Research Article

The Problematics of the "Bottom of the Pyramid" Approach to International Development: The Case of Micro-Entrepreneurs' Use of Mobile Phones in Morocco

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The major innovational problems that the entrepreneur faces are organizational rather than technical . . . and the capacity to form efficient economic institutions.

C. Geertz, 1963, p. 28

Abstract

Over the past decade a significant philosophical shift has taken place in the development world, emphasizing privatization, market participation, microfinance, and other approaches to poverty alleviation over top-down, statist interventions. At the same time, some of the claims and results associated with such programs have met with pointed critiques. This paper examines some of these debates in the context of mobile phone adoption among low-income skilled and semi-skilled laborers in Morocco. There is no question that access to productive resources, greater access to markets, and associated measures can benefit people with low incomes, as this paper discusses. As we also discuss, however, there are a number of factors that limit the success of such interventions, perhaps none more so than the level to which economic actors have the ability to determine the use and disposition of productive resources, and to form their own productive relationships via such resources. In this sense, perhaps not surprisingly, economic assistance can never be dissociated from political empowerment.

Introduction

One of the significant shifts in development thinking to occur over the past decade is the emphasis on "bottom-up" market forces. Hallmarks of this shift include privatization, entrepreneurship, and access to capital through institutions such as microfinance lenders. Many of these hallmarks are encapsulated in a development approach now commonly referred to as the "bottom of the pyramid" (BoP) (Prahalad, 2004; Prahalad & Hart, 2002). One of the hallmarks of BoP thinking is a newly imagined role for multinational corporations (MNCs) and a de-emphasizing of the role of the state. Prahalad and Hammond assert that "prosperity can come to the poorest regions only through the direct and sustained involvement of multinational companies" (2002, p. 49). Information technology similarly looms large in such analyses. Markets that were once either too difficult to reach or too poor and informal to be of interest can, as the thinking goes, be made accessible through the use of ICTs. Con-

versely, market forces are recognized as a key to the sustainable deployment of ICTs (e.g., Best & Maclay, 2002). The proliferation of ICTs, especially mobile phones, seems to bear witness to the benefits such resources can bring to low-income people around the world.

Others have challenged many BoP tenets from the vantage of both business and development agendas (Best & Kumar, 2008; Karnani, 2007, 2009; Kuriyan, Ray, & Toyama, 2008). Privatization, microfinance, and the involvement of MNCs have, in many cases, proven disastrous for everyone involved, as is discussed below. What explains this apparent dichotomy? This article examines these issues in the context of ICT adoption among low-income laborers in Morocco. Based on ethnographic and survey evidence, we note that mobile phone use expands the productive opportunities of certain types of activities by enhancing social networks, or as other researchers have noted (Donner, 2006; Horst & Miller; 2005; Ling, 2004), by reducing risks associated with employment seeking. However, we also note a phenomenon to which less attention has been paid: the change in entrepreneurial agency, the degree to which people in low-income situations have the power to adapt and use such resources as they see fit. In this regard, we note the importance of what these low-income laborers describe as *bricolage*—the active and strategic assembling of diverse economic opportunities through the use of mobile technology. Perhaps the most important element of entrepreneurial agency is the ability to form and shape networks of one's own choosing. Locally constructed networks are the means by which entrepreneurs are able to deliver value, make a business self-sustaining, and propagate value to the community more broadly. Equally important, such networks become the locus for the creation of more than just business value—they also represent the means by which much social capital is created. Most of the BoP literature fails to recognize this key element in value creation, as is discussed, leading to significant distortions and misconceptions.

The remainder of this paper is organized as follows. In Section 1, we present a brief introduction to the constellation of market-based development interventions commonly referred to as the "bottom of the pyramid" approach, along with a number of critiques of BoP or market-based initiatives. In Section 2, we introduce the landscape of mobile phone

adoption in Morocco, including the underlying political frameworks that have driven an agenda of privatization. In Section 3, we review our research results in detail, examining how mobile phones both depend on and enhance entrepreneurial agency. Finally, in the concluding section, we re-examine the issues in light of this notion of entrepreneurial agency.

Section 1: Contested Notions of Development

Beginning over a decade ago, a growing body of literature espoused what was regarded as an alternative to statist, top-down approaches to development in favor of more bottom-up, market-driven approaches. Elements of the argument of "the bottom of the pyramid" include the following: (1) There is a vast, untapped purchasing power opportunity among the poor, and private companies can profit by selling consumer goods to the poor; (2) selling to the poor and creating new markets can be both an effective approach to overcome the obstacles of underdevelopment and an opportunity for corporations to profit; and (3) the direct use of private sector and business-driven strategies ought to be applied, especially the business savoir faire of large multinational corporations, to tackle the ills of underdevelopment in the areas of agriculture, health, nutrition, hygiene, cosmetics, and telecommunications. This business proposition has been adopted by various development agencies. These claims rest on a set of business school case studies, including Unilever in India and Casas Bahia in Brazil, and use these examples to link the expansion of consumer goods sales (i.e., soap and credit) to educational interventions focused on the prevention and elimination of disease and microcredit loans targeting the poor. For Prahalad (2004) and like-minded business experts (Best & Maclay, 2002; Hammond, Kramer, Tran, & Walker, 2007; Prahalad & Hammond, 2002), such business forays into the world of the poor represent a win-win solution for all stakeholders in the sense that economic and social objectives can be attained simultaneously. Consequently, they contend, selling products to the poor is not only a wise economic transaction, but also a poverty-alleviation strategy in its own right.

Moreover, using the examples of the Grameen Bank's business model to provide small loans to

serve the needs of the poor and Unilever's innovations in marketing soap as a social good, Prahalad and Hammond argue that the private sector has created a framework for development agencies to draw on their efforts to deal with poverty alleviation. Within the logic of inclusive capitalism, corporations have been scrambling to expand market share of their brands among the poor. They have gone to the extent of collaborating with consumers and government and nongovernment organizations to publicize concerns about public issues (e.g., health and microcredit) to better position their products (Cross & Street, 2009; Simanis, Stuart, & Duke, 2008).

