the style of regular news reports and placed on the page with the company it comes from attributed as source. Even though each article has 'leave a comment' note beneath it, attempts to do so revealed that one has to be logged in to do so. It is not clear where and how one can do that and the dearth of comments beneath articles suggests readers do not feel compelled to try. It is rather on the social media pages that one sees comments from listeners and users. The Citi

Facebook page (and to some extent the Twitter page), for instance, mixes news with what I will call 'info-invitationals' and both categories of posts receive comments from users. Info-invitationals are posts informing users of what is live on air or coming up, and invites them to participate either via social media or a designated telephone number. These info-invitationals tend to receive more comments on average than the news items as they sometimes pose questions or present topics for discussion. E.g., on Saturday June 7, the station posted on its Official FB page the following: "Shamima Muslim is in the big chair on #TheBigIssue live Citi 97.3 FM. Let's hear how you are coping after the floods that left several parts of the capital covered in water. Is our problem attitudinal or leadership is to blame? Share your views here". 7 hours after it was posted, there were a total of 38 comments and 26 'likes'.

Citi's offline activities target a largely urban business and technology focused audience, well versed or at least interested in political matters as they pertain to a functioning democracy. In non-news or entertainment programs, people in the studio often debate public issues, with references to the constitution, the rule of law and other democratic ideas. It organizes debates for political candidates during election periods, hosts a sports competition for corporations called the Citi Business Olympics annually, puts on a financial advising event (the Money Fair), two music concerts, and other social activities aimed at different segments of society. Their primary music festivals, Music of Ghanaian Origin (MOGO) and Decemba2Rememba (D2R) have two different foci or at least try to reach different audiences. The first promotes what they consider more traditional Ghanaian music from the 1970s to 1990s, mostly highlife, and the second targets a more youthful crowd by assembling the most popular hip-life artists, whose music mixes highlife and hip-hop styles. In general though, Citi's mix of offline activities targets people in the formal sectors and promotes local music and businesses.

As argued in the previous chapter, new media in Ghana includes radio in its evolution as an institution and cultural form, characterized by a hybrid media space wherein audience engagement is a core component. For elite stations, this includes on-air broadcasts that speaks to an elite audience and involves online interactivity in ways that differentiate them from other stations. Citi's on-air programs sometimes have a thematic focus, such as the Management Development Month, the 10 days of investment and the

Heritage Month Series, all aired with expert guests focusing on select topics across programs. The kinds of analysts and experts they call on for opinion suggests an expectation of at least minimal understanding and deep engagement with public affairs and business. There are often critiques of the status quo, policymaking and perspectives of international affairs as it affects the country. Studio personalities engage with these experts and participate in these sorts of detailed analysis on their own. All of them have university degrees and some like Bernard hold advanced degrees from schools such as Warwick University in the U.K. They often draw on elite institutions (like university faculty) and experts outside of the political establishment to corroborate and analyze stories and news items.

For example, on the June 6, 2014 edition of the Citi Breakfast Show (CBS) , a professor and geographer at the University of Ghana, Dr. Jacob Songsore, was called to give his opinion on recent flooding in the Greater Accra Metropolitan Area (GAMA) following torrential rain. Parts of his interview are replayed during the weekend analytic show, The Big Issue (TBI), the next day (on June 7), a show that also features a regular panel made up of a professor from the private university, Ashesi University, a lawyer, the head of a policy analysis group, and a newspaper editor. This 3-hour show reviews major news items of the week and features debate or deliberation among the panelists, often in intellectual, sometimes esoteric term. In that day's episode there were grand statements and deep discussions about the national deficit, based on analysis of a speech given by a former finance minister, Dr. Kwasi Botchwey, arguments about the flooding in Accra, opinions on a protest going on in the city, and generally time spent speaking to one another and the host, and once in a while addressing 'those out there' directly.

Noam Chomsky describes elite media as not only those that set the agenda, but also those that speak to a privileged audience. This audience, he says are wealthy or part of the political class and are

> involved in the political system in an ongoing fashion. They are basically managers of one sort or another. They can be political managers, business managers (like corporate executives of that sort of thing), doctoral managers (like university professors), or other journalists who are involved in organizing the way people thing and look at things... the elite media set a framework within which others

operate).

This audience, he argues, is part of the institutional set up that socializes the elite in how to be elites. This institutional set up includes elite schools and professionals who internalize what the upper classes are 'supposed to' say and think, such that they no longer have independent thoughts outside this class. Elite media, in his estimation, argue (rightly too he says) that they are not influenced by other people, certainly not their corporate owners or political figures, but he emphasis that this is due to the internalization of certain ideals that makes them unaware that they are part of the establishment. Chomsky's argument is one that stresses socialization through the life cycle, including on the job training, and asks that we look at what kind of people work in a particular media setting, who they source from and who they speak to. Furthermore, broader industry and institutional structures, such as ownership and links to power can show who or what the elite media are (Chomksy, 1997; Hermann & McChesney, 2001; Herman and Chomsky, 2008).

From Citi's programs, it is clear there is a heavy reliance on expert opinion, mixed in with the point of view of program hosts who at the very least come from middle class backgrounds but have attended elite institutions, bracketed with interviews with policy makers and comments from listeners. Its founder and chairman is of the upper classes, having both economic and social capital that gives him access to the political elite. He comes from an old family in Accra, attended elite schools in the United States (Wesleyan and Harvard Business School), worked in Canada and the US for years, and his children were educated overseas as well. Beyond its founder, Citi itself looks like an elite station. On the surface, the youthful, tech savvy audience that interact with the station online are also of the elite. But online profile reading can be problematic, as they do not sum up the lives of the people they represent, especially in a rapidly changing market as the ICT industry in Ghana that gives different levels of access to network and digital technologies at varying rates. Still, they leave clues of the places people come from, their opinions on things and generally how they respond to media while in different locations. In the section below, I present evidence from a combined on-air and online analysis of three different Citi shows across four days that represent typical programing on both weekdays and weekends.

The shows, the Citi Breakfast Show (CBS), Traffic Avenue (TTA) and The Big Issue

(TBI), air weekdays from 6:15am-10am, weekdays at 11am after a news roundup, and Saturday mornings respectively. The CBS is the morning variety show hosted by Bernard Avle, with a group of studio co-hosts who play different roles like reading headlines from local newspapers on the Newspaper Report, conducting interviews, reading contributions from listeners, etc. For the most part, they generally banter with Bernard and debate issues in-studio and mix clearly state their personal opinions, sometimes in opposition with their peers in the same studio. TTA, hosted by Jessica, is a show dedicated to reports on 'what's happening in the streets' and relies much on listeners' input as well as reporters deployed. Shamima, originally the anchor of Eye Witness News hosts TBI. To get a good sense of the conversations, commentary and general interaction between listeners and station, I analyzed the Twitter and Facebook feeds of the station as well as the individual hosts in conjunction with recordings of the three shows. Given the time difference, only one show was analyzed live while the rest relied on Citi's SoundCloud page where full-length recordings of recent episodes are posted. Sysomos, a proprietary market analysis tool subscribed to by the Department of Communication Studies at the University of Michigan was used to mine all the tweets sent out during each of the days that correspond with the recordings to not only verify the social media comments read out loud, but also examine the meta data available on those tweeting.

On-air and online: Audience interactivity and studio sociality on live broadcasts

On-air, program hosts take different approaches to incorporating audiences into the program, but in general, just about every program read text messages, Tweets or Facebook posts on air. This is to be expected, given the different formats of the shows examined and the industry standard of including comments from listeners. The variance was most linked to just how much the host talked to in-studio guests and co-hosts. A good amount of the talk on all the shows, however, was in-studio with co-presenting others. This was mainly to facilitate turn taking, e.g. checking in with reporters on site, reading headlines or articles, interviewing guests either in studio or offline, reading social media feeds or debating with the primary host about a topic. The show with the least interactivity with audiences was TBI, which spent most of the 3 hours as a conversation among an expert panel about the major issues in the past week. TTA and the CBS both extensively incorporated audience

input, the former more so than the latter. Audience participation that was included on air overall came from messages (both voice and text) sent to the station's whatsapp number ("for all networks" as stated on each info-invitational posted on Facebook), tweets addressed to the hosts, and comments on Facebook posts. These were largely direct commentaries on topics covered in the live broadcasts but overall, messages read out ranged from comments on the topic under discussion in the studio, reporting incidents as requested by the program hosts, and sending messages/well wishes to friends and loved ones.

The whatsapp number access point is a notable change from listening to the station since my last visit in 2012. [46] In the episodes analyzed in 2014, one single number was used across all shows as access point for audiences who wanted to send text messages, send photos, videos or call-in. The latter was never included live (i.e. hosts did not pick up calls live on air to talk to listeners) but whatsapp allows users to leave voice messages and so some of these recordings were played on air after they had been recorded. During the latter end of the CBS on June 30, voice recordings from listeners were played back-to-back on air. Some listeners mentioned their full names and locations (e.g. "this is [name], calling from [Lashibi]…"); others addressed "those out there", and generally spoke with the expectation to be heard. During a TTA edition in the topic was the recent floods in Accra, Sanda, the co-host often said "let's hear from someone at [Christ Embassy]" and then played a recording of a listener who had been caught by the floods in that location.

This use of a single whatsapp number is a significant development. It shows the changes in the mobile marketplace in which the practice had been to list numbers for every network in order for listeners to reduce costs. In-network texts are cheaper than cross network ones and so the practice was to list all the various networks to maximize audience participation. This is perhaps one reason why whatsapp's global usage is so large given the cost of placing cross network calls in some markets is fairly significant, thus people in Ghana for instance use multiple SIM cards among other strategies to minimize cost and account for loss of call quality (another problem) calling across networks. Across different

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[46] Whatsapp is a smart phone (and limited feature phone) application built to send messages across different platforms. It has a global user base of over 500 million active users and relies on the Internet to send text messages, photos and videos. Facebook purchased it in February 2014 for $19 billion.

shows in June 2014, Citi's program hosts read out only one number "on whatsapp for all networks" in addition to listing it on Twitter and Facebook. Internet use is also still rather costly in the Ghanaian market, and smartphone use, while on the rise, is still a small percentage of total phones used in the country. Whatsapp users are mostly young, not necessarily affluent, but at least willing to bear the cost of having data on a smartphone or data enabled feature phone.

This tells us more about what audience Citi speaks to. Consolidating numbers that listeners can reach you at to just one, and to specifically request the use of an application rather than traditional text and calls is a risky move if you are attempting to reach the majority of people. Granted, regular text messages can still go to that number but on-air, hosts said things like 'whatsapp us' or 'whatsapp your views to our number', 'don't call, send a message to our whatsapp number...' and so on to encourage listeners to use the application. Just like Joy in its early days, Citi knows that its audience is a small subgroup of the total population and does not attempt to diversify that audience but rather focuses in more on it by giving them what can be called an 'exclusive' channel to the studio. In this one change of point of contact, Citi underscores who it is trying to reach without explicitly saying so.

On TTA, Jessica's appeals for pictures, videos, and messages of the damage caused by the flooding were heeded, and Jessica read some out, referred to others on her Twitter, etc., while Sanda gave summaries at various points in the show. For instance, while discussing the danger to drivers caused by roads covered by floodwater, Jessica noted "someone sent a picture where someone drove into a barricade" and later asked for more - "we'd like to see the pictures" and "send us videos". Sanda, added that they were hearing from all over town and that "if you go to our social media pages, we've asked people to send us reports..." (Sanda, U., Traffic Avenue, June 6, 2014). He added, "this is a citizen report. We sent reporters out also but we're hearing from listeners as well." Jessica responds,

speaking of listeners, someone just tweeted a picture from Central Mosque area which I just retweeted. If you follow me on Twitter you'll see it. I'm trying to describe what it looks like. There are two ladies, one is holding a long stick, one is holding a broom...

(Opare-Saforo, J., Traffic Avenue, June 6, 2014)

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She goes on to describe the photo sent to her by someone who had observed people trying to get their belongings out of the waters.

This inclusion of images and video to what is supposed to be an audio technological form is one that struck me about Citi (and indeed Joy's) social media interaction. In 2013, some of the episodes of the CBS were streamed live on Google+, with listeners videoed in as it was being broadcast. Frequently videos of news items, such as the July 1 #occupyflagstaffhouse protest, are posted on the Facebook page or website, and links shared via Twitter. On the official pages, the station posted images of those in the studio, as though to confirm that indeed they are live. Sometimes hosts posted photos via their personal feeds of themselves or their co-hosts. A memorable photo on the station's tweets came from a co-host of the CBS, Nhyira Addo, who posted an image of the pair of shoes he had on in the morning that his co-hosts had made fun of him for wearing.[47] The jovial tone of the comment 'the shoe that got him in trouble' was reciprocated by listener comments. Requests for photos such as Jessica's were also two-way. On the June 30 edition of the CBS, Bernard and Richard joked about the suspenders that another presenter, Ben Nketsia, who came to give the sports updates, was wearing and I tweeted them to show us the listeners. A few minutes later, a photo of Nketsia wearing red suspenders appeared on Bernard's feed. He and other hosts often exchange tweets with audiences in separate conversations even as the show is going on live. For instance, in one episode, after Bernard announces an event hosted by the station for technology entrepreneurs, one listener sends the name of someone he thinks is a great entrepreneur, and Bernard replies that he hopes to see him there. The person responds "sure", in the exchange: "Sure RT @benkoku: "@KwasiAdu: @benkoku amazing tech entrepeneur *[sic]* in gh @kaneoforiggin sure real." I hope to see him at our event on Friday." Such a multimedia environment, where journalists talk directly to listeners, respond to their requests for more information, and generally blend the space between radio and other technologies by incorporating video, images, and hypertext while still broadcasting live is a feature of elite media in Ghana, speaking to a segment of the population that is young, politically active, engaged in civil matters and on the move as working adults.

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[47] Nhyira Addo left Citi in 2014.

Participation from audiences in a sociable manner is expected and is a key characteristic of new (elite) radio in Ghana, as is audience participation characterized as 'good citizenry'. The following exchange more or less sums how TTA was presented:

> Sanda [1311]: "let's still go round, Jess. We still have been picking calls from our listeners. Ambrose spoke to us on the Ring Road between Circle and Ako Adjei interchange area. This is what he's been telling us"
>
> [1325 – they play recording of 'Ambrose' talking about his experience in the floods. Music at 1350.]
>
> Jessica [1401]: "Alright this is The Traffic Avenue at 97.3 Citi FM and of course you need to stay tuned to this network because this is where you will get your updates on the flood especially where your neighborhood is concerned. Remember, you can be a good citizen and report ehm the situation you currently find yourself in. call 0, don't call, whatsapp 02499… [gives number]. Even if you don't have pictures to share, you can still tell us, narrate the situation ehm to us. You can also send us videos if need be, 054… what is happening in your area?"

Equating citizen reports to being a good citizen is telling of the station's viewpoints on democracy and how it should function. The Citizen Report aspect of TTA later appeared on the website with its own logo and tagline "Be the voice of change" on the Citi website.

The station does not shy away from politics but often takes public officials to task. In comments on Twitter about interviews and exchanges between the studio and guests, listeners often chime in on how much 'pressure' or lack thereof that the interviewers are putting on public officials. One user, whose name translates from Akan to "Black Freedom" tweets to his friend (tagged at the beginning of the tweet) about a public official he believes is being evasive in an interview with Bernard: "this GPHA PR guy paa, Argh. @benkoku is not even giving him pressure, bring clarity to the situation ah, you're passing the buck". The 'pressure' is heard in various interviews, and a good example is from the June 6 show when Richard confronts the mayor of Accra about comments he made a year ago on their show about providing a solution to the flood prone areas of Accra, and why nothing has since been done.

The station's staff is fairly opinionated on issues it considers detrimental to national economic development, the livelihoods of people, and democracy. In 2012, journalists and

managers put on a very vocal criticism of the government after it said it was boycotting their competitor, Multichoice's stations for what it deemed 'unfair' coverage. They denounced the move on air, with the general manager, Sammens, even making a rare appearance on air to denounce the move as anti-democratic. I was at the station when one of the staff members received a text message from Joy FM saying they had heard that Citi had defended them on air and thanked them for standing up for what is right. In the break room earlier lunch-time, I observed the station's staff debate the implications of a government boycotting one media establishment and the consensus was that it went against the constitution and was a dangerous precedent for freedom of information. The station's staff, all university graduates appeared knowledgeable in their off-air debate, with different people contributing while they ate their lunch. The mood I observed while on the premises was often jovial but focused on work, with people moving back to their desks quickly after their meals to continue whatever it was they were doing, whether editing stories, transcribing interviews, calling advertisers, preparing to go on-air, etc. This is not to suggest that they were always in agreement. As one listener on Twitter commented on Bernard 'playing the devil's advocate' during a particularly heated debate about the drama surrounding the nation's appearance at the recent World Cup, they appear comfortable taking opposing views, speak their personal opinions, however unpopular (as observed a number of times with Richard Sky in particular) and generally analyze their topics in addition to reporting them on-air. It is not unusual to hear philosophical debates on differences between moral rightness and legal justification for actions of people, or in-depth analysis of economic policy, drawing from published research studies particularly on business discussions, or critiques of the state's relationship with the World Bank and aid policy. These ideas are popular among the elites at the university level and diasporic Ghanaians on social media that put themselves in opposition to the political elite. The staff is of that same social class and reflects that in their conversations both in professional capacity and personally when off duty.

Going back to social media's primacy in Citi broadcasts, some shows appear more fluid with this than others. On a recent CBS edition, those in the studio notice the hash tag #occupyflagstaffhouse and Bernard tells listeners "it appears something is happening with this". Soon, a representative of the group that is planning the protest of the government's

handling of utilities, tax increases and levies, is called up on air live and is interviewed about the planned protest. Bernard asks, based on the precedence of the 'occupy movement' elsewhere around the world, if this group intends to sit in till their demands are met. The response is that they want to register their discontent and that it is a non-partisan protest where no politicians are allowed. The conversation continues and later the show goes back to 'regular' programming with a daily segment on money. In the days following that, the station updates its listeners (who weigh in via comments) on air, on Facebook, and Twitter. [better transition]

Other editions of the CBS also included a lot of social media activity, sometimes ending with quotes sent to individual program hosts read out if thought to appropriately capture the *esprit de corps*. For instance, in one episode of CBS in which interviews had generated much humor and debate in the studio, Bernard signs of by saying: "I'm going to end with flourencia_2 tweets: "@benkoku the mayor always talks as if he is been vetted 4 a position of a compound prefect! Using words like; I will ensure, we are working!" On that compound prefect note, I am Bernard A. I did this show with [names everyone in the studio] I'm handing over to [names next program host]".

