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Mobilizing Markets

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commentary by Al Hammond and Loretta Michaels

CellBazaar: A Market in your Pocket

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Organization of the Journal

Each issue of *Innovations* consists of four sections:

1. **Lead essay.** An authoritative figure addresses an issue relating to innovation, emphasizing interactions between technology and governance in a global context.
2. **Cases authored by innovators.** Case narratives of innovations are authored either by, or in collaboration with, the innovators themselves. Each includes discussion of motivations, challenges, strategies, outcomes, and unintended consequences. Following each case narrative, we present commentary by an academic discussant. The discussant highlights the aspects of the innovation that are analytically most interesting, have the most significant implications for policy, and/or best illustrate reciprocal relationships between technology and governance.
3. **Analysis.** Accessible, policy-relevant research articles emphasize links between practice and policy—alternately, micro and macro scales of analysis. The development of meaningful indicators of the impact of innovations is an area of editorial emphasis.
4. **Perspectives on policy.** Analyses of innovations by large scale public actors—national governments and transnational organizations—address both success and failure of policy, informed by both empirical evidence and the experience of policy innovators. The development of improved modes of governance to facilitate and support innovations is an area of editorial focus.

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Blurring Livelihoods and Lives

The Social Uses of Mobile Phones and Socioeconomic Development

Consider your own mobile phone use over the last 24 hours. Recall the family photos you might have set to appear as caller ID, the ringtone you have chosen, and the bookmarks or applets you may use to check everything from sports scores to movie times. But mainly, just think of the basic flow of incoming and outgoing calls; chances are, you may have used your handset to call a colleague one moment and your mother the next. Even if you haven't made any calls today, your phone is probably on, waiting patiently to connect you to the office, to students, to friends, or to family.

As technologies go, mobile phones are quite flexible. GSM and CDMA networks provide coverage to homes, to workplaces, even to the wilderness. People carry handsets with them as they move from place to place and between social situations. By enabling and strengthening social and economic relationships at a distance, mobiles shift time and place, and complicate contexts and roles to an even greater degree than the landlines that preceded them. Carrying a mobile invites consideration or even reconfiguration of being "at work," "in transit," "at home," or "at play."¹ Mobiles blur the lines between livelihoods and lives, and not just among smartphone-wielding information workers. Rather, this blurring can be experienced by almost anyone engaged with work. Around the world, farmers and fishermen, artisans and day laborers, community health workers and primary school teachers are carrying handsets and using them for both productive and personal uses throughout their daily routines.

This paper focuses on how this intermingling of lives and livelihoods, as mediated by the mobile phone, figures into the micro-processes of economic development. It neither broadly elaborates the core contributions of mobile phone use to economic development (synchronizing prices, expanding markets, reducing transport costs, etc.), nor suggests that one kind of mobile use is more important than another. Instead, it argues simply for a perspective on work and on livelihoods that is broad enough to account for (and perhaps even take advantage of) the social processes surrounding these activities. Analysts, policymakers, and technologists

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interested in the application of Mobiles for Development (M4D) should not ignore the way mobiles blur livelihoods and lives; the developmental and non-developmental uses of the mobile are not in competition, nor are they always distinguishable. Instead, the uses of mobiles for developmental and non-developmental purposes are often interrelated and sometimes mutually reinforcing. The social functions of the mobile (in matters of connection and self-expression) are helping drive its widespread adoption, and these same functions inform the very behaviors that make the mobile a tool for economic development.

MOBILES BLUR BOUNDARIES BETWEEN LIVES AND LIVELIHOODS

Like the landline telephone, mobiles offer connectivity at a distance. By replacing travel, reducing isolation, improving coordination of economic activity, and improving market efficiency, connectivity contributes to productivity and, therefore, to GNP per capita.² Some of the best mobile-specific evidence for this comes from studies by Jenson and Aker,³ who illustrate how mobiles improve the efficiency of markets, enforce the law of one price, reduce waste, and increase productivity. In specific domains, the mobile is proving to be a promising platform for higher-order applications, such as the M-PESA for m-payments and Cell-Life for m-health.⁴ Both systems, and numerous others like them, are mobile applications designed to support instrumental, productive, and essential activities, and each has been lauded for its contribution to socioeconomic development.

However, mobiles are not always viewed or used by individuals in such exclusively instrumental ways—even when they are using these same applications. By examining the mix of calls made by individuals, the content of those calls, and the distribution and use of mobiles in a community, we can see the pervasiveness of the social and non-instrumental uses of the mobile phone and the ways in which these other uses affect the receptivity to and use of M4D-related applications.

