

Mobile Banking as Enabling and Constraining Financial Inclusion in Pakistan

A Theoretical Perspective

Atika Ahmad Kemal

PhD Candidate

Lord Ashcroft International Business School

Anglia Ruskin University

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ABSTRACT

This paper provides a theoretical framework for exploring the role of new technologies for 'banking' the poor via mobile banking (m-banking) for financial inclusion in developing countries. It extends the literature beyond previous studies that examined m-banking through a technological or economic lens from the provider's perspective, or from a collective national or regional level focussing on the individual user's perspective. Thus the aim of the paper is to bridge the theoretical and methodological gap by justifying the application of Orlikowski's Duality of Technology, as a socio-technical lens to evaluate how the social construction of m-banking enables and constrains poor women to access government-to-person (G2P) payments, or digital social cash in Pakistan- a country that has been previously under researched. By shifting the level of analysis to the organisational level, the structuration framework helps us investigate the social and economic impact of m-banking in the restructuring of poor households for financial inclusion in Pakistan, and the effect of external and internal institutional forces in the redesign of emerging new technologies and financial practices. Furthermore, the paper debates why the socio-materiality of technology fails to provide a conceptual framework for this research. To conclude the paper highlights how the Duality of Technology contributes to new knowledge through a socio-technical perspective that underpins the philosophical orientation of the research to study the complex relationship between m-banking, households structures and social actors that provide an interpretive frame within the case study of the Benazir Income Support Programme in Pakistan.

Introduction

The exponential growth of mobile technologies in the developing world has revolutionised the way people do banking (Ivatury and Pickens, 2006) as there are more people with mobile phones than with bank accounts (Porteous, 2006). In the meantime, the majority of the population in developing economies is unbanked and live in informal or cash economies relying on services that are associated with high transaction costs (Kimenyi and Ndung'u, 2009). This contrast creates an inequitable economic world where the poor are financially excluded that impacts on the individuals' social standing and well-being (Donner, 2007; Donner and Tellez, 2008).

M-banking, in developing countries, is facilitated by branchless banking regulations enabling banks

to extend the outreach of financial services to marginalised populations using mobile channels penetrating remote underserved regions. Mobile phone users, through their 'virtual accounts' or m-wallets, are connected to banks through 'banking agents' who act on behalf of banks converting 'virtual' cash into physical cash and vice versa (Mas and Kumar, 2008; Ivatury and Mas, 2008; Donner and Tellez, 2008; Ivatury and Pickens, 2006). Banking agents, also known as retailers, or merchants, include local post offices or airtime resellers located in pharmacies, petrol stations and bakeries in rural communities. Thus, banking agents are more accessible to local communities where there is an absence of traditional bank branches, either due to infrastructural deficits, or high costs associated with the 'outreach' of offering financial services to the poor (Mas, 2009).

Focusing on developing nations several models of mobile banking have been critically studied in Africa; especially in Kenya (M-PESA), Tanzania

Corresponding Author

Email Address: Atika.Kemal@anglia.ac.uk (A. A. Kemal)

(M-PESA) and South Africa (WIZZIT), and in Asia such as Philippines (SmartMoney and G-Cash), India (Eko) and Bangladesh (bKash and Dutch Bangla Mobile) (Omwansa, 2009; Hughes and Lonie, 2007; Morawczynski, 2008, 2009, 2011; Comninos et al., 2008; Camner and Sjoblom, 2009; Mas, 2009; Ndiwalana and Popov, 2008; Alampay and Bala, 2010; Chen, 2012; Mishra and Bisht, 2013). Whilst research on M-PESA in Kenya and Tanzania reveals that mobile operator-led models are dominant due to low levels of banking penetration and poor state of fixed communication infrastructures (Ivatury and Mas, 2008; Mas and Ng'weno, 2010), however, in South Africa partnership-led (MTN money) or third party-led models (WIZZIT) are more distinguished in the current literature. Moreover, the literature celebrates Kenya's M-PESA, as the most successful model, owing to its cost effectiveness and safety as compared to Tanzania's M-PESA model (Kimenyi and Ndung'u, 2009; Mas and Morawczynski, 2009; Omwansa, 2009; Hayes and Westrup, 2012). Nevertheless, in Latin America, bank-led models relying on magstripe/cash cards and point-of-sale (POS) terminals are more commonly deployed as the enabling infrastructure for branchless banking (Mas, 2009; Ivatury and Mas, 2008).