One key aspect of contributions from whatsapp and the various social media platforms are that they sometimes provide location detail of listeners. Listeners themselves contribute these, especially when they have been asked to report on what they are seeing. Listening across different programs, it appears Citi's audiences, like most radio audiences in Ghana, listen on the go, at work, or while engaging in other activities. Citi's listeners report when they are traveling on *trotros*, driving their own cars, walking across town, at their desk, often from newly developed parts of GAMA, but frequently from within the densely populated parts of the city. I have heard reports of location from wealthy suburbs like East Legon, to less glamorous ones like Odorna. These only serve to indicate that by location alone, it is hard to pinpoint class. Language on the other hand, can be more instructive, although a bit complex, as an indicator of class.

At first blush, English-speaking stations appear to target the middle and upper classes because, even though it is the official language, it is an acquired second language for the majority of the population. Proficiency in English is positively correlated to the quality of formal education (not necessarily intelligence as some would like to think) and one's

socio-economic status (SES). While there is now universal education at the primary level, the quality of classrooms and schools vary wildly and relate in complex ways with how secondary schools are selected, who makes it into certain schools and further up the education ladder. Secondary schools also vary in standard but English remains the language of instruction and common exams like the West African Senior Secondary Certification Exams (WASSCE) are used to determine grades for entry into universities. Across workplaces in the formal sector, one's English language skills are often a proxy for ability even though sometimes that is not necessarily required on a daily level for the job. Thus, it does not seem too unreasonable to make a link between class and the use of English (or more specifically, the comfort as well as sophistication with the language in order to participate in public discussions)

That said, local language speaking stations like Peace FM complicate that link. Peace, by dint of its use of the lingua franca, Akan, which few people are actually literate in, is arguably for the working class and in their own words, "delivers services to all Ghanaians" (www.peacefmonline.com, accessed July 7, 2014).[48] One is as likely to hear it in *trotros*, taxis and the open-air market place as in offices. Google employees during my time on the field routinely went on Peace FM's morning shows, as much as Joy and Citi's, to reach out to business and the general public on their efforts to increase Internet use and Google products in the country. Essentially, both the market woman out in the hot sun and the bureaucrat in the air-conditioned office are likely to listen to Peace. Their content is a mix of news and opinion pieces, but the language is often at an advanced level that non-native speakers have trouble following if not translated once in a while to English. The point is, the dexterity with which one can explain concepts that have no native words is one that requires a degree of proficiency that somehow does not alienate the general public, many of whom are not native Akanspeakers but understand and speak it well in everyday interactions. Peace is popular, in part because it speaks to the 'ordinary Ghanaian' (Coker, 2012).

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[48] It is interesting to note changes to Peace FM's online presence in a period of 7 months. In December 2013, while analyzing the station's sites for a manuscript, I noted how sparse their pages were, and how little interactivity there was on their SNS pages. The station now has a more streamlined website, calls itself a content deliverer across platforms on the about us page and generally looks like Joy and Citi's websites. Being the most popular station according to Synovate (2010) and Intermedia (2011), Peace, as part of the Despite Group of companies, is certainly as competitive as Multimedia. I have noted details of this in the introduction.

Citi FM's interviews with people 'on the street', on the other hand, are often translated and dubbed over in English. One hears uses of Akan every now and then; for instance, Sanda's comment about people's complaints about "*aban*" (the Akan word for government) that an interviewee was using but did not translate as he expected everyone to understand. However, interviews and reports are conducted in English, and an unplanned moment on TTA highlights the tensions this sometimes creates and how it divides Accra's elite and middle classes from the more vulnerable population in the city. This moment came from a playback of an interview conducted in an area near the Odo River that had been flooded. The reporter narrates the scene and describes the people struggling to rescue their belongings as 'aggressive'. Sounds of women wailing, men asking questions and children chattering could be heard in the background. As the reporter interviews one person after the other (with each responding in faltering English), one woman in the background who had been lamenting the loss of her things, and saying they (the people in that area) were tired of suffering, asks the reporter just as a young school child begins to respond to a question asked by the reporter "*aden na wooka borofo? Aden wo ye oburoni?*" [Why are you speaking English? Are you a White person?] (The Traffic Avenue, June 6, 2014). While the microphone is still on the school child, who in broken English, is saying the same thing that the rains prevented her from making her way home, the woman can be heard continuing in the background about how "you" come here every year to talk and do nothing - essentially equating the journalist to the '*aban*'. This unintentional, unguarded moment of reportage reveals that as far as ordinary Ghanaians are concerned English speaking journalists asking self-evident questions about people's suffering are not 'of them'. Later on when the panel on TBI discusses the flooding situation, one panelist describes his car being stuck in a dip on the road where water had lodged and characterizes it as an "inconvenience, an unnecessary inconvenience" that he did not need. Contrast that with the wailing of the people in Odornor who had lost 5 years of accumulated belongings because they can only afford to live in those areas, one gets a palpable sense of difference between the media elite and the portion of the population they report on.

Class and the new (networked) radio

Joshua Meyrowitz argued that electronic media can influence some kinds of social behavior due to the ways wherein they reorganize the social settings in which people interact, straining the ties between physical place and social space (Meyrowitz, 1985). The context collapse of various social situations and the fact that people create situations lead to the understanding that people's reactions are based on context, not some predetermined trait (Meyrowitz, 1985; Marwick & boyd, 2011). As such, how audiences of this particular station in Ghana respond to broadcast content via electronic media is related in part to the affordances of the media as well as the level of sociability at play between the station and its audience, as well as the personal circumstances of that audience. A large part of Citi's corporate identity involves audience interactivity, both on air and online. Sociability in broadcasting is emphasized by the various access points the station's audience has, and how it incorporates their participation into live programs.

Because Ghana is a nation with limited Internet penetration, the close association of participation with Internet enabled devices and tools cuts off interaction for very large groups of people. The cost of using these technologies may be dropping, but in real terms they are high relative to income levels. However, given that previous research has shown that despite the high cost of communication technologies like cell phones, even the poorest people try to acquire them for basic connectivity and communication, (Castells, Fernandez-Ardevol, Qiu, & Sey, 2007) it shouldn't be a surprise that Citi's young listeners remain connected. It is not all about their access that indicates their class, but rather, just like the station's institutional setting, its structure and corporate identity, it is their willingness and continued interaction with an elite station and its internalized ideas that is relevant. The skills that allow this sociability to be mutually enjoyable and beneficial relate to the skills and abilities, beyond the tech savvy, that facilitate and make comfortable, discussions of topics in ways that are consistent with elite thinking in Ghana.

Furthermore, that many of this audience are young and urban based might be a function of the general demographics of Accra. However, like Joy and other stations that operate under a corporate ownership, certain shows are syndicated and can be heard on other radio stations' airwaves far and wide across the country. This includes some fairly rural areas in the remote Northern part of the country and regions in the middle belt of the

country. Yet, routinely, the comments that were often read or played on air came from the urbanized parts of the country, not just in Accra. Thus, a more refined classification of Citi's audience, in terms of the level of sociality and interaction, is an urban, tech savvy, fairly educated youth that think of themselves as being on a global stage. As one listener said after a discussion on bad governance and fuel crisis in the country on Twitter, in the abbreviated writing style favored by the youth to limit characters in texts and tweets, "Now, on d social medias, we ar evn shy to say we ar Ghanaians. we dnt want to b insulted"[sic]. Being on social media is being aware of your self and nationality in relation to others and a consequence of what you perceive to be poor governance is not being able to hold your head high.

In the post liberalization mediascape in Ghana, the language of choice for a radio station can be used as a proxy for class distinctions but only in consideration of the content of the station and who the imagined audience is. For instance, both Y FM and Citi FM use English as their language of broadcast in the Greater Accra Metropolitan Area (GAMA) but they produce very different shows even though their listeners, at least on line, belong to the same age bracket.[49] Y FM is a music and entertainment based station that is more likely to talk about concerts happening in Accra or present gossip on a foreign celebrity than Citi. Citi's programming is more traditional i.e., with more news and information based programming. The language is more informal at Y FM than on Citi and even though both are fairly standard English spoken, the station's emphasis on formal news, and detailed presentation of business and politics mark it as a more 'serious' station despite the general convivial tone its program hosts use on air. The point is that merely using the English language does not make a station elite, but rather its target audience and how it interacts with it, and the subject matter of its programming, the sources it uses and activities offline, altogether create the elite character that is being solidified in the new radio landscape in Ghana.

Moreover, a station's institutional structure and corporate practices situate it as elite in the ways that Chomsky and others have described. Citi staff is university educated and they routinely source from people in places of power and general management of the

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[49] This comes from analyzing the age brackets of their listeners on social network sites, particularly Facebook and Twitter.

economy, academia and media. Its frequent critiques of the politics of governance showed by both major parties that have been in power in the last few years, emphasis on the private sector, and various offline program speak to ideas that are popular in elite circles and reflect their internalization (even if some do take the contrarian position often) of the values of the elite class. Having been socialized in elite institutions, the station speaks to an audience that is made up of similar people and others that may flow in and out depending on their circumstances.

Altogether, these distinct class markers situate specific media practices within the broader transformations in Ghana's transition to mixed capitalist democratic state following the global liberalization (and democratizing) efforts from the 90s. Following Jenkins (2008) argument against convergence being perceived of as purely a technical matter but rather as representative of a 'shift in cultural logic', this chapter shows the various ways in which radio culture and social media together, facilitate the performance of sociability and how interactivity can show highlight class peculiarities in contemporary Ghana. Radio in the post-liberalization era is networked, and on elite stations is a digitized space of dialogue between privileged journalists and a young audience that has or is acquiring the social and technical skills to exchange ideas and opinions. The ways in which Citi FM talks to its audience, particularly in its emphasis on using technologies that only a small percentage of the society uses, and adapting styles of presentation and discussion that makes sense to an equally small minority is telling of Citi's niche in a densely populated urban market. The education level and middle class background of its staff, its reliance on elite sources and ongoing occupation with matters concerning the economy, business, technology and policy all mark it as an elite station. The content of many programs and the style of presentation and debate that go on in the studios, form part of the culture that that Chomsky claims is characteristic of elite media.

Overall, the primacy of radio and its reach, the complexities of the industry structure following liberalization, and the largely urban and youthful orientation of some radio audiences points to a path that is fairly different from the radio and elite culture of yesteryear in Ghana. The question remains if this will change as access to other technologies increases. My guess is that based on radio's history as a social institution, born out of the offline activities I have detailed of elite radio, the elite media will only become

more entrenched. However, who counts as an elite audience will be harder to pinpoint, even as various publics tune into different stations to listen and to have their voices heard.

Part III: ICT

Chapter 5 – New knowledge: Techpreneurship in Ghana

Loud, animated male voices echo in the cubicle divided room. "No, Ghana was never like Britain" one exclaimed. "what you dey talk?" asks another in pidgin English. My presence is barely registered beyond the one nod of recognition and a hello from Seth, CEO of ClaimSync, who I was there to interview. "Let's go in here where it's a bit quiet," he says ruefully as we make our way past the heated debate going on around one desk in the dimly lit office space of several cubicles. Apparently the discussion was on Ghana's progress following 50+ years of independence from the British. Everyone had returned to work the day after the public holiday and the young men had worked themselves into a lively debate on the state of the nation.

The scene was different the first time I visited a week or so earlier. Then, it was a quiet working space with each man (and the occasional woman) behind their desk and a few conversations going on here and there. At that time, the few nods of recognition were towards my guide, a well-known sanguine Google employee who was taking me and another colleague around to visit the various companies in the Meltwater Entrepreneurial School of Technology (MEST) Incubator. My return on this particular day was after securing interviews with a few founders of different companies in the incubator. The conversation with Seth was insightful and informative. He and other CEOS in the incubator had innovative products that were designed as local solutions to local challenges, but with potential to be of value outside the Ghanaian context. At the time, ClaimSync, a desktop medical records and claims processing tool was in beta phase and Seth was positive about its outlook.[50] He had good reason, for at the time of editing this manuscript, about a year later, the international biometric ID management solution firm, GenKey, had bought

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[50] Beta, named after the second Greek alphabet, is the second stage in the software release life cycle. The software typically undergoes testing with a segment of the target market.

ClaimSync for an undisclosed sum and Seth plus team had relocated to the much larger firm's operations in Accra.

The MEST Incubator is an interesting excursion into the possibilities for business and technology development in Ghana. All the companies working there had secured funding from the Meltwater Foundation after pitching products in their final year at MEST, the school set up in 2008 by the non-profit arm of the Meltwater Group.[51] The school gives a full scholarship to graduates of local universities to train and acquire skills that are supposed to help them build successful technology businesses (Meltwater.org, 2013). The students with the most successful bids upon graduation get moved into the incubator, established in 2010, where they receive seed funding in exchange for minority share-holding, as well as office space and business development guidance from Meltwater. According to MEST, the incubator's "inception was driven in part by the limited access to seed stage capital and access to seasoned entrepreneurs to provide mentorship for software startups in Sub-Saharan Africa" (MEST Incubator, 2013).

Such efforts by business entities are not novel, even if they are limited in number. The incubator is not necessarily charity work on the part of Meltwater as they retain some stake in the businesses and have first right of refusal when companies decide to seek a second round of investments. The school, however, could be considered a non-profit entity, although, even if the company still gains non-monetary benefits from sponsoring a number of students to train as technology entrepreneurs. Across Africa, various non-profit organizations and for-profit corporations have supported different kinds of business incubation, technology co-working spaces and other similar ideas. The crowd sourced website Africa Hubs, the World Bank and iHub in Kenya variously list between 90 and 100 technology and business focused incubators or hubs.[52] A mix of support from universities, governments, corporate types and the ever-present NGOs characterize these hubs

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[51] The Meltwater Group is a Norwegian software and social media analytics company.

[52] See maps at https://africahubs.crowdmap.com and http://blogs.worldbank.org/ic4d/tech-hubs-across-africa-which-will-be-legacy-makers

(sometimes called hackerspaces, fablabs, etc).[53] Their reasons for doing so differ but, invariably, the potential to use ICTs for 'development' drives such investments, as does the privileging of entrepreneurship among the youth as a driver of economic growth.

This coupling of technology and private enterprise is a key narrative that has emerged in recent years from the neoliberal economic thinking that was popular in the 1990s. Entrepreneurship is as part of the push for privatization, is promoted as a driver of economic growth and employment (cite). The difference in the outcome of measures promoting entrepreneurship lies, among other things, in the existing institutions that can support it, including legal frameworks, financing, and education. Estimates vary, but in many developing countries, and certainly in Ghana, about 70% of economic activity from the working population happens in the informal sector, largely populated by micro-entrepreneurs who are self-employed at a subsistence level as a means of survival. Many such subsistence entrepreneurs would rather be doing something else, such as having a salaried job with benefits, and they differ markedly from those who become entrepreneurs by choice (Abraham 2012; Acs 2006).

Choice is a keyword when we think of this dual technology and entrepreneurship narrative pushed by various states and inter-governmental organizations like the World Bank. Subsistence or micro-entrepreneurs are often constrained in their choices and have limited spaces in which to operate- often service and retail industries. Choosing to become an entrepreneur, especially in a nascent industry like ICTs is a luxury that is limited to a few members of the Ghanaian population. If you become an entrepreneur by choice, you have options and you can take risks that someone who is barely surviving can't. If you have to resell consumer goods by the roadside to get money to feed your family, you are less motivated to take certain risks, like banking on a new product that does not sell well by that particular street. You may not be motivated to neglect that resale venture to try a new enterprise that requires that you learn a different set of skills because your choices are constrained by how much time you can take away from active work to acquire those skills.

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[53] Each of these have different meanings as far as the literature goes, however, a quick review of how many of the spaces described on this site use the terms suggest a lot of freedom or reinterpretation of terms to suit local needs. Most are hybrids of traditional business incubators and hacker/maker spaces.

Choice in turn is related to motivation. As Chew and associates have demonstrated in their large-scale study of micro-entrepreneurs in India, one's motivations influence what goes into the entrepreneurial process (Chew, Ilavarasan & Levy, 2013) be it adapting to new technologies or processes in order to grow the business or injecting new money into the venture. A motivated entrepreneur, whose focus is growth and personal profit, will do things differently from one whose motivation is to build a social enterprise. Thus knowing why and how people become entrepreneurs and in certain industries provides a look at their broader socio-economic standing, and in the case of communication technologies, their cultural cache also.

Social and cultural dynamics at the industrial level, i.e. between industry participants, are often not linked to larger normative practices within industries that ultimately influences productivity in the industry. Media studies scholars routinely examine what content creators do and the processes at work behind the public consumption of news, entertainment and everything in between. When it comes to communication technologies on the other hand, much of the focus is on the end-user (i.e. audiences) or on regulatory measures. Studies of mobile phone uses, internet communication, digital cultures, etc. are increasing and while they are necessary as the world changes, there is also the need to do more industry studies in the communication technology sector as well given how little we know about production practices outside the dominant centers of production in the global north and large centers in the south.

As Anita Say Chan argues, the periphery (read global south) is often thought of as a site of replication, where digital and technological futures are passed on from the center (Chan, 2013). Often in these imaginations, peripheral subjects are passive and do not warrant research attention as legitimate sites of production, whereas various spaces and people in the center are. That economic and social conditions in the north differ from the south is acknowledged but the differences aren't always based on empirical evidence as there is little industry work done in the so-called periphery. When technologies are discussed in a non-western non-industrialized country context, it is often through the development paradigm and not through innovations or creativity. Not that development, as constructed by the need to reduce poverty and disease in large populations across the globe is not a worthwhile goal. The problem is the underlying assumption technologies and

technological processes only seem to originate from the west countries and diffuse outward towards 'the rest'. At the same time, the rhetoric of 'globality' and universalism are attached to ICTs (Chan, 2013).

Speaking of technologies as global and universal on one hand (uses) and local and particular on the other (production) limits our capacity to explain diffusion of communication technologies and their relationship to communication processes. As global as mobiles and other ICTs are, our understanding of the economy around them still originates in the center and specific large centers of the periphery. There is still the need to account for industrial processes that precede the moment when a particular communication technology reaches the end-user and part of this involves entrepreneurship and institutional dynamics in different localities. The value placed on the mobile industry in the so-called periphery often fails to acknowledge that users interact with producers at the local level also.