This shift has implications for the ways in which "development" is framed, pointing to a fundamental re-assessment of the ways in which poverty is tackled. Using Foucault's (1970) work on knowledge and power, anthropologists have challenged the assumptions that undergird the notions of development and modernization theories.[1] They have argued that the development industry, with its institutions and ideologies, while presented as scientific, objective, and politically neutral, actually construct their target populations in specific ways and exercise power and influence over them (Escobar, 1990; Ferguson, 1990; Gardner & Lewis, 1996).

Escobar, for instance, has probed the history and discourse of development and modernization in the so-called Third World, viewing these practices as part of the exercise of power, what he refers to as "mechanisms through which a politics of truth is created and maintained, through which certain forms of knowledge are given the status of truth" (1995, p. 45). Development and its modernizing practices, he argues, use a repertoire of instruments and techniques to organize and arrange a particular form of knowledge and a particular type of power. The expertise and knowledge base of development planners transcend the social reality of the clients of development projects, who are identified and thus structured into particular roles, categories, and attributes (women-headed households; backward, irrational, poor, isolated, inefficient, or underserved

communities; emerging regions; and so on). While clients are seen as individuals who need to be lifted from poverty, Escobar argues, development planners control target populations and limit their room to be creative. The implications are that development, especially top-down initiatives, will transform and modernize target populations and areas; and, second, that change is driven by outside developers (Escobar, 1990).

A careful reading of the BoP literature and examination of associated efforts suggest similar critical vulnerabilities. We summarize these in terms of three key critiques:

1. **BoP literature ignores the effects of social inequality.** In its theorizing of "the poor," the BoP literature ignores forms of social stratification within societies—either because it assumes these to be homogeneous, or because it hopes that, eventually, economic growth will level the playing field for everyone. And yet, as research has shown, structural inequities can be reinforced by BoP interventions. In his ethnographic account of the Grameen Bank lending practices in Bangladesh, for instance, Rahman (1999) demonstrates that, in targeting women for microloans and using women's groups as social collateral, microcredit actually creates debt and violence, perpetuating social hierarchies among women. Rahman also shows that the assumption that women can be empowered with microcredit is problematic. He clearly shows that the discourse of gender and development assumes that all women are equal and homogeneous, thus neglecting the underlying structural factors, such as patriarchy and the code of honor and shame that play a significant role in shaping and perpetuating gender inequalities. Thus, women do not necessarily benefit from their loans, and some women obtain loans on behalf of their male relatives. Consequently, through the deliberate use of patriarchy and

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1. *"Modernization theories" of the 1950s and 1960s continue to dictate development discourse and practice today. They refer to the evolutionary process of transitioning from a traditional society to a modern one. Much emphasis is put on rooting rationality and scientific knowledge in the economic, political, and social spheres: inculcating the spirit of free enterprise in poor, irrational, and profit-unmotivated people; replacing tribal authority with democratic rule; and stressing secularization and individual achievement (Sztompka, 1993).*

its network of cultural values and social obligations to expand capital penetration, microcredit programs succeed in exacerbating gender inequalities and *disentitling* women, rather than empowering them. Like Rahman, Rankin (2001) examines the impacts of microcredit in Nepal and argues that microloans constitute obstacles to women's empowerment. She contends that women's perceived lack of empowerment is not due to the lack of capital, but due to the fact that "constraints on the ownership of property and on women's mobility outside the household limit their capacity to expand markets, invest in technology, or innovate in response to new opportunities" (2001, p. 31). Rankin argues that microloans, far from empowering women, are channels for the state to mediate the articulation of the global discourse and practices of neoliberalism with local development concerns. In essence, microcredit programs serving the bottom of the pyramid, she states, provide strategies to deepen the reach of global capitalism in a way that also serves state power and presence at the local levels of decision making (Rankin, 2001). This ideological lapse, present in both original development agendas and their current neoliberal manifestations,[2] downplays the power dynamics that have made the poor "poor" and only partially visible in the first place.

2. **Emphasis on market-based solutions depoliticizes poverty.** Some (Sen, 2000) regard the emphasis on market-based solutions as a deliberate attempt by the right to depoliticize the debate surrounding human development and the right to make demands on the state. Regardless of intentions, an overly simplistic or optimistic embrace of privatization can clearly highlight such tensions. Consider the example of the "Cochabamba Water Wars" in Bolivia. In 2000, with the support of the World Bank, the government of Bolivia sold control of its public water utility to a consortium of private companies (Aguas del Tunari). The people of Cochabamba refused to pay higher water prices, and when the government failed to reverse its water privatization decision, a coalition of peasants, teachers, students, and workers formed and joined in public protests to keep water under local public control. These demonstrations led to the declaration of a state of emergency, to the suspension of rights to strike, and to legitimization of the use of the armed forces to quell civil discontent and unrest. Ultimately, Aguas del Tunari withdrew from the deal and the protest organizers terminated the strikes. As the demands for privatization of government water delivery services are increasing on a global scale, with proponents claiming that the poor will benefit from the dividends of privatization, grassroots movements are increasingly contesting the direct intervention of private corporations in these critical economic and social spheres. There is also growing evidence that privatization results in higher fees for basic services and fails to reach poverty-strapped segments of society and those who have no access (Olivera & Lewis, 2004).

3. **Market-based solutions overemphasize consumption at the expense of political agency.** To enlist multinational corporations in market-based solutions to poverty entails an imagination of the global poor as a vast, untapped "market" of consumers. As Karnani (2007) has pointed out, there is no single, vast market in any sense. More to the point, in the BoP business case studies, the poor are primarily imagined as *consumers,* whose agency, if imagined at all, is primarily construed in terms of choice exercised with respect to product offerings. This technique of labeling the poor in apparently value-neutral categories does not simply redirect discourse on basic human needs and services away from the political (as discussed above); it also disempowers the supposed

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2. *Harvey defines neoliberalism "as a theory of political economic practices that proposes that human wellbeing can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade" (2005, p. 2).*

recipients of any real economic agency. Few of the technologies, programs, or institutions examined in the BoP literature represent resources that local entrepreneurs are able to own, appropriate, and master in ways that suit their level of skill and recognition of local opportunities. Rather, initiatives such as the Grameen Bank and Unilever's soap marketing tend to focus the entrepreneurial urge, structure activities, and even appropriate local resources (such as local coping mechanisms and funds of social capital) to deepen the reach of nonlocal interests (Elyachar, 2005; Karnani, 2007).

