

Digital innovation in social cash organizations – the effects of the institutional interactions for transforming organizational practices

DI in social
cash
organizations

Atika Ahmad Kemal

Essex Business School, University of Essex, Colchester, UK, and

Mahmood Hussain Shah

Newcastle Business School, Northumbria University, Newcastle upon Tyne, UK

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Abstract

Purpose – While the potential for digital innovation (DI) to transform organizational practices is widely acknowledged in the information systems (IS) literature, there is very limited understanding on the socio-political nature of institutional interactions that determine DI and affect organizational practices in social cash organizations. Drawing on the neo-institutionalist vision, the purpose of the study is to examine the unique set of institutional exchanges that influence the transition to digital social cash payments that give rise to new institutional arrangements in social cash organizations.

Design/methodology/approach – The paper draws on an in-depth case study of a government social cash organization in Pakistan. Qualitative data were collected using 30 semi-structured interviews from key organizational members and stakeholders.

Findings – The results suggest that DI is determined by the novel intersections between the coercive (techno-economic, regulatory), normative (socio-organizational), mimetic (international) and covert power (political) forces. Hence, DI is not a technologically deterministic output, but rather a complex socio-political process enacted through dialogue, negotiation and conflict between institutional actors. Technology is socially embedded through the process of institutionalization that is coupled by the deinstitutionalization of established organizational practices for progressive transformation.

Research limitations/implications – The research has implications for government social cash organizations especially in the Global South. Empirically, the authors gained rare access to, and support from a government-backed social cash organization in Pakistan (an understudied country in the Global South), which made the data and the consequent analyses even invaluable. This made the empirical contribution within this geographical setting even more worthy, since this case study has received little attention from indigenous scholars in the past. The empirical findings showcased a unique set of contextual factors that were subject to BISP and interpreted through an account of socio-cultural sensitivities.

Practical implications – The paper provides practical implications for policymakers and practitioners, emphasizing the need to address institutional challenges, including covert power, during the implementation of digitalization projects in the public sector. The paper has certain potential for inspiring future e-government related (or public sector focused) studies. The paper may guide both private and government policy-makers and practitioners in presenting how to overcome certain institutional challenges while planning and implementing large scale multi-stakeholder digitization projects in similar country contexts. So while there is scope of linking the digitization of public sector organizations to anti-corruption measures in other Global South countries, the paper may not be that straightforward with the private sector involvement.

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Social implications – The paper offers rich social insights on the institutional interchanges that occur between the social actors for the innovation of technology. Especially, the paper highlights the social-embeddedness nature of technology that underpins the institutionalization of new organizational practices. These have implications on how DI is viewed as a socio-political process of change.

Originality/value – This study contributes to neo-institutional theory by theorizing covert power as a political force that complements the neo-institutional framework. This force is subtle but also resistive for some political actors as the force shifts the equilibrium of power between different institutional actors. Furthermore, the paper presents the social and practical implications that guide policymakers and practitioners by taking into consideration the unique institutional challenges, such as covert power, while implementing large scale digital projects in the social cash sector.

Keywords Digital innovation, Neo-institutional theory, Institutional interactions, Transforming organizational practices, Digital payments, Covert power, Social cash organizations

Paper type Research paper

1. Introduction

In recent years, digital innovation (DI) has emerged as an important phenomenon for organizational transformation that has inspired scholars in information systems (IS) research (Hinings *et al.*, 2018; Burton-Jones *et al.*, 2020; Mergel *et al.*, 2019; Baptista *et al.*, 2020). DI is conceptualized as the creation of, and consequent change in market offerings, business processes or models that result from the use of digital technology (Nambisan *et al.*, 2017). Hence, DI is accompanied with change, or digital transformation (DT) that results in new automated products, platforms, services and value pathways (Clohusey *et al.*, 2017; Vial, 2019; Chanias *et al.*, 2019; Morton *et al.*, 2020). According to Yoo *et al.* (2010) the process of digitalization is dynamic, chaotic, multipath and expansive. Moreover, Nambisan *et al.* (2017, p. 223) argue that “*there is a critical need for novel theorizing on digital innovation management that deals more adequately with the rapidly changing nature of innovation processes in a digital world*”. In this paper, the focal innovation is the “digitization of social cash payments and its associated socio-technical practices”. This conceptualization draws on the broader definition of DI as the “digitization of processes or creation of digital platforms associated with change that potentially may reconfigure organizational practices” (Tilson *et al.*, 2010). We apply this definition to understand digital payment innovation in a social cash organization that confers new organizational practices.

While neo-institutional theory has dominated the field of Information Systems (IS) and Organization Studies in the last few decades (Vogel, 2012; Alvesson and Spicer, 2018), most of the established concepts dismiss the socio-political complexities surrounding DI, especially in social cash organizations. However, by using the word “digital”, we do not mean to discredit the legacy of IS research within institutionalism undertaken by established scholars. As DI steers new institutional arrangements related to organizing practices (Lusch and Nambisan, 2015), there is a necessity to further explore the novel institutional exchanges that confer new practices, values and actor constellations in the social cash sector. While studies have more broadly focused on the role of the institutional context (Janssen *et al.*, 2012; Gonzalez-Zapata and Heeks, 2017; Altayar, 2018) in the public sector, aspects such as institutional complexity that steer innovation in government social cash projects remain under-researched.

Nowadays, institutional theorists are more attentive to the role and impact of digital technologies to shape organizations (Davis, 2016; Deephouse *et al.*, 2017; Hinings and Meyer, 2018; Gebre-Mariam and Bygstad, 2019; Burton-Jones *et al.*, 2020). In the early days, neo-institutional theory (NIS) was particular oriented to conceptualizing institutionalization as an “outcome” (Tolbert and Zucker, 1999; Scott, 2001). Whilst this approach explained how institutional processes produced stability, homogeneity and uniformity, it ignored change, power and agency (DiMaggio, 1998; Scott, 2001; Dacin *et al.*, 2002). Although IS researchers have attempted to address how institutional theory accounts for change (Haggerty and Golden, 2002; Greenwood *et al.*, 2002; Thornton, 2002; Kraatz and Moore, 2002), these developments largely

overlook the nature of socio-political forces that determine new institutional arrangements that account for changes in organizations, particularly in public sector social cash organizations.

Masiero and Prakash (2020) draw on institutional theory to affirm the role of IS development and change within the Indian public distribution system (PDS). However, the study discounted the political forces that may also necessitate IS design and change within the broader framework of other institutional forces. Recently, while Masiero and Arvidsson (2021) conceptualize the “degenerative” aspects of digital identity platforms used in social protection schemes, they ignore the political dimensions or “unintended outcomes” in digital subsidy design. Whilst the institutionalization of technology takes into some consideration of the political dimensions for IS development in the public sector (Madon and Bhatnagar, 2000; Bada *et al.*, 2004; Wahid and Sein, 2013), little knowledge exists on how different forces interact with each other and translate as change in social cash organizations. This drives the motivation of this paper.

Hence, the core theme and originality of the paper focuses on the deeper socio-political nature of the novel institutional intersections that influence DI and changing practices in social cash organizations. So far, within the intercepting branches of knowledge in the DI in social cash organizations, institutional theory and organizational change literature, there is little knowledge that accounts for the wider socio-political processes that determine change. Theorizing the socio-political constructs within institutional theory will help us gain a better understanding of the DI phenomenon that is dynamic and pervades beyond the organizational boundaries. To build our theoretical lens, we envisage that neo-institutional theory offers well-developed concepts to unveil the complexities that underpin the institutional interchanges. However, we also unpack some of the socio-political forces that emerge from the institutional context that account for organizational change. In this light, we aim to explore the following research questions:

- (1) How did various institutional forces, including socio-political forces, influence DI in the organization?
- (2) What were the institutional effects of DI on organizational practices?

Earlier, Avgerou (2000) framed IS development and organizational transformation around two parallel competing institutional forces—*institutionalization* that legitimizes technology innovation in virtue of its own forces, and *deinstitutionalization* which dismantles existing organizational practices. We draw on these concepts to elucidate how technology is *institutionalized* drawing on the institutional interactions between the *coercive*, *normative* and *mimetic* elements (DiMaggio and Powell, 1983, 1991). However, the novelty of the paper is that it complements neo-institutional theory with a fourth construct – *covert power* (Boonstra and Gravenhorst, 1998; Bradshaw and Boonstra, 2004) that unfolds through the institutional interchanges as a consequence of DI. In addition, the *deinstitutionalization* of established work practices signifies change or transformation in organizational practices in this paper.