In documenting and explaining how new media technologies are being created and used in small countries like Ghana, it is necessary to consider how forces that shape them interact simultaneously at that glocal level. Socio-political phenomena like migration of skilled labor in and out of a country can significantly impact the overall pool of labor available for specific sectors. In a later chapter, I detail how returnees articulate the notion of development through their industry of choice. Because ICTs are not just constitutive of artifacts, but also the practices and social organizations or arrangements that form around them (Lievrouw & Livingstone, 2006), I review the activities, concerns and outcomes of the ICT industry from the perspective of the entrepreneurs who work in it as a way to locate normative practices of industry actors in the broader narrative of transformations in Ghana's media scape and role of a new cultural elite (which in itself is constitutive of such entrepreneurs).

Entrepreneurship in communication technology industries

Early views on entrepreneurship saw entrepreneurship as a function of arbitrage and the bearing of uncertainty. This emphasizes the importance of the entrepreneur as someone who brings two sides of the market together, bears risk while receiving uncertain income. A second category of theories on entrepreneurship focuses on the coordination of

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factors of production. In this view, the entrepreneur is at the locus of the economic system, combining and coordinating factors of production. Personal characteristics are also important; the entrepreneur is intelligent, has judgment, is alert to opportunities and has experience enough to profit (Parker, 2004). This is similar to the view of entrepreneurs as 'big men' – well-connected individuals who use their individual drive, skills, business acumen and resources to make things happen. The third perspective on entrepreneurs focuses on innovation. In the classic Schumpeterian sense, the entrepreneur is responsible for creating new things or new ways of doing old things. 'Creative destruction' is a key term here (Schumpeter, 1934); the entrepreneur creates new products, new markets, new production methods and new organization of an existing industry. Parker notes that distinctions about leadership and motivation make up the fourth category, while personal or psychological traits round up the early theories on entrepreneurship. The former is in opposition to the Schumpeterian view, in that it stresses that the entrepreneur makes gradual changes that are natural to what already exists, while the latter stresses the individual attributes of the entrepreneur (Parker, 2004).

The more 'modern' theories on entrepreneurship as Parker describes them are grounded in economics. Generally speaking, they are based on the premise that entrepreneurs choose to be entrepreneurs based on some choice optimization. These models assume that markets are "perfectly competitive, that technology is given and that individual workers and entrepreneurs are price takers" (Parker, 2004). Risk is a prominent feature of this view and market uncertainty must be taken in consideration with the utility function in order to reach equilibrium. But markets are never perfectly competitive and entrepreneurs cannot act alone – they are connected to other entrepreneurs, their customers, and the system at large. That risk is distributed in a way and agency within this social and technological system is distributed.

Beyond the personal characteristics of entrepreneurs and how they fit into the production process, what entrepreneurs produce, depending on the industry can be linked to their significance as change agents. In the ICT industry, artifacts and applications that connect people create form part of larger networked infrastructure in which various actors (including technologists, end users, policy makers, etc.) interact. Following the work of Garud & Karnoe as well as Lievrouw & Livingston (2006) mentioned earlier, the view of

technology entrepreneurs in this chapter relies on the fact that ICTs are not just constitutive of artifacts, but also the practices and social organizations or arrangements that form around them (Lievrouw & Livingstone, 2006), and acknowledges "the role of human agency in shaping new technologies" (Garud & Karnoe, 2003), p.279). I argue that the socio-cultural and infrastructural arrangements within the industry and country are embedded with the technical (i.e. products and services that come out of industry) and these in turn reflect the dynamics of another site wherein we see the technoclass emerging in Ghana.

What follows then falls somewhere between a collective biography and prosopography of technology entrepreneurs (henceforth referred to as techpreneurs). In other words, while I am concerned with the collective features of this group, their individual stories are also important. Beyond their general characteristics and life careers, their motives and aspirations is constitutive of what sets them apart as individuals but, at the same, time binds them together as a collective. I first present a general sketch of the techpreneurs' profile, specifically their youthfulness, urban sensibilities, elite education, technological deftness and expressions of pragmatic optimism about country and career. I then discuss their choices and motivations to underscore how those key characteristics manifest in class sensibilities within the contemporary (and perhaps idealized) knowledge based economy. In locating these individuals in industry, I am presenting the communication technology industry, in addition to 'traditional' media as a key site for the new cultural elite or the technoclass to engage with one another and their broader social space. Moreover, focusing on industry in the Ghanaian context is to claim it as a legitimate site of production that must be included in more global discussions of what media and ICTs do or mean in the so-called periphery.

Ghanaian techpreneurs

Returning to that day at the MEST Incubator in Accra when I walked into a lively discussion, I spoke with executives of two other companies in addition to Seth. One of them,

Badu the CTO of Saya,[54] was described by the others as a smart, "typical geek" who is both shy and likeable (when you can find him to talk to as he's often behind his computer in his room). A graduate of the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Badu mentioned that even among the techpreneurs in the MEST Incubator, where practical technical skills had been taught in-house, there were some who needed his help every now and then. He said this to illustrate the cooperative nature of the incubator, but it revealed that skillsets across even a specialized incubator like MEST were not the same or standardized. Badu's skills did not come from just his academic degree, which interestingly was in business administration while his co-founder and the CEO, Robert, got his in computer science. He taught himself how to code before he went to university. His ability and versatility came from "playing around" with new languages, scripts and formats outside the classroom. Badu singlehandedly fixed some of the scaling issues Saya had right after their launch in February 2012 and said in self-deprecating tone that he did not sleep for a number of days to get that done.

Badu's background and path to becoming a techpreneur was not typical and yet rang familiar by the time I was done interviewing in Ghana. He had a rural upbringing - his parents are farmers near Kumasi - and he went to school in that area then ended up at KNUST. As urban as Kumasi is, it is still less so than Accra. The way he fell into computers and programming was similar to Eyram (of Leti Arts), who grew up with a lecturer father and primary school teacher mother on the KNUST campus. Both he and Badu had older family members who brought back a laptop one day in their childhood and allowed them to tinker with it. Their love of play, curiosity and creativity (for Eyram this included dabbling in comic drawing) were supported and encouraged by family. This freedom to explore and access new technologies, in addition to receiving a formal education is what differentiates Badu from other youth born in a rural area, and is also what sets Eyram apart from his peers who were also raised in a fairly urban middle class home. A number of techpreneurs interviewed are 'returnees' and many grew as children of diplomats or international career professionals. Their parents had the ability to travel internationally (a not insignificant

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[54] Seth's company and product, Claimsync, is not mobile based but is aimed at improving efficiencies in the local healthcare delivery system by processing claims across networks and providers. GenKey acquired it in 2013.

marker of wealth in Ghana) and/or owned landed property, worked in elite professions like law or medicine, lived in an urban area and could afford to send their children to universities either in Ghana or elsewhere. They grew up in environments that privileged education and fostered creativity. However, unlike their parents who favored more traditional career paths, this generation chose to pursue entrepreneurship in new and evolving fields.

Profile of the Ghanaian techpreneur

The techpreneur in Ghana is young, often male, has a university degree and past experience and/or interest in business. Majority (90%) of survey participants were between the ages or 19 and 34 at the time (2013), and 70% are located in and work out of Accra, the business and administrative capital city of Ghana. Kumasi, the second largest city and home to the Kwame Nkrumah University of Science and Technology (KNUST) is home to a considerably smaller number (16%) while the rest are scattered in various locations. From my interviews, it was clear that most techpreneurs grew up in these urban areas, with the exception of Badu who grew up in a rural area that was in close proximity to Kumasi. DreamOval's Derrydean spoke of growing up in a smaller port city, Takoradi, in the Western Region. Beyond the occasional mention of say, a trip to the outskirts of Accra to work on a parent's farm (such as Jonathan of Ostec), their formative years were spent within the hustle and bustle of the two largest metropolitan areas Accra or Kumasi.

About 51% of Ghana's population lives in urban areas, a figure that is higher than the average for Africa but in-between the averages for all low and high income countries (ADB & ADF, 2012). About 58% of the population is between the ages of 15 and 65, and about 38% is below the age of 15 (UN Department of Economic and Social Affairs, Population Division, 2012; ADB & ADF, 2012). This rather youthful population will need better opportunities for employment and income growth as the years go on, especially given that labor force participation is slightly above 50% with the majority of those in the informal sector.[55] Most pertinent is the fact that there has been a shift from a largely rural

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[55] The country's unemployment rate is a low 3% but it's been argued that this does not include jobless people not seeking work. Moreover, an estimated 43% of the populate works within the informal sector and only 8.5% of the working population is in the formal sector. "Of this amount the youth form only 14% and 28% of informal sector either in self-employment or as domestic employees, apprentice or unpaid family workers.

population and agrarian economy to a more urban and service centered one over the last two decades.

The demographics of techpreneurs puts them squarely in the middle of these changing trends and their stock of social, cultural and financial capital puts them in a separate class from say the micro-entrepreneurs who populate the roadsides of the capital city, trying to make ends meet. They work in the formal sector, became entrepreneurs by choice, and are in a moderate to high-risk industry that relies on innovation. Micro-entrepreneurs in the current knowledge (and risk) economy operate in a different space from these techpreneurs and these differences are linked to changing dynamics in the Ghanaian society, one of which I argue relates to class. These changing dynamics, as detailed in the introduction, on one hand are macro trends (such as demography, economics, and culture) and on the other, arise from the micro decisions and choices (related to those broader trends) that individuals make in relation to their perceived place in the broader society. Understanding what these micro level issues are, connecting them with the broader macro level trends is one of the main undertakings of this dissertation.

Education and privileged knowledge forms

All but one of those who are included in this case study have a post-secondary school education. Specifically, 61% of those surveyed have a university degree and 32% have a post-graduate degree. These degrees were largely received from Ghanaian institutions (88%), with the majority of those (73%) from public universities and the rest (15%) from private schools. The remaining 12% university graduates received their degrees from outside Ghana. Across these tertiary degree holders, 59% are from the STEM field,[56] 23% social science, 20% professional degrees (e.g. law) and only 2% from the humanities. Interview participants had a slightly different educational distribution, with about 50% having university degrees and based in Accra, and the other 50% have post-graduate degrees, but also based in Accra.

The official rate may, however, disguise the high level of underemployment and unemployment inherent in the informal sector, as the government's definition of unemployment excludes the large number of jobless people who may be available for work but do not necessarily seek work." (ADB & ADF, 2012, p.4)
[56] This is a sum of those who received degrees in the life and hard sciences like physics and biology, as well as technical degrees such as engineering.

Compared to the general Ghanaian population, of which about 8% has a degree from a tertiary institution (UNESCO, 2010), this is a rather educated group of individuals. Secondary school enrollment is about 65% of the population and the universal primary education policy means there is 100% enrollment at that level. Enrollment numbers are however meaningless if literacy levels are low and gradates at different levels struggle to adapt to a changing economy or meaningfully contribute to the workforce. About 65% of the total Ghanaian population is literate, something that will increase given the lower levels of enrollment in the coming years (ADB & ADF, 2012). However, the question remains if they are building the necessary capacities and skills that will equip them to effectively navigate the changing global and local economy.

A common complaint heard from interview participants was that the level of technical skill training in universities was not adequate for the changing pace of technological innovation they relied on in the industry. This often overlapped with the idea that degree programs like computer science tended to be more theoretical than practical. This could mean that students learned the logic behind programming languages and scripts but did not acquire the skills to apply them in multiple scenarios or that the they learned outdated baseline theories on how new technologies function but did not train to use specific tools. Because technologies change rapidly, one could argue that the focus should not be on specific tools but flexibility and comfort with their foundations in order to manipulate any new coding language. Many of the techpreneurs who had employed from the local technical skill pool felt that their hires had not acquired such flexibility and therefore needed additional training on the job to succeed. They offered this training as a pragmatic workaround to a challenge in the market and a way of building up their nascent local industry.

Those who took the survey are largely trained in Ghanaian schools so I used a few questions on programming language and technical concepts as a proxy for assessing their training relative to global standards. I asked what kinds of programming languages respondents learned in school, taught themselves and use on a regular basis. These were free response questions based on the number and variety of programming languages out there. Java was the most popular language learned in school (45%) but a whole lot did not learn any programming language (41%). This however, makes sense as a little over 43% of

respondents said they earned a technical degree (these account for 57% of the total respondents). Table 1 shows percentages for the three questions. I also checked (using cross-tabs in Stata) to see what those with technical degrees learned in school and Java and C++ emerged as the most frequently named. Further, 82% of those with technical degrees taught themselves additional languages like PHP and python. I interpret this as an awareness of the demands and skills necessary for advancing as a developer given that PHP, a server –side script or general purpose programming language, is the most widely used among programmers and developers (Code Academy, 2014. There is no way of knowing if acquiring these skills on one's own were mandated by an employer or was a proactive move on the part of these techpreneurs. However, that they are able to do so indicates access and understanding of global demands of specific technical skills – something that is given for their profession of choice but not easily accessible by the general population. It also led me to look closely at the complaints about local hires and it is clear that some of the missing capabilities are on the business management end (as mentioned by Jonathan of Ostec, Kofi and Ehi of Rancard, and others) as well as general ability to adapt to changing workplace environment (as mentioned by Eyram of Leti Arts for example).

Another key indicator of the skill of these mobile techpreneurs is the ability to build a workable application. This is a more practical measure given that these are developers who claim their focus is on the mobile sector. Asked if they had ever built a mobile application, 49% said 'no' (never in the past and none currently). Of the remaining who had some experience with applications, 29% had built one in the past, 38% were working on one at the time of the survey, and 33% had both built one in the past and were working on another one (table 2)[57]. If half of those who work in the industry build applications, the others presumably serve other functions such as business management. In fact, at the MEST incubator, even though all had received technical training, only about half of them actually worked on the technical side of their projects. The others focused on the

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[57] Note that this is not a probabilistic sample and respondents were snowballed in. even though I did my best to limit non-mobile industry people from taking the survey, it is likely (given the drop out rate at certain questions) that some took hence affecting the totals for certain questions. Further, because questions were staggered (i.e. some respondents say specific questions based on previous responses, the totals for some items will be less than the total number of respondents for the overall survey.

entrepreneurial end of things, managing and running the startups including sales, being the 'face' of the organization and marketing their products.

My reading of the responses regarding skills and experiences among these two groups of techpreneurs is that technical skills are not the "end all-be all" – business skills go hand in hand with them. Nevertheless, technical skills have to be practical and useable in the workplace. Stella,[58] the director of a national ICT institution stressed the importance of hands-on practical training so that people 'can do what they say they can do'. Her organization's mandate includes, among other things, capacity building, which she said, "is a range of activities." It includes "training people who are going into the job market, and also includes training of experts who are already working in the field and giving them an opportunity to upgrade their skills" (S. Brown, personal communication, February 20, 2012). While they do not incubate businesses, some former students from that institute have become techpreneurs and they received some background training on "business plans and entrepreneurial skills". However, the focus seems to be on supporting a formal workforce that is adept at technology and they "don't do theoretical training. Everything is hands-on practical" (S. Brown, personal communication, February 20, 2012). According to Stella, 100% of the institute's graduates were employed, although "whether or not they are being employed as they should be, that's another issue".

At the national institute level then (or at least at Stella's institute), they encourage people to work elsewhere first, observe and learn and then start their own enterprises. Entrepreneurship as a first step out of school is not privileged but rather the formalizing and training of the current and emergent workforce seems to be the priority. This institute is state sponsored, as is the Multimedia Center, which is aimed at incubating businesses and encouraging entrepreneurship through business support services and seed money. From an interview with Derrydean (of DreamOval) who initially started working in that incubator with his schoolmates, that incubator encourages specific kinds of solutions (theirs was a program that would fix the frequent malfunctioning of traffic lights in the country) and they left to focus on one that they thought more in line with their vision and understanding of the market needs – payment processing. As far as the state is concerned,

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[58] Pseudonym

this particular institute is to build technical capacity in its various forms while other institutions would take on entrepreneurship to build a functioning formal workforce.

In general, the theme of 'practicality and applicability' appeared to be salient for those interview participants who had the ability to employ and or train people. There was a patent aversion to 'theoretical training' that they perceive to be taking place in Ghanaian schools. Indeed many of the techpreneurs who returned from schooling and working outside the country suggested they left because their parents thought they would be better served getting an education from the United States or in Europe. Even though the Ghanaian population overall is becoming more educated, with more schools at various levels, there is the perception that they are not providing the skills required by "key growth and job creating sectors" and lack "pro-active links with industries" (ADB & ADF, 2012, p. 6-7). This "weak capacity and skill shortages in critical growth and job creating sectors" (ibid) needs to be overcome on a national level by upgrading STEM and vocational training to provide skilled labor and management expertise across economic sectors. The techpreneurs interviewed expressed similar views on the state of education, within the context of their own skillsets and capabilities. To provide a solution away from the state, as recommended by ADB & ADF, many developed training programs for new hires given that they themselves had received additional training and experience either outside the country or as part of a special program, to work around the mismatch of skills between graduates and the workplace.

I focus on these perceptions on skill to remark on what appears to be a techpreneurial toolkit. Technical skills, or at least the ability to understand what certain core technical concepts are, are a basic necessity, but business and managerial experience are what round them up. Many of the MEST incubated companies were run as partnerships between people who excelled at one or the other – their so-called core competencies - if everyone involved could claim to have both technical and entrepreneurial skills. The emphasis on entrepreneurship, which often came through as proxy for private enterprise, might look like vestiges of neoliberal thinking from the 1980s and 1990s especially in the period that forced Structural Adjustment Program on many countries including Ghana. However, it was articulated as a space of opportunity and creativity. Never mind that it is only a few that can actually afford that. In the techpreneurial mind, ICTs provide a gateway

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to becoming an entrepreneur who can do something for himself and nation at the same time. Interview participants in particular expressed both corporate capitalistic sensibilities tinged with an awareness of the need for social support and/or public service from the private sector, not the state. One could call that a feeling of responsibility but the core sentiment seemed that both the private and public sectors had a role to play in changing the labor force and using ICTs as a lever for economic growth at the individual and national level.