Section 2: The Mobile Phone

It is in the context of this critical engagement of market-based development that we examine the role of new communications technologies in Morocco. Clearly, the mobile phone is a force to be reckoned with in the modern world, and just as clearly, as we examine, its presence owes much to privatization and market forces. According to the International Telecommunication Union, there were 3.3 billion mobile phone users worldwide by the end of 2007, equivalent to a global penetration rate of 49% (ITU, 2008).

A growing body of social scientific and ethnographic research has begun to examine the impact of mobile phones on issues of economic opportunity and productivity. Much literature suggests that the availability of telecommunications increases income and makes local economies more efficient (see Aker, 2008; Jensen, 2007; Sullivan, 2007). From an urban planning point of view, Townsend suggests that this economic stimulation is a product of intensified activity.

> [T]he mobile might lead to a dramatic increase in the size of the city, not necessarily in a physical sense, but in terms of activity and productivity . . . the intensification of urban activity, the speeding up of urban metabolism. (2000, p. 14)

Ling (2004) similarly argues that the mobile phone allows for increased personal security, fluidity, and coordination of activities.

From an ethnographic point of view, the data is more mixed. Horst and Miller (2005) report that, in Jamaica, "the phone is used much less among low-income Jamaicans in connection with either jobs or entrepreneurship than we anticipated" (2005, p. 761). They suggest that the function of the mobile is to "link up," referring to ways in which Jamaicans keep an active inventory of personal and kinship networks to be tapped into when social and economic needs arise.

Samuel, Shah, and Hadingham (2005) examine the use of mobile phones by microentrepreneurs in South Africa, Tanzania, and Egypt, finding that 60% of the surveyed microentrepreneurs in each country reported that the mobile phone has contributed substantially to their business profits. Donner, although not centered on the economic value of mobile phones in Rwanda, argues that "microentrepreneurs use their mobile phones to increase the frequency of their contact with friends, family, and existing business contacts and to facilitate new contacts with business partners, suppliers, and customers" (2006, p. 14). Additionally, because Tanzanian farmers and informal construction workers prefer face-to-face communications and do not give primacy to the mobile phones in their daily activities, Molony (2008) found that mobile telephony has a limited role in the economic and social lives of Tanzanian workers. He writes, "[W]hile mobile phones can help forge new relationships within the market, they play little part in strengthening current relationships" (2008, p. 654).

Our mixed-method study both provides another case study to this growing literature on the productive uses of mobile telephony and fills a gap that has not been addressed in the literature: We argue that mobile phones, especially when coupled with an entrepreneurial strategy known as *bricolage,* begin to *transform,* rather than only amplify or reinforce, social and economic networks. Our survey data suggest that mobile phones make a financial difference in the lives of microentrepreneurs, and not simply by virtue of the ability of the mobile to compress time and space. As is discussed, the mobile phone is used to both intensify and extend local and nonlocal forms of communications within social networks. In so doing, users have employed the mobile to create new pockets of entrepreneurship and special social ties, enabling them to stitch together opportunities that would otherwise be impossible.

The arrival of mobile phones on the Moroccan landscape unarguably owes much to privatization. In the 1980s, facing a negative balance of payments,

severe budget deficits, and the burden of servicing international debt, Morocco subscribed to the World Bank and International Monetary Fund packages of structural adjustment policies, or the so-called "Washington Consensus" (see Rodrik, 2006; Williamson, 2000). This led to a fundamental shift from the state-based planning of economies to a free-market strategy—one under which Morocco opened state-run monopolies to foreign competition. In the mid-1990s, there was also recognition of the importance of promoting production of high-tech industries, given their potential to create wealth, jobs, and revenues for the state. The state revamped its tariff regime and established a new legal and administrative framework for the rapid adoption of information technology. The Moroccan government has, since that time, increased investment and adopted policies favoring the use of mobile technologies such as wireless telephony, computers, and the Internet to boost business, enhance connectivity and efficiency, reduce bureaucratic red tape, make government machinery transparent, accommodate the new international requirements of e-commerce with the European Union and other trading partners, and improve the population's economic and social standards of living (Hajji, 2001).

No other sector in the Moroccan economy has felt the force of these economic policies greater than the telecommunications sector. In 1997, Morocco's Post Office and Telecommunications Act, or Law 24–96, was passed, allowing for a favorable legal framework and business climate for the liberalization and privatization of the telecommunication industry. As a result of these legal reforms, the old National Post Office and Telecommunications Agency was broken into two entities: a telecommunications entity called Maroc Télécom and a postal-services entity called Poste Maroc. An independent regulatory authority, the National Telecommunication Regulatory Agency (ANRT), was also created. Under this new legislation, ANRT has been in charge of implementing telecommunication policy, administering the application of laws and regulations with respect to all those involved in the telecommunications sector and industry, and resolving conflict. The liberalization and partial privatization of the telecommunication sector has had positive economic impacts. In 2000, the French media and telecommunications group, Vivendi Universal, paid US$2.4 bil-

lion for a 35% stake in Maroc Télécom, a figure which was increased to 51% in 2004. The Médi Télécom consortium paid US$1.1 billion to acquire the second GSM license. These license sales were judged by market analysts, at the time, to be the most profitable transactions in the GSM markets ever in an emerging market. In 2007, the nation's third telecommunication company, Wana, a subsidiary of Omnium Nord Africain (ONA), which is a dominant private group in Morocco, entered the telecommunications market (Hajji, 2001; Ilahiane, 2004; ITU, 2001).