Furthermore from Asia, such as Philippines, the mobile operator-led model, G-Cash, due to its flexibility is more popular than its competitor, SmartMoney that is partnership-led (Ndiwalana and Popov, 2008). In contrast, we see that bank-led models dominate the South Asian landscape, especially in Pakistan, India and Bangladesh that are known to be more conservative models with fewer access points and limited inter-operability as they typically follow a top-down design approach from policymakers (Mishra and Bisht, 2013).

Also studies from practitioners provide valuable insight into the usage of current m-banking practices. In Kenya and Tanzania, domestic person-to-person (P2P) payments are common, in contrast to Philippines where the majority of m-transfers comprise of international m-remittances (Heyer and Mas, 2009; Mas and Radcliffe, 2010; Alampay and Bala, 2010). However, in Latin America, particularly in Brazil, and in South Asia such as Pakistan and Bangladesh, over the counter person-to-person (P2P) or person-to-business (P2B) transfers are exclusive amongst users. There is also a significant increase in the outflow of government-to-person payments (G2P) that has been significantly undocumented (Mas, 2009; Chen, 2013; Bold, 2011) in South America and Pakistan.

So while we see that the terms m-money, m-finance and m-banking are used interchangeably within the current literature to include practices that bring financial services to the unbanked using mobile phone comprising of person-to-person (P2P) payments,

person-to-business (P2B) payments, government-to-person (G2P) payments, m-credit/insurance and m-savings (e.g. Duncombe and Boateng, 2009; Donner and Tellez, 2008; Donner, 2007; Ndiwalana and Popov, 2008), in this paper m-banking specifically refers to G2P payments within social cash transfer programmes.

Therefore, critically reviewing the m-banking literature from developing countries, the majority of research pertains to person-to-person (P2P) payments, while research lags on the role of m-banking within the Government sector for disbursing welfare payments, or G2P payments to poor people. As the research is currently in progress, the objectives of this paper is to provide a theoretical lens to guide our study on m-banking for leveraging G2P payments for financial inclusion within the context of a social cash programme in Pakistan- a country with 74% mobile penetration rate with established mobile banking programmes, but has so far been largely under researched in the current literature.

In what follows in the paper, section 2 highlights the gaps in the theoretical literature to justify the choice of the framework for this study. Section 3 reflects upon the philosophical orientation of the study that underpins the Duality of Technology, while section 4 outlines the limitations of other structuration frameworks from previous studies. In section 5 we outline the Duality of Technology that proposes the research questions, and later in section 6 how the framework is related to the objectives of the study to drive our methodology for future work as this is a research-in-progress paper. Section 7 provides a critical insight on the framework proceeded by conclusions and contribution to new knowledge in section 8.

Theoretical Gaps in Mobile Banking Literature in Developing Countries

Technological Deterministic Perspective

New technologies for knowledge practices, or Information Systems (IS) innovation and transfer from developed to developing economies is primarily perceived to be technologically deterministic, as the focus on local needs of individuals and communities is discounted by international development agencies and donors (Avgerou, 2010; Kyem, 2012). Hence, majority of m-banking literature within the technological deterministic perspective is framed around policy reports and documents for regulatory institutions, governments or funding bodies acting as an 'enabling environment' at the macro-level (Porteous, 2006; Lyman, Pickens and Porteous, 2008). Also, the technological-deterministic perspective captures the upstream perception of m-banking

providers (mobile operators, banks and MFIs) and intermediaries (retailers/banking agents) within the m-banking ecosystem (Mas and Ng'weno, 2010; Mas and Morawczynski, 2009; Jenkins, 2008), so technological innovation may not logically 'fit' with users expectations (Avgerou, 2001) and may lead to 'disruptive' transformation (Avgerou, 2010). As the technological and institutional trends are set elsewhere, business models may overlook the developing country's local context (Thompson, 2008; Avgerou, 2010). In contrast, we debate that M-PESA's success in Kenya, despite foreign agenda, allows it to 'catch up' with the developed world so is 'progressively' transformative (Avgerou, 2010) despite criticism that the model fails to link users to a wider range of banks that limits access to a variety of financial services for a more segmented tariff and sub-agent model (Mas and N'gweno, 2010).