The easiest place to observe this blurring of lives and livelihoods is at the level of the call mix. Few individuals make exclusively business or workplace-related calls on their mobile. For example, a survey of the call logs of 277 operators of micro and small enterprises (MSEs) in Rwanda found that roughly one third of the total calls and text messages (incoming and outgoing) were business related. The rest of the calls were chitchat or other interactions with friends and family.⁵ Similar studies, with payphones (not mobiles) in rural contexts in Africa and India, found similar skews toward personal calls, rather than business or commerce distributions.⁶

Since people carry mobiles from place to place and since mobiles are almost always on, placing us and our contacts just a few key presses away, we have become increasingly able and willing to conduct business from home, take a personal call at work, and to multitask while in transit from one place to another. Richard Ling described how these shifts in availability and reachability lead both to *micro-coordination* (a natural flow toward coinciding actions between geographically distant actors) and to a finer interlacing of various conversations, goals, and activities dur-

ing the moments of one's day.⁷ All these properties of mobile communication blur lives and livelihoods, yet none are cutting edge—each is facilitated as easily by a \$10 used handset bought in market in Dhaka as by a \$500 smartphone purchased in an upscale electronics boutique.

It can also be difficult to differentiate an economic call from a social one.⁸ Conversations between longstanding clients may often be to check in and build rapport, trust and social capital rather than to transact any discrete business⁹. In some ways, the mobile may do more to amplify existing transactional relationships than to generate new ones.

In many countries where landlines are relatively scarce, mobile handsets pull double-duty and are carried between the home and the workplace. For the self-employed, this may not be particularly problematic; however, for workers, whether in the private sector, in NGOs, or government, this transportability can lead to difficulties of compensation for airtime and hardware. For example, Nigerian doctors, in the absence of a voicemail system, have been observed using personal mobiles not only to respond when offsite but also when *inside* their hospital.¹⁰ Conversely, midwives in Aceh, Indonesia, take their NGO- and donor-supplied mobiles home at night, using them for personal as well as professional purposes.¹¹

The three cases above (mixed and interlaced personal and professional calls, complex content, and double-duty hardware/airtime) illustrate the difficulties of drawing a sharp line between using the phone for lives and for livelihoods at an individual level. It is even more difficult at broader levels, such as in families and communities. For example, it is all too common for family members to live in separate locations, sometimes for years at a time, in the pursuit of better economic conditions. Seamen, miners, domestic helpers, migrant workers, and other members of the world's global economic diasporas turn increasingly to mobile phones in order to keep in touch with loved ones. In some cases, family members who have left a village purchase mobiles for the family members who stay behind.¹² The mobile phone allows the conduct of family life at a distance—and the line between a call about economic matters versus one brought on by economic circumstances and choices is thin indeed.¹³

In some places, the web of intertwined economic and social relationships extends beyond families. Horst and Miller describe “link up” in Jamaica, in which people use their mobiles to maintain social ties, which can be tapped, on occasion, for loans or small grants. Suggesting that “there is no new spirit of enterprise based either the cell phone or the internet,” they found link-up behaviors more common among low-income homes in Jamaica than entrepreneurial activities mediated by the phones (p. 164). Nevertheless, the mobile is at the heart of economic survival for those households. By allowing individuals to leverage broad interlocking networks of informal social and financial support, “the phone is not very central to making money, but is vital to getting money” (p 165).¹⁴

Taken as a whole, these examples underscore that the blurring of contexts and goals is an essential property of mobile communication,¹⁵ a reflection of how the technology directly connects people (not places), and allows them to draw com-

plex interactions between personal and productive activities. Indeed, taking a long-view, this turn of events may erode the more arbitrary divisions between home and workplace brought about (at least in part) by landline telephones.¹⁶

M4D AND THE BLUR

There is a growing and enthusiastic discussion between policymakers, practitioners, and researchers about the role of mobile phones in economic development. The blurring of lives and livelihoods described above isn't the lead story in these discussions—nor should it be—nevertheless, the blur merits more attention. The second half of this paper reviews three current challenges facing the M4D community—assessing impact, connecting the unconnected, and integrating data and applications—and considers the implications of the blur for each. In each case, the mobile's new models of ownership/control (shared, personal) and of temporality (portability) combine to create challenges and opportunities for M4D.