The uptake of mobiles has exceeded even the most optimistic market projections, given that the country is classified as a low-income country, with an annual per capita income of US$1,200 (UNDP, 2003). As of 2008, Morocco had 20.029 million mobile subscribers, up from 16.005 million at the end of 2006 and 2.550 million in 2000. According to the figures from market regulator ANRT, mobile penetration had reached 65.66% of the population, versus 53.54% a year prior. Out of the total mobile user base, only about 4% used postpaid services, while the rest were prepaid. By way of comparison, there were 520,080 Internet users, equivalent to a penetration rate of 1.7% (ANRT, 2007). In sum, thanks in part to privatization of telecommunications, a great number of people have availed themselves of the benefits of mobile telephony. In the following section, we examine how one group of people benefits from such technology.

Section 3: Research Methods and Initial Survey Findings

This article draws on ethnographic research on mobile phone use and economic productivity among skilled and semi-skilled urban microentrepreneurs, centered in a shantytown in the city of Mohammedia near Casablanca. This study examines the way in which the mobile is put to economic use to create and augment business opportunities and social networks. It also investigates daily calling practices of users by analyzing incoming and outgoing logs of voice calls, the proportion of personal and business voice calls, and trends of landline phone usage. In addition to the ethnographic practice of participant observation, the lead author conducted structured interviews using a questionnaire format in the summer of 2003 with 32 informal

microentrepreneurs. The group included plumbers, carpenters, electricians, tile-laying masters, maids, and skilled construction workers.

The questionnaire consists of four parts. The first part captures standard demographic and socioeconomic characteristics of respondents (place of residence, household size, occupation, gender, age, marital status, years of education, and ethnicity). The second consists of a technology inventory of each respondent's communicative ecology (number of bicycles, mopeds, cars, radios, televisions, fax machines, satellite dishes, or personal computers; access to the Internet; mobile and landline phones; mobile phone fees; mobile phone brands; and name of mobile phone provider). The third section provides detailed information about the daily frequency of personal and business incoming and outgoing voice calls, the average annual income before and after the use of mobile phones, and the average contribution of *bricolage* or freelance service activities to one's annual revenue. The format also records the type of person, or the call-partner, with whom each communication was made (family, friend, neighbor, supplier, employer, employee, or business partner); the content of that call; and its place of origin. The fourth section deals with ethnographic questions about users' perception of, and attitudes toward, the transformative qualities of the mobile phone, as well as about stories concerning its economic multiplier effect and de-localization of business networks. Using a snowballing technique to recruit respondents, our study involved 32 microentrepreneurs using mobile phones with prepaid calling cards.[3] Interviews were conducted in Moroccan Arabic and Berber during weekdays, except Sundays (considered by respondents as a day of rest), usually shopping in the *suq* or playing soccer on the beach with fellow *hrayfiya.* Because of low levels of education and the tradition of voice in communication exchanges, short message system (SMS) or text messaging were not used, although most respondents talked about the use of beeping—calling and hanging up after the first

ring—or "pinching," in local parlance, their customers, employers, and suppliers (Donner, 2008).

Of the surveyed sample, 78% of interviewees were males, and 22% were females, with a median age of 31 years. Most had been schooled in Quranic or modern educational institutions: 12.5% were illiterate, 3.1% attended Quranic schools, 59.4% attended primary schools, and 25% attended secondary school, but none of them attended postsecondary school or university. The average length of education was 5.5 years. In terms of household conjugal status and size, 38% were married, 53% were single, and 9% were divorced, with an average of 3.5 persons per household. As for the ethnic composition of the sample, 75% were Arab, while 25% were Berber. The occupational profiles of respondents included plumbers (21.9%), carpenters (9.4%), tile-laying masters (18.6%), skilled construction workers (12.4%), electricians (15.5%), and maids (21.9%).

One of our key research interests was the way in which mobile technologies fit into a broader ecology of other modes and means of social contact and media use. This included identifying any and all alternative means, including modes of transportation. The average number of bicycles per individual surveyed was 1.5, mopeds stood at 1.3, video players stood at 1.03, radios at 1.5, television sets at 1.25, and satellite dishes at 1.5. While ownership of traditional forms of mass media appears to be fairly ordinary, the average number of mobile phones per respondent is 1.3, and the number of mobile phones acquired over the last five years was 3.0. None of our respondents owned a personal computer, access to the Internet was insignificant, and none had a complementary landline, except one respondent who had a landline at work.

As indicated, however, all of those whom we engaged in the field own a mobile phone. Quantitative evidence on usage patterns of mobile phones for personal and business calls shows a monthly mean of 38.06 personal calls and 102 business calls per respondent. The analysis also shows that respondents spend a monthly average of 130 Moroccan

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3. First, while the snowballing technique is problematic in terms of sample selection, we do not advocate that this study sample is representative of the city's population, or even of Morocco's. Second, given the nonexistence of census data on the informal sector and its practitioners at the city level, snowballing seemed to be the appropriate way to conduct this study. Third, we are aware of the biased tendency of informants to know or point researchers in the direction of individuals like themselves. But we are more interested in understanding the setting or question in depth and from the point of view of informants than we are in knowing the distribution of variables across a population.

dirhams, or US$13, on prepaid calling cards, and about 77 Moroccan dirhams, or US$7, on public (*téléboutique)* phones. While monthly incomes vary according to skill sets and seasonality, respondents spend, on average, about 4.8% of their monthly income on telecommunication fees, 3.8% on pre-paid calling cards, and 1% on public phones.

To assess the economic impact of the mobile phone, both on users' income and on shaping respondent social networks, we examined the best pre- and post-mobile average incomes in good years. The analysis indicates that mobile phone use has resulted in an increase of 56% in users' incomes—a considerable amount.

Indeed, *hrayfiya* have exploited the coordination and organization capabilities of the mobile. Of the surveyed sample, 25% of respondents have success-fully harnessed the portability asset of the mobile and created micro-enterprises employing between four and 19 workers in and out of town. Based on this latter finding and adding to growing evidence that suggests access to telecommunications boosts incomes and creates economic opportunities (Donner, 2006; Jensen, 2007), among this 25% of respondents, we also found that one additional mobile phone creates about 8.62 jobs and travels an average distance of 405 kilometers.