The theoretical contribution in this paper is established through an interpretive case study of a government social cash organization that is home to the Benazir Income Support Programme (BISP Kafalat) in Pakistan. The program is one of the largest in South Asia to disburse digitized social cash payments to women beneficiaries only. Institutional forces arise from multiple contexts: the international, national, sectoral and organizational. In this paper, neo-institutional theory affords levels of analysis that are not restricted to the organizational level, but also provide perspectives from various stakeholder groups. Whilst the institutional elements outlined in this paper are specific to BISP’s unique historical and contextual environment, the transition to digital payments is widely applicable and transferrable to other public sector organizations. As case study research requires a language for articulating and making sense of a specific context, in this paper institutional theory offers such a perspective and demonstrates how the BISP’s institutional context is relevant to shape the organization’s inimitable practices.

2. Literature review

2.1 Digital innovation in the government social cash sector

The ubiquity of digital technology has not only changed the way we strategize and organize to create innovation (Lyytinen *et al.*, 2016), but also carries out 'new combinations of digital and physical components to produce novel products (Yoo *et al.*, 2010) that have changed the very nature of innovation itself (Nambisan *et al.*, 2020). Over the last two decades, DI in the social cash sector has altered the nature of social cash delivery to poor citizens in the Global South (Masiero and Prakash, 2020). According to the World Bank, social cash is defined as regular payments that assist individuals and families, especially the poor and vulnerable, to cope with crises and shocks, improve productivity, invest in the health and education of their children and protect the aging population. Hence, social cash schemes aim to reduce socio-economic inequalities and seek to build resilience in vulnerable communities.

Moreover, studies of popular government social cash programs, such as *Bolsa Familia* in Brazil, *Oportunidades* in Mexico and *Familias en Accion* in Colombia are centered on a techno-economic vision on the design and delivery of digitized social protection (Bold *et al.*, 2012; Ehrbeck *et al.*, 2012; Rotman *et al.*, 2013; Rotman, 2014). Such studies discount the socio-political nature of the digitalization process that results from the myriad institutional forces that drive the innovation. Other research on digital payment innovation in countries including Niger, South Africa and Pakistan focusses on the dimensions of social and financial inclusion from beneficiaries' perspectives (Aker *et al.*, 2015; Pickens *et al.*, 2009; Kemal, 2019) while ignoring the institutional interactions that trigger the innovation. Recent research on the well-known Public Distribution System (PDS) in India highlights the problematizations in the digitalization of social protection through a data justice lens (Masiero and Das, 2019). However, the study overlooks the wider institutional context that determines the processes of change. Although Masiero and Prakash's (2020) study on the Public Distribution System in India examines the processes of IS development and change through the institutional perspective, it dismisses the socio-political nature of the interchanges that are intertwined with other institutional forces. This is problematic if we wish to advance our knowledge of DI, particularly in the context of the social cash sector. Therefore, in this paper we draw on Avgerou's (2000, 2002) theorization of institutionalization and deinstitutionalization, and apply these concepts to explore the nature of socio-political forces that overlap with other institutional elements, such as covert power, to determine change in organizational processes.

2.2 Information technology, organizational change and power

In the literature, there is cross-disciplinary consensus that "digital innovation" represents an important emerging phenomenon that differs from the traditional IS/IT research we have studied (Markus and Nan, 2020). Regarding innovation, although there is the lack of a clear conceptualization of what is meant by "digital", there is still agreement on how DI incorporates IT tools that are embedded within a socio-technical vision (Nambisan *et al.*, 2017). While DI is about continuously creating and organizing the social and technical/physical artefacts for new and improved products, services and business models, IT is restricted to the technological artefact only and is one entity within the DI phenomenon (Yoo *et al.*, 2012; Hund *et al.*, 2021). As scholars have made a clear distinction between DI and IT tools that account for organizational change, this traditional body of literature has been presented separately in this section of the review.

While there is extant scholarship on the IT and organizational change literature from the past few decades (Scott and Morton, 1991; Orlikowski and Walsham, 1996), even nowadays digitization projects are often riddled with poorly understood power struggles and conflicts (Hekkala *et al.*, 2021). From the technical-rational perspective that guides IT development projects (Avgerou and McGrath, 2007), power and conflict are the result of suboptimal decision-

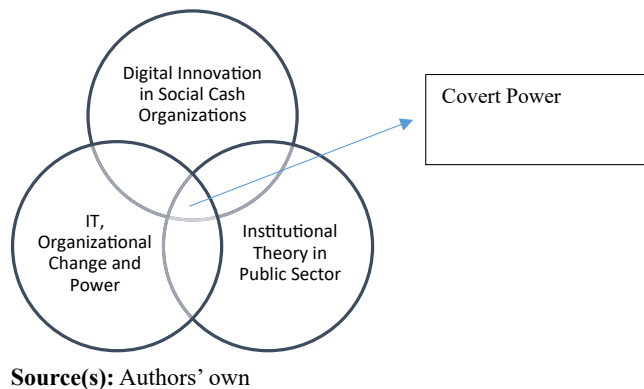
making that is often associated with challenges (Levina and Orlikowski, 2009). Scholars have increasingly questioned the technical-rational notions of IT development, particularly associated with organizational change. There is agreement that both power and conflict are normal and expected aspects related to new organizational practices (Simeonova *et al.*, 2020). From this perspective, power is enacted by all kinds of actors, regardless of their authority or hierarchical position (Newell and Marabelli, 2016; Simeonova *et al.*, 2020). Such findings challenge the techno-rational assumptions and underline the socio-political nature of IT projects that are driven by the vested interests of political actors (Avgerou and McGrath, 2007). Other scholars argue how the bureaucratic, social and technical constitution of digitalization projects form the basis of specific power practices to emerge, such as hiding, storytelling and bargaining (Hekkala *et al.*, 2021). These visions are grounded in the social embeddedness approaches in the IT development literature (Avgerou, 2008, 2010; Avgerou and Madon, 2004).

On the other hand, the Organization Studies literature has presented different dimensions of power that are associated with changes in structures, practices and norms (Bradshaw and Boonstra, 2004). Organizational change processes are influenced by the institutionalization of power and the behavior of interest groups in and around organizations (Mintzberg, 1983; Pfeffer, 1992). While the institutional and political systems play an important role in organizational change, actions taken to challenge or influence organizational change processes by groups other than management are seen as resistance to change. Those actions fall outside the legitimate activities of the change program (Hardy and Clegg, 1996). Whilst various actors try to influence each other, this does not necessarily suggest that all forms of change are resisted, as some actors may also comply (Hekkala *et al.*, 2021).

2.2.1 Covert power. Boonstra and Gravenhorst (1998) classify five perspectives; formal, personal, structural (covert), cultural and learning to explore the relationships between change approaches, power used to effect changes, agents in the change process, change strategies, and the behavioral outcomes. These concepts have mostly been studied in relation to power dynamics that result from the implementation of digitalization projects. Drawing on the concept of social embeddedness, overt and covert power has been conceptualized in the literature. Overt power is externally manifested and originates from features related to senior management, such as control and domination, and is exercised as formal authority. On the other hand, covert power is much subtle in influence (French and Raven, 2016). Scholars classify *covert power* as the type of power exerted to control organizational change processes. Initially, covert power is hidden, but becomes visible when different stakeholder groups negotiate for implementing change (Boonstra and Gravenhorst, 1998; Bradshaw and Boonstra, 2004). Thus, covert power broadly results from informal social processes and is operationalized as a diverse set of measures, such as the complexity of the organization (Barkema and Pennings, 1998). Veliyath and Ramaswamy (2000) have applied these concepts as determinants that influence CEO pay in Indian family-controlled firms.

In this paper, we unpack covert power, as a non-coercive form of institutional force, that arises from the institutional interactions between different actors. Covert power also resonates with the socio-political vision in the DI literature on social cash organizations. Also, this form of power is grounded in the IT, organization change and power literature. By examining the intersection between three strands of IS literature (Figure 1), our theoretical contribution sheds light on this fourth construct, covert power that extends institutional theory (see next section). Hence, the theoretical focus of this paper probes deeper into how the different institutional interactions, especially socio-political forces (covert power) play out with the other institutional forces to influence DI that transforms organizational practices.