Technology Acceptance Model (TAM)

Although many scholars focus on m-banking adoption by users to assess economic transactions in their social context, however, they fail to highlight the challenges that impedes adoption and usage (Porteous, 2007; Donner, 2007; Donner and Tellez, 2008; Tobbin, 2012). Hence, we find that current research is heavily biased towards m-banking adoption, reflected through technological-deterministic models, like Technology Acceptance Model (TAM), primarily relating to a set of behavioural constructs that dominates m-banking adoption studies (Venkatesh and Davis, 2000; Tobbin, 2012; Mbogo, 2010; Ngugi, Pelowski and Ogembo, 2010). Additionally, criticised for being a static model and drawing upon computer science literature, TAM denies the ontological belief that technology constantly evolves through user's interaction. Hence, it perceives technology to be 'exterior' to the user, thereby, ignoring the 'social side' or 'context' (Avgerou, 2001) that is explicated through social construction of technology (SCOT) design and use (Bijker and Law, 1992; MacKenzie and Wajzman, 1999; Pinch and Bijker, 1987).

Rogers' Diffusion of Innovations Theory

Rogers' 'Diffusion of Innovations Theory' (Rogers, 1962, 2004) as applied within IS literature reflects upon the S-shaped pattern of IS innovations although scholars have identified two variants within the pattern. Whilst the more optimistic 'normalisation' pattern illustrates that social profile of communities broaden over time (Norris, 2001), the second variant offers a more pessimistic 'stratification' thesis predicting that more radical innovations diffuse more slowly in society but was later challenged by business process reengineering innovation models (Rogers, 1995).

Moreover, diffusion of innovations theory within

m-banking literature is criticised for being influenced from positivist literature whilst underlining the importance of creating awareness, as a critical first step, to drive adoption and usage of m-banking innovation (Sivapragasm, Aguero, and de Silva, 2011). Also by discounting time as an independent variable within the life cycle, critics evoke that the approach has a 'pro-innovation' bias, based on the assumption that all innovations are 'good' and hence, uniformly adopted by 'early adopters' or 'innovators' being 'agents of change' belonging to higher socio-economic groups (Rogers, 2004; Cruz and Laukkanen, 2010). Also the theory neglects the effect of the 'task technology fit' failing to address 'whom' and 'why' the late majority or 'laggards' are sceptical about adopting new technologies over an on-going application of habitual technology (Zhou, Lu and Wang, 2010). Therefore the theory fails to establish any link with capabilities development that may encourage m-banking adoption and does not distinguish between varied adoption factors between genders.

Socio-Technical Perspective

However, a socio-technical perspective on m-banking perceives the ICT artefact to be 'socially embedded' based upon the 'situated' approach considering IS innovation to be constructed and enacted by social actors. This perspective coincides with the view that m-banking innovation is locally constructed and diffused within communities following a bottom-up approach to include marginal communities in the mainstream (Casal, 2007; Walsham and Sahay, 2006; Avgerou, 2010). However, according Donner and Tellez (2008), m-banking adoption and use is causal to impact and therefore, m-banking practices need to be holistically evaluated by researchers. Hence, contextual and institutional factors influence the design of m-banking innovation, and consequently, adoption and usage to determine impact on individuals and structures.

Other studies through various social-technical lens examine the intersections of financial and socio-economic networks identifying key questions of trust that emerge and how m-banking usage and behaviour patterns alter socio-economic relationships between low-income individuals and households across the developing world (Donner, 2007; Medhi, Ratan and Toyama, 2009; Kareer-Rueedi and Trueb, 2011; Tobbin, 2012; Morawczynski and Miscione, 2008). Whilst Adaptive Structuration Theory (Orlikowski, 1992, 2000; Orlikowski and Baroudi, 1991; Oudshoorn and Pinch, 2008) evaluates how m-banking 'amplifies' social structures rather than 'transforming' them to trigger myriad 'effects' (Donner and Tellez, 2008; Donner, 2007), in contrast, studies from Kenya reveal that urban-rural transfers 'transform' financial practices used for the cultivation of livelihood

strategies (Morawczynski, 2011; Morawczynski and Pickens, 2009).

Additionally through a socio-economic perspective, studies by Jack and Suri (2011) and Morawczynski (2009, 2011) focus on users illustrating rising household incomes, risks, saving and usage patterns of m-banking across households in Kenya. However, authors debate that the economic 'effects', linked to the social 'effects', are not distinctly visible, uniform and homogenous across all communities, but are rather influenced by gender and geographic location (Plyler, Haas and Nagarajan, 2010). Although the Capabilities Approach (Sen, 1999) has been applied in the mobile technologies literature, it is absent from any m-banking studies.