Motivations and aspirations

Keeping in mind the urban (and for some, international) upbringing in which many of them were introduced to new technologies at a young age, techpreneurs for the most part saw their career choices as a natural progression of their childhood curiosities and training as young adults. The freedom to follow one's curiosity, explore and tinker with new technologies is a privilege in a largely subsistence economy. To those who are familiar with the life histories of high impact technologists like Bill Gates, Steve Jobs or Steve Wozniak (see Livingston, 2007 for detailed stories of such individuals), the early hands-on experience with technologies is not a surprise. Many of the younger generation of technologists in Silicon Valley grew up in a period where new communication technologies were more accessible. However, in a country where the most common technology owned by a majority of the population is the radio and less than 15% have access to the internet and computers (AudienceScapes, 2009), it is a fairly significant marker of class to receive access to a laptop as a young person who has no prior experience with computers in the 1990s and early 2000s. Take for instance the story of Herman Chinery-Hesse, once called the 'Bill Gates of Ghana' and a serial entrepreneur who has been in the technology sector since 1990. [59]

He made the unpopular choice (to his family and friends at least) to start his life after college in Ghana in the early 1990s when the country was a very different place from what it is today. To his parents, it was "bad economics" for someone who had just received an engineering degree from a university in the United States to return to a country where skilled professionals did not have much prospects beyond government employ, an option

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[59] See http://www.inc.com/magazine/20081001/meet-the-bill-gates-of-ghana.html. Accessed June 1, 2013.

which in itself offered relatively little remuneration and benefits, no matter how secure. They thought he would be "better off working abroad", and presumably for a large corporation. Their son saw that view as misguided. His generation had to move beyond the 'professional' class and become 'business/entrepreneurial', the same way the previous one moved beyond farming. In his words, "we had great grandparents as peasant farmers, then next generation, one of them becomes a teacher. The next generation you have the professional class; next generation should be business entrepreneurial class" (H. Chinery-Hesse, personal communication, June 16, 2010). According to him, his parents' insistence that he remain overseas to work in the same field (or 'level' as he called it) was outdated and irrelevant. He saw himself as part of a generation that *had* to be business oriented and entrepreneurial. He returned to Ghana against the wishes of his parents, convinced he was doing the right thing but with "no money", started programming software on his laptop and got a friend to help him get clients. This eventually became a company, SoftTribe, and twenty plus years later, Herman is a well-known public figure in technology circles in the country and across Africa.

This idea of a generational difference was mentioned by other techpreneurs. For instance, Samuel, the CEO of Streemio, didn't count his father, a lawyer who moved to Nigeria to start a new practice in the 1980s, as an entrepreneur. Entrepreneurship to him meant a new way of doing things, and innovative practices as well as technology was central to that idea. Even if his father took business and professional risks, he was not an entrepreneur, merely a business owner or employer. This is very much similar to classic definitions of an entrepreneur where a distinction is made between the self-employed (the popular understanding of entrepreneurship) and those who innovate, often in high growth industries industry (Parker, 2004; Schumpeter, 1934). The aspirations Samuel has for himself and his business, in his thinking, differ in scale and scope from his father's (and his father's generation more broadly). His father had stayed in the same profession (a very traditional one at that) even if he took a risk by relocating elsewhere. This contrasting of contemporary entrepreneurship with the previous generations ventures was both framed as an interest in 'doing something for oneself' as well as a timely choice in the grand scheme of technological advancements.

Rodolf[60] left a position as a strategist for one of the world's biggest finance firms in the U.S. and moved to Ghana to start his mobile application company in 2011. He claims he had always had an independent streak; "my dad has always said that I'm the kind of person who would want to kind of own his own thing. So, maybe right from the get go, that was it" (S. Rodolf, personal communication, May 20, 2012). He also credits his training at one of the top science and technology universities in the U.S. for his entrepreneurial turn: "they instilled this sense of entrepreneurship and this sense of you know, possibilities; and this belief in you can create stuff, you can solve stuff". Ten years, two degrees and two positions in MNCs later, he felt it was time to come back "to do something entrepreneurial". The ideation of entrepreneurship (in general and in technology in particular) as independence, choice, experimentation and risk as a means to be socially and economically mobile then is central to this generation's conception of self and place in the broader Ghanaian society.

Prior research on entrepreneurs shows that their motivations and aspirations are closely linked with the practices and eventual success (Chew et al, 2013; Wadhwa et al, 2008). In this study, both interview and survey participants expressed very clearly their motives for entering industry and had aspirations that transcended the local economy. In general, there is a strong sense of 'afropolitanism' (Selasi, 2005) mixed with global awareness. These were couched in pragmatic optimistic terms – i.e. a positive outlook moderated by an awareness of and strategy for the challenges and real obstacles in the country. In a study of what they call "new African entrepreneurs", McDade and Spring (2005) report that while many of those they interview across 10 countries profess a global outlook, their personal and professional orientation is focused on 'making it in Africa'. This is similar to my findings among techpreneurs interviewed who were very vocal about being techpreneurs in Ghana rather than elsewhere. The sense was that if there was anywhere to 'make it' or succeed, it was in their home and on their continent first and then beyond. Most importantly these were deliberate choices made, not a move out of necessity or subsistence need, as that cannot support the risk inherent in becoming a techpreneur in Ghana.

The perception of risk in the industry is worth noting. Many (49%) of survey respondents think there is 'some' risk in the mobile industry, 33% thought there is 'a lot' of

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[60] Pseudonym

risk, and 19% said 'little'. Following that, over 50% of them planned to remain in the mobile business in the future. This mixed business assessment (largely negative view of the sector but still planning to remain in it), might be explained by their assessment of the country in general. The majority (80%) thinks it is a realistic goal to compete globally from Ghana,[61] but they remain fairly neutral on whether or not Ghana, in general, is the best place to succeed.[62] The views were dispersed regarding the state's support of the mobile sector and techpreneurs therein. In other words no clear pattern or majority viewpoint stood out among the responses.[63]

Interview participants had more globally oriented aspirations (i.e. planned their enterprises to expand beyond Ghana and some accomplished that), all had prior business experience (i.e. as self-employed or employee of some corporation) but a little over half (53%) had any sort of prior business experience (either as owner or worked in the business sector, tech or otherwise). The difference in survey and interview views could be attributed to the fact that many of those interviewed had spent time in other countries and had experiences they could compare Ghana with. Only a small percentage of the survey respondents had international experience. Clearly the entrepreneurial class is by no means monolithic. Most significantly, even though there was overlap in expressions and interest in entrepreneurship in general and techpreneurship in particular as a desired professional/career choice, regardless of the risk, the two groups diverged on the strength of their belief in the country as a supporting environment towards that end.

Survey participants were generally less enthusiastic than those interviewed, perhaps because many were at the beginning stages of their entrepreneurial ventures compared to some of the seasoned entrepreneurs interviewed. Asked about the ease of

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[61] See survey questions attached in appendices for full details of question and response options. For this question "It is a realistic goal for me to compete globally from Ghana", 45% strongly agree, 35% agree, 10% neutral, 5% disagree, 5% strongly disagree

[62] Ghana best place to succeed: 18% strongly agree, 30% agree, 43% neutral, 10% disagree, no strongly disagree

[63] Government supportive of sector: 8% strongly disagree, 30% disagree, 25% neutral, 30% agree, 8% strongly agree
Government supportive of techpreneurs: 10% strongly disagree, 35% disagree, 25% neutral, 25% agree, 5% strongly agree

starting a mobile technology business in Ghana, 43% said it is difficult, 19% somewhat difficult, 24% neutral, and 5% somewhat easy, easy, and very easy respectively. About a third thought it very difficult to grow their business, a third said 'difficult, and 23% somewhat difficult. Exactly half of them perceived there to be no profits in their business the rest thought it was little or some. Further, for the largely locally trained techpreneurs in the mobile sector (survey participants), the most challenging aspect of their work is beyond the startup phase and is related to the broader economy and infrastructure within which the ICT industry operates. Specifically they find moving their prototypes and beta tested products to full commercialization, as well as getting customers – both problems scale that address different aspects of the product cycle – the most challenging issue facing their enterprises.

This is not a problem unique to Ghanaian technologists, as any casual look at the technology literature on Silicon Valley and entrepreneurship in general will show (Aldrich, & Fiol, 1994; Luthans, Stajkovic & Ibrayeva, 2000; Saxenian 1994, 1999). However, the scaling issue manifests slightly differently, at least from the larger applications we read about. For smaller ones, getting customers is challenging. For those who are able to increase their customer base, handling the increased pressure on resources then becomes the problem. The time from product conception and commercialization did not seem out of the norm though. Interview participants, on the other hand, largely felt the skills and capabilities of the local labor are most problematic, again, perhaps because they tended to be more established entrepreneurs with the ability to hire people. Given that their perspective of risk in the mobile sector was somewhat in the middle this presented an interesting puzzle. Specifically, if the risks are medium to high and the profits are zero to little, and the biggest challenge is getting products to market, why venture there in the first place or try to stay even after this realization?

First, because it's a nascent industry, some of the specific problems of the product chain in the country could not be anticipated or at least how they manifested had to be addressed on the fly. Second, there seemed to be a medium to long-term view taken with their businesses and many knew they wouldn't turn a profit until much later. That said, with the exception of those companies in the MEST Incubator who said they were not concerned about revenue or profits at the early stage (they were more concerned with

scaling up and moving products out of beta stage), a lot of the decisions made on hiring and skillsets are based primarily on making each company more competitive and successful in the medium to long run. That is, most are keen on building up their products and increasing market share – much like businesses everywhere. Secondary to that, but by no means unimportant, is developing links and networks generally through the industry to improve its deliverables and visibility. A key component of that is getting international standards and certifications, according to Kojo (of e-services). Improving the skillsets they had available either through hiring Ghanaians from the diaspora or training the local talent pool that they hired remains salient.[64] In essence, techpreneurs acquire a global toolkit of technological ability and entrepreneurial motivation, and believe in the capitalist drive as a means for social mobility but maintain the desire to contribute to social and industrial development.

While I point out that their work in industry is a result of a choice (indeed framed by those who returned from working outside the country), some techpreneurs described that choice essentially as *sine qua non*. They had to be techpreneurs given what they had done up to that point and the affordances of certain technologies like mobile phones and the Internet gave them the liberty to experiments. In this way, both entrepreneurship and technologies are part of the imaginary of mobility, in that they gave techpreneurs choice, opportunity and ability to pursue a desired career and life. For many of the young survey respondents who received technical degrees, they took the extra step to acquire more skills in order to fit into the marketplace. They may seem ambivalent about the success of what they are doing but nonetheless plan to continue working in that space. This should not be interpreted as a miscalculation but rather as an articulation of habitus (Bourdieu, 1977). That is to say, their dispositions, values, lifestyles and expectations through the everyday life of being techpreneurs generate certain conditions and expectations – in this case, an attachment to the techpreneurial way of life, which is embodied by specific kinds of knowledge.

Further, because "social networks do not exist separate from physical location" (Fernandez Kelly, 1995), urban techpreneurs as well as returnees are more readily able to

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[64] This will be discussed in more detail in the chapter on returnees.

assess key information, knowledge and financial capital, while their middle class connections help entrench them as elites. To a large extent, the kinds of resources that the founder of a mobile technology firm in Ghana who also happened to have received his bachelor's degree from a university in the United States, differs from the owner of a retail store who completed secondary school in Ghana and did not go to university. In fact, the characteristics of the resources available to two founders of technology companies will differ if one spent all their time in Ghana, and the other returned after a 12 year sojourn in another country. Likewise there will be differences based on what kinds of experiences they are bringing to the enterprise and their social economic status. Regardless of those differences, the 'basic' or 'baseline' set of skills that these different techpreneurs have aligns them with a global class of technological skilled and (according to the narrative accompanying their ability to manipulate digital codes) generally innovative individuals who are embedded with the processes of creation and distribution of new communication technologies.

Techpreneurs, privileged labor and power

Today's so called 'knowledge-based' or 'networked' society (Castells et al., 2006) is characterized by two key things: "the high value placed on human creativity and innovation (Florida, 2012), and the "endless expansion and reconfiguration" of social and organizational networks powered by digital technologies (Castells, 2009b)(xviii). Our capacity to use, re-use, re-code and create tools using information and new kinds of knowledge to improve productivity, entertain, and fill infrastructural gaps in places where they are needed are what demonstrate our participation in the new global economy. Specific kinds of knowledge are privileged above others, and in this global knowledge society, or the 'global pancapitalist system', there appears to be greater need for 'highly skilled, intellectual labor' (Tehranian, 2004). Doctors, engineers, finance experts, computer programmers, etc. embody the flow of knowledge, information and capital across countries and continents, just as digitally powered tools and ICTs aid their flow.

Techpreneurs participate in this system of privileged labour and can be thought of as those actors who because of their position in the social structure, hold network-making power—the paramount form of power in the network society" (Castells, 2011, p.?). In

Castell's framing, power in the network infrastructure has shifted to "the programs of the networks and the switches between networks" (Castells, 2011)(p?) wherein "constituencies are built for these projects" (ibid). The relationship between the people making the technologies we use and the industrial dynamics – both social and economic-that influence how technological artifacts become circulated are just as crucial to understanding how the contemporary social world is changing as the actual technological artifacts and the social practices of their users. The elite in this system have "the control of (or the influence on) the networks of communication, and the ability to create an effective process of communication and persuasion along the lines that favor the projects of the would-be programmers are the key assets in the ability to program each network" (ibid). Castells is not talking about computer programmers per se (although one could argue they also form part of the global technoclass that literally writes the ways in which we communicate). Rather, the focus is on those segments of society that have the ability to shape the realm of communication processes, some of which include the affordances of technologies and their design.

Expressed another way, techpreneurs are *part* of the larger network of technology infrastructure. The soft/cultural elements of being a technologist in any given market, the technical knowledge (e.g. software development) and/or market insight that enables the spread of key technologies is as just as integral to the network as the submarine fiber optic cable connecting two countries or continents (themselves built by people with different kinds of knowledge and skill). Just as the cellular phone towers/receivers enable people to talk in different time zones and are part of the global communication network, so too does the technical knowledge, capital and actions of technology entrepreneurs enable people in different parts of the world to communicate, transact business and receive entertainment at home and on the go. Entrepreneurs in communication technology therefore play a role in the diffusion of innovations and given the increasingly connected way the world is, complicate our understanding of how technologies are created and used in different countries and contexts, especially in light of the privileging of narratives from the center.

It is useful to remember that infrastructures, in both their physical and soft forms, have moved from being centralized into becoming more networked. Consider telecommunication industries as an example. Since the neoliberal turn accompanied by

broad liberalization and privatization of state owned industries in the late 1980s and early 1990s, much of the world has moved from centrally controlled national monopolies of telecommunication companies and media systems into a distributed, globally networked competitive space spanning new and old forms of media and technology. This is not to say that telecommunication systems are no longer located in any one particular space or that they are not owned by a relatively small number of entities (be they governments or multinational corporations). Neither is it to say that new communication technologies do not require some degree of fixity to enable the flow soft forms of infrastructure[65]. The point is that, first, nodes of the global networked infrastructure along which communication flows have diverged in many ways and are no longer under the purview of any particular institute or entity, either at the global or national level. Secondly, technology entrepreneurs lie along these nodes. People can acquire technical skills, build new relationships relatively quickly over the internet and be able to build a new tool that adds on to an existing technical network to which users respond in various ways based on their cultural norms of communication.

Furthermore, the products that technology entrepreneurs create and distribute joins a global circulation of 'new' technologies that enhance the way people around the world communicate with one another within and across national borders. The ideas behind these technologies have inherent power within them, i.e. their ability to shape the way societies at large evolve and communicate over time. While the codes, practices and skills they employ might be global or universal;[66] their uses and adaptations are imbued with the cultural and social specificities of the entrepreneurs' localities.

The path to technology creation or being a technology entrepreneur is not straightforward, even, or available to all. It is, like most social and professional paths, linked to the socio-economic status or background of the individual, among other things. It is also related to the different motives (or intentionality as Kentaro Toyama (2011) calls it) behind creating technology tools and services. These can range from potential financial

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[65] I refer here to the need for fixed cellular towers and submarine fiber optic cables to enable people to speak to or view one another across the globe in real-time.

[66] I use these terms to mean that specific skillsets tied to technology creation are fairly standardized. However, even the issue of standardization at a global level is fraught with complications given the imbalance in representation from various parts of the world.

reward or profit, recognition, thrill seeking (for high risk endeavors), some notion of 'development', as well as upward mobility or "leveling up" the social and class ladder. 'Leveling up' is a gaming reference, in which when a player progresses to the next level of character stats and abilities by getting experience points in role-playing video games (Wiktionary, 2014). It denotes movement, meritocracy, and affords choice to the player. In some ways, it is an expression of mobility.

Mobility in this case, is about moving up the socio-economic ladder and how one is able to do that, dependent on, among other things, one's ability to leverage opportunities like adequate education. It involves movement not just of people across borders, but of their social status, their skills, and how they use that to navigate different spaces, set against the socioeconomic realities of where they originated. Talking about people's trajectories this way is not about "privileging a 'mobile subjectivity'... but rather of tracking the power and politics of discourse and practices of mobility in creating *both movement and stasis*" (Hannam et al., 2006), p.3-4)[my emphasis].

It is hard to use the word 'mobility' in an ICT context without being primed to think about mobile phones. While that technology is at the point of becoming mundane (i.e. everyday reality like the watch) (Ling, 2012), it is still, in many parts of the world, a symbolic tool for connecting and moving across social and economic spaces. The artifact by itself is not worth much without the attendant social practices, applications and expectations that come with it. The intentionality behind the design of these artifacts and tools to some degree are influenced by their creators – those who according to Castells (2011) work at the nodes of the knowledge infrastructure and produce things that connect us to one another. The apparent flexibility of mobile phones as a platform for building tools that facilitate socio economic process like payments, healthcare delivery, etc., beyond their basic functionality of connecting people by talk and text, has even spawned an entire field of research 'mobiles for development'. The industry, like the artifact, symbolizes opportunities and reflects the value that people attach to it. The environment Ghanaian techpreneurs operate in is key to understanding how their choices, motivations and aspirations are realized and their significance for the country at large.

Interview participants mentioned the industry in general as an open field in which they could become entrepreneurs. Survey respondents were positive about mobiles in

general. For many others who use mobile phones on a daily basis, it is a useful piece of technology around which various social practices are built. Techpreneurs in this case study use mobile phones to enact their entrepreneurial visions and build applications that target their immediate social surroundings. The mobile industry then is not incidental to the focus on entrepreneurs, rather it is constitutive of the practices and institutions within with these techpreneurs operate and very much shapes their entrepreneurial activities. Moreover, the process of the uptake of mobiles in Ghana overlaps interestingly with mobile techpreneurship. A large proportion of early adopters of the phone was men under 40, with above average incomes and education, and possesses strong English language capabilities (Intermedia, Audiencescapes, 2010). Techpreneurs fit this profile rather closely, as does those in Silicon Valley and other technology focused spaces. However, these categories of people are not monolithic and what they symbolize or signify in Ghana may not be representative of those larger areas. Regardless, that a large proportion of generation Y is technologically savvy is generally agreed upon, but this is often in relation to their acquisition and use of new tools. Likewise the link between high SES and early technology adoption is fairly standard (Rogers, 1962, 2003).