Section 4: Analysis—*The Mobile Phone is the Sixth Pillar of Islam*

Our survey research clearly indicates positive eco-nomic impacts of mobile phones. What are the sources of this increase in income? As our analysis suggests, there are a number of contributing fac-tors.

One of the benefits is a lowering of the cost of finding work. Most respondents draw circles—increasingly large circles—to illustrate the "serious" economic benefits associated with the mobile. The phone has enlarged the radius of distance *hrayfiya* travel for work by extending the effective radius of awareness of opportunities at little or no cost or risk. One plumber traveled from Mohammedia all the way to the city of Dakhla (2,000 kilometers away), where a company had a contract to build schools. "One of the employees who used to work for the company [a plumber], he was let go, the company said, 'We'll call you if we need you.'" The colleague received the call, and called his plumber

friend. The mobile has thus bought more than just convenience for the worker and the hiring party, and it has enabled the connection of those needing labor with those providing it. Both sides are incentivized. This is particularly important in places where these construction companies do not want to keep a regular workforce. It makes it easy for a company to keep a virtual workforce, saving money. "I keep you in my range!" This little bit of connec-tivity appears to be driving major economic trends. It optimizes both the laborer's time and the hiring cor-porations, because they have access to a more fluid and dynamic workforce.

But how are these networks of contact main-tained? As mentioned, prior ethnographic work on the use of mobile phones emphasized the various means by which individuals manage relationships for economic benefit. Donner (2006), for instance, reports that Rwandan microentrepreneurs use the mobile phone both as a "job telephone," and as a tool to increase the frequency of their contacts with friends, family, and existing business contacts, and to facilitate new contacts and leads with business partners, suppliers, and customers. While there is a potential economic impact of the mobile phone, he points out that the device is mostly put to use within the immediate and inclusive networks. That seems to hold true among our survey participants, and it is illustrated in many of their stories. Everyone had a story about how the phone is a means of staying in touch, or *tawassul,* and about how this staying-in-touch or staying-in-communication is vital to revitalizing dormant/weak ties and knowing what is happening in the social and economic scenes. One electrician said,

> When I met Youssef, we worked on a job to-gether in Meknes [210 kilometers from Mohammedia]. He was a nice guy, but after the end of the job, the relationship was over. Now the phone allows us to keep in touch. I have him [meaning his number] in my phone and he has me in his.

Another plumber told me, "One week I had nothing to do. I called my friend in Fez. He knows I'm a good worker. He told me there is work."

This use of the phone seems to stand in contrast to uses reported by Goodman (2005) in South Africa and Tanzania, where mobiles are being used more often to sustain existing and strong social ties, espe-

cially family, than to support or build weak ties. As in Goodman's study, the mobile in Morocco serves as an additional channel by which workers sustain strong ties by extending relationships in time and refreshing local or horizontal bonds; it also slows the decay rate of vertical and external bonds. This intensification seems to offer potential for productivity. Such intensification may ultimately depend on a mélange of place-based and interest-based networks—locations where the preparations for such intensification are made possible.

Consider the telling example of one plumber who also owns a plumbing store. He was the only respondent in the surveyed sample with a landline phone subscription. This plumber exists at the hub of an entire network of carpenters, plumbers, electricians, masons, roofers, tile makers, maids, and others. The mobile phone, as per Townsend's insight, enables the plumber and his contacts to rapidly mobilize in response to a need or opportunity. Note, however, that the effectiveness of the mobile network rests on a somewhat more complex mix of place-based and interest-based interactions, where the "work" of preparing this network of providers is carried out.

The plumber himself occupies a privileged position within the network by virtue of his modest physical storefront. It represents a known "first stop" for people who do not know where else to turn for help with their household building plans or improvement needs and plans. There are no Yellow Pages; people come to him. The plumber keeps and manages a directory, or *kunash,* listing names and mobile phone numbers of *hrayfiya* (skilled laborers). He is also able to tell customers seeking services about the location and availability status of any of his associates; in a sense, he is in the business of arranging and matchmaking service seekers with service providers. His store serves as a physical anchor, a touch point into a trusted, accountable network of providers. The very presence of the store explicitly or inadvertently communicates to customers the plumber's willing accountability in this system of referrals. "Trust me," his store says, "I will find you the right person. And you know where to find me if he turns out bad."

The plumber's own network of relations, in turn, is built up through a cluster of place-based and interest-based interaction—the café, the soccer field, the mosque, job sites—where working relationships and bonds of trust are formed, and where information about opportunities is exchanged, along with verbal banter and teasing, discussions about the relative merits of techniques and tools, and discussions about other workers and various clients. This cluster of networks provides a kind substrate on which the plumber and many members of his own social network assemble and pursue the relations that govern their modest economic livelihood. In essence, these networks provide the location for the creation of hybrid/synergistic forms of capital described above.

A key point to consider here is that this network-based communication work does more than simply provide economic opportunity. Putnam (2000) discusses the dimensions of social capital forms and builds on Gittel and Vidal's (1998) differentiation between bonding (or inclusive) and bridging (or exclusive). Putnam (2000, p. 13) argues that, while bonding social capital shores up narrow and local interests, bridging social capital can result in extensive and broader forms of reciprocity and networking. To paraphrase Putnam, the *passe-partout* properties (i.e., time and space compression) of the mobile phone provide a "sociological WD-40" to recalibrate and align different, yet complementary, sources of employment, such as shopkeepers, café shops, worker friends, and neighbors. Equally, Granovetter (1973) has argued that, when seeking jobs or political allies, the "weak ties" that bind individuals to distant acquaintances that move in different circles are actually more valuable than the "strong ties" that link one to intimate friends or relatives who operate in the same social and economic niche. As a device used for the micromanagement of time and the fostering of a carpe diem attitude toward manipulation of minute variations in different locations by the always accessible user, the mobile phone succeeds in reinforcing and lowering the cost of interactions, and at the same time, in fusing disjointed networks and activities into coherent and centralized sets of activities (Townsend, 2000). Seen through this lens, the mobile phone simultaneously bonds and bridges users along and across close/thick/dense and distant/weak/thin social and economic dimensions, and this is perhaps where the "secret" to its capabilities, to blur and collate social and economic benefits, dwells (see also Donner, 2009).