Assessing impact

An ongoing challenge to M4D research and practice is to continue building a body of knowledge about what works and what does not, and to elaborate on the processes through which mobile use has impacts (positive and negative) on socio-economic development. The M4D discussion, like the broader ICTD discussion, requires evidence to guide and prioritize policy and investment. The M4D community has begun assembling this evidence, both by tapping into existing threads of research about landlines and by generating new research focused specifically on mobiles. Seminal studies, like Jenson's work with Keralan fishermen, have begun to make a strong case for how mobiles contribute to productivity and improve the functionality of markets.¹⁷

As a complement to econometric designs, it is important to conduct research that is sensitive to the lives/livelihoods blurs in everyday mobile use. Accounting for the blurs can help researchers identify additional paths to productivity enhancement and positive returns from mobile use. Some of this research will isolate the relative impact of connectivity (which mobiles share with landlines) and mobility (which they generally do not). It is the anytime/anywhere mobility that underpins most of the "blurring" discussed in this paper. However, so far, little M4D research has distinguished between the mobility and connectivity benefits of the mobile. Put another way, in terms of common livelihoods in the developing world, we know that craftpersons (or fishermen, or roaming commodities middlemen, or farmers) are more productive with mobiles than with no phone at all,¹⁸ but we have not yet determined whether they are any *more* productive than they would be if they had landlines instead.

At the level of individual economic activity, models and measurement can account for how mobiles help improve response time, reachability, and trust, even beyond what the connectivity of landlines provides. Even simple matters like enabling lunch breaks for micro-enterprises can have a large impact on their overall productivity. These second order effects include new spatial and social configu-

rations, which are only beginning to be understood—the arrival of the “real-time city,” fueled by micro-coordination,¹⁹ may create many opportunities for consumers and producers to interact more quickly, intelligently, and productively. The calls, which underpin this quickening, are a mix of social and transactional. Even non-calls might matter, as reachability itself (social presence at a distance) can play a role in determining people’s choices about how to conduct their day, such as when fishermen describe the peace of mind of increased contact with their families onshore as one benefit of mobile ownership²⁰

But there is a second level to this. Quite simply, social calls matter too. For every business-related call (to check prices, place an order, dispatch a delivery truck, etc.), there is another call that is not clearly business-related. The mobile is a social tool of self-expression, of family coordination, of chatter, and of “the everyday.” Of course, for the most part, no one would disagree—what’s wrong with a social call?—but in the emerging domain of M4D (and ICT4D more generally), there is an undercurrent of concern that some individuals are spending too much on “unnecessary” mobile phones and airtime. This perspective, summarized by (but not endorsed) by Richard Heeks in a recent post,²¹ indicates an implicit (or explicit) higher value some observers place on calls that return income or other improvements to health, education, and safety. Yet, if we instead consider the willingness to pay exhibited by mobile users worldwide, the same relatively high expenditures of concern to some observers can be interpreted as indications of the high value to end-users of social calls, self-expression, and even entertainment. Indeed, some users might be better off spending less on airtime, ringtones, and premium SMS entertainment, but some M4D researchers might also be better off coming up with broader measurements for quality of life instead of simply return on investment.

Connecting the unconnected

Whatever one’s assessment of the value of social calls to end-users, there is enough evidence linking mobile use to productivity and economic development to bring us to a second topic in M4D research, the questions of access and affordability. At least 80 percent of the world population has access to a mobile signal, and there are four billion mobile subscriptions in the world.²² Yet, basic access to mobile communications remains elusive to some because mobile adoption has followed the well-trod patterns of technology diffusion. Granted, there are prosperous people who chose not to purchase a handset; others get by sharing handsets with family and friends. Income matters; mobile ownership is lower among the bottom billion, those living often (but not exclusively) in the world’s poorest nations, and those earning a dollar or two a day.^{23,24} This bottom billion is the focus of much of the efforts of the M4D community, who see bi-directionality and interdependencies between economic scarcity and mobile use. Lower levels of mobile adoption are reflections of economic constraints or physical isolation, but for many in the development discussion, encouraging higher rates of adoption has become a priority, one factor/lever which could contribute to socioeconomic development.

One rather difficult path in the access/affordability discussion is the suggestion that since there are community-level benefits in higher levels of mobile use, non-users should be encouraged or incited to use a mobile, regardless of their individual desires. It is far easier to assert that there are still people in the world who want a mobile but can't afford or access one. Until the cost of mobile use drops below a level they are willing or able to pay (a level that assumes some combination of hardware and access/airtime/usage charges), they remain non-users. The efforts of the GSMA to develop inexpensive handsets have been useful here, as have the normal pressures of growing competitive markets. Economies of scale, rapid innovation, and thoughtful allocation of the mobile spectrum have placed generally downward pressures on the costs of handsets and network usage for end-users. But, for the bottom billion, even the investment of \$10 for a used handset and \$2 per month in airtime represents a considerable and perhaps prohibitive sum.