The claim then, to be clear, is not that these techpreneurs are unique individuals. For example, Herman's background, his aversion to being an employee of a corporation and his move to ICTs resemble the stories of other entrepreneurs in the ICT sector, not just in Ghana, but generally. His profile, in some ways looks like some of those entrepreneurs in Wadhwa et al's study in the US, Saxenian's of those who return to East and South Asia, and Chacko's of those who go back to India from the US (Chacko, 2007; A. Saxenian, 1994; AnnaLee Saxenian, 2002; Wadhwa et al., 2009; Wadhwa et al., 2008). Rather, the argument is to add these Ghanaian techpreneurs to the global technoclass, i.e. the switchers and programmers that Castells (2011) describes who hold a certain amount of power in the contemporary networked economy.

Overall, techpreneurs in Ghana represent the global technoclass in a localized way. The technology industry is constructed as a space of mobilities – of acquiring, leveraging and entrenching privileged forms of knowledge and experience. That many of these techpreneurs come from the middle class is not coincidental. It is where the preferences expressed (e.g. practical education versus theoretical) are cultivated and passed on in the

selection of employees. It is also where the privileging of entrepreneurship as a path to social mobility for one's self is a break from previous generations. The neoliberal mindset that was sometimes resisted and other times embraced by the state in the 90s, resulted in an industry open for entry by the private sector but also weakened systems that would support the largely youthful population that is increasingly educated and urban. By taking advantage of opportunities offered by class and the still evolving public sector, these techpreneurs join their peers in the global technoclass to build individual wealth but with the awareness that they could be change makers within their society. How they go about this differs by locality. In the next chapter, I will go into how a subset of this class articulates and enacts this dual purpose through the ICT industry in Ghana, focusing particularly on their global dimensions.

Chapter 6 – Elite articulations: Returnees in ICT

In a 2012 article in an "Africa" special issue of the British newspaper *The Observer*, journalist Afua Hirsch calls her recent move to Ghana "far from being original." The daughter of a Ghanaian mother and British father, she was raised and schooled in Britain with only a handful of visits to Africa until her relocation to work as a foreign correspondent in her mother's country of birth in 2012. She found herself "part of a narrative told with increasing fluency, as a steady stream of other European and American passport holders of African descent arrive at Ghana's Kotoka International Airport…" (Hirsch, 2012). Indeed, even her mother's migration to the UK in the 60s was not unusual. Hundreds of Ghanaians, like other Africans left the country's shores for other parts of Africa and then Europe and North America the decades following independence from colonial rule (Adepoju, 2005; Awumbila et al., 2008). Their children, like Ms. Hirsch, form part of a group of returnees that includes Ghanaians who left as young adults in the late '80s and early '90s, often for educational purposes and/or work experience (Ammassari, 2004).

The 2010 national census showed that the majority of Ghanaian emigrants (about 1% of the country's 24 million population) head to the North; with about 38% of them in Europe, 24% in the Americas (US and Canada), 36% across Africa, and the rest scattered across Asia and Oceania (G.S.S., 2012). The census does not ask about returnees, but anecdotal evidence and the studies referenced in this paper lend some credence to the observation that since the 1990s, and perhaps more so in the 2000s, Ghanaians have been steadily returning to live and work in Ghana after migrating to other countries. Many of the Ghanaians who left for the North in the period following independence up to the 1990s did so due to economic and political turmoil, and those who returned, for the most part did so because those circumstances changed (Ammassari, 2004). Further, life-cycle reasons (such as family and lifestyle in the source country) also play a key role, and are consistent with research on other South-North migration returns (Chacko, 2007; Yang, 2006; Zhou, 2008). As other research has shown, wealthier migrants tend to return, education and experience

are key for the skilled among them, and in the changing global economy, skilled migrants appear to be better positioned to take advantage of market changes to relocate to their source countries than other kinds of migrants (Ammassari, 2004; Gibson & McKenzie, 2011).

As part of the brain – drain continuum, skilled returnees ostensibly compensate for the massive outflows of skill that states in the South, especially African ones, have experienced in the last 5 or so decades (Wickramasekara, 2002). In the so-called 'three Rs' of the migration-development link (recruitment, remittances and return), the state is often placed at the center of action and tasked with enacting specific policies to bring back financial and human capital from their citizens abroad, or at least stymy their flight (van der Wiel, 2005). For instance, at different periods in time, the governments of Taiwan, China and India have instituted programs to attract migrants back through a range of programs such as changing non-resident citizen rules, return bonds, and financing or subsidizing business creation in specific cities (Chacko, 2007; AnnaLee Saxenian, 2006a; Zhou, 2008). In Ghana, while there have been a number of attempts to engage with Ghanaians in the diaspora, there is no sustained program to recruit and evaluate returnee impact even though a number of initiatives, often promoted by organizations such as the International Labor Organization or the Global Migration Group, try to keep the state central in those attempted. Recent efforts, such as the Diaspora Engagement Project suggest renewed interest in harnessing the development potential of Ghanaians abroad, but returns for the most part, in the last decade, appear to occur out of individual choice or circumstance, and not in response to a particular recruiting attempt by the government.

Across a number of studies on returnees, including the few on Ghana, skilled returnees tend to mention not just life-cycle considerations, but also stated desires (especially in open-ended survey questions or through interviews) to contribute their skills and experiences to some development goal.[67] Older skilled returnees tend to mention nation building as a motivation for return, with the possibilities for their playing a role being more salient to them than the younger generation (Ammassari, 2004). While much of the research mentions this motivation in terms of understanding why people return to the

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[67] For instance, (Ammassari, 2004; Black, King, Litchfield, Ammassari, & Tiemoko, 2003; Chacko, 2007; Gibson & McKenzie, 2011)

South, they stop short at seeing if this and other motivations are associated with specific activities upon return. This might be linked to the fact that often, the impacts of returnees are explained in strictly economic terms. However, returnees sometimes include social and cultural change as part of their contributions. In Ghana, where returnees, particularly skilled ones who tend to end up in the private sector, individuals view changes to workplace and public culture as key areas where they can make contributions to general socio-economic development in the country (Ammassari, 2004; Black et al., 2003; Bowditch, 1999).

The personal circumstances of returnees are important to remember as we observe increasing returns to Ghana and other parts of Africa. Skilled returnees in the post-liberalization landscape are indicative of perceptions of opportunity, a sharp contrast from the fear and uncertainty in the decades of coup d'états following independence. Economic liberalization, as one early returnee put it, were indicative of "new winds" blowing and the business environment in the country as well as perceptions of entrepreneurship as a viable way of life has remained. Reading the backgrounds of many high profile business individuals, one can see education and experiences received from (often) wealthier economies in the global North. On the average, wealthier and highly skilled, they resemble returnees to Taiwan, China, India and elsewhere discussed by the likes of Saxenian [citation], Wong [citation], and [...] and have varied reasons for returning. Those that work in the media and information technology areas in many ways symbolize the globality that characterizes the contemporary communication landscape. As individuals that move across cultural and economic borders, they form part of the global circuit of increasingly mobile people, ideas and technologies.

Thus far, I have shown that as a nascent industry emerging out of liberalization, the new media industry both symbolically and in real terms, is the place where some of the new cultural elite construct and live out specific socio-economic ambitions. Capital investments (financial, social and cultural) have accompanied entrepreneurship in the industry in many ways and the tech industry appears open for entry. A key point is that the new media landscape offers up a new cultural elite that belongs to a global technoclass that uses entrepreneurship and technical knowledge to expand their middle class roots. They form part of the soft infrastructure in the new media industry and global networked

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economy. This chapter emphasizes two dimensions of this, the global and transnational links represented by returnees and how this portion of the new elite articulates their place in industry and the broader Ghanaian society

Skilled returnees in ICT are a fairly visible group. They are keynote speakers at industry events, appear in media coverage of the new media industry, and some have appeared in early academic research on entrepreneurship in Ghana. They are symbolic of the post-liberalization and new media era that the narrative of this dissertation is situated. In this chapter, I draw attention to how skilled returnees in the ICT sector in Ghana articulate what we can call a notion of development through their stated reasons for return, choice of entrepreneurial activity and practices within the relatively resource constrained environment they return to. This is significant in light of the fact that ICTs are systematically constructed as key components in development goals by states in the South, and the fact that African states have not had much success directly recruiting or retaining skilled migrants in a sustained manner (Patterson, 2007; Wickramasekara, 2002). Taking a qualitative look at how individual returnees in this particular industry situate themselves as development agents, predicated in part on the affordances of emerging ICTs and in part on their entrepreneurial aspirations, acknowledges their agency. It also has the potential to provide insight into what practices skilled return labor in an African country engage in in the ICT industry in contrast to places like Taiwan, China and India where there is already a growing literature using various methodologies and theoretical approaches (Chacko, 2007; AnnaLee Saxenian, 2006a; Zhou, 2008). Further, understanding the attitudes of Ghanaian returnees in an industry at a much earlier stage than extant literature on skilled returnees provides evidence for how returnees' roles might differ by national (or regional) context and also by stage of industry. Overall then, this chapter details the aspirations, motivations of a globally networked section of the new elite and I begin by showing the significance of migrant returns in the context of a post-liberal environment and the linkages with the new media in Ghana. I follow that with findings from my interviews with returnees in ICT and an explanation of their significance.

Return migration of skilled labor in ICT industries

In a two-country model where "migration flow is negatively selected on skills, return migrants are the 'best of the worst', and if it is positively selected on skills, return migrants are the 'worst of the best' (Rooth & Saarela, 2007)(p91). If skills between the two countries under consideration are "portable" and migration costs are time-equivalent then "labor migrants are negatively (positively) selected on unobservable characteristics, such as abilities and productivities, if the source country has more (less) dispersion in its earnings distribution, and negatively (positively) selected on observable skills, such as education, [and] if the returns from educational attainment is relatively higher (lower) than in the destination country. This is because it would be relatively less (more) rewarding for people with higher skills to migrate than for those with lower skills" (ibid). Skills like management experience are fairly portable across borders and due to the increasingly fragmented nature of production in ICT, so too are technical skills like computer programming. Beyond particular skillsets that move easily across borders, having international experience is also a highly privileged asset, especially in developing countries.

A previous study of returnees to Ghana showed that even those who left unemployed had sufficiently gained employment by others or used their newly acquired experience (and new skills where applicable) to start their own enterprise upon return to the source country (Anarfi, Kwankye, & Ahiadeke, 2005; Black et al., 2003). Given their understanding of the culture and established networks within their country of origin, returnees are better able to quickly establish themselves than perhaps foreign professionals or entrepreneurs who might have relocated to work there. Furthermore, because returnees do not sever ties with the places they gained experiences in, they become part of a "digital diaspora", and bring together "countries on their residential itinerary" (Zhou, 2008)(p245). This means being able to leverage resources from a wider range of sources and participate in long-distance collaborations (AnnaLee Saxenian, 2006b). These sorts of connections, especially by technically skilled migrant communities with ties to Silicon Valley and other technology centres, have been identified as key actors in the development of high tech industries in emerging markets (ibid).

The argument has also been made that returnees are not major change makers in industry; rather, they merely come back to take advantage of foundational work already done by local entrepreneurs and MNCs who play a larger role in skills transfer (Kenney, Breznitz, & Murphree, 2013). In this view, returnees may not be pioneers but they are still considered catalysts for growth, as they tend to bring in up-to-date technical information and capital. The state of the industry that returnees come back to, then, is also important for understanding what role they are playing, particularly if some form of 'development', however defined, is a stated goal. While a number of returnees go back to work for established firms, a large percentage also have entrepreneurial ambitions. Returning then is about taking on whatever risks are involved but also seeing opportunities in a space that could use their particular expertise or capital (Kisfalvi, 2002; Parker & NetLibrary, 2005; Schumpeter, 1949). On the one hand, an established industry will attract confidence that things work, but the profits may not be great if the market is small. On the other hand, a nascent industry might attract those with a higher risk tolerance because there may not be a long enough track record. While the risk profiles of returnees is beyond the scope of this paper, it is worthwhile noting that returnees often demonstrate entrepreneurial ambitions and sometimes take on roles that extend beyond their training or previous jobs (AnnaLee Saxenian, 2002, 2006b; Wadhwa et al., 2009; Wadhwa et al., 2008).

The ICT industry in Ghana is still in a nascent stage, with ample room for growth and development. It is considered one of the most liberal, with the mobile sector alone having six competing firms to serve the relatively small population of 24 million people (Essegbey & Frempong, 2011). Mobile subscriptions are already over 100 per 100 people (International Telecommunication Union ITU, 2013; World Bank, 2013).[68] ICT firms in the country produce software, hardware, and technology-enabled services. From the sample of participants interviewed for this study, these firms are mostly small (5-19 employees) or medium sized (20-99 employees) privately held entities. Larger firms tend to be multinational (MNC) ones that are either telecommunications providers, such as Vodafone,

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[68] This is measured by the number of mobile subscriptions per country, divided by the country's population, multiplied by 100. It includes both pre-paid and post-paid active SIM cards in the country. This does not necessarily mean every single individual has a mobile phone as some subscribers, especially in places like Ghana, tend to have multiple SIM cards. A more precise measurement would include this index along with penetration rate and household use (World Bank, 2013).

or Business Outsource Processing (BPO) services firms like Affiliated Computer Services (now Xerox).[69] The Internet speed and availability of fiber optic cables has made data a growing segment of the industry and the competitive nature of the mobile sector has opened up possibilities for applications and services, both for the large telecommunication providers as well as smaller firms, to provide additional service beyond basic voice functionality and text messaging. Companies like Google and IBM have started operating in the market and generally, the country's political stability and economic growth in the last few decades has attracted the attention of not just these corporate entities but skilled Ghanaians scattered around the world.[70]

That said the lower middle-income country still has a high rate of poverty (about 28% according to the World Bank in 2013). The ICT sector is where the Ghanaian government envisions a fundamental transformation of the country into a high income one, and from commodities based economy to information-based. In an interview with me on April 20, 2012, the then Minister of Communications, Haruna Iddrisu, said the "commitment as a government is to transform Ghana into a knowledge and information society where people can access, share information, and to use ICT as a leverage … for social and economic development."[71] He indicated a number of policies aimed at expanding access to various communication technologies, increasing local participation in the market, as well as creating an enabling environment to bring the country to international standards in the networked global society. The director of the National Technology Institute, Stella Brown,[72] observed that industry issues were one of the few that the government worked in a bipartisan manner. Indeed, my interviews with a former deputy minister of communications from the previous government (and opposing political party) David

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[69] There are a few exceptions, like RLG Ghana which employs close to 500 people, but in general firms tend to be on the small size, as observed by (Fafchamps, 2004).

[70] The country's Gross Domestic Product (GDP) grew at an average annual rate of 6.3% between 2000 and 2011 (World Bank, 2013) one of the highest in the world, and has been a stable democracy for over two decades with peaceful elections and transition of power among opposing political parties.

[71] The Ghanaian government has a history of shuffling ministerial positions midway through terms and in February 2013, Mr. Iddrisu was made the Minister of Trade and Industry.

[72] Pseudonyms (both institute and director names)

Gyewu, and the minister, Iddrisu, confirmed the two to have a cordial (even friendly) professional relationship although public understanding is of general disagreement between the two main political parties in the country.

That the former deputy minister is a returnee is worth noting. In fact, Brown[73], mentioned above is also a returnee. Such links underscore the synergistic nature of policy and industry in the quest for economic growth, even if it is at a micro level. The role of such returnees, in addition to what technology entrepreneurs in general do, forms an integral part of the industry's history. Further, building up sophisticated systems requires infrastructure in its various forms; not just tangible physical systems, but also 'soft' ones like specific kinds of knowledge possessed by skilled and unskilled labor (Larkin, 2008). In light of the perceived openness and potential for development often associated with ICTs and the ways in which skilled returnees are also viewed as agents of development, it is useful to see how returnees fit, at least from their perspective, within such broader expectations of leveraging the ICT industry and their skills for socioeconomic good.

Returnee techpreneurs

Motivations for return

In response to questions I asked about their decision to return to Ghana, some of the returnees interviewed remarked that they knew they would return either before they left or soon after arriving at their new destination. For instance, Herman Chinery-Hesse, founder of the company SoftTribe and a serial technology entrepreneur, said: "I was packing up my bag three days after I went to America… There was never a time when I was never coming back". Even though he was born in Dublin, he grew up in Ghana and then moved with his family around Africa, first to Gambia and then Tanzania, Uganda and Zambia as a teenager due to his parents' jobs as international legal experts. He eventually left for university in Texas in the United States in 1983. After completion, he went to England to work and then returned to Ghana in 1990. He noted that even though racism in the American South then was part of his immediate desire to leave that country, there was also a strong dislike of 'traditional' work i.e. as an employee for a company, and that led

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[73] Pseudonym

him to relocate to Ghana to start his own software company. Likewise Kofi Dadzie, the Chief Executive Officer (CEO) of Rancard, said he "had always planned to come home." He attended Vanderbilt University in the late 90s, acquired some technical skills working for Dell Computers, and then returned to Ghana to set up his own firm in 2001. His original plan had been to work for a few years in the United States and then transfer back home after presumably acquiring some capital and experience. This became a relatively short 8-month stay at Dell, followed by a year between the UK and Germany, and then he was back in Ghana to set a business plan into motion with a childhood friend. Like Chinery-Hesse, one of Dadzie's parents worked for an international organization and he grew up in a fairly transnational environment.

For others, it was a matter of timing; either because they thought their time in the West had come to an end and/or they saw new opportunities opening up in Ghana. Keli Gadzekpo, CEO of Databank, one of the first private financial and investment firms in the country, was back in Ghana within 5 years. After graduating from Brigham Young with an accounting degree, he moved to Washington DC to work for a year and decided he did not want to be an accountant. At that crossroad in his career and offered a partnership by his friend who had graduated from Columbia University, he saw that the tides were changing in Ghana, both politically and economically. In his words: "When I was leaving, it was a basket case… pretty bad … But [I] came back 4 years after and it looked hopeful. And I remember very well, I said to myself: 'hmm, this thing is either a window of opportunity which might shut, or it's going to be open for a long while. In any case, it's a window.' I took note of the fact that a good wind was beginning to blow". Bartels-Sam, CEO of InCharge Global, had been in the U.S. for 5 years when her husband got "fed up" and suggested they move back to Ghana in 2001. Calling herself adventurous and willing to take risks, she agreed, and left their travel business to her brother to start over in Ghana, this time building a technology company focused on cards and payments without any prior experience in that sector. Tawiah, CEO of an IT infrastructure services company (Ostec), worked for years in the financial services and portfolio management industry in London after obtaining his undergraduate degree in the same city before relocating back to Ghana. By then he had started a family and accumulated enough capital to strike out on his own.

To him, the time was right, and "the challenge to prove that one has done something was going to be done here in Accra, so I was ready to move".