This intermixing of social capital creation with

entrepreneurial pursuit is a key aspect that may be underappreciated in development approaches that emphasize consumerism and the involvement of MNCs. The plumber's modest storefront, now augmented with the cell phone, symbolizes the way that new technologies succeed by adding to existing systems and networks. The traditional means of connectivity, such as bicycles, mopeds, or public transportation, likewise contribute to the health of social networks, and they are obviously all necessary for physically getting to job locations. The mobile provides the plumber's customer an instant connection into a network of trusted and "vouched-for" contacts. For the plumber, the mobile provides a chance to make another sale (he becomes the supplier to the contacted workman). The mobile also provides the opportunity to enhance his *social capital,* both by increasing his prestige within the network, and by strengthening his reciprocal bonds with those whom he has referred. For the lucky recipient of the plumber's call, it provides a chance for much-desired work. Mobile phones thus enhance, rather than displace, other places in the network, and the "work" of relationship-building across these other places pays off with the phone call. The network of storefront/worksite/mosque/football pitch/café and the work carried on at these places are both rendered more valuable by the presence of the mobile phone. As Harper (2003, p. 194) has cogently put it, "[T]he mobile is a kind of *invigorating* of social relations," or as many respondents would say, "weaves" existing social and geographical connections, "enabling the same social patterns that have been in existence for quite some time to evolve in small but socially significant ways" (Harper, 2003, p. 187).

Just as important is the recognition that such networking activity must enable people to build from the ground they stand on, so to speak, and to overcome social obstacles, which, in many cases, can be significant. Recalling Rahman's (1999) critique of microfinance, it is important to note here that the success of the mobile rests, in part, on its ability to fit into existing social structures in a way that enables transformation. Our research included work among women who served as domestic help. Many of them reported that, before their adoption of mobile technology, they were essentially prisoners in the homes of their clients. The mobile phone, by enabling them to create or engage their own social networks, had a transformative, empowering effect.

Take the example of Attiqa, a 29-year-old maid with a burning desire to become literate:

> The mobile [*muhim*] is important. I used to get news of family and friends once or twice a month. Now I get news instantly and only if I could read, I would get even texting news and happenings. The mobile allows me to be in touch and to release my pressure and stress. Now, I can call home and can call upon my other maid friends in case of emergency or need. . . . It allows me to communicate with other maids for preparing difficult meals or desserts, to meet friends even briefly at the end of the street, and it is useful for employment seeking and *bricolage* tasks.

Another important outcome of adoption was that many of the maids could find other sources of employment—in many cases, augmenting the incomes of their primary jobs and giving them a greater sense of agency.

This latter element of networking was considered a crucial benefit. As the foregoing analysis hopefully indicates, *bricolage* and social networking are intimately related. For the skilled laborers we interviewed, *bricolage* jobs include emergency or routine home repairs and improvement, usually occurring after normal work hours. Such projects ranged considerably in scope, from fixing a leaking water pipe down the street, to installing water heaters, to major bathroom renovation projects. Such opportunities can only come about as the result of both an extensive social network and a means of engaging that network in a timely fashion. The mobile phone enables both. It is thus, perhaps, not surprising that our data demonstrates that *bricolage* work accounts for 31% of a respondent's monthly income.

When asked about reasons for the purchase a mobile phone, one carpenter looked at me for a minute, shook his head, and released a controlled and short laugh, only to declare in no uncertain terms:

> The mobile is very important for the *hrayfiya* community in terms of communication inside and outside Mohammedia; you are here and there at the same time. The mobile brings work and moves you forward here or anywhere else where jobs are available. That is the secret of the mobile.

One plumber simply said:

> It is my lifeline to earning my bread and to keeping in touch with my family and friends here and

in other places. In addition, you must get one as employers and potential employers always ask for a mobile phone number. With it I have increased my economic earnings.

He continued, with a serious face and a question, "How many pillars are there in Islam?" and the lead author responded, "Five pillars."[4] The plumber responded with poise, "Yes. There are five pillars, but the mobile phone is the sixth pillar of Islam. Now, you know the importance and meaning, or *ma'na,* of the mobile in our daily lives."

This juxtaposition is telling. The five pillars are mandatory rituals and duties (except for pilgrimage). They are not employment means or a simple convenience; they are commandments that every Muslim must put into daily practice. One must profess *al-shahadah,* one must perform the five daily prayers, one must perform alms-giving, and one must fast during the month of Ramadan. These are practices that define what it means to be Muslim. The sixth pillar, or the mobile phone, is thus metaphorically seen as an order—a must. The necessity of doing what it takes to acquire a mobile phone underscores the fact that one cannot go about his or her daily business and rituals without it. It is an obligatory duty that brings job opportunities and possibilities and anchors one's identity, just as the other five pillars of Islam bestow identity and meaning to one's life. In this sense, for the plumber, the mobile becomes both a significant article of faith and a vital and practical tool for tapping into employment opportunities.

As another example, consider the situation of one tile-laying master. He is about 54 years old, and he has been in the tile-laying business for as long as he can remember. One of his dreams was to scale up his tile business operations to "export" his skills outside of his native town, Mohammedia, so he could make more money. Although he tried to do so many times, he always failed. He blamed his failures on time constraints and costs associated with transport, supervision efforts, and communication. Only with the emergence of the mobile phone could the tile master envision the idea of working "here and there." With a mobile phone in hand, coupled with

a great deal of experience in tile work and a good reputation with people, the tile master finally became a contractor. Today, he has three work crews in multiple sites in Mohammedia and Rabat. The mobile has enlarged the circle of opportunities for the tile-laying master, and the mobile, in his opinion:

> . . . is like a saint to whom you go to solve your problems and concerns, and it works miracles for you. It is a blessing that I can sit here in Mohammedia and check on my associates and get information on their progress. There is nothing like it and the money is good. Before I only worked around here, now we are ready to go to your house [referring to the lead author] to put in some good Moroccan ceramic or tile if you wish.