At this stage, the link back to the livelihoods/lives blur becomes clear. Since many people place a high value on the personal and social benefits of mobile use (entertainment, social connection, self-expression, chit-chat), their actual willingness to pay is higher than would be expressed for the purely instrumental and transactional elements of mobile telephony, which are traditionally the focus of the M4D community. Echoing the point made above, that "social calls matter too," how can we ignore the value of social calls when evaluating the drivers of demand? Put another way, though people might be willing to adopt a mobile and to use it in ways which eventually will be beneficial to them in a "development" sense, but the reasons many of them will do so will likely have little to do with these development outcomes. If mobiles were not so enjoyable, fewer people among the poorer half of the world would be willing to purchase them, and putting mobiles in the hands of current non-users for developmental purposes would be a more difficult and expensive proposition.

The blur reveals a related issue in problematic models that equate individuals with users. Families, even extended ones, share the costs of handsets. People can share airtime, sending it instantaneously from one phone to another. And, through missed calls and "please call me" messages, families and other call partners can redistribute the costs of phone calls towards those most able to pay.²⁵ Again, the landscape of expenditures on mobiles (which may be used for all kinds of developmental and instrumental reasons down the line) can only be understood by factoring in social connections.

Expanding beyond voice calls and SMS

The first wave of mobile use, centered on voice calls and P2P SMS messages, has swept the world. But a second movement is, of course, underway. The M4D community sees great promise in mobile-based applications and, particularly, in the mobile Internet. In the short run, questions persist about the forms these applications will take.

M-banking and m-payments systems, such as M-PESA in Kenya and WIZZIT in South Africa, are among the most exciting applications: they are surprisingly

simple, often using SMS or other basic interfaces, and they have demonstrated broad appeal, even among traditionally “unbanked” populations. In Kenya, at least four million accounts have been registered by M-PESA in its first two years of operation, a number that is rapidly approaching equivalence to the number of formal bank accounts in the country.²⁶ And yet, here too, the lives/livelihoods blur helps both constrain and drive the use of these systems. Among the unbanked, early research suggests that most transactions are between family members—domestic remittances rather than commercial transactions. This is not to say that the M-PESA services, and others like it, are not supporting better commercial activity; however, the success and appeal of m-payments systems among the unbanked cannot be described without accounting for the importance of personal and family connections.

A second issue is the uptake of Internet applications. GPRS, Edge, and even 3G data services, all previously restricted to high-end handsets and wealthy users, are making steady inroads into mid-tier phones across the developing world. Some GPRS phones with basic browsers were priced below \$75 in India in late 2008, and, of course, secondhand handsets could be found for even less money. The development community is taking notice, for example, via the W3C consortium’s “Mobile web for social development” initiative.²⁷ No definitive census of the range and number of M4D applications which make use of data services is currently available, but among presentations at the recent MobileActive08 conference in Johannesburg, voice and SMS-based systems outnumbered GPRS or other data based systems.²⁸ Nevertheless, mobile Internet applications, such as South Africa’s MXit and Facebook, are strong draws for first-time mobile Internet users; the hooks are entertainment, social networking, and self-expression. During ongoing exploratory interviews in South Africa, we spoke with individuals, some with no previous exposure to PC-based Internet browsers or applications, who began browsing the Internet via their phones after seeing advertisements with a URL or in order to check football (soccer) scores.²⁹

The importance of the lives/livelihoods blur in this case is that in both the MXit/Facebook/Mobile Internet and mobile-banking examples, users are becoming exposed to (and comfortable with) platforms and broad behaviors with roots in social behaviors, which later can be used for transactional and “productive” activities of interest to the economic development community. Configuring mobile Internet settings remains remarkably challenging on many phones and networks. It will be easier to drive people to development-related content and applications on platforms like MXit or Facebook if those people have already gotten over the configuration hurdles thanks to motivation from a favorite cricket team or inexpensive social chat.