This interest in 'doing something' for oneself was framed either in opposition to what the previous generation did or as an express interest in entrepreneurship. While not all of the returnees are children of diplomats or international career professionals, their parents had the ability to travel internationally (a not insignificant marker of wealth in Ghana) and/or owned landed property, worked in elite professions like law or medicine, lived in an urban area and could afford to send their children to universities either in Ghana or elsewhere. They grew up in environments that privileged education and fostered creativity. However, unlike their parents who favored more traditional career paths, this generation of upper middle class (or elite) Ghanaians choose to pursue entrepreneurship in new and evolving fields.

Not all the returnees immediately became entrepreneurs upon relocating. Brown, the director of the National Technology Institute, worked for years as an economist in an international organization in several countries before returning to take up her current position. While she gave no indication of having wanted to be an entrepreneur, Gyewu, on the other hand, moved back initially to start a technology firm. Things did not work out immediately, though, and he spent the first few years after return in a public sector job, first with the Presidency at the time and later as a Deputy Minister of Communications. He had moved back to Ghana after 13 years of traveling around the world in a senior management position with a multinational electronics firm, in addition to those he had spent in school and the British Army before starting his career.

The majority of technology entrepreneurs interviewed came from elite (social and educational) backgrounds. The schools they went to (even before leaving Ghana) and their international exposure demonstrate privileged backgrounds, relative to majority of the nation's population. That they are mostly technology entrepreneurs today, however, goes beyond having a more privileged background than the average Ghanaian. Specifically, they came up during the dot com boom and bust of the late 1990s and early 2000s. Some were in the U.S. or Europe then, others were in Ghana at that time and are part of a generation that saw new communication technologies arise and diffuse rather rapidly.

Global technology changes opened up a space that made a more technical career choice more logical to this group of people than simply their parents' footsteps into established professions like law or teaching. In many cases, they saw the older generation's path as untenable or impractical. The opportunities that these returnees saw simply did not exist even a decade earlier. The decreasing cost of transportation, educational opportunities, the value placed on knowledge products and multinational firms' increasing competitiveness for global talent made it easier for migrants from developing countries like Ghana to secure employment and get training internationally. As business practices and technologies converge, people with the right backgrounds are finding that national borders no longer pose significant challenges provided other conditions, often personal, are right.

The ICT industry as entrepreneurial and developmental gateway

As participants described their motivations for returning, their entrepreneurial ambitions were couched in terms of the opportunities that the relatively new technology sector in Ghana affords. Sheila Bartels-Sam, CEO of InCharge Global, said she is unable to "program one line of html" but sees the ICT industry as the place for 'creating things' and "coming up with solutions". In her estimation, "there's too many opportunities in IT." Tawiah, on his part, decided to start an IT firm because he "saw a gap in the market to come and do IT services in a slightly different way." Others mentioned specific infrastructural or institutional problems they saw in the Ghanaian economy that they thought communication technologies were particularly suited to solve and their choice of products and services reflected as much. For instance, Chinery-Hesse's latest venture, *Hei Julo*, is a mobile platform for alerting radio stations and neighbors about criminal activity – a tool that uses the country's very vocal media sector and communal characteristics to provide a service that an understaffed police force does not have resources to attend to as much as is needed. Bartels-Sam's company issues fuel use cards for companies to track employee travel as a way of improving record keeping in the largely cash based economy. Rodolf's payment processing application, Mobile Elite,[74] taps into the mobile 'top-up' culture as a work-around to the very manual and inefficient bill paying system in the country.

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[74] Pseudonym

Each of these discussed the challenges of making large profits from their ventures, and underscored the fact that they pursued the line of work because the needs they were filling are not just market based but were needed in a developmental sense. The need for their product to "solve a real problem" was thus integral to the decision to work in the ICT industry, and in their choice of service or product. They considered the challenges or risks in starting up companies with little comparative base in the country an inherent and manageable aspect of entrepreneurial activity that, if managed properly could eventually be monetized but only in the long term. A number of interviewees in more established stages of their enterprise further opined on the state of the industry and what role the government should play to support it.

In a way, these returnees are similar to the many Taiwanese, Chinese and Israelis who relocated back to their countries after working in Silicon Valley for years (AnnaLee Saxenian, 2006b). Such returns can be linked to broader migration trends and the fairly fluid nature of the global ICT industry. Because computers and mobile phones run on essentially the same basic principles around the world, knowing how to program or code in specific languages like Java or C++ means for the most part, one can start making things with a networked device. However, the systems that support the development of communication services and artifacts beyond a single prototype or micro scale differ in each country and it takes more than government action to build an industry. Saxenian argues that in all the countries she examines, returnees "transformed the local environment for entrepreneurship by addressing immediate obstacles to success, ranging from capital markets and telecommunications regulations to the educational systems and research institutions. In each case, they have contributed to the rapid creation and improvement of local capabilities" (p9). The evidence from these Ghanaian returnees suggests that they are also trying to address perceived challenges not just related to their own enterprises but also the industry and country at large. They generally spoke of the ICT sector as a place that allowed them to not only be entrepreneurial, but also use their international skills and expertise to fill critical gaps in Ghana's overall socio-economic infrastructure. This essentially constituted the development ethos attached to returning and working in ICT as articulated by these technology entrepreneurs.

The skills challenge

Not just returnees, but also non-returnees, as well as MNCs and the numerous NGOs in the country value international experiences. From the 2003 survey on returnees, even those who left the country unemployed were gainfully employed in one way or the other upon return (Anarfi et al., 2005). This may not necessarily mean that it is merely traveling outside that gives the edge, but rather, as some interviewees plainly stated, work experience and education outside gives a different perspective on doing things and makes returnees more competitive as employees. Claiming both international work experience and local knowledge cannot hurt business as shown by the more established returnees in the group given their success and relative name recognition in industry. Those interviewed though, for the most part, showed an awareness of this privileging of a specific kind of profile, and some also saw it as a responsibility to address what they viewed as a key challenges to the country's development.

One such challenge is the perception that the quality of education and training in computer science, engineering and related technical areas is lacking and not up to global standards. In fact, it was the overall quality of education that prompted some of them to leave Ghana in the first place. This is consistent with previous work that points out that migration and education are often intertwined for skilled labor (Gibson & McKenzie, 2011). The strategic vision for both returnees and non-returnees interviewed is to build companies that could compete at the international level, and to do that, they need international quality skills. This means both technical and management skills that are adaptable to changing trends. For the former, the main complaint was that computer science courses (the most relevant to their industry) tend to be highly theoretical in Ghanaian schools and even though students get to do independent work, limited infrastructure means they have limited exposure to sophisticated tools to hone in on skills beyond the few hours in the classroom. So for instance, whereas a student at the Massachusetts Institute of Technology (MIT) in the U.S. may have access to huge servers on which to test an idea from his dormitory, a student at the Kwame Nkrumah University of Science and Technology (KNUST) in Ghana needs to share a smaller server with a larger number of people, and is thus limited in the scale of projects he can embark on, either as a course requirement or a 'pet' project to tinker with.

With regards to management and strategic skills, the view is that international exposure is integral to being the best. The view, expressed most vividly by Rodolf the most recent returnee in the group of interviewees is that "there's a clear distinction between the type of experience you get outside and the type of experience you get in Ghana". While he concedes that "there are some excellent companies in Ghana", he persists that "they still lack a certain level of discipline, level of experience, level of exposure you get outside and that's unparalleled to just even living outside. Your mentality is different, your exposure is different and you see things differently. You appreciate a different culture, a different way of doing things so when you go back to Ghana, you see everything that's done in a different light, or you start to think of solutions versus this is just how things are done."

To address this skill and experience issue then, technology entrepreneurs employ two strategies. First, they give additional training for locally educated technologists. Tawiah's company (Ostec) did that at earlier stages of the company's existence, as did a number of other, more established returnees like Dadzie (Rancard). Tawia (of Leti Arts) who was trained locally at KNUST and is currently pursuing a distance graduate degree at the Open University also uses training as a response or a work-around for the dearth of very specific skills he needs from the pool of university graduates for his gaming company. He and his Kenyan partner (who works from Nairobi) have to hire consultants to do much of the work but they have instituted an internship program in which Tawia devotes considerable time training students to become familiar with the gaming environment, apply their existing skills to the field and to acquire new ones that he teaches them. A very passionate advocate for African games (stories, characters, etc.) in mobile and online spaces, he stressed that not all the skills need to be technical as the gaming environment requires diverse skills like storytelling, creating editing, etc. As such, his trainees include non-technical students who he teaches to apply their creative skills to a very different environment than they are required to in school.

Thus, training people is a pragmatic move that fulfills an immediate need (employing the right people) and generally lifts the skill pool in the industry to the quality these entrepreneurs want. It was sometimes framed as 'doing something' or taking action to fill a different kind of gap in the nation's infrastructure. For those receiving the training, in addition to gaining employment in their industry of choice, they ostensibly receive what

should become an opportunity for career advancement in a corporate setting and an enhancement of skillsets not common in the country as a whole. The question, however, remains whether these possibilities for advancement are indeed realized given that upper management is populated by returnees and setting up ones own technology enterprise, while for the most part requires little to start-up, requires significant resources to scale up.

The second strategy is to hire from the international labor market. That is, firms owned and run by returnees actively recruit skilled internationally based Ghanaians to return home to work with and for them. Those at the top level of management in Tawiah's company, for example, were recruited mainly from the U.K., which is the other market he is most familiar with. Rodolf's start-up partners attended the same undergraduate university as he did in the U.S. Such internationally trained managers were perceived to be of the highest quality, and therefore the tipping point came when the company could afford to hire. For Tawiah, "you're competing with everyone else for them…the key difference for us now is that we have the resources to go out and compete outside of Ghana for the best… The standards that we demand are very high of all our managers. We do compete with the largest industries for the best candidates and we will pay them well. Absolutely. We compete on money and you know, the way I look at it, let's get quality in here and our customers will pay for it." Dadzie's company, Rancard, also has mostly returnees in management, notably graduates of Yale, Harvard and other top schools from the U.S.

Hiring, almost exclusively, senior management from abroad could be interpreted as a privileging of international travel and upper class education. The sentiment that there is something unique about working abroad that makes one a better professional or management level may inadvertently promote the idea that one must travel outside Ghana if they want to succeed. A positive reading, however, is that it signals the very transnational way in which the Ghanaian entrepreneurial class views itself and how it endeavors to undertake industry development by leveraging international and localized expertise. Arguably, they could simply hire expatriates or more returnees at non-managerial levels, as expensive as that may be to the bottom line. However, they all seemed to hold strong opinions on using Ghanaian talent, encouraging their peers to return also, partly because they thought they were best suited to combine world-class knowledge with a local understanding of the Ghanaian culture, partly because it helps to continue to strengthen

the Ghanaian, not expatriate, skill level within the country. Training then fosters knowledge transfer and arguably transforms the corporate culture, both managerial and technical. Given the current sentiment of optimism and change for the African continent, this generation of migrants generally appears more willing to return to work professionally and remain in the source country to build enterprises that have multiple possibilities of impact.

Returns, technology and class

Returns to Ghana demonstrate that as smaller economies in the South join the global information society, careers and occupational opportunities that go along with them become feasible options for migrants return home. In general, the motivations for skilled migrants returning from the North were framed mainly along life-cycle reasons, i.e. a matter of timing or opportunity for the self and/or family instead of income, similar to findings elsewhere. The occupational choice of those interviewed, compared to their parents' generation, is indicative of a shift within the larger Ghanaian society towards a new entrepreneurial elite based mainly in urban areas. During the industrial age in the West, it was the norm to go and work in the factories if you were not landed gentry. As whole economies and societies changed, so did the workforce. Prior to colonial rule, most people followed their families into farming. With British rule came new institutions like law courts (an entirely different system from the way disputes were traditionally settled by Chiefs and tribunals), formal education (wherein you left home and went to a classroom to be trained in a new language and subjects), etc. These meant new occupations were created, such as teachers in a new language (English), doctors familiar with western medicine, lawyers adept at the new imposed British legal system, and so on. The professional classes became more common as the system of governance changed, with civil service as a profession, and bureaucracy a systemic trait, became the norm for those in the government's employ.

Today, the public sector still absorbs some graduates from the country's universities. Anecdotal evidence however shows that there is much dissatisfaction among the younger generation in terms of remuneration and long-term professional mobility. While government employ may be secure (its most distinguishing factor for a country with high unemployment in the formal sector), it is increasingly becoming less desirable for

what appears to be the new more entrepreneurial class that is emerging in the country. There are many young Ghanaians in wholly new industries that did not exist when their parents were young, especially in ICTs. This is certainly not unique to Ghana, for as technology changes by generation, our capacity as humans to create and innovate improves with it and many people now do things their parents or grandparents did not imagine possible.

However, the rapidness with which things evolve is one remarkable aspect of the communication technologies industry today compared to others. It is one that allows for quick entry in a place with significant infrastructural challenges such as Ghana. Sometimes all it takes is a laptop and/or mobile phone and the requisite skillset to create a new communication technology program or application. These tools are fairly ubiquitous within the urban and educated populations in Ghana and increasingly several institutions in the country are focusing on training programmers and developers in tandem with the government's explicit push towards developing the ICT sector as a way to join the global information society. The characteristics of the global ICT industry, in terms of how easy it is to transfer certain skills across borders (like the ability to program or manipulate computer code), and the requirement of relatively little capital to start some kinds of enterprises (like application development) makes the case of returnees in this particular sector in Ghana relevant to our understanding of skilled return migration in contemporary Africa to some degree.

To be sure, some ICT enterprises (like hardware manufacturing) require extensive capital investments and take more than a laptop. However, the point here is that the affordances of new communication technologies - both their technical properties and the relative portability of the skills needed to make them work at various levels – have increased the potential for uses and modifications and facilitate relatively easier transnational flow of knowledge and information. This potential is part of what drew many of the skilled Ghanaian migrants interviewed back: that, and the perception the industry is well suited for entrepreneurship. Its early stages in Ghana also make it an open field for entry, especially in light of the capital requirements and regulatory challenges.

Unlike the younger returnees in Ammassari's (2004) study who were less likely to point to nation building or development as a reason for return, these (also young)

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returnees argued that they were motivated by this promise of ICTs as avenues for entrepreneurship and for filling infrastructural gaps, in addition to the possibility that their training and experience will have in the long term, however slow the process. They were not asked about their motivations for starting businesses relative to development, but rather, for return and yet they consistently included the development ethos in their descriptions. While it may be easy to take a cynical view that this is merely posturing, it is more beneficial to accept these entrepreneurs as active agents who bring meaning to their own experiences in the global south. Taking their word for it does not mean being blind to potential complications or contradictions, but rather acknowledging the 'development' is a contested term with multiple meanings for different social groups.

One such complication is that the ways in which the development ethos of this group of returnees in the ICT industry is manifest privileges a cosmopolitan vision that reinforces the interviewees' elite position in the broader Ghanaian society. While this cosmopolitan vision could be aspirational for local hires and could expand business beyond the shores of the country, it still complicates that developmental vision as it could potentially limit local engagement and the opportunities available for the very people being recruited and trained locally who may also be seeking to participate in the global knowledge industry from home.

Glocal factors are specifically made manifest through the multilateral influences on Ghana's decision to liberalize and the return of highly skilled technical Ghanaians. In the globally linked infrastructure of technological development and policymaking, timing and the history of a specific location like Ghana provide context for understanding how the contemporary new media industry arises globally. The particular site may be in the technology industry, but the mix of glocal transformations underscore larger shifts in the Ghanaian society, towards an envisioned knowledge society that is connected to the rest of the world.

In Ghana, as elsewhere, socio-political and economic conditions are crucial to situating the local new media industry within the larger global transformations in communication technology. I have already pointed out that the country was undergoing changes when these businesses began and over the years, the government of Ghana has paid special attention to building an information society. Further, the transnational

movement of highly skilled personnel may be linked to broader migration trends and they also highlight the characteristics of technology industries around the world. As AbdouMaliq Simone argues, "Africa is a space of intensified movement, of movement in a very broad sense that encompasses migration, displacement, and accelerated social mobility." But,

> movement also has little sense if it is not set against a process of staying still. Who migrates and who doesn't remains a tricky difference, even when both parties face common economic and cultural situations. Simply raising this issue introduces a necessary complexity in how we characterize particular local fields, forcing us to recognize the intricate interweaving of access to social networks, gender, age, physical location, asset holdings, and political voice in migration decisions.
>
> (Simone, 2004)

The international experiences of returnee entrepreneurs thus merge with the government's focus on keeping a liberal economic environment that privileges ICTs, enforcing an ongoing relationship between internal and external forces.

Overall, Ghanaians who left for greener pastures have been returning to the country since the 90s. Given the resources required to be able to successfully relocate and remain in the professional and business class, returnees appear (relative to the rest of the population) to be of elite stature within the Ghanaian society. However, their return mirrors the global South-North circulation of skilled (technical) labor. Like other relatively wealthy migrants elsewhere, income was not a primary factor for returning, but rather life cycle considerations and opportunities for entrepreneurship and contributing to social and economic development in different ways seemed more relevant (Gibson & McKenzie, 2011). Other research mention nation building or development as important to some skilled returnees and indeed, the returnees examined in this paper also emphasized the desire to "do one's part" in moving the country to the "next level", while creating globally competitive enterprises.

I have shown that those motivations are manifested through actual choice of enterprise and organizational practices. Namely, the relatively easy entry into the ICT sector served as an impetus, not just for the provision of products and service that address broader needs like financial payments and security, but also organizational activities that, arguably, could fill some gaps in corporate culture, education and skills acquisition in the

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ICT industry. In general, these efforts characterize the importance of social contributions to development, as articulated by the very people working in industry, not by the state, researchers, aid agencies, etc. They suggest an increasingly formalized entrepreneurial space within Ghana and showcase grassroots efforts at industry building. Ultimately, such efforts will have to tie in with state efforts at developing specific industrial capacities in pursuit of broader economic growth through both the ICT industry and skilled labor that have migrated. The key policy challenge remains coordinating such efforts in a way that leverages the human capital that these sorts of returnees represent, specifically in transferring knowledge and skills to others in an efficient way.

Part IV: Conclusion

Global links between economic policy, migration and technology development played a role in Ghana's media industry transformation. Liberalization and democratization changed how broadcast media and telecommunications function in the country. After two decades, radio and ICTs intersect in ways that reveal emerging class dynamics that are related to changing value and valorization of specific knowledge forms in the global economy. Specifically, radio post liberalization is now a space for normalizing 'new' media and ICTs via everyday interactions between stations and audiences. Moreover, both the radio and ICT sectors play host to valorized and valued knowledge forms that are emerging as key arbiters of class in the country. These forms of knowledge revolve around the application of information technologies, the ability to leverage their regenerative and network properties in entrepreneurial ways. In Ghana, the media (both old and new) are helping to amplify the influence of an emerging technoclass that is largely youthful and urban based.