Nevertheless, from a methodological standpoint, women users have been largely marginalised in the literature. Furthermore, geographically while m-banking literature is pervasive from other developing countries, there is scant interpretive research from Pakistan analysing how m-banking is used by poor women for receiving G2P payments from the Government. Hence, drawing from the theoretical and methodological gaps in the literature, the paper seeks to investigate how m-banking 'enables and constrains' women users for receiving digital social cash and its impact on households for altering the socio-economic dynamics of structures for financial inclusion. By offering a new epistemological lens, 'Orlikowski's Duality of Technology' (Orlikowski, 1992) that has not been applied in previous studies, the paper seeks to extend the literature by analysing the relationship between m-banking, social actors and institutions. The next section highlights how the philosophical orientation is reflected within structuration theory to influence the choice of invoking the framework to guide the methodology for the study.

Influence of Research Philosophy on Theoretical Framework

The epistemological stance of the study reflects the philosophical belief regarding the nature of m-banking and its emerging role in shaping social processes and structures. As within the 'interpretivist' paradigm, truth and knowledge as social products, are incapable of being understood independent of social actors (Orlikowski and Baroudi, 1991; Walsham, 1993, 1995), we subscribe to the ontological belief of 'social constructionism'. Hence, by signifying that social actors, through their participation in social processes, construct and reconstruct reality and knowledge, and endow it with subjective meanings, beliefs and intentions (Orlikowski and Baroudi, 1991), researchers concede that the 'world is not conceived of as a fixed constitution of objects but rather as an "emergent" social process - an extension of human

consciousness and subjective experience' (Burrell and Morgan, 1979, p.253).

On the contrary positivist IS research, illustrated through the 'technological imperative model', posits a 'hardware' view of technology that is an external, exogenous force with causal unidirectional and deterministic impacts on institutional properties or structures (Davis, 1989; Carter, 1984). Other authors conceive technology as 'social technologies' as reflected in the 'strategic choice model' (Orlikowski, 1992, 2010; Markus, 1983; Davis and Taylor, 1986; Zuboff, 1988) despite criticism that it relies heavily on the capability of human agents, and discounts the influence of institutional forces in the environment, and the subsequent unintended consequences of organisational change (Orlikowski, 1992, 2010).

Hence, the discourse related to the ontological nature of m-banking, and its role within institutions is paramount to shape the theoretical framework for this research. Thus, the structuration model adopted in this study directs an interpretive and social constructionist view to examine m-banking in Pakistan. By reconceptualising the scope and use of technology (m-banking) and its relationship with social agents (women/designers) and institutions (households), structuration research provides deep insight to investigate how m-banking impacts on individuals and transforms social processes and structures at the household (institutional) level.

Thus, 'Duality of Technology' (Orlikowski, 1992, 2000; Orlikowski and Robey, 1991) negates the 'objective' view of technology, but rather subscribes to 'social constructionism' highlighting the flexible nature of technology enacted by designers and improvised by social actors, or users through interpretations, social interests and disciplinary conflicts. Hence, by re-characterising social technology as 'technology-in-practice', Orlikowski (2000) argues that technology structures are emergent rather than embodied, thereby, reflecting upon the 'interpretive flexible' nature of its design and use. The next section highlights the limitations of other structuration theories in previous studies to further justify why the Duality of Technology is the most appropriate framework for the study.

Limitations of Other Structuration Theories in IS Literature

While Giddens structuration theory (1979, 1984, 1993) does not explicitly address the issue of technology, and is limited to the analysis of the relationship between social actors and the institutional properties of organisations, other scholars draw upon the fundamental concepts from his structural paradigm to study technological innovation. This has given rise to a number of structural models of technology

in the past decade, providing myriad insights into the role and impact of technology on organisations (Barley, 1986, 1990; Poole and DeSanctis, 1989, 1990; Orlikowski and Robey, 1991; Walsham and Han, 1991; Orlikowski, 1992; Walsham, 1993, DeSanctis and Poole, 1994).

Although structuration theory has been deployed by some scholars to study technology-induced organisational change (Barley, 1986, 1990), there has been little attempt to reconceptualise the notion of technology, leading to anticipated or unanticipated structuring that alters its physical form and use across time and context. Despite technology being defined as a social object, that is socially constructed, authors contend that 'technical-driven' social change is rooted in technology's material constraints, and transformed into social forces for it to significantly affect social organisation (Barley, 1990). Some authors have also critically reviewed structuration models of technology exploring concepts, such as practical and discursive consciousness, routinisation and unanticipated consequences resulting from technological innovation through an interpretive frame (Walsham, 1993; Walsham and Han, 1991).