DISCUSSION

For those of us interested in designing or modifying mobile applications for socioeconomic development, the implications and relative importance of the

lives/livelihoods blur depend on the context and goals of the application and accompanying intervention. That said, a few generalizable lessons could be drawn:

- *Who uses it?* The application, as deployed, will probably “slip” or “jump” outside of its original intended context. In a physical sense, this means that handsets will travel with respondents from workplace to home, or outside of the original coverage range of the intervention. (For example, during the development of a mobile-based information system for agricultural cooperatives, an analysis of the server logs found individuals, who were not originally recruited to the pilot, dialing in to the system to issue queries.³⁰ Mobile behaviors and innovations are easily shared. In a contextual sense, too, the application may shift. Before the introduction of M-PESA, researchers had already found examples of users who had adapted airtime sharing as a form of barter or money transfer, an unintended (and contextually distinct) activity.³¹ More recently, other mobile social applications, like Twitter, have played a role in conveying important real-time updates concerning the most serious of matters, such as terrorist attacks and elections.³²
- *Who pays for it?* The right parties have to pay for the ongoing airtime and network charges, but discerning the correct ongoing usage model can be difficult. For sponsored/workplace programs, administrators will be faced with the prospects of either subsidizing personal activities, “locking up” the phones at night, or placing the onus on end-users to pay out of pocket for their development-related activities. Similarly, in the case of m-Internet applications, getting individuals to pay on a per-bit basis to visit development-related websites or use development-related mobile applications will depend on either a remarkably clear demonstration of value to end-users, a reasonable form of subsidy or compensation, or both. In some cases, redistributive strategies, like “please call me messages” or intentionally missed calls, can shift the burden to the proper party.
- *When and how?* A development application residing on or accessed via a mobile phone constantly has to share the limelight with the phone’s connection, entertainment, and self-expression functions. It must compete for attention and utility with not only other development-related activities, but with calls to mom, ringtones, and BBC news sports scores. Your users likely learned their mobile skills pursuing these expression and entertainment functions, and they may evaluate your application by similar standards ... does your public health reporting tool look as sharp and run as smoothly as that downloadable game?

In summary, it is worth considering both the unanticipated social uses of your application, as well as the ways in which social forces and context will enable and constrain its use. More broadly, these generalizable issues reflect an emerging theme in M4D applications (and, indeed, in ICTD more generally).³³ Mobiles enhance and broaden social networks and are, thus, a natural environment for applications reflecting a “Web 2.0” logic of collaborative endeavors, P2P activity, and producer/consumers.³⁴ And yet, much of traditional development communication has relied on top-down paradigms of information transfer and persuasion. A challenge, therefore, is to draw from the best mobile innovations from outside the M4D sector without letting the older top-down/transmission/transfer logics

prevail. Thus, if an M4D application is “about” delivering information, it is worth exploring how it enables collaborative action. If it is about promoting behaviors in the form of reminders, consider how it provides support or reassurance; if it is about linking buyers and sellers, consider how it can help support and create trusted relationships.

Looking at it in these terms, the blur of lives and livelihoods presents not just challenges, but also great opportunities for M4D application developers. Mobiles are approachable and accessible without lacking caché. The increasing appeal of advanced services (albeit about social networking, entertainment, and self-expression) means that a broad range of potential users may give an M4D application the benefit of the doubt not afforded to PC/kiosk-based applications. This makes it easier to train users on complex systems, such as data-gathering tools. Mass-appeal applications, such as job information sites, virtual marketplaces, or public health educational content, can be viable and scalable, even if they are used only fractionally or occasionally by broad populations. There is a world of possibilities when the right M4D platforms are already in the hands of target populations.

For researchers and policymakers, it must be reiterated that the point is not to abandon efforts to elaborate and quantify the impact of mobiles on prices and productivity—the stuff of markets and of economic development. Instead, the importance is to ensure that the ways in which the mobile blurs lives and livelihoods are accounted for in these efforts. Expanding the lens to include micro-coordination, interlacing, and other mobile-specific properties will help differentiate the impacts of mobiles from those of fixed lines, and will probably uncover stronger and new forms of economic advantage. Thinking back to Overa’s work with traders in Ghana, the mobile’s role in trust-building and increased availability was nearly as important to traders as setting prices or volumes via mobile phone.

Finally, the blurring concept is important for those interested in placing the M4D enthusiasm into a broader context of global changes. Structurally, this is a major turning point for the world. The burst of connectivity in the developing world during the decade of 2001-2010 has made telecommunications accessible for half the world. This promises to change the configuration of people to each other and to the formal/global economy, which has excluded so many of them. It is going to do so in ways that are tied to social locations as much (if not more) as to economic transactions. Symbolically, blurring reflects and drives societal beliefs about the mobile. The telephone helped shape the economic landscape of the 20th century, reflecting and reinforcing some locations in economic and production networks, while excluding others. Widespread mobile use promises to reduce that exclusion.³⁵ Yet, for individual users, the mobile it is not merely a symbol of economic development or productivity. Rather, it is one of self-expression, agency, and social connection as well. Even when, as M4D researchers, policymakers, and technologists, our goals are to elaborate and promote the former, we cannot afford to ignore the latter.

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