Despite its very local nature, radio has been more global in its reach and accessibility, due to its flexibility. This was a key factor in the wave of media deregulation discussed earlier. In the United States, Europe and later on parts of Asia and Latin America, developments like fiber optic cables changed television delivery, increased the channels and variety of programming options to audiences. Satellites beamed new content to places that didn't have fiber capabilities. Even though TV reigned supreme for many years it is not yet pervasive on a global scale. In fact its numbers are now rising outside of industrialized countries (Deuze, 2007), including Ghana. Radio on the other hand, grew in number and options. Radio, on a global scale, functions as the newspaper that citizens gather round in an imagined community (Anderson, 1991, 2006). Instead of being subsumed or taken over by ICTs, radio integrated and reshaped to reflect its place, in Ghana and parts of Africa at least, as a social institution that binds local communities together(Girard et al., 2003; L. Moyo, 2013a, 2013b; Mudhai, 2011; Willems, 2013)

Radio in Ghana was the first part of the media in general (and broadcast media in particular) to change fully from a government mouthpiece into the commercial marketplace that it is today. Television followed at a much slower pace, and even though it is growing faster by the year, radio remains the most accessible and used medium and communication technology in Ghana. Radio as a cultural institution and social space, is where the 'average Ghanaian' can connect with others across a wider space, listen in on national discussions, and generally join the imagined community that constitutes the nation state (Anderson, 1991; 2006). In the period following liberalization, radio is both 'old' and 'new'. As an industry and technological form, radio speaks to a diverse audience that segments along class lines, and does so through differentiated uses of ICTs in production. These ways of engaging with audiences are telling of broader divisions along class lines that are inextricably tied to the changing place of communication technologies in the society. Most significantly, work and knowledge associated with ICTs are privileged and valorized in ways that expand on dimensions of global class dynamics as they manifest in an emerging economy.

In the case of the first private radio station in the post-liberalization era, Joy FM, the station immediately targeted a small segment of the Ghanaian society that the station believes to be influential. This influence was operationalized at the very basic level, as those with access to specific artifacts that speak to a middle class background: middle level education, telephones (mobile or landline), cars and later, Internet access. Building programing around people who can participate, however nominally, presupposes that what one does as a radio station, has the possibility to impact decision making. Indeed, Joy's operations, including in tallying and announcing election results demonstrates this sense of place as an elite institution with access to elites across the spectrum. Placing your listeners' socio-economic status as a proxy for social influence reveals Joy understands the Ghanaian society where often the wealthiest and most educated in a community or family tend to be deferred to. Thus, weaving access to new media into your programming at a time when only a few people would have access to sets the bar for establishing who in the newly democratized and liberalized environment would be influential and elite. Citi FM's display of sociality via interactive uses of information technology further underscores how normalized new media have become in the everyday, especially for the young and

upwardly mobile Ghanaian in urban areas. It gives a glimpse of how an elite station positions itself in relation to its audiences, and just like Joy, Citi locates influence around a specific form of knowledge, in this case using and manipulating new technological devices and spaces that are characteristic of educated youth in Accra. In general then, the primacy of radio and its reach, the complexities of the industry structure following liberalization, and the largely urban and youthful orientation of some radio audiences points to a path that is fairly different from the radio and elite culture of yesteryear in Ghana.

This difference comes from the emergence and value of specific knowledge forms in the global information economy. The valorization of the ability to apply technological knowledge in ways that generate other knowledge and information processing devices in an entrepreneurial manner can be seen in the ways that new media workers position themselves and their work in the broader Ghanaian sphere. The entrepreneurs seen in the case studies above privilege knowledge that is both global and local in its adaptability and versatility. The elites among them who often work at the managerial level, the CEOs and CTOs, stress international standards and competitiveness just as much as they talk of local opportunities for the application of knowledge. These are those with the so-called network-making power -- individuals with national influence (Castells, 2011). For example, Herman Chinery-Hesse and Kofi Dadzie are influential among not just technology entrepreneurs but also entrepreneurs in other areas like finance. It is not uncommon to see them invited as speakers at events targeted at skilled labor at both national and international levels. How some of these elites think of themselves and their place in their locality is not unlike the ways that others like them in so-called centers of information technology production such as Silicon Valley speak about their role in society. Some of them, like the returnees mentioned in chapter 4, show transnational and cosmopolitan backgrounds that point to elite upbringing. Others, such as Anne Amuzu and Robert Lamptey, demonstrate middle class backgrounds. All maintain a global orientation for their products and services. This might suggest to some that the elite technoclass is simply a collection of elite and middle class youth who, no surprise, occupy places of power and influence. However, that would be missing the point about what the technoclass signify and what they represent not only in the Ghanaian case but also on a global level – the increasing importance of particular skills and experiences in the global economy.

Moreover, not all youth from middle class or elite upbringing belong to the elite technoclass and not all elite technoclass come from privileged backgrounds. Derrydean Dadzie for instance, spoke of a poorer childhood where he hawked meat pies around the city of Takoradi to help his single mother as he went to school. So, while one's background is important for locating where the technoclass comes from, it does not tell us everything about who or what the technoclass is. If anything, it underscores ties to conventional classes and shows that perhaps what I describe as the technoclass should be thought of as a permutation of existing class nomenclature. And, more importantly, it shows us that there is mobility within the technoclass, born out of the myriad ways that people see opportunities rising out of knowledge products. In addition, given that class is not just about categorizing people in relation to one another but is also an identity construct, how the technoclass articulate their motivations, goals and aspirations reveals a mindset that perhaps is born of the ever present global awareness of self and country. With changes in media and other technology, even those rising into the technoclass via the most basic application of technological knowledge express a sense of constant comparison between their wellbeing and those in other parts of the world. On social media, young Ghanaians interact with each other but also see how their peers live in different places, and they are aware that what happens at the national level affects them, variously, at the individual level. A Citi listener expressing embarrassment at what he believes is the poor behavior of Ghanaian public officials on the world's stage at the 2014 World Cup is not radically different from the CEO who is keen on keeping his business to "international standards" to boost investment. In post-liberalized Ghana, the media and technology industries are seen by young people (across the existing class categories) as places to expand their sense of place in the world, aspire to new areas of work, and steadily move up in society by applying knowledge of a number of different skills that they know are valued in the contemporary global economy. This makes class itself a more layered phenomenon and the technoclass a contemporary assessment of the world we live in and how social structures evolve with time.

The global technoclass

As indicated in the introduction, the technoclass is a conceptual term that brings together a number of observations about social life in the contemporary global economy following the information technology revolution. The "pace of change and the change of scale" in knowledge use and technological application are what make this period so remarkable (Bell, 1973, p 174). A now classic example of this is how the mobile phone spread around the world in relation to other media technology from previous generations. Add to that the fact that the current generation of youth is the most educated, with more options as far as occupational choices go, and we see just how apt Daniel Bell's forecasting was in terms of the relationship between knowledge accumulation and technology (Bell, 1976; World Bank, 2013a; 2013b). Like Bell's work on the post-industrial society, Castells has noted at various points the significance of knowledge and its relationship to social structure in his work on the network society, as have a number of scholars who have used the term 'technoclass' to label a subset of people that either work in or are closely integrated in the industry of information technologies (Bell, 1973, 1976; Castells & Hall, 1994; Castells 2009, 2011; Myles 2004; Semashko, 2006; Sreekumar 2013). Other terms describing people that resemble the technoclass include Richard Florida's 'creative class' (2012) and Calabrese and Borchert's 'new class' (1996). All of them speak recognize the influence of those I describe as elites in the technoclass.

In this dissertation, I have widened the conceptualization of the technoclass to reflect a range of characteristics that show it as being more flexible and layered; including not just elites, but rising elites, as well as people at the 'fringes'. This is because I consider the technoclass not so much as a new social class but as a new social formation that reflects broad changes in the world we live in, one that cuts across existing or conventional classes, especially given that today, people are likely to see themselves across those conventional class categories (Dorling, 2014). The information technology revolution and its attendant privileging of particular skills reorders who 'belongs' where in relation to others on a more global scale. And, just as the knowledge that revolves around the network capabilities of information technologies are flexible and adaptable, so too are the 'lines' around the technoclass, raising questions about whether or not we should rethink conventional class given its basis in pre-industrial and industrial age divisions of socio-economic status.

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Moreover, the observations and characteristics that make up technoclass do not happen exclusively in the so-called 'centers' of the global economy and polity, and the cases discussed in this dissertation serve to demonstrate as much.

The 'class' attached to 'techno' in the term is more about how those characteristics (including individual attributes and attitudes) span a range of incomes, occupations and cultural tastes can be conceptualized together as part of the 'techno' world that we live in. This 'techno', in line with the etymology of the word *tekne*, discussed in the introduction, serves to mark the distinction of knowledge and its application through and by information technologies. Conceptualizing the technoclass as thus also acknowledges that ICTs are being located as central constructs in the identities of different people around the world and that our world is becoming increasingly mediatized. However, note that the mere use of media and ICTs, and their normalization as part of the everyday, is not what differentiates the layers of (or hierarchies within) the technoclass. It is their application through specified and technical knowledge in ways that generate other (new) knowledge that is valued and valorized. This valuation and valorization is seen through the privileging of certain occupations, attitudes, and behaviors, which also cue and are the result of, the pursuit of other knowledge and their application continuously in a loop (Castells, 2010).

To make this set of observations more concrete, consider the various groups of people shown in this dissertation thus far. At the outer edges of the technoclass are those who barely use or have use for these forms of knowledge. This might include those street hawkers and *trotro* mates who may very well own a mobile phone and listen to different radio stations, but do not participate in ways allow them to leverage their potential network properties in specialized ways. Using one's mobile phone or email, for instance, for interpersonal communicative purposes and as a means to stay in touch with one's personal network is increasingly becoming a basic set of skills that mark everyday life today. It cannot then help us immediately differentiate between layers of the technoclass.[75] If that knowledge, however, is utilized, for instance, in mobilizing one's constituency for a communal activity, which then result in some collective action which otherwise might not have taken place without the ability to quickly gather, we might be able to say there is some

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[75] Even if it could tell us what conventional class that people emerge out of.

accrued knowledge that is being applied.[76] While currently access to media is intertwined with socio-economic status, the latter does not define all our experiences with various media, for their networked properties enable us to experience the world beyond our immediate socio-economic milieu.

This global awareness that is part of the technoclass is not very important at the fringes of the technoclass. We know that today, we are more likely to know of more people (both through personal networks and through the media culture more broadly) than our parents or grandparents' generations thanks to the network capabilities afforded by media (Bell, 1973). But that does not mean necessarily that everyone goes about their daily lives in relation (either through thought or action) of their peers outside of the immediate locality or even globally. This is not limited to the poor or disenfranchised for there are many well-to-do individuals who, for all their access to new media and technology, remain insulated within the confines of the interpersonal and the tightly local. For the bulk of the technoclass though, situating oneself within a global frame is relevant to identity constructs and is part of the lived experience that informs action at a distance. While the university graduate at the start of his career may occupy a different place than the CEO of a fortune 500 company within the technoclass, both have an awareness of the state of the things that affect them at home and abroad and apply their skills towards linking the local and the global. The university graduate might get this from his engagement with social media, or from listening to particular radio stations that talk about international matters and invite audience input. The CEO might need to make decisions based on how the industry s/he is in is doing locally and abroad in order to stay competitive. In Ghana, most of the young listeners of stations like Joy, Citi, or even Y FM are constantly listening to discussions, music and news about and from other countries. On social media, some listeners of those stations on Twitter participate in global youth culture with their peers in the United States, India and South Africa through the memes that take hold on a regular basis. Sometimes, like the listener who complained about Ghana's conduct at the World Cup, they compare

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[76] One could argue that one's socio-economic status moderates these associations, and this is not false, but it is not a neat mapping of SES onto how people reach out to those outside their immediate network or learn new skills through the affordances of new media.

themselves at the macro level. And yes because not everyone participates in this sort of 'globality', the technoclass does not include everyone. This sort of participation, of being technoclass, does not necessarily give one influence, but it does encourage young entrants to expand their ambitions beyond what their socio-economic status might predict, or gives them room to express aspirations outside of what their parents had or were used to.

Indeed, the new media and ICT industry is where many interview participants saw opportunities that were distinct from their parents' generation, even those who were working in non-media specific industries (see appendix A). New media and ICTs, in essence, represent the open way that being networked allows one to join or find a space to belong outside of one's immediate locality. Those taking advantage of this openness, especially in ways that are valorized (as technology producers are through their skilled labor and the production of new artifacts) are those I label as technoclass. In Ghana, elite radio work to expand those brackets, such that those not yet building products and services can still view themselves as capable of doing so through the cultural sharing that takes place within and around other forms of media. Mobility in the technoclass need not specifically be an immediate shift in one's socioeconomic status but aspirations and expanded view of one's place in the world is an initial step into that direction. These rising elites thus may not have much in terms of economic capital or experience, but the skills they learn from one another through the socialization that elites provide, either at the workplace or through media (both old (like radio) and new (like social media) mark them as being within the boundaries of the technoclass.

The elites within the technoclass are more easily identified by their occupational status. Corporate managers in the contemporary global economy, particularly within industries that privilege knowledge are highly valued (economically) and valorized (in terms of status). They've been called technocrats, a new class, a creative class, and a managerial elite with network or infrastructure making ability (Bell, 1973; Castells & Hall, 1994; Calabrese & Borchert, 1996; Myles, 2004; Nadai & Maeder, 2005; Florida 2012). Other technology workers, knowledge creators, brokers and cultural intermediaries (such as software and website designers, data miners, research assistants, etc. that work for these managers) occupy less vaunted positions but are still considered important within the literature for their role in knowledge creation in the global economy. Because their

specialized skillsets are thought to contribute to improving the state of the world, they are also valued as part of the 'social overhead' (Bell, 1973). Highly skilled ICT people at the management level who translate problems into solutions (the CEOs and CTOs in the cases examined in this dissertation and internationally high-profile ones like Bill Gates) are not only heavily compensated but also deeply valued by others that produce new knowledge. Again, people across these different levels come from across the conventional class structure and their economic value (in terms of financial compensation) vary wildly due to differing economic structures across the world, but their collective status, globally, remain similar for even those not within the same knowledge capability or industry.

In general then, the technoclass is a complex global social formation. The upper level is populated with both a new entrepreneurial elite (those who are able to acquire the new forms of knowledge and status that goes with it) and an established elite who hold on to the advantages afforded by birth and rank. The knowledge required to raise one's place in the technoclass affords more mobility, relative to conventional classes. As such, young entrepreneurs with little capital can aspire to create tools with the skills they may have learned online that they hope giant corporations will purchase, others in relatively obscure towns in countries like Ghana can become CEOs of innovative financial solution companies, and developers across India and Kenya can collaborate with each other to change the options available to internet users. On the global scale, knowledge and skills attached to the application of information communication technologies are playing a key role in distinguishing social groups and separating the powerful from the rest. Just as conventional class systems evolved with times, for instance, class conception in the feudal system changed with the onset of the industrial revolution, perhaps it is time to rethink the evolution of class with the establishment of the information technology revolution and the complexities that came with it in terms of social structures and behaviors.

The technoclass described thus far may tell a story of youth and urbanity, and while these are important characteristics, they do not encapsulate what it means to be technoclass. Youthfulness and urbanity are significant in emerging regions for the youth bulge and urbanization trends mentioned earlier. They also underscore the generational shifts that are consistent with different epochs of history. They show the significant changes in aspirations, motivations, occupational choices, etc. that exist between the

generation that experienced the information technology revolution from childhood and the generation before it. I include in this 'youthful' generation people in their relative old age today (in 2014) such as Steve Wozniak and Vint Cerf who invented key technologies in their youth in the early days of the information technology revolution, as well as those building upon and inventing new tools based on those foundational ones (such as the Ghanaian techpreneurs described in chapter 4 and their peers around the world who take inspiration from likes of Bill Gates). The 'globality' point bears repeating. The information technology revolution plays a role in the exponentially greater ways that our awareness of others through our personal networks and through media culture (Bell, 1973). This awareness of and engagement with both known and unknown others, via various modalities, is essential to being a technoclass.

In sum, extant literature on globalization acknowledges fundamental shifts in the global flow of people, capital and technology. Key among these is the knowledge generated by the various intersections of these flows and their role in social change. In this dissertation, I have argued that these forms of knowledge, particularly as they relate to information and communication technologies (ICTs), have given rise to what I call a technoclass in the contemporary global economy. To do this, I drew on four case studies from Ghana's media industry against the backdrop of the confluence of economic and technological globalization, and the country's internal political trajectory in the 1990s. Particularly that economic liberalization, rapid diffusion of new communication technologies, and the transition to democracy underscored the emergence of knowledge forms as key arbiters of class.

I showed this through a juxtaposition of the legacy sector, radio, and the much newer one, ICTs in the media industry. Specifically, I argued that the newly liberalized radio sector rapidly transformed into a competitive space in which 'new' media and ICTs became normalized via everyday interactions between radio stations and their audiences. Given radio's importance as a social and cultural institution, it now plays host to valorized and valued knowledge forms that are also reflected in the nascent ICT sector with its privileging of the application of information technologies, particularly the ability to leverage their regenerative and network properties in entrepreneurial ways. Both 'old' and 'new' media, then, are helping to amplify the influence of an emerging technoclass that is

largely youthful, urban based and globally aware. These together make class a more layered phenomenon in the country and reflect broader shifts in class formation related to globalization in other national contexts.

Overall, in the globally linked infrastructure of technological development and policymaking, timing and the history of a specific location like Ghana provide context for understanding how the contemporary new media industry is evolving alongside shifts in social structure. The particular site may be in the media technology industry, but the mix of glocal transformations underscore larger shifts in the Ghanaian society, towards an envisioned knowledge society that is connected to the rest of the world.

Complications, implications and future directions

There are some complications with the above conceptualization of the technoclass. A most basic one is that, like other social structures, it contains frictions that are not easy to resolve. As was seen in the Citi FM example of the journalist being upbraided on air by an Accra flood victim, real differences attached to conventional class distinctions persist within and around the technoclass. What does it mean for those who are on the fringes of the technoclass, both for their participation in the global economy and for their relation with the technoclass for specified knowledge to be the arbiter of their relative rank and status? To answer this requires stepping out of the elite and rising elite spheres to study the ways that they too are navigating life within a changing world.