Nonetheless, other authors have extended the structuration literature through adaptive structuration theory (AST) (DeSanctis and Poole, 1994; Poole and DeSanctis, 1990) that addresses the mutual influence of technology and social processes while departing from Giddens idea of structuration. Hence we note that AST's view of 'structure within technology', its identification of other independent 'sources of structure', and the concept of 'dialectical control' between the 'group and technology' contradict Giddens' principles. As these ideas are further elaborated through underspecified concepts, such as 'spirit' and 'appropriation', for which no substantive theoretical justification is offered to produce a contingency model of technology 'impacts', AST is incompatible with the central tenets of structuration theory (Jones, 1999). Thus, we observe that AST proposes an agenda for research that is heavily oriented towards deterministic functional research, clashing with the interpretivist stance in this study. Other studies show that scholars have attempted to link structuration concepts with newer theories such as actor network theory (ANT) (Walsham and Sahay, 1999; Lea et al., 1995). While the 'black boxing of technology' and treating the content and context independently has been severely criticised (Lea et al., 1995), Walsham and Sahay (1999) have applied structuration as a meta-theory and have used ANT as a 'more detailed methodological and analytical device'. The next section outlines how the framework can address the gaps in the literature and embed the research questions to further propel the research.

Theoretical Framework for Mobile Banking

Orlikowski (1992) extends the concepts in Giddens structuration theory (1979, 1984) to allow a deeper dialectical understanding of the interaction between technology and social agents in organisations. Consequently, by offering a 'soft determinism' through her practice lens, Orlikowski (2000) examines how technology is shaped and improvised by user's ongoing practices to enact structures whilst structurally enabling and constraining users. So in consequence with IS literature structure, as defined by Giddens, cannot be inscribed or embedded in technology, else it would exist separate from the practices of social actors and independent of their knowledgeable action. This effect would eventually turn 'duality'- a central feature of Giddens and Orlikowski's position into 'dualism' (Jones and Karsten, 2008).

The Duality of Technology

By linking Orlikowski's structuration theory (1992) to the context of the study, the model comprises of human agents (programme designers, users, m-banking service providers), technology-in-practice (m-banking) and institutions (households) related to structural properties; customs, tradition, socio-economic properties, income, household size, communication patterns and division of labour. Other external factors, such as regulatory controls, economic, political and socio-cultural forces are paramount to influence the shift from cash payments to digital G2P payments, and the redesign of technological tools to access social grants within the Government Social Cash Programme in Pakistan (see figure in section 9).

Technology is a product of human action (process a)

The first influence draws upon the ontological stance of social constructionism that technology is socially constructed by designers, and being 'socially embedded', it captures the social beliefs of its creator. However, it is improvised and enacted by social actors through its engagement and continuous use; only being relevant and useful when users attach different meanings to it. Hence, technology is created and sustained by human action through on going use, maintenance and adaptation (Orlikowski, 1992, 2000). Although social constructionism reflects on how shared interpretations, social interests and disciplinary conflicts shape the production of technology that becomes 'stabilised' through cultural meanings and social interactions amongst various social groups, the 'stability' is later criticised owing to the fact that it is 'interpretively flexible', as it is constantly shaped and improvised by users through practice (Orlikowski, 2000).

Subsequently, the notion of 'interpretive flexibility' defines that in the design mode, m-banking designers build certain interpretive schemes, facilities and norms in the technology that are a function of the institutional and social context implicated in its development and use to meet managerial goals (Pinch and Bijker, 1984, 1987; Bijker, 1987; Bijker and Law, 1992; Mackenzie and Wajcman, 1999; Orlikowski, 1992). Whilst in the use mode, women users appropriate m-banking physically, socially and culturally by assigning shared meanings to it with the capacity to change technology through their interaction (Orlikowski, 1992, 2000). Hence, technological innovation is not independent of women users, but is rather emergent when enacted from users repeated and situated interaction with m-banking (Orlikowski, 2000).

Technology is the medium of human action (process b)

Orlikowski (1992) further postulates that as technology is enacted through human agency, it cannot 'determine' but only 'condition' human practices. While this influence resembles that posited by earlier scholars of the *impacts of technology on the use of technology*, however, within the structuration model of technology we argue that while 'conditioning' social practices, technology may 'enable' and 'constrain' or do both. Thus, the *duality* of technology assumes that while being a product of human action, technology has a 'dual effect' on users, unless users 'choose to act otherwise'. However, the dual influence has not been typically recognised in that attempt to determine the 'positive' or 'negative' effects of technology (Orlikowski, 1992). Thus, technology-in-practice serves essentially as a 'behavioural and interpretive template' for user's situated use of technology (Orlikowski, 2000).