Figure 1.
Intersecting domains
of literature to
highlight the research
gap and contribution



3. Theoretical framework: institutional theory

Over the past decades, institutional theory was considered to be deterministic and static, and recognized IS development as an “outcome” rather than a “process” (Dacin *et al.*, 2002). This is because institutional theorists restricted their arguments to the techno-economic rationale for technology adoption and ignored the broader organizational and environmental pressures (Scott, 2008). This criticism has been addressed in scholarly research that manifests how technology becomes legitimized and routinized in public sector organizations (Silva and Figueroa, 2002; Fountain, 2007; Currie and Guah, 2007; Kim *et al.*, 2009; Baptista, 2009), with associated practices becoming a part of organizational habit (Silva and Backhouse, 2003). Kromidha and Cordoba-Pachon (2017) examined the dynamics of discursive institutionalization to better understand how DI mediates change and stability. Other studies tend to ignore the “dark side” of institutionalization that unfolds through the paradox between institutionalization and the strategic value of technology to the organization (Baptista *et al.*, 2010). Notably, the application of institutional theory in the public sector (Fountain, 2001, 2007; Kim *et al.*, 2009; Azad and Faraj, 2009) has not paid much attention to the socio-political processes entangled with other institutional interchanges for determining organizational change. Baka (2017) for instance, has attempted to study how different groups of people have co-created technology through negotiations, organizational forms and institutional arrangements. However, the study discounted the multifarious nature of institutional drivers that directed new ways of organizing open innovation in public institutions.

Employing neo-institutional theory as a theoretical lens for this study is highly relevant and can be justified as follows. First, institutional theory is concerned with analyzing organizations that are subject to institutional processes (Scott, 2013). However, this theory has not been applied to study social cash organizations that are subject to myriad institutional processes that determine changing practices. Second, institutional theory provides a framework for investigating a phenomenon in its wider context. This study seeks to understand the factors that influence the institutionalization of technology in the wider context by considering the socio-political factors. The main strength of institutional theory is its emphasis on multi-level analysis, and it can shed light on the significance of socio-organizational, national and international level issues to enhance our knowledge and understanding. Finally, using institutional analysis helps us gain deeper insights into how institutions influence the design and outcomes of ICTs in organizations (Orlikowski and Barley, 2001).

Hence, in order to address the untapped body of knowledge in the context of a government social cash organization, neo-institutional theory affords a holistic and comprehensive

framework that connects the institutional forces with the effects of DI. In this context, DI is not perceived as an “outcome”, as it rather unfolds as a socio-political process related to changing organizational practices.

3.1 Elements of neo-institutional theory

While scholars have presented several definitions for classifying institutions (Avgerou, 2000; Lawrence, 2003), the most appropriate classification for this paper is, “*Institutions are social structures that have attained a high degree of resilience. [They] are composed of cultural-cognitive, normative and regulative elements that together with associated activities and resources provide stability and meaning to social life. Institutions are transmitted by various types of carriers, including symbolic systems, relational systems, routines and artefacts*” (Scott, 2008, p. 48). According to neo-institutional theory, institutional forces create and sustain the formation and structure of work processes in formal organizations and have been studied extensively in Organization Theory (DiMaggio and Powell, 1983, 1991; Zucker, 1983, 1987, 1991; Scott, 2005, 2008, 2013). The functionalities of organizations cannot be elucidated only through the rational actions of managers and technology designers; it is therefore essential to also consider the “irrationalities” stemming from the environment and socio-cultural systems embedded in the organization (Scott, 2013). These irrationalities cannot be planned or predicted through the strategic actions of management. Thus, three elements or forces have been identified that engender *isomorphism* or consistencies within or across organizations over time. These three elements have been recognized by researchers as “isomorphic pressures” that are usually driven through either interconnected relations or structural equivalences and are classified as *coercive* (regulative), *normative* (functional) and *mimetic* (cultural-cognitive) elements or forces (DiMaggio and Powell, 1983, 1991; Tolbert and Zucker, 1994; Teo *et al.*, 2008; Scott, 2008, 2013).

A regulatory or coercive force is generally based on economic and legislative influences, with implications on the organization’s decision to adopt a specific organizational practice (Powell and DiMaggio and Powell, 1983, 1991; Scott, 2005, 2013), whereas a normative force is enthused by general norms which tend to be prevalent within the organization itself. However, a mimetic force refers to replicating other systems’ practices, especially when there is uncertainty in the environment (DiMaggio and Powell, 1983; Scott, 2008, 2013). Hence, organizations are likely to model other organizations or simulate culturally presumed meanings and ideologies. All these elements comprise a set of values or norms related to the *raison d’être* of the organization and the professional roles that legitimize action for members of the organization. Also, they represent structures of authority which influence certain ways of power distribution, legislation and supervisory authorities which control the rules of behavior and the appropriate organizational output (Scott, 2008, 2013).

3.2 Institutionalization of technology and deinstitutionalization of practices

Institutional theory helps probe the socio-structural aspects of organizations which underpins the central values that sustain the institutional character. *Institutionalization* is defined as the process through which a social order, norm or pattern becomes legitimized in social structures. In addition, how these patterns are maintained, reproduced or modified towards *isomorphism*; not only for economic impetuses, but also for social, cultural or political goals (Scott, 2008). Isomorphism may also be recognized as a constraining outcome for certain organizations subjected to similar environmental conditions (Powell and DiMaggio, 1991). Research suggests that institutional forces typically afford the legitimization of certain practices through discourse amongst various stakeholders (Davidson *et al.*, 2015; Hinings *et al.*, 2018).

Nonetheless, scholars argue that the *institutionalization of technology* is intertwined with the *deinstitutionalization* of the established organizational practices (Avgerou, 2000). These two processes take place simultaneously and are closely interdependent as part of the DI

process. In [Figure 2](#) below, the institutionalization of technology is associated with the transition to digital payments. This consequently impacts upon changing organizational practices –or the deinstitutionalization or erosion of old practices; whereas the ‘*institutional effects of digital innovation*’ relate to the transformation of organizational practices. Hence, neo-institutional theory provides an appropriate framework to analyze the institutional forces that influence DI in a social cash organization.

The institutional framework ([Figure 2](#)) is based on [DiMaggio and Powell's \(1983, 1991\)](#) theory drawing on *normative*, *coercive* and *normative* forces. We justify the application of this framework as a theoretical lens. First, the framework acts as a sensitizing device to view the world in a certain way ([Klein and Myers, 1999](#)). Second, the framework embeds the theoretical concepts that help to frame the research questions.

RQ1. How did various institutional forces, including socio-political forces influence DI in the organization?

RQ2. What were the institutional effects of DI on organizational practices?

4. Methodology

The methodology is an interpretive case study ([Walsham, 2006; Yin, 2018](#)) of BISP (Kafalat) programme. The use of case studies ([Yin, 2018](#)) has become increasingly more accepted as a valid form of interpretive research of technology related phenomena ([Walsham, 2006](#)). Case study research typically investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clear ([Yin, 2018](#)). In this paper, the representative case of BISP demonstrates how the DI phenomenon unfolds as a process within the institutional context.

The case of BISP (Kafalat) is distinct in the sense that it is one of the largest government social cash programmes in South Asia (disseminated through an organization) and to date has shown a demonstrable impact for disbursing digital welfare payments (BISP, 2020). It is also unique in the sense that it targets women as beneficiaries only in its efforts for achieving their social and financial inclusion. BISP is monitored by international agencies and is internationally commended for its outstanding achievements in compliance to the United

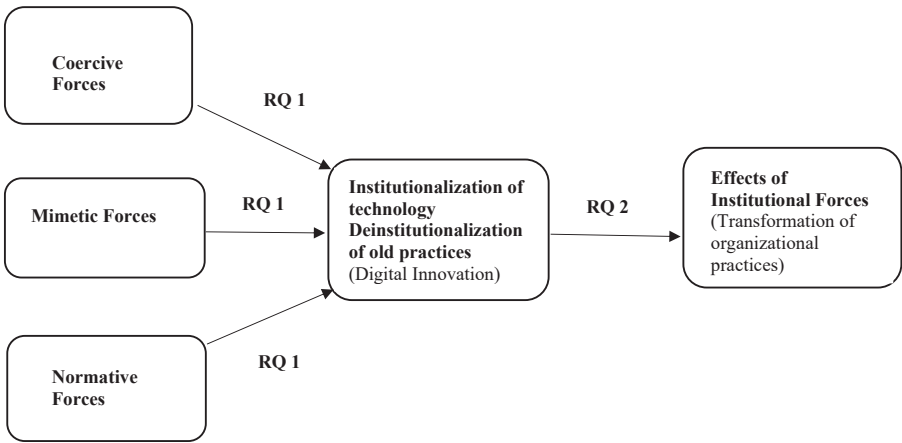


Figure 2. Theoretical framework: the institutional forces and effects of digital innovation on organizational practices

Source(s): Authors' own

Nations Sustainable Development Goals (SDGs). The case study has relevance in positing the concepts in institutional theory that guide data collection and help in the interpretation of the DI phenomena (Klein and Myers, 1999; Yin, 2018). Furthermore, BISP is subjective to a unique set of techno-economic, organizational, international, regulatory and socio-political forces that underpin the theoretical framework to answer research questions in this study.