Second, the urbanization in emerging regions does not mean that the rural population ceases to exist. The question is whether the mobility and globality observed in the urban spaces that the technoclass inhabit extend to those in rural areas. If indeed the artifacts that reflect the knowledge-based epoch we live in are just as actively embraced in rural areas, then should we expect that the socialization, sensibilities and power differences seen in the urban context remain the in the rural context? In asking these questions I am not attempting to force a dichotomy between 'town and country' but rather to challenge the expectations that come with ubiquitous use of media and ICTs in one locality to be tested in others to see if and how they impact the economic and social inequalities we continue to observe around the world.

Moreover, the evidence presented here is heavy not only on elites and urban dwellers but also on males. Of the CEOs interviewed in the ICT sector, only two are women. Gender inequality is a crucial issue, especially as there persists a gap between male and female education, especially in emerging regions (World Bank, 2013). To what extent is the technoclass exclusionary and/or discriminatory to females? Is this new organization of society around certain forms of knowledge setting up to be a way that deepens the gaps and differences that have plagued us for centuries, even if we have seen small inroads in closing some of these gaps?

Within the technoclass, it is likely that mobility as seen through the aspirations of the rising elite might not be quite as fluid as it looks or even possible in reality. What I have described could very well be the appearance of mobility but in fact, due to entrenched elite habits, might simply reinforce conventional class distinctions and exacerbate socio-economic difference. As has been shown in other contexts outside Africa, such as in the formerly planned economies in the Soviet bloc, countries that have recently transitioned to democracy or market economies often merely reposition the political elite to become the new entrepreneurial elite (Luthans, 2000; Sparks, 2008). It is possible that there are linkages within the elite technoclass in Ghana that go back to political connections, but these are hard to gauge on the strength of the data presented here. Future work could try to understand the network of these elites to see if indeed, there are more new members (i.e., those who do not come from elite backgrounds already) that are rising into these ranks and gaining influence at the national level.

There is also the need to consider the implications of what I have described. Given that those I characterize as the technoclass express specific needs that they think will improve general socio-economic conditions in their country, what should or could states do in response. Should states even respond at all, given the rhetoric of the technoclass to locate themselves and their like (in the Ghanaian context) outside the realm of government action. Given the suggestion that elites have some political clout, how should they work with state institutions if given the opportunity? These questions and many others can be addressed by future empirical and theoretical explorations on how the global social structure is changing along with the mediatization of the everyday and the privileging of knowledge as a key arbiter of class in other geographic and socio-political contexts.

Tables

Table 1: Media/ICTs at home in Ghana

Ghana: Media/ICTs at home in working order (2009)							
	Radio	TV	Computer	Internet Access at Home	Landline Telephones	Mobile Phones	MP3 Player
No	13.60%	40.80%	89.30%	95.00%	93.50%	27.80%	89.20%
Yes	86.30%	59.10%	9.80%	3.60%	5.50%	71.90%	8.10%
DK	*	0.10%	0.90%	1.40%	0.90%	0.30%	2.60%
Sample Size (Weighted) (100%)	2051	2051	2051	2051	2051	2051	2051
Weighted sample - Base=2051.							

*DK = Don't Know

Source: InterMedia AudienceScapes Surveys
(http://www.audiencescapesdata.org/adscap/ASQuestions.jsp# Accessed September 7, 2013)

Table 2: Growth of radio stations

Region	Percentage of national population*	Number of FM stations (2002)		Number of FM stations (2008-2009)	
		FM licenses issued	On air	FM licenses issued (2008)	On air (2009)
Greater Accra	15.8	17	14	5	24
Ashanti	17.3	12	9	0	29
Western	10	3	3	5	18
Central	8.6	6	6	4	9
Eastern	11.5	5	2	4	4
Brong Ahafo	9.9	8	8	1	18
Upper West	3.1	2	2	0	2
Upper East	5	1	1	1	2
Volta	8.8	3	3	5	4
Northern	10.1	2	2	0	4
Total	100.1	59	50	25	114

*Population estimate for 2002 figures are from 2000, approximately 18.9 million people. Estimated population for 2009 was about 20 million.
** This table numbers only commercial stations and do not include the GBC radio stations as well as public, campus and community stations.

Sources: Alhassan 2005, ChangeGhana.com 2011 (accessed March 2011 via http://changeghana.com/home/featured- articles/commercial-fm-radio-stations-in-ghana-2009), Ghana Statistical Services 2009, National Communication Authority Annual Report 2008.

Table 3: Distribution of TV stations (June 2002)

Region	Per cent of national population*	Number of TV stations		
		TV licenses issued	Operational	Non-operational
Greater Accra	15.8	10	6	4
Ashanti	17.3	5	4	1
Western	10.0	2	2	0
Total	43.1	17	12	5

Table 4: Authorized Radio Stations (3rd Quarter, 2013) - NCA

NATIONAL COMMUNICATIONS AUTHORITY

LIST OF FM STATIONS IN THE COUNTRY AS AT THIRD QUARTER, 2013

NO.	NAME OF REGIONS	TOTAL NO. AUTHORISED	PUBLIC	COMMUNITY	CAMPUS	COMMERCIAL	TOTAL NO. IN OPERATION	TOTAL NO. NOT IN OPERATION
1.	Greater Accra	47	5	6	3	33	42	5
2.	Ashanti	46	3	4	2	37	41	5
3.	Brong Ahafo	45	3	4	0	38	38	7
4.	Western	51	6	4	1	40	36	15
5.	Central	27	2	7	3	15	22	5
6.	Eastern	29	2	5	1	21	26	3
7.	Volta	29	3	4	1	21	24	5
8.	Northern	28	7	8	0	13	20	8
9.	Upper East	13	2	3	1	7	10	3
10.	Upper West	13	3	7	0	3	7	6
	Total	328	36	52	12	228	266	62

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Table 5: Technical Skills

Language	Learned in school (%)	Self taught (%)	Most Used (%)
Java	45	10	22
C++	31	4	0
PHP	14	33	45
Python	8	22	12
HTML/CSS	10	18	20
None	43	41	41
Others	35	51	35

Total Responses = 49* (Questions are staggered so totals are different for each question).
Free response, most a combination of languages so totals do not add up to 100.

Table 6: Experience building mobile applications

Ever created an app	Frequency	Percent	Cumulative
Yes, in the past	7	29	29
Currently working on one	9	38	67
Yes, in the past and currently	8	33	100
Total	24	100	

* Differences in totals due to those doing both.

Table 7: Kinds of applications

	Frequency	Percent	Cumulative
Finance	5	36	36
Entertainment	1	7	43
Social	2	14	57
Other*	6	43	100
Total	14	100	
Other* (free response): 'android app 'none'(?)			

Kind of phone app built for			
Basic phone	5	14	14
Feature phone	9	26	40
Smart phone	21	60	100
Total	35	100	

Appendices

Appendix A – Interview Participants

Name	Interview Date	Company
Kofi Owusu	5/11/09	Joy FM
Isaac Yeboah	6/5/09	Joy FM
Kofi Dadzie	6/15/10	Rancard
Ehi Binetti	6/23/10	Rancard
Herman Chinery-Hesse	6/16/10	SoftTribe/HeiJulor
William Owusu*	6/15/10	Vodafone
Adwoa Perbi	6/19/10	Afrochic
Jojoo Imbeah	2/20/12	Suuch Solutions
Stella Brown*	2/20/12	National Technology*
Seth Akumani	3/7/12	ClaimSync
Samuel Darko	3/7/12	Streemio
Donald Ward	3/8/12	E-Hub/iRokko
Tasha Walid*	3/9/12	Marketing Gurus*
Rober Lamptey	3/12/12	Saya
Badu Boahene	3/12/12	Saya
Anne Amuzu	3/13/12	Nandi Mobile
Kofi Mensah*	3/14/12	Western Enterprise*
Eyram Tawia	3/15/12	Leti Arts
Keli Gadzekpo	3/22/12	Databank
Derrydean Dadzie	3/22/12	DreamOval
David Gyewu	4/11/12	Fiberco/ Ministry of Communications
Mawuli Tse	4/15/12	iBasis
Jonathan Tawiah	4/17/12	Ostec
Haruna Iddrisu	4/20/12	Ministry of Communications
Kojo Afedzi Hayford	4/23/12	E-Ghana Services
Sheila Bartels-Sam	4/24/12	inCharge Global
Amma Baffoe	4/25/12	MEST
Nii Ashi*	5/20/12	PharmaHelp*
Steven Rodolf*	5/20/12	Mobile Elite*
Auntie Efia	3/13/13	Independent TV Show host & producer

*Names marked with asterisk are pseudonyms as requested by interview participants.

Appendix B: Interview Consent form

✓ I understand that I am being asked to take part in the study, "[study title]", to be conducted by Seyram Avle, a graduate student at the University of Michigan in the Department of Communication Studies.

✓ I understand that the purpose of this study is to find out about my background and experiences as they relate to Ghana's technology/media industry and elsewhere.

✓ I understand that the purpose of this study is to also find out how certain policies and entrepreneurship in general impact technology products and services in Ghana.

✓ I understand that what we talk about—the interview—will take about 45 minutes to 1 hour. I also understand that Seyram Avle may contact me after the interview in case she has a few follow-up questions for me.

✓ I understand the interview will be tape-recorded. I can still participate in the study even if I do not want to have my interview tape-recorded. If I am tape-recorded, Seyram Avle will type up what we talk about (transcribe) so that she can analyze what we have said, but she will not share the tape recording with anyone.

✓ I may be identified in the final study report. If I am uncomfortable with this, any references to my identity will be altered and/or deleted to protect me. I will be given a fake name

(pseudonym) to hide my identity (to be anonymous).

✓ I have the right to ask questions about this study at <u>any time</u>—at the beginning, throughout the study, and even after it is over.

✓ I have the right to see any materials associated with my interview.

✓ I have the right to quit or withdraw from this study at <u>any time</u>—before the interview starts, at the beginning of the interview, during the interview, and even after we finish talking today I can say I do not want to participate.

✓ If I start to feel uneasy for any reason, I can quit the interview. This study should not harm me in any way.

✓ When the study is completely over, Seyram Avle will destroy all materials associated with my study.

✓ If I have any questions or concerns about this study, I can contact:

Seyram Avle
Telephone: 781-330-6401
Email: seyram@umich.edu
Address: Dept. of
Communication Studies,
University of Michigan
105 S State St (5370 North
Quad)
Ann Arbor, MI 48109-1285

I understand the purpose of this study. I agree to the terms and conditions of this study.

I, (Name) _____ (Signature) _____agree to the above.

Date: _____

I, Seyram Avle (Signature)_____ agree to conduct this study according to the terms outlined above.

Date: _____

Appendix C: Survey

<u>Recruiting participants for web survey on mobile developers in Ghana</u>

The purpose of this survey is to find out about Ghana's mobile development sector, particularly the profiles and views of the people working in it. It will take you between 6-10 minutes to complete this survey depending on your internet connection. It might be a bit longer if your Internet connection is really slow. Your responses will help provide an inside view and help us identify key issues in the sector.

Participating is completely voluntary. There are no risks involved and the topics covered are not sensitive. We do not ask for your name or email address and your responses will not be linked to you in any way. Your responses will help provide an inside view of the sector and guide researchers in providing recommendations about key issues affecting the sector.

The University of Michigan Institutional Review Board Health Sciences and Behavioral Sciences has determined that this study is exempt from IRB oversight. If you have any questions you may contact Seyram Avle at <u>seyram@umich.edu</u>.

Thank you for your time.

<u>Welcome Page on Survey Site</u>

Welcome, and thank you for taking our survey!

The purpose of this survey is to find out about Ghana's mobile development sector, particularly the profiles and views of the people working in it. It will take you between 6-10 minutes to complete this survey depending on your Internet connection. It might be a bit longer if your connection is really slow. Your responses will help provide an inside view and help us identify key issues in the sector. Participation is completely voluntary. There are no risks involved and the topics covered are not sensitive. We do not ask for your name or email address and your responses will not be linked to you in any way.

If you have any questions you may contact us at <u>mobiledevstudy@umich.edu</u>.

Please click the arrow below to begin.

<u>Survey Questions</u>

What is your age group?
18 or Below
19-24
25-34

35-44
45-54
55-64
65+

What is your gender?
Male Female

What is your highest level of education?
High School
Polytechnic Specialized IT School (e.g. NIIT, IPMC, KACE-AITI, etc)
Teacher Training College
University
Post Graduate (including MEST)

Please specify
In Ghana - Private (eg. Ashesi, Central, Valley View, etc)
In Ghana - Public (eg. UG-Legon, KNUST, UCC, etc)
 Outside Ghana

What field is the degree you graduated in? Please select all that apply if more than one.
Physical or life sciences (eg. Biology, Chemistry, Physics, etc)
Humanities (eg. Philosophy, Literature, Modern Languages, etc)
Social Science (eg. Psychology, Political Science, Economics, etc)
Technical (eg. Computer Science, Engineering, etc)
Professional (eg. Law, Architecture, Business, etc)
Where in Ghana are you currently located?
Accra
Kumasi
Other

Please specify where you are currently located.
[Free response]

Which, if any, programming languages did you learn in school (eg. C++, Java, PHP, perl, etc). Please list all that apply. If none, please type 'none'.
[Free response]

Which programming languages, if any, did you learn on your own? (eg. C++, Java, PHP, perl, etc). Please list all that apply. If none, please type 'none'.
[Free response]

Which of these languages, if any, do you use most often? If none, please type 'none'.

[Free response]

Have you ever created an application (app) for mobile phones?
Yes, I created one in the past
I am currently working on one
Yes, I created one in the past and I am currently working on another one
No, I have never created an app, neither am I working on one right now

What kind of mobile phone is your latest app meant for? Please select all that apply.
Basic phone (voice and SMS only)
Feature phone (Java enabled)
Smart phone

Which smart phone platform(s)? Please select all that apply.
iOS
Android
Symbian
Blackberry
Windows S40
Other (including Bada and Meego)

Does your app need to be directly linked to a telco (Vodafone, MTN, Tigo, etc)?
Yes
No

Have you been able to establish a working link with any of the telcos?
Yes
No, I failed in that attempt and will not be trying anymore
Not yet, I am still trying to work that out with the telco

Which telcos? Please select all that apply.
MTN
Vodafone
Tigo
Airtel
Expresso
Glo

Broadly speaking, what kind of product or service does your app provide?
Finance (eg. payments, commerce, etc)
Entertainment (eg. music, games, etc)
Information (eg. news, search, etc) Social (eg. messaging, social networking, etc)
Other

Please explain. You do not need to give specifics of the app, just the general

description as in the examples provided in the previous question.
[Free response]

What stage is the app at right now?
Concept development
Business Analysis - Alpha Testing
Beta Testing
Deployment - Full Commercialization

How long has it been at this stage?
Less than 3 months
3-6 months
7-12 months
1-2 years
Over 2 years

Overall, how long did it take from initial concept development to this stage?
Less than 3 months
3-6 months
7-12 months
1-2 years
Over 2 years

In what capacity did you create this app?
On my own or as part of my own company
For my employer
As a short-term consultant for someone else or an organization/business
For a telco (Vodafone, MTN, Tigo, etc)

Have you developed an API or are you developing one right now?
Yes, I developed one in the past
Yes, I am currently developing one right now
Yes, I developed one in the past and I am currently working on another one
No, I have neither developed an API in the past now am I working on one right now
I don't know what an API is

Do you currently own any kind of business or company?
Yes, I own a business and this is my full time employment.
Yes, I own a business or company but I also work part-time for another company.
No, I do not own a business or company. I am an employee at a company or organization.
No, I do not own a business or company, neither am I employed anywhere.

Is the company you own registered?
Yes
No

Is the company you own an Information Technology (IT) company?
Yes
No

What kind of IT?
Software
Hardware Services (eg. installation of third party hardware and software, consulting, data management, etc)
A mix of the above

Specifically what kind of software?
Mobile applications
Desktop applications
Websites/ web services
Other

Where did you get the majority of the financing to build the current business you own?
My own savings
Bank
Family and/or friends
Venture capital
Other

Please explain:
[Free response]

How easy or difficult has it been to grow the current business you own?
Very Difficult
Difficult
Somewhat Difficult
Neutral
Somewhat Easy
Easy
Very Easy

How would you characterize the profits in the current business you own?
None
Little
Some
A Lot

Have you owned a business or company in the past?
Yes
No

Was this business or company in the Information Technology (IT) sector?
Yes
No

What sector was it in?
Finance
Retail
Health
Mining, Oil or Gas
Media
Education
Other

What kind of IT?
Software
Hardware
Services (eg. installation of third party hardware and software, consulting, data management, etc)
A mix of the above

What kind of organization do you work currently work for?
Government
For-profit company
Non-profit organization

What industry or sector is your company or organization in?
IT
Finance
Retail
Health
Mining, Oil or Gas
Media
Education
Other

How many employees (apart from you) work for the company you primarily work for?
0-4
5-9
10-19
20-49
50-99
100+

Are you planning to start or own a business focused on mobile applications in

the future?
Yes
No

How would you characterize the level of risk in starting a company in the mobile applications sector in Ghana?
None
Little
Some
A Lot

In your opinion, what is the most challenging issue with starting a mobile applications company in Ghana?
Access to funding
Employing people with the right skill set
Bringing your product to market/ commercializing your service
Getting customers or clients
Other

Please explain:
[Free response]

Based on your experience, how easy is to start an IT company in Ghana?
Very Difficult
Difficult
Somewhat Difficult
Neutral
Somewhat Easy
Easy
Very Easy

Have you ever been part of a business technology incubator or hub?
Yes
No
I don't know what that is

How often do you attend formal conferences (like G|Ghana, BarCamp Ghana, etc) on technology development?
Not At All
Occasionally
Frequently

In your opinion, how important is attending a formal conference to being a technology developer in Ghana?
Not at all Important
Somewhat Unimportant

Neither Important nor Unimportant
Somewhat Important
Very Important

How often do you attend informal networking events (like lunch meetings or evening socials) on technology development?
Not At All
Occasionally
Frequently

In your opinion, how important are informal networking events to being a technology developer in Ghana?
Not at all Important
Somewhat Unimportant
Neither Important nor Unimportant
Somewhat Important
Very Important

In your opinion, people who work in the mobile applications sector in Ghana collaborate with each other more than other IT sectors.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree

It is a realistic goal for me to build a globally competitive company from Ghana in IT.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree

The government of Ghana is supportive of the IT sector.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree

The government of Ghana is supportive of technology entrepreneurs.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree

Strongly Agree

IT is the best industry to be in Ghana if I want to succeed in life.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree

Ghana is the best place to be if I want to be successful in life.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree

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