Linking this to our context, m-banking may have certain implications for women users, and hence little discretion over which meanings and elements influence their interaction with it. As the constraints may be institutional, or inherent within the technological artefact, m-banking may become challenging for women who may fail to use it, modify their engagement with it, or subsequently use other alternative financial practices.

Based on the above processes (a and b), the framework within the context of the study, helps us to investigate how the design of m-banking, constructed by designers, 'enables' and 'constrains' poor women to receive social welfare or G2P payments via their mobile phones. The designer's objectives in designing mobile phones in the social welfare programme may or may not achieve user's expectations that may give rise to emergent technologies.

Institutional impact of technology on structures (process c)

Extending the model further, Orlikowski (1992, 2000) draws a relationship between technology and institutions linked to user's recurrent engagement with technology that constitutes and reconstitutes emergent structures of using technology-in-practice. Hence, the structuration model defines the manner in which m-banking practices become reified and institutionalised in social structures, or households, either by reinforcing practices or transforming them (Orlikowski, 1992).

So while an innovation may be adopted or improvised because of its acquired legitimacy, irrespective of whether or not it produces its promised technical value, technology is an 'enacted environment' in which its construction and use is conditioned by an organisation's structure of significance, domination, and legitimation (Orlikowski, 1992, 2000; Powell, 1987). Hence, the appropriation and use of m-banking implies the *'institutional consequences of interaction with technology'* that are not often reflected by women users, who are generally unaware of their role in either reaffirming (more typically) or disrupting (less frequently) the institutional status quo (Orlikowski, 1992).

Nonetheless, whilst organisational rules and norms mediate human action they are subsequently reaffirmed or challenged by human actors through interpretive schemes. So when technology is not used as intended it may undermine and sometimes transform the embedded rules and resources, and the institutional context of technology's designers. As a result, m-banking may be developed in 'unanticipated' ways and 'normalised' through a 'negotiation process' between various social actors. Therefore, the institutionalisation of technology in structures may impact institutional properties resulting in emergent structures and financial practices (Avgerou, 2000, 2002).

This particular relationship explores how G2P payments impact on changing the socio-economic dynamics of households. By shifting the level of analysis to households, we can further investigate whether G2P payments are financially inclusive by linking poor women to the banking sector via their virtual mobile phone accounts, thereby, providing greater access to a wider range of financial services, such as savings, micro-credit and insurance for micro-entrepreneurial development.

Institutional impact of technology on agents (process d)

The combination of internal and external institutional forces influences the design of technology used in

the social construction of m-banking. Thus, human actors are subject to the institutional properties of their setting drawing upon resources, stocks of knowledge, structures of significance, domination and legitimation of the organisation, and 'normalised' standards for improvising technological practices (Orlikowski, 1992). Also, in their recurrent social practices designers and users draw upon institutional resources; experiences, norms, power relations and meanings to inform their ongoing practices that recursively instantiates the rules and resources that structures their social action (Orlikowski, 2000). However, we note that these influences are often unarticulated in Orlikowski's framework and referred to as the '*institutional conditions of interaction with technology*' (Orlikowski, 1992).

This final influence in structuration theory has been ontologically linked with the emerging nature of technology-in-practice. As it assumes that m-banking is embedded in the social context, designers and women users have the potential to adapt and innovate technologies that are more compatible with the forces from the environment. This allows us to critically assess the political, economic and regulatory forces that influence the design and re-design of alternative payment technologies in the context of the study. The next sections shows how the research questions are incorporated within the Duality of Technology framework.

Research Questions

So we see that the theoretical framework offers a set of propositions for deriving the research questions that guides the data sample and collection methods through a qualitative approach and interpretive methodology. We have constructed the following research questions to undertake future research work:

RQ1. How does m-banking 'enable' and 'constrain' poor women for accessing G2P payments and how are these effects linked to the construction and design of m-banking? (Process a and b)

RQ2. How does m-banking affect the institutional properties of households, such as socio-economic development for financial inclusion of poor households? (Process c)

RQ3. To what extent is m-banking sustainable under the economic, political, cultural and regulatory forces in Pakistan? (Process d)

The next section links the framework and research questions within the context of the G2P sector in Pakistan.