All of the surveyed respondents stressed the importance of owning a mobile phone, and they also emphasized that, by the mere fact of having one, one has access to real and potential job opportunities. For these reasons, many respondents said that they did everything they could, even borrowing money they did not have from aunts or relatives and friends, to buy a mobile phone. One might still ask the question: How does the mobile phone compare as an investment to other options?

Section 5: Discussion—The BoP, Entrepreneurial Agency, and Value Networks

With respect to the rapid adoption of the mobile phone, the combined strategies and opportunities of the telecom operators in terms of innovation and marketing strategies to accommodate the irregular and unpredictable cash flow of the poor, the use of the informal sector to purchase used and cheap mobile phone handsets, and users' agency in combining mobile use with fixed public telephony have all resulted in higher penetration rates of mobile technology among the poor. Taken together, the socioeconomic profiles and working environment of our respondents, coupled with our findings on the use of the mobile to generate more revenue and create microenterprises, appear to reflect the expected outcome at the core argument of the

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4. The five pillars of Islam refer to the obligatory duties that every Muslim must practice. They are al-shahadah (professing monotheism and accepting Prophet Mohammad as Allah's messenger and final prophet), al-salat (prayers), al-zakat (alms-giving), sawm (fasting the month of Ramadan), and al-hajj (pilgrimage to Makah). While the first four pillars are obligatory for every Muslim, the fifth pillar is optional and is a must only for those who are healthy and financially secure.

advocates of the BoP approach (Best & Maclay, 2002; Prahalad, 2004; Prahalad & Hammond, 2002).

However, on close examination, particularly in light of the critiques of BoP, our data shows that there is much more going on, pointing to some important considerations in market-based approaches. Perhaps at the base of all insights should be the recognition that entrepreneurism requires a considerable amount of agency—in particular, agency with regard to the creation and activation of networks for the creation of value. The economic (and personal) value that our contacts derived from *bricolage* was particularly striking. *Bricolage* was possible, as noted, because mobile phones enabled our contacts to assemble, maintain, and invigorate their own networks of contacts, associates, family, and friends.

Comparing mobile phone use among the laborers and maids of Marrakesh to microloan recipients in Bangladesh (Rahman, 1999), it is clear that the entrepreneur's agency in the construction and maintenance of personal networks is vital to financial success (and social justice). This is not to say that mobile phones will work where microfinance fails. Rather, it is to point out that interventions cannot simply reinvent social and political realities. As we saw with the case of the plumber, the mobile phone energized a network built on existing institutions, technologies, and practices—from bicycles to meet-ups at the café. Even the maids in our study had some pre-existing social resources to draw on to build new networks of opportunity.

"Value networks" are an assumed unit of analysis in contemporary business literature for mature markets and industrialized settings, yet this seems to be an underappreciated concept in the market-based development literature. As our research also shows, given the scarcity of material resources in places such as our research site, these value networks will, we argue, artfully blend both social capital and financial and business relationships. Simplistic analyses of mobile phone use that distinguish between "bridging" and "bonding" capital seem to be less useful, as entrepreneurs will decide which are most likely to produce desired outcomes, and thus may engage in strategies for the enhancement of both.

Hopefully, insights such as these will help us to achieve a greater sophistication in our understand-ing of market-based development strategies. First, it is clearly a mistake to regard the poor as only consumers and buyers of multinational products. Second, there is the potential danger of microentrepreneurs being "crowded out" by the financial power and know-how of private companies, thus stunting the growth of local forms of entrepreneurship. Third, the success of these workers is due both to the enabling environment of the private sector that made mobile phones available, and to the workers' creativity, or what Heeks (2008) refers to as *per-poor* innovations, which transform mobile phones into tools of productivity. Indeed, they are innovators and Schumpeterian entrepreneurs in the sense that they "have not only accumulated any kind of goods, they have created no original means of production, but have employed existing means of production differently, more appropriately, more advantageously" (Schumpeter, 1934, p. 132). For Schumpeter, the entrepreneur is the agent of "creative destruction" and the key actor in the reorganization and transformation of the socioeconomic system. For the Moroccan workers discussed above, the distinguishing characteristics appear to be the innovation of mobile technology and the audacious exploitation of economic opportunities that arise. The technical innovations made possible by private companies enable the poor who lack efficient means of communications, ultimately allowing for the formation of efficient and viable microenterprises "of the people, by the people, and for the people." Certainly, within a sustainable livelihood systems framework, the most viable way for the private sector to fight poverty and roll back waste of human talent is to generate technologies that promote unrealized potentials that augment and add value to the agency of the people. ∎

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References

Agence Nationale de Réglementation des Télécommunications (ANRT). (2008). *Le rapport annuel 2007.* Retrieved from http://www.anrt.ma/fr/admin/download/upload/file_fr1525.pdf

Aker, J. (2008). Does digital divide or provide? The impact of cell phones on grain markets in Niger. *BREAD working paper.* Cambridge, MA: Harvard University Center for International Development.

Best, M., & Kumar, R. (2008). Sustainability failures of rural telecenters: Challenges from the sustainable access in rural India (SARI) project. *Information Technologies & International Development, 4*(4), 31–45.

Best, M., & Maclay, C. (2002). Community Internet access in rural areas: Solving the economic sustainability puzzle. In G. Kirkman, J. Sacks, K. Schwab, & P. Cornelius (Eds.), *The global information technology report* (pp. 76–89). Oxford, UK: Oxford University Press.

Cross, J., & Street, A. (2009). Anthropology and the bottom of the pyramid. *Anthropology Today, 25*(4), 4–9.

Donner, J. (2006). The use of mobile phones by microentrepreneurs in Kigali, Rwanda: Change to social and business networks. *Information Technologies & International Development, 3*(2), 3–19.

Donner, J. (2008). Research approaches to mobile use in the developing world: A review of the literature. *The Information Society, 24*(3), 140–159.