4.1 Data collection

The case study is situated in an interpretive tradition of IS research emphasizing on the processes, actions and shared meanings constructed by social actors (Walsham, 2006). This philosophical assumption justifies the use of qualitative methods for data collection in order to acquire deeper and rich understandings of the subjective meanings and interpretations of organizational members and stakeholders involved in the DI process.

The main data collection commenced between March 2014–2016, over several phases, in Islamabad, Pakistan. Since 2016, secondary sources have been reviewed to keep abreast with the latest developments in the programme. The study was conducted at a time when digitization of social cash payments at BISP were novel across the country. At that time, BISP was piloting different technology payment platforms in various regions of the country. Before the outset for data collection in Pakistan, ethical approval was sought from the respective university. Access to the organization and permission for undertaking research was directly granted from the strategic management team. In the first exploratory preliminary phase (January–March 2014), informal telephonic interviews were conducted with BISP officials and bankers to develop an understanding and familiarization of the current status and issues related to digitization of payment platforms at BISP. An initial review of the academic and practitioner literature helped to frame the questions for the interview topics in the guide. One of the Directors offered institutional support for organizing interviews with other key BISP officials at both the head and regional offices in Islamabad.

Qualitative methods were used for data collection in the second phase (March–April 2014) comprising of a total of 30 semi-structured interviews with BISP officials and stakeholders, including bankers, mobile operator and international donor staff (Table 1). Interviewees were purposively sampled and selected on the basis of (1) their roles and responsibility (2) special expertise based on their involvement in the digitization efforts. The interview topics were

Participants for interviews	No. of interviews
<i>BISP</i>	
Strategic management staff	3
Senior management staff	5
<i>Operational/field staff</i>	4
Mobile operator staff	
Telenor officials	3
Ufone officials	3
<i>Financial providers/bankers</i>	
United bank limited officials	3
Alfalalah bank officials	2
Summit bank officials	3
<i>International donor staff</i>	
FCDO officials	2
World bank officials	2
Total interviews	30
Source(s): Authors' own	

Table 1.
Participants for
interviews

used to gauge participants' perceptions about digitization of social cash and the subsequent change in organizational practices. At BISP, a total of 12 face-to-face interviews were held: 3 with the strategic level staff, 5 with senior management staff and 4 with operational level staff. All interviews from BISP staff took place either at the head office or the regional offices, located in Islamabad, Pakistan, respectively.

Interviews with stakeholders of BISP were based on different interview guides to understand their perspectives related to their involvement in the programme. Mostly, the interviews were held face-to-face with participants at their respective organizations. A total of 8 bankers hailing from strategic and senior management positions were interviewed from the financial industry: United Bank Limited, Alfalah Bank and Summit Bank. Drawing on the institutional theory framework, their perspectives mainly highlighted the economic and regulatory factors which contributed to the transition to electronic payment channels. Another 6 interviews were held with senior and middle management staff from mobile operators: Telenor-Easypaisa and Ufone. The data collated from the mobile operator staff helped analyze the technological drivers for transferring mobile-based payments – via mobile banking to beneficiaries. In addition, 4 interviews were held with management staff at the Department of Foreign, Commonwealth and Development Office (FCDO), UK and the World Bank Offices in Islamabad, who were important stakeholders in the programme. The total number of interviews for the study were determined until theoretical saturation was reached in the data. The data collated from multiple stakeholders helped to triangulate the findings to construct analytical validity (Bryman, 2006; Yin, 2018). Table 1 provides a detailed list of participants of the study.

In line with the ethical approval process prior to conducting interviews, all participants were provided with a participant information sheet that specified the purpose of the study, the nature of information sought and guidelines for data protection and privacy in compliance with the General Data Protection Regulation (GDPR, 2016). Due to the sensitivity of information in public sector settings, participants were reassured that their names would be kept anonymous and confidential with the right to withdraw from the study at any time. The consent of all participants were obtained on the participant consent forms. The majority of interviews were conducted in English, lasted approximately an hour and were audio recorded. Although the semi-structured interviews drew on a pre-set interview guide, it was flexible to encourage participants to disclose any other relevant information. Hence, the design of the interview was “co-constructed” with participants to yield rich interpretations for the study.

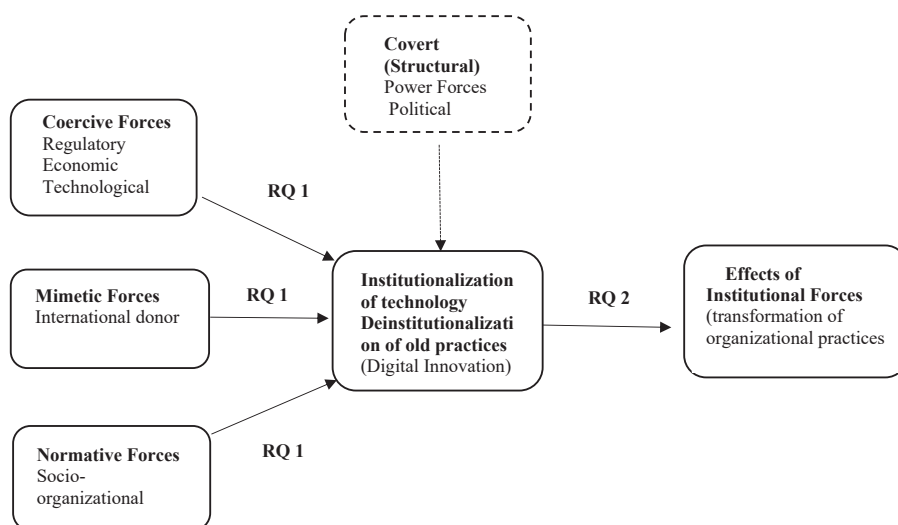
In the third phase (2014–2016), we monitored the programme's evolution through secondary sources, and in the summer of 2016 arranged a follow-up visit to BISP. The purpose of this visit was to share the findings with management and gain additional new insights on the development of the programme. Secondary sources from organizational documents, policy reports and from formal media (newspaper, websites) and informal media sources (twitter, blogs) were particularly useful throughout the duration of the project. The review of documentation and other materials is to date and has served to validate and extend the information collected through the semi-structured interviews. It also particularly helped in tracing the trends with new developments the organization embraced over the years. All this information enriched our knowledge of the digitized program, generating deep insights on various aspects of the digital payment innovation process including the underlying policy agendas.

4.2 Data analysis

Prior to qualitative data analysis, interview transcriptions were uploaded into the software NVivo for thematic analysis (Boyatzis, 1998, 2007; Taylor and Ussher, 2001; Braun and Clarke,

2006). At the first stage of analysis (loosely informed by institutional theory) thematic coding was carried out to identify and validate generic types of discourse exhibited by interviewees through policies, programmes and actions. This conceptual mapping from the empirical data involved coding the repetitive patterns or themes of data drawing on the propositions of institutional theory. Initially, axial coding was carried out through smaller units of data which were coded at the nodes within the NVivo software. Mostly, the themes were constructed from the narratives of the institutional actors and were classified as the institutional elements arising both from the *irrational* (environment) and *rational* (organization) forces. Although the interview template borrowed common themes from institutional theory which were represented as deductive themes in the coding of data, other inductive themes also emerged from the data. An example of a new theoretical proposition that emerged from the data was “*covert power*”. The conceptualization of this new category maps onto “*structural power*”, drawing on scholarly literature (Boonstra and Gravenhorst, 1998; Bradshaw and Boonstra, 2004). Thus, thematic analysis was not merely passive and limited to discovering pre-existing themes from data, rather it identified new constructs from the data (Taylor and Ussher, 2001).

The next stage deepened into the analysis by adding new codes and moving back and forth between the coded themes as an iterative process. The final stage of analysis consisted of comparing the themes at various nodes and clustering similar themes under categories at a higher level of abstraction (Boyatzis, 1998). All the codes and their classifications were checked and refined according to the theoretical definitions in two rounds of iterations. The conceptual framework (Figure 3) displays all the four categories; *techno-economic/regulatory*, *political*, *international* and *socio-organizational* that were framed under DiMaggio and Powell’s (1983) institutional theory. As mentioned earlier, the category of “political forces” emerged from the data which had not been earlier mapped against institutional theory. This new category was theorized under *covert power* – a fourth element to complement neo-institutional theory (for classification of covert power refer to Table 2).



Source(s): Authors’ own

Figure 3.
Extended theoretical
framework: the
institutional forces and
effects of digital
innovation on
organizational
practices

ITP	Categories/Institutional forces	Description	Themes
	Normative <i>Socio-organizational forces</i>	<i>A normative</i> element is enthused by general norms which tend to be prevalent within the organization itself. These comprise of both social (traditional and cultural norms) and organizational factors which are considered to be professional to achieve a desired organizational outcome (DiMaggio and Powell, 1983, 1991; Powell and DiMaggio, 1991; Scott, 2008, 2013)	Greater outreach of payments Social inclusion Financial inclusion Empowerment
	Coercive <i>Techno-economic and regulatory forces</i>	Based on economic and legislative influences with implications on the organization's decision to adopt a specific organizational practice (DiMaggio and Powell, 1983, 1991; Powell and DiMaggio, 1991; Scott, 2008, 2013). This also includes the technological pressures	Branchless banking regulation Limited purpose accounts Profitable business case Float and commission
	Mimetic <i>International forces</i>	Organizations tend to copy the best practices from other successful organizations when environmental expectations are uncertain DiMaggio and Powell, 1983, 1991; Scott, 2008, 2013)	Donor support and funding Best practices Institutional strengthening Transparency
	Covert Power <i>Political forces</i>	This construct is an extension of institutional theory to recognize that covert power become visible Covert power maps onto structural power that is defined as the distribution and use of power by agencies to control processes of organizational change. While this dimension of power is hidden initially, it becomes “visible” when different interest groups negotiate about the direction of the change process (Boonstra and Gravenhorst, 1998; Bradshaw and Boonstra, 2004; Barkema and Pennings, 1998). Covert power is non-coercive, more subtle in influence and largely results from informal social relationships (Barkema and Pennings, 1998; French and Raven, 2016). Political forces may also be resistive to illuminate the relative power of the organized interests and actors of the institution (Covaleski et al., 1993)	Government negotiation Latent resistive forces Diminishing political power
Note(s): Normative - socio-organizational forces Source(s): Authors' own			

Table 2.
Categories and themes displaying the institutional forces for digital (payment) innovation

5. Case study

5.1 Background of benazir income support programme

The BISP (now renamed as *BISP Kafalat*) was launched in 2008 by the former Pakistan People’s Party Administration, and to date remains the first ever comprehensive and universal social safety programme in the country. Over the years, though the programme has evolved under different administrations, it remains the flagship programme of the Pakistani Government. It aims to achieve the targets of the United Nations SDGs for reducing chronic poverty and malnutrition in underserved poor communities. Other objectives are to enhance the financial capacity of the poor, formulate and implement comprehensive policies and targeted programmes for the uplift of underprivileged and vulnerable people and promote equitable distribution of wealth, especially for low income groups. The concept and framing of the programme are based on the successful development theories of social protection that are ubiquitously implemented in many countries today (BISP, 2019).

BISP was established through an Act of Parliament and the organization is working under the executive patronage of the Prime Minister with the President of Pakistan as the chief patron. It has nationwide presence and the head office is located in the federal capital, Islamabad, Pakistan. With 6 regional offices located at provincial capitals, Azad Jammu Kashmir and Gilgit Baltistan, BISP has 33 divisional offices and 385 Tehsil offices (similar to local parish councils) located in the country. The organization is headed by a board with a nominated chairperson and executive committee members; comprising of a secretary and cabinet members hailing from the finance, economic and foreign affair ministries besides other non-government members (BISP, 2019).

Over the years, BISP has successively become the country's primary safety net programme in providing quarterly payments of USD \$30.6 [1] (Pakistani Rupees PKR 8750) to over 9 million women with monthly household incomes below USD \$21 (PKR 6000) (BISP, 2023). By targeting women only, as beneficiaries, the supplementary objective of BISP is to socially and financially empower women. The programme covers households from all provinces of the country; Sindh, Punjab, Balochistan, Khyber Pakhtoonkhwa, in addition to the Federally Administered Tribal Areas, Azad Jammu and Kashmir, Gilgit Baltistan and Islamabad Capital Territory (BISP, 2019).

BISP holds the largest database of the poorest families in Pakistan after undertaking the largest door-to-door poverty survey with assistance from the National Database and Registration Authority (NADRA). The poverty scorecard was designed with financial and technical assistance from the World Bank and the Foreign, Commonwealth and Development Office (FCDO), U.K. The survey was introduced in 2009 and completed in 2010 to identify eligibility of beneficiaries on the programme. The objective survey tool was based on proxy means testing that determined the welfare status of each household on a scale ranging from 0–100. Household data from 27 million households was entered into the National Socio-Economic Registry (NSER) which identified 7.7 million households as “poorest of the poor”. At the time of the poverty scorecard survey in 2010, the coverage of the survey was around 85% of the total population of the country (BISP, 2019).

The poverty scorecard survey was the first of its kind to record socio-economic data of poor households in the NSER. Recently, BISP has now introduced the dynamic NSER registry that is flexible to enroll new household data and update existing data. The data of households is evaluated and shared via strict protocols with other national and international policy-makers, practitioners and researchers involved in the planning and execution of anti-poverty schemes. The targeting mechanism of BISP is comparative to other global social protection programmes, including Bolsa Familia in Brazil, Prospera in Mexico and 4P in Philippines. BISP is primarily funded by the Government of Pakistan but also receives unprecedented technical and financial support from multilateral and bilateral donor agencies such as the World Bank and DFID (BISP, 2019).

5.2 Pre-digitization: targeting and delivery of social cash payments (2008–2010)

Initially when BISP was launched in 2008, formal instruments for identifying beneficiaries in underprivileged households were absent in the country. The task of targeting poor households was entrusted to parliamentarians who selected “handpicked” households whom they personally favored in their respective constituencies. For this purpose, BISP provided an equal number of application forms to parliamentarians- 800 forms to each member of the National Assembly and Senate and 1,000 forms to each member of the Provincial Assembly. The completed forms were then biometrically verified by NADRA's database for each beneficiary. Initially, 2.2 million women beneficiaries were registered onto the program in 2008 (BISP, 2019).

Relating to the disbursement of social cash, beneficiaries received their quarterly cash payments either directly from politicians, or through money orders delivered by postmen

(BISP, 2019). Using these conventional modes for delivering cash grants had limited beneficiary outreach owing to administrative challenges. However, one of the reasons for BISP making cash payments initially through the Pakistan Post was due to their overarching presence of branches across the country. Out of approximately total 6,700 union councils, more than 700 union councils did not have any bank or bank branch.

5.3 Digital innovation: transition to digital payments (2010 onwards)

The first transition to the program in 2010 was related to the objective targeting of beneficiaries. Following the roll-out of the poverty scorecard survey, enumerators from NADRA visited each semi-urban/rural household or selected a central location in the village or district. Here, many women flocked in the communal spaces to get their scorecard forms filled by enumerators. As the enumerators had no particular affiliation with any political party, this targeting system was considered to be objective to enroll eligible beneficiaries onto the programme. The poverty scorecard was neutral to specific qualitative dimensions of marginality and exclusion, such as personal status, kinship, provincial identity, political affiliation and religion. Thus, it registered genuine beneficiaries onto the programme which was regarded as a rare instance of social intervention that impartially reached out to all deserved and impoverished households in Pakistan (BISP, 2019).

In the same year in 2010, the second transition at BISP was marked by the shift to digital social cash payments. This was facilitated by the Branchless Banking Regulations issued in 2008 by the State Bank of Pakistan which afforded an enabling environment for banks to either partner with BISP directly, or through mobile operators to deliver grants via mobile banking. This helped BISP to increase its financial outreach of disbursing grants to unbanked populations residing in remote locations across the country. Against this background, BISP partnered with several banks (United Bank, Summit Bank, Alfalah Bank) and mobile operators (Telenor/Easypaisa, Ufone) to disburse digital payments to beneficiaries. These digital payments were collected by women beneficiaries from numerous pay-points including; banking agents, retailers, ATMs or POS machines via several digital tools (mobile phones, smart cards or debit cards. Mobile phone banking was initially piloted in five districts in the country, but in 2014 this had started to be replaced with debit (ATM) cards. In regions where mobile banking was implemented, as digital platforms to disburse electronic cash, Pakistan Telecommunication Authority (PTA) was a key regulator in monitoring the mobile-based transactions (BISP, 2019).

Since 2016, BISP has introduced another DI – a biometric verification system to cash out payments from retailers or banking agents using biometric readers. This has subsequently replaced debit cards in most districts of the country. The biometric verification system validates beneficiaries' biometric data (thumbprints) that is encrypted in smart identity cards to verify beneficiaries' identities for distributing social cash. The new digital payment model allowed BISP to further extend its beneficiary outreach and was more user-friendly. It was convenient for those beneficiaries who had low digital skills. A biometric verification system also provided greater flexibility and choice of withdrawal options for beneficiaries that included biometrically enabled ATMs, bank branches and agents/retailers. According to official figures approximately 94% of beneficiaries received social cash payments through digital tools (BISP, 2019).

6. Findings and discussion

6.1 Interactions between the institutional forces – a socio-political process of digital innovation

The institutional framework helps in interpreting the institutional forces arising from BISP and the external environment. It not only restricted us in recognizing and analyzing these various forces individually, but also how they interacted with each other to legitimize

technology within formal organizational structures (Tolbert and Zucker, 1994; Teo *et al.*, 2008; Scott, 2008). In particular, neo-institutional theory highlights the complex techno-economic, regulatory, political, socio-organizational and international forces which either indirectly or directly influenced the manner in which technology was institutionalized with BISP. We argue that this accounts to the “social construction of technology” that pertains to the social embeddedness of technology with shared interpretive schemes, rules and norms (Pinch and Bijker, 1984, 1987; Bijker and Law, 1992; Avgerou, 2000, 2010). Hence, DI or the transition to electronic payments is not conceived as an “outcome” of any single force, but rather unfolds from the interactions between the institutional forces.

What follows in Table 2 is an interpretation of themes placed under the institutional categories that influenced the transition to digital payments at BISP.

Scott (2008, 2013) postulates that normative elements comprise of “values” and ‘norms’ that are linked with the rational actions of managers. Whilst values embody an individual’s natural desire within standard behaviors and attitudes, norms explain an individual’s behavior for the achievement of those desires (Scott, 2008). Drawing on the classification above (Table 2), normative forces can be perceived as the rational prescriptive forces that are deterministic in order to fulfill the organization’s strategic goals. The findings suggest that *normative* or socio-organizational forces played a dominant role in the transition to digital payments. At policy level, BISP made it mandatory for women to register their biometric data with NADRA and obtain their computerized national identity cards (for accessing digitized cash. This biometric check meant that beneficiaries with fake identities were eliminated from the programme. Even the most conservative women, who observed *purdah* (veil), stepped out of their homes to get their biometric data recorded and photographs taken to receive digitized social cash. Hence, the organization’s aim to achieve social inclusion and empower women as the norm, was embedded in the design of the technology. A BISP official expounded,

There was a lot of scepticism that women folk will not come forward to get their photographs taken or biometrics recorded for identity cards . . . nevertheless, we went ahead, and saw that they came out in large numbers (BISP Official).

This initiative is also reflected in the Aadhaar vision that is dominant in anti-poverty schemes in India (Masiero and Das, 2019). However, some scholars have been critical of digital identity platforms in being “degenerative” in obstructing beneficiaries’ access to social protection (Masiero and Arvidsson, 2021). This argument is grounded in the data justice view that accounts for how biometric databases may exclude the registration of certain citizens (Hosein and Whitley, 2019; Masiero, 2020).

Invariably, we argue that socio-cultural and organizational forces were inscribed into technology, as part of the strategic organization’s goal to empower beneficiaries financially as well. Women beneficiaries received the BISP funds directly into their bank accounts which they collected from a variety of pay-points, including retailers/agents, POS, ATMs. Under these normative forces, digital payment channels created new value pathways for women contributing to their financial inclusion (Kemal, 2019). Since women possessed biometric identity cards this meant that they could vote in the national elections. As expressed in the words of a FCDO official,

We are starting to see how digital payments have led to women’s social and financial empowerment and inclusion . . . especially the CNIC card which has had a huge social impact (FCDO Official).

Furthermore, we argue how normative forces may sometimes impose constraints for certain actors. In the context of BISP, normative drivers steered new socio-cultural norms and values as technology replaced conventional traditions within patriarchal households. We argue that technology was institutionalized in new social structures (households) and enacted new practices and behaviors that empowered women. This ratification of new cultural values and

societal norms through technology dispelled previous deeply rooted and entrenched social and power structures within conservative households. The effects of DI on beneficiaries' households for social and financial inclusion are documented in other studies (Kemal and Yan, 2015; Kemal, 2019) while this paper limits its scope to study the effects of technology on organizations.

6.1.1 Covert power – political forces. Within the institutional framework, we found that political forces unfolded both from the State administration and organization which influenced the institutionalization of technology. These political forces were subtle and non-coercive in nature, and thus have been conceptualized as *covert power – a fourth construct to complement institutional theory*. We theorize covert power by drawing on the definition of *covert/structural power* from the established literature on power dynamics and organizational change (Boonstra and Gravenhorst, 1998; Bradshaw and Boonstra, 2004). Scholars classify *covert or structural power* as the distribution and use of power by actors and agencies to control processes of organizational change. Initially, this dimension of power is latent, but only becomes visible when different interest groups negotiate about the direction of the change process (Boonstra and Gravenhorst, 1998; Bradshaw and Boonstra, 2004).

Some scholars might find some conceptual overlap between covert power and coercive forces/power and may question the need for a fourth construct. Hence, it is necessitated to make this distinction. DiMaggio and Powell (1983), state that “coercive isomorphism” results from both formal and informal pressures exerted on organizations by other organizations upon which they are dependent, and by cultural expectations in the society within which organizations function. Such pressures may be felt as force, as persuasion, or as invitations to join in “collusion”. Thus, coercive power draws on the assumption that the more powerful partner in a relationship can punish the other if it does not comply with the demand made by the more powerful partner (French and Raven, 2016). Similarly, Lunenburg (2012, p. 3) defines coercive power “as the ability to influence others by punishing them or by creating a perceived threat to do so”. On the contrary, covert power is non-coercive, more subtle in influence and largely results from informal social relationships (Barkema and Pennings, 1998; French and Raven, 2016).

The case study demonstrates that there was a powerful demand from State actors who successfully persuaded the strategic management at BISP to take the political decision and shift to digitized cash disbursements. Since the programme was a centerpiece of the government's strategy to achieve the United Nations Sustainable Development Goals targets for poverty alleviation, BISP was labeled with a political tag. Some members of the civil society accused BISP management for exploiting the opportunity to advance their political interests. However, strategic management admitted that there was indirect pressure from the State to digitize social grants that was negotiated very strategically but informally. As stated in the very own words of a Strategic Manager at BISP,

Once we shifted to digital payments, the political demand was off . . . as you know earlier, we were under a lot of indirect pressure from the Government as well as scrutiny from our donor partners to switch to digital payments . . . although they did not force us, but informally they requested us to deliver electronic payments – this had a positive outcome overall (BISP Strategic Manager).

The finding suggests that relational networks of interdependent groups, such as the State, were part of an informal process of mutual cooperation to balance different interests. Unlike coercive power that involves forceful and suppressive behavior by powerful actors, resulting in other parties to perform tasks that they would not undertake otherwise (Frazier and Rody, 1991), we argue that covert power exercised by the State actors was not laden with aggressive actions that were meant to punish or penalize BISP if it did not switch to digital payments. Although covert power may be perceived as some kind of “informal pressure”, it was non-coercive as there was no formal expectation or agreement that mandated BISP management

to abide to any proposition of change, or else it would face severe repercussions. Since coercive power is theorized on the assumption that the other party may have the authority to impose punishment if requests of the latter are not complied with (Lacoste and Blois, 2015), in this study, we found that the State did not have the powers to exercise absolute authority as other institutional (international) actors were involved. Gelderman *et al.* (2008) state that non-coercive strategies are meant to change the attitude of the other partner and they have a positive impact on the informal relationship. Thus, the empirical evidence suggests that the strategic decision to digitize social cash led to an effective collaboration with positive consequences recognized by the strategic manager. Unlike coercive power that may impose certain obstacles leading to detrimental impacts on the institutional relationship, this was not evidenced in the empirical findings. Therefore, the decision to switch to digital payments was made after a mutual consensus between both the political and organizational actors as it was a win-win outcome for both parties.

Hence, there is evidence that the process of change was institutionalized through informal partnerships constituting of both normative and covert (non-coercive) elements. Earlier, we documented how both the postmen and politicians acted as middlemen in the disbursement chain. However, on a more operational level, it was disclosed that many postmen demanded *baksheesh* (bribes) from women beneficiaries to deliver future payments at home. Hence, for some political actors, the transition to digital payments was regarded as a deliberate measure to eliminate middlemen from the grant disbursement process. Those politicians resisted this change as it dismantled their political powers and diminished their control, popularity and authority in their regional constituencies. This is evidenced in the words of a BISP official:

Credit goes to the government and executive management who agreed to shift to digitized social cash payments. It was not easy for BISP because around 2.2 million beneficiaries were receiving grants from politicians or postmen. So it was a difficult political decision for BISP to remove undeserved beneficiaries from the programme at that time. Shifting from cash to digital payments was seen as a potential threat for some politicians who resisted this move – they were not happy with this change as it curtailed their powers (BISP Official).

These findings manifest how other forms of covert power surfaced during the negotiations for switching to digital payments. Thus, we contend that covert power (political) forces were combined with normative (organizational) forces that legitimized new relationships and altered existing power dynamics within BISP. As technology was socially embedded within the institutional fabric of BISP, it established new structures of domination, control and authority. This empowered certain social actors (management, beneficiaries) at the expense of disempowering others (politicians/middlemen). Here, we further argue that while DI disrupted existing practices and power networks between institutional groups, it also resulted in conflicting agendas and interest groups.

While the shift to digital payments decreased the discretion of some political actors (as intermediaries) in the targeting processes, the resistance accompanied with this process, was predictable as a by-product of change. Moreover, conflict in public digitalization projects is inevitable as it cannot guarantee certain actors' possession over some powers, as the process of negotiation is profoundly marked by resistance, incompatibilities and challenges.

Furthermore, the social embeddedness of technology confers certain exchanges that may facilitate or promote some form of shared understandings between institutional actors. Scholars argue that resistive forces are inherently political to illuminate the relative power of the organized interests of different actors in the institution (Covaleski *et al.*, 1993). However, it is not surprising why resistive forces unfolded from the institutional context and shifted power dynamics between BISP and political actors acting as intermediaries. Interestingly, despite some resistance observed at the operational level, other political actors interacted with organizational actors to stabilize the political relationship through shared commitment

and mutual collaboration. This did not obstruct the innovation process. Hence, power was re-enacted and harmonized in other institutional structures that helped achieve stability or isomorphism within the organization and between the different stakeholder groups.

Other politicians and technological actors welcomed the transition to digital payments for purely administrative reasons related to organizational efficiency and security. Digital disbursements would potentially reduce the administrative burdens for BISP staff. As stated by the BISP Strategic Manager,

I think we were lucky enough . . . the NADRA Chairman was very supportive and he was successful in getting approval from the State to shift to digital payments . . . this mode of payment was far more secure and efficient to deliver but also was associated with other challenges (BISP Strategic Manager).

Again, covert power forces were initially subtle but symbolic and closely intertwined with normative forces for establishing new rules and procedures for disbursing digitized cash. This also suggests that BISP had to overcome its institutional inertia in order to implement digital channels for social cash disbursements. Masiero and Prakash (2020), with reference to the PDS in India, also highlight that political forces maneuvered the government to push for the digitalization of the social protection system. However, once the necessary technology is embedded in underlying structures, other institutions recognize the innovation as being legitimate (Haggerty and Golden, 2002). This legitimacy is reinforced through evidence that digital payment channels reduce the transaction and security costs for governments and banks (Bold *et al.*, 2012; Ehrbeck *et al.*, 2012; Oberlander and Brossmann, 2014). Additionally, digital welfare payments expand the outreach of grants to millions of beneficiaries residing in remote regions of the country where distribution of social cash presents security risks (Bold *et al.*, 2012; Rotman, 2014; Kemal, 2019).

6.1.2 Coercive – economic, technological and regulatory forces. Institutional theory postulates how *coercive* forces based on economic, regulatory and legislative influences have implications on the organization's decision to adopt a specific organizational practice (Powell and DiMaggio, 1991; Scott, 2008). In this vein, we interpret how certain economic, technological and regulatory actors coerced organizational members to digitize social cash flows. BISP actors were under *coercive* pressure, particularly from economic actors, who after dialogue with State actors, convinced management to shift to digitized payments. A senior banker remarked,

I was invited to a meeting with the President and after convincing him, he also started telling BISP folks that you need to move quickly on the digital payment side (Senior Banker, UBL).

Hence, in the BISP context, DI was predominantly shaped by the coercive elements, stemming from the economic and regulatory forces, that combined with the covert power forces. Both the State Bank of Pakistan and Pakistan Telecommunication Authority, as regulatory institutions, prescribed new rules, norms and practices as part of the branchless banking policy framework. On the whole, regulators' efforts were commended for supporting branchless banking solutions that facilitated the digitization of payments. This was stated by a mobile operator official,

Pakistan Telecommunication Authority and the State Bank have both been recognized and celebrated as very good regulators in terms of their vision of branchless banking, and for the balance they've maintained between banks and the telecom sector in this entire effort. (Mobile Operator Official)

Although technological actors were important players in designing the digital payment platform, their role was in unison with the combined vision and efforts of the economic and regulatory agents. Coercive regulatory actors crafted the legal guidelines that

underpinned BISP's partnership with banks and mobile operators for institutionalizing digital payment platforms. While a too strict regulation might stifle competition and erode the profits for both banks and mobile operators, thus deterring them from investing in innovation, a too lax regulation might undermine the efficiency of payment platforms and expose beneficiaries to risks derived from the misuse of their data. This influence was deeply entangled with the political interests of the State and BISP actors. This coincides with the literature that portrays that regulatory mechanisms were influenced by politics in the OPEN system in Korea (Kim *et al.*, 2009). Nevertheless, in partnership with BISP, the creation of an extensive agent infrastructure for beneficiaries to cash out digital payments was cost-effective for banks and mobile operators despite the initial high set up costs. As confirmed by a banker,

The setting up of branchless banking channels through agent networks to serve BISP beneficiaries is a viable solution for economic entities, as the cost is at least 75% lower than opening up bank branches in remote regions (Banker, Summit Bank).

Moreover, it was found that banks and mobile operators (in the region of mobile banking) provided limited purpose accounts to beneficiaries that confined them to withdrawing BISP payments only. This meant that the nature of bank accounts provided to beneficiaries had limited functionality and constrained them from accessing other banking facilities, such as making payments, fund transfers, depositing savings and accessing credit. Although these low value mobile accounts restricted revenue streams for banks, they still earned "float balance" on the large scale of payments transferred to them by BISP. Furthermore, banks achieved economies of scale through the sheer volume of transactions they made on behalf of BISP and were paid regular commission fees. Hence, techno-economic actors were presented with a strong business case to act as institutional partners (Porteous, 2012). As disclosed by a BISP official,

As per the agreement, banks are required to transfer money into beneficiaries' accounts . . . once their accounts get credited, not all of them withdraw their money at once, so banks earn float balance. Also, we are paying 3% of the dispersed amount as service charges to banks, so they have a strong business case to partner with us (BISP Official).

Moreover, the advantages for regulators and technological actors lie in the potential use of the data trails generated by digital payments. This legitimizes such actors to police previously opaque channels and enforce financial integrity, accelerate the formalization of financial services and improve tax collection, especially in contexts in which the economy is mostly informal. Innovation, in both business models and technology, is considered a key factor in shaping a market for advanced digital payment systems, such as loans and insurance, that would yield greater profit margins (Iazzolino, 2018).

Hence, these findings suggest that DI involved a process of dialogue and negotiations between coercive, normative and covert power actors, who were in pursuit of their vested business interests. Thus, what is considered "real" and symbolic varies according to what legitimate accounts for various members in the organization (Dacin *et al.*, 2002). Through the institutional lens we argue that new relationships, agreements and institutional arrangements drawing on new stocks of resources and rules were established as part of the DI process.

6.1.3 Mimetic – international forces. Mimetic forces represent the ideas and values in meaningful systems as reasons to mimic other successful practices (DiMaggio and Powell, 1983; Powell and DiMaggio, 1991; Scott, 2008, 2013). Thus, mimetic forces account for "international best practices" to copy or adopt from similar institutional contexts (Liang *et al.*, 2007). In the context of BISP, mimetic forces were interpreted as international actors, FCDO and the World Bank, operating in Pakistan. These mimetic actors provided the technical and

financial support to the poverty scorecard design and execution of the digital payment infrastructure. Hence, as donors, they were seen as critical players to influence the political government to shift to digital payment platforms. Their digitization efforts replicated the best practices from other successful social cash projects implemented in Latin America and Mexico. Similar to other large scale public projects (Kim *et al.*, 2009), BISP's transition to digital payments was considered to be a first step towards adopting e-government initiatives; whereas financial inclusion was perceived to be a secondary agenda over e-governance by the political government. A World Bank official verified,

International donors provided technical and financial support for moving towards digital payment channels for making the system transparent like other popular social cash schemes . . . then we need to talk about financial inclusion (World Bank Official).