Research Setting and Future Work

Pakistan boasts of a high mobile phone penetration of 74 percent* while 88 percent† of the population is unbanked, including 63 percent‡ in rural areas. As the majority of population is financially marginalised, the gap between the rich and poor widens. While currently five established m-banking models provide a range of mobile financial services in Pakistan; *Easypaisa*, *UBL-Omni*, *Mobicash*, *Timepey* and *U-fone*, we see that mobile transfers, such as P2P or P2B transfers are common practices among the unbanked low income male population (CGAP, 2011, 2012). In addition, mobile banking for G2P transfers can provide further opportunity to 'bank' the poor to reduce the financial divide. Hence, branchless banking initiatives have enabled the Government Sector in Pakistan to digitise a large share of government flows to people moving the country towards a digital financially inclusive system. Consequently, the initial efforts to distribute social cash transfers digitally have been expanded to include a wider variety of government-to-person (G2P) flows. More generally, whilst social cash transfers constitute about 11 percent (\$1.1 billion) of total annual government payments (\$9.3 billion), salaries comprise of 68 percent (\$6.3 billion) and pensions make up 21 percent (\$1.9 billion) of social transfers in Pakistan. Thus, the success of digital G2P payments builds upon the progress made by the branchless banking sector, and with appropriate experimentation, digital G2P payments have the potential to become a vehicle for extending financial inclusion and improving the welfare of the poor people (CGAP, 2013).

Although the prospect of 'banking' the 'unbanked', via m-banking, for delivering G2P payments seems promising, however, there is no documented research that provides evidence for this proposition. Therefore, the objectives of this paper is to explore the role of m-banking for distributing G2P payments in the Government sector and how its design affects the usage of m-banking by poor women and its effect on organisational structures. The duality of technology framework proposes a set of research questions as previously illustrated in section 5.2.

Our focal case study is the Benazir Income Support Programme (BISP) in Pakistan, an initiative by the former Pakistan People's Party Government in 2008 and running successfully through the current Government. BISP provides unconditional cash assistance (around \$11.4 per month) to approximately

* www.pta.gov.pk/

† Yaseen Anwar, Governor of the State Bank of Pakistan at the 6th International Conference on 'Mobile Banking in Pakistan', Karachi, 14 March 2013

‡ www.data.worldbank.org/indicator/

5.3 million[§] low-income families, constituting around 18% of the entire population across all four provinces (Sindh, Punjab, Baluchistan, Khyber Pakhtoonkhwa) and other regions, such as Federally Administered Tribal Areas (FATA), Azad Jammu and Kashmir (AJK), Gilgit Baltistan (GB) and Islamabad Capital Territory. Initially women received cash payments through parliamentarians and money orders through the Pakistan Post. In 2010, mobile phones were designed into the programme in five locations; Layyah, Larkana, Battagram, Islamabad and Rawalpindi as pilot projects. Poor women were notified of their payments, via a text message, on their mobile phone but physically received money from the banking agent after showing the text message containing PIN (personal identification number) and identity card for verification (BISP, 2014).

Our methodology, an interpretive case study (Yin, 2009), purposively sampled poor women residing in the semi-urban/rural clusters around the twin cities of Rawalpindi and Islamabad, Pakistan. Primary data was collected through qualitative methods; semi-structured interviews, observations and focus groups from women using m-banking for receiving G2P payments. Additional interviews were conducted from other social actors; BISP staff, bankers and mobile operator and banking agent staff in order to analyse and interpret the data through multiple perspectives in the light of the structuration framework. This allows triangulation of results to construct validity, transferability, trustworthiness and reliability in the research findings. Additionally, we also drew on secondary data from BISP company reports, official publications and formal/ informal media sources.

Critical Discussion

Firstly, Duality of Technology (1992) has been criticised for offering an overly socialised view of technology (Leonardi, 2013) and fails to provide a cross organisational examination across various institutions as technology may be designed in one, but used in another organisation by different users. Hence, the framework is limited for structural analysis across multiple forms of institutions that emerge. Further, by acknowledging that all elements within the framework interact recursively, and may be in opposition to undermine each other's effects, structuration is seen as a dialectical process that is also inherently contradictory (Orlikowski, 1992).

Secondly, we note that the structuration model of technology overlooks the incompatibilities between cultural systems and formal functional aspects of power relations that are symbolic in organisations (Markus, 1983; Powell and DiMaggio, 1991;

Meyer and Rowan, 1991; Zucker, 1991; Avgerou and McGrath, 2007; Foucault, 1980, 1982). This relationship is important to explore as technology can change cognitive systems through the reflexive behaviour of social actors' that may further affect the use of technological practices in institutions.