Donner, J. (2009). Blurring livelihoods and lives: The social uses of mobile phones and socioeconomic development. *Innovations, 4*(1), 91–100.

Elyachar, J. (2005). *Markets of dispossession: NGOs, international development, and the state in Cairo.* Durham, NC: Duke University Press.

Escobar, A. (1990). Anthropology and the development encounter: The making and marketing of development anthropology. *American Ethnologist, 18*(4), 658–682.

Escobar, A. (1995). *Encountering development: The making and unmaking of the Third World.* Princeton, NJ: Princeton University Press.

Ferguson, J. (1990). *The anti-politics machine: Development, depoliticization, and bureaucratic power in Lesotho.* New York: Cambridge University Press.

Gardner, K., & Lewis, D. (1996). *Anthropology, development and the post-modern challenge.* New York: Pluto Press.

Geertz, C. (1963). *Peddlers and princes: Social development and economic change in two Indonesian towns.* Chicago: University of Chicago Press.

Gittel, R., & Vidal, A. (1998). *Community organizing: Building social capital as a development strategy.* Thousand Oaks, CA: SAGE.

Goodman, J. (2005). Linking mobile phone ownership and use to social capital in South Africa and Tanzania. Retrieved from http://www.vodafone.com/etc/medialib/attachments/cr_downloads.Par.78351.File.dat/GPP_SIM_paper_3.pdf

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360–1380.

Hajji, N. (2001). *Insertion du Maroc dans la société de l'information et du savoir: Pour une nouvelle vision* [Integration of Morocco into the information and knowledge society: A new vision]. Casablanca: Afrique Orient.

Hammond, A., Kramer, W., Tran, J., & Walker, C. (2007). *The next 4 billion: Market size and business strategy at the base of the pyramid.* Washington, DC: World Resources Institute.

Harper, R. (2003). Are mobiles good or bad for society? In K. Nyírí (Ed.), *Mobile democracy: Essays on society, self and politics* (pp. 185–214). Budapest: Passagen Verlag.

Harvey, D. (2005). *A brief history of neoliberalism.* New York: Oxford University Press.

Heeks, R. (2008). ICT4D: The next phase of applying

ICT for international development. *IEEE Computer Society, 41*(6), 26–33.

Horst, H., & Miller, D. (2005). From kinship to link-up: Cell phones and social networking in Jamaica. *Current Anthropology, 46*(5), 755–778.

Ilahiane, H. (2004). Mobile phones, globalization, and productivity in Morocco. In *Information technology, globalization, and the future.* Hillsboro, OR: Intel.

International Telecommunication Union (ITU). (2001). *Effective regulation. Case study: Morocco 2001.* Retrieved from http://www.itu.int/osg/spu/casestudies/#regulation

International Telecommunication Union (ITU). (2008). Online statistics. Retrieved from http://www.itu.int/ITU-D/ICTEYE/Indicators/Indicators.aspx

Jensen, R. (2007). The digital provide: Information (technology), market performance, and welfare in the South Indian fisheries sector. *The Quarterly Journal of Economics, 122*(3), 879–924.

Karnani, A. (2007). The mirage of marketing at the bottom of the pyramid: How the private sector can help alleviate poverty. *California Management Review, 49*(4), 90–111.

Karnani, A. (2009). Romanticizing the poor. *Stanford Social Innovation Review* (Winter, 2009), 38–43.

Kuriyan, R., Ray, I., & Toyama, K. (2008). Information and communication technologies for development: The bottom of the pyramid model in practice. *The Information Society, 24*(2), 93–104.

Ling, R. (2004). *The mobile connection: The cell phone's impact on society.* San Francisco: Morgan Kaufmann.

Molony, T. (2009). Running out of credit: The limitations of mobile telephony in a Tanzanian agricultural marketing system. *Journal of African Studies, 46*(4), 637–658.

Olivera, O., & Lewis, T. (2004). *¡Cochabamba! Water war in Bolivia.* Cambridge, MA: South End Press.

Prahalad, C. K. (2004). *The fortune at the bottom of the pyramid: Eradicating poverty through profits.* Philadelphia: Wharton School Publishing.

Prahalad, C. K., & Hammond, A. (2002). Serving the world's poor profitably. *Harvard Business Review, 80*(9), 4–11.

Putnam, R. (2000). *Bowling alone: The collapse and revival of American community.* New York: Simon & Schuster.

Rahman, A. (1999). *Women and microcredit in rural Bangladesh: An anthropological study of Grameen Bank lending.* Boulder, CO: Westview Press.

Rankin, K. (2001). Governing development: Neoliberalism, microcredit, and rational economic women. *Economy and Society, 30*(1), 18–37.

Rodrik, D. (2006). Goodbye Washington consensus, Hello Washington confusion? A review of the World Bank's economic growth reforms in the 1990s: Learning from a decade of reforms. *Journal of Economic Literature, 44,* 973–987.

Samuel, J., Shah, N., & Hadingham, W. (2005). Mobile communications in South Africa, Tanzania, and Egypt: Results from community and business surveys. Retrieved from http://www.vodafone.com/etc/medialib/attachments/cr_downloads.Par.78351.File.dat/GPP_SIM_paper_3.pdf

Schumpeter, J. (1934). *The theory of economic development.* New York: Oxford University Press.

Sen, A. (2000). *Development as freedom.* New York: Anchor Books.

Simanis, E., Stuart, S., & Duke, D. (2008). The base of the pyramid protocol: Beyond "basic needs" business strategies. *Innovations, 3*(1), 57–84.

Sullivan, N. (2007). *You can hear me now: How microloans and cell phones are connecting the world's poor to the global economy.* New York: John Wiley & Sons.

Sztompka, P. (1993). *The sociology of social change.* Oxford, UK: Blackwell Publishers.

Townsend, A. (2000). Life in the real: Mobile telephones and urban metabolism. *Journal of Urban Technology, 7*(2), 85–104.

Williamson, J. (2000). What should the World Bank think about the Washington Consensus? *World Bank Research Observer, 15*(2), 251–264.