Nonetheless, the attempt to align the objectives of financial inclusion and financial integrity may be challenging, particularly in rural areas, where too stringent requirements can prevent beneficiaries lacking official ID from opening a digital account and accessing their funds. Hence, we argue that mimetic elements were dominant in steering best practices for the institutional strengthening of BISP. Both the World Bank and FCDO offered assistance to BISP in enabling management to “mirror” other well-established social cash programmes, such as *Bolsa Familia* in Brazil and *Oportunidades* in Mexico (Bold *et al.*, 2012; Rotman, 2014). This relates to the fact that, at policy and practice levels, international donors demanded better accountability in the payment system, in compliance with international standards implemented in other popular social cash projects. Moreover, this demonstrates how international involvement and support contributed towards e-governance reforms that were part of the broader management reforms beyond local politics. As testified by the FCDO Director,

It is important that there is transparency in the delivery of social cash for institutional strengthening . . . also that there is good accountability and standardised practices similar to other social cash programmes around the world (FCDO Director).

To conclude the findings and discussion in relation to the first research question, we have discussed a range of institutional forces which were prominent to “socially embed” technology as part of the organizational design pertaining to the DI process. The social construction of digital payments unfolded through a complex socio-political process comprising of dialogue, cooperation, negotiation and conflict between mimetic, normative, covert power and coercive actors. The discourse revolves around the socio-political nature of the innovation process that is conjoined with latent elements of covert power. Therefore, DI results from the complex interchanges occurring between the techno-economic, socio-organizational, international and political forces that disrupts the power equilibrium between certain institutional actors.

6.2 Institutional effects for transforming organizational practices

Our findings presented in this section are a consequence of DI which are interpreted as “the effects of the institutional interactions on transforming organizational processes” (Powell and DiMaggio and Powell, 1983, 1991; Tolbert and Zucker, 1996, 1999). Here we discuss how the effects of the interactions between the mimetic, normative, covert power and coercive elements ubiquitously transformed work practices at BISP following the institutionalization of technology. While new institutionalized processes associated with new digitized payment channels and practices were legitimized, consequently, old established practices were eroded or deinstitutionalized. Thus, the *social-embeddedness of technology* led to the *progressive transformation* of organizational practices (Avgerou, 2008, 2010), as they were not perceived as disruptive (Lyytinen and Rose, 2003).

A summary of the main themes in this section are presented in [Table 3](#). [Orlikowski *et al.* \(1995\)](#) argue that IS innovation employs certain institutional structures of signification, legitimization and domination that management makes sense of. In the case of BISP, it was also inevitable that the institutionalization of technology inscribed new rules, norms and procedures for transferring digital social cash payments. However, the technical merits were coalesced with other functional and mimetic considerations for achieving transparency for institutional strengthening. We earlier saw that digital payment channels diverted social cash directly into beneficiaries' bank accounts to eliminate middlemen from the targeting and disbursement process. This measure was considered imperative in minimizing corruption or "leakages" by eradicating BISP's reliance on powerful actors to disburse grants to beneficiaries. Whereas at the collection end, beneficiaries received the full amount of grant at various pay-points. This suggests how new digital practices were reconfigured around the new payment system whilst eroding established practices. In light of this, a BISP Director stated,

The primary objective of shifting to digital payments was to ensure transparency because previously there were transparency issues. We were getting complaints that postmen were involved in corruption, so now with digitized payments beneficiaries receive the full amount of grant from us (BISP Director).

Hence, DI streamlined payment channels and was considered as a part of the disciplinary mechanism that enhanced accountability and visibility within the organization and for beneficiaries. As the transfer of digital payments is essentially an information on the value, digital technologies enabled both BISP management and the beneficiary to track payments through the simultaneous emission of metadata related to the sending and receiving devices. The greater visibility of transaction flows depends on the digitization of the recipients' data, so the creation of duplication checks, the setup of a digital management information system and the implementation of authentication mechanisms for beneficiaries through biometrics and digital devices where available through personal identification number (PIN) readers. DI established an audit trail that assisted in monitoring payments under stringent banking and regulatory environments. This particularly pertained to branchless banking guidelines as executed by the regulatory bodies. The transition to digital payments augmented transparency and visibility within the grant disbursement process for management. This was expressed by a Director at BISP,

Categories of transformation of organizational practices	Themes
Transparency and visibility	Removal of middlemen Reduction in costs and leakages Full amount of grants received Institutional strengthening Enhanced accountability Disturbed power equilibrium
Live payment reconciliation and complaint redress	Timely, accurate and reliable data Validation of payment information in real time Enhanced reporting of procedures Efficient complaint redress
Efficiency and security	Routinization of tasks Standardization of work procedures Reduction in grant disbursement time Wider outreach of grant Secure modes of delivery

Note(s): Transparency and visibility

Source(s): Authors' own

Table 3.
The effects of
institutional forces on
transforming
organizational
practices

Technology was adopted for the real-time visibility of payments, so beneficiaries were instantly informed when the money was transferred into their accounts. Earlier, with cash payments, there were concerns related to visibility, and only after 3 months we got to know about the payment status (BISP Director).

As visibility for discipline lied at the core of the innovation efforts, digital payment channels enhanced communication and service delivery for management. The institutionalization of technology facilitated greater information exchange and dialogue between different social actors involved in the grant disbursement process. Under strict principles, it became rather challenging and risky for political and organizational actors to illegally redirect large sums of cash from the payment channels. By leaving little discretion in the hands of a few organizational and powerful State actors, DI introduced new rules of accountability that reported any misconduct.

Such findings concur with studies which highlight that the main impetus for switching to digital social cash payments were to curtail corrupt practices and relegate the number of bribes taken by intermediaries (Ciborra, 2005; Pickens *et al.*, 2009; Bold *et al.*, 2012; Gelb and Decker, 2012; Rotman, 2014). Similar issues of resource diversion and payment leakage within the social cash sector have been identified by other studies on the public distribution system in India (Masiero and Prakash, 2020). From a functional viewpoint, the digitization of social cash somewhat addresses common issues of leakages through eliminating intermediaries from the supply chain (Masiero and Prakash, 2020). Other studies also echo how DI effectually combated corruption and enhanced transparency and visibility within procedures in public organizations (Anderson, 2009; Bertot *et al.*, 2010, 2012; Janowski *et al.*, 2012; Brown *et al.*, 2017; Abu-Shanab *et al.*, 2013). Furthermore, Nam (2018) contends how political and economic capacities determine the effects for corruption control in contribution to e-government maturity.

Nonetheless, a critical assessment of the programme diverges from the popular view in revealing how digital payment channels were not completely transparent. After the new administration took charge in 2018, it was disclosed that around 140,000 government employees and/or their spouses had allegedly benefitted from BISP funds in the past. Additionally, forensic data analysis identified another 820,165 undeserving people who were receiving BISP grants (Dawn, 2020). The new administration removed the undeserved beneficiaries from the programme and conducted an audit to weed out those beneficiaries who had achieved financial stability. This helped to redirect the funds to more deserving people. Hence, we argue that DI can never accomplish complete transparency as certain organizational actors may still fraudulently manipulate the system or divert benefits into their personal accounts. This suggests that digitization efforts may not completely rid any IT system from human interference as they are the actors who interact with the system.

Paradoxically, the removal of middlemen from the social cash delivery chain created new forms of dependency on other institutional actors (Kemal and Yan, 2015; Kemal, 2019). In the case of BISP, we argue that the need for intermediation for disbursing digital payments were still mandatory, but had been replaced with new structures and practices. These new structures of authority were represented by banks or banking agents who served as new intermediaries for grant disbursement. This change presented a conflict of interest amongst competing interest groups related to covert (structural) power elements. Besides political actors, certain BISP officials felt alienated from or disenchanted with the DI process. This resentment was explicitly expressed by a BISP official who complained,

But there is a handicap with electronic payments – we are now dependent upon the information provided by banks, so we feel alienated and powerless – everyone does not have real-time information, so we get the picture that is dictated to us by banks! (BISP Official)

This narrative confirms that DI somewhat disturbed the power equilibrium for certain BISP officials. Since technology transferred new controls and authority to bankers and other agents in the branchless banking system, some BISP actors felt disempowered, since they were dependent on the new structures of authority. This discussion connects to the theorization of covert power discussed earlier. Also, we argue how relational power and relational embeddedness for conflict management (Hekkala *et al.*, 2021) becomes visible with the enactment of structural power (Bradshaw and Boonstra, 2004). This assumption converges on the social embeddedness nature of technology (Avgerou, 2010), which cannot grant certain actors rights over certain powers, but rather negotiates rights with each other as institutional exchanges happen (Jones and Lichtenstein, 2008). Perhaps this questioning was an excuse, where powerful political and organizational actors do not wish to be held accountable by stakeholders