Thirdly, scholars have presented another perspective on technology, namely, 'entanglement in practice', or 'socio-material' view that entails a commitment to a relational ontology through fusion of the 'social' and 'material' as socio-technical hybrid networks undermining 'dualism' (Scott and Orlikowski, 2014; Orlikowski and Scott, 2008; Orlikowski, 2007, 2010; Mingers and Willcocks, 2014; Leonardi, Nardi and Kallinikos, 2012). Such an ontology privileges neither humans nor technologies (Latour, 2005; Schatzki, 2002) as the social and material are 'ontologically inseparable' sharing a simple dualistic view of agency framed around 'agential realism' at the philosophical level (Introna, 2007; Barad, 2003). However, other scholars are critical of this assumption as it creates complications while mapping the philosophical discussion onto empirical phenomena, so they contend that critical realism and agential realism should be treated separately within various contexts (Leonardi, 2013; Mutch, 2013).

Therefore we argue that the socio-material perspective of technology lies outside the scope of this paper as the notion of 'stability' in socio-material networks fails to acknowledge that hybrid networks may have the tendency to collapse in future. Further, capacities for action within this view are studied as relational, distributed and enacted through particular instantiations of the synthetic world, as in the case of real time virtual community networks (Scott and Orlikowski, 2014; Orlikowski, 2010). However, this concept is irrelevant for the study as actual physical engagement between the material and the social is pervasive through users' interaction with mobile phones. Nonetheless, we believe that Orlikowski's framework is apposite in our study because we are not restricting our analysis to m-banking practices, but also studying the 'enabling and constraining' factors affecting the usage of m-banking on individuals and organisations for socio-economic change.

Conclusion and Contribution to Knowledge

This study, to our knowledge, is the first of its type from Pakistan that aims to investigate the intertwining themes between mobile banking, financial inclusion and socio-economic development of poor women. As the framework adopts a context-specific approach to examine m-banking through a structuration lens, it will bridge the theoretical gap by offering new insights into the relationship between social actors interacting with social technologies, and how the enabling and constraining effects of m-banking

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impacts upon financial and social inclusion across households in Pakistan. Furthermore, the study will seek to determine whether G2P payments is a 'constructed reality' for financial inclusion that triggers micro-entrepreneurial activities for steering economically deprived communities towards 'progressive' transformation (Avgerou, 2010). Or whether it offers a false 'utopia' or 'optimism' for the academic IS community who deem that m-banking will be a paradigm shift towards more financially inclusive technologies for re-structuring households and communities for poverty elimination in Pakistan.

Theoretical Framework: The Duality of Technology References

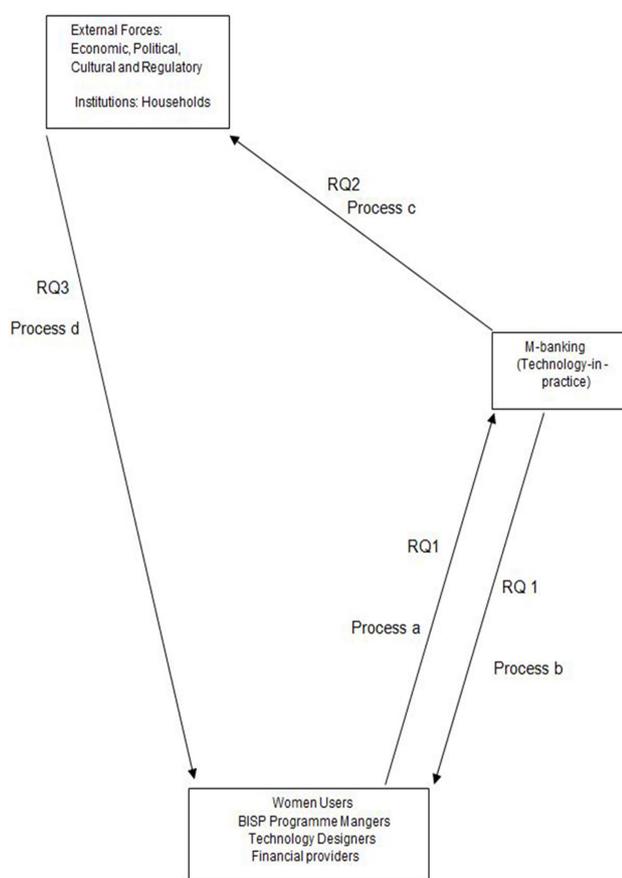


Figure 1. Adapted from: Orlikowski (1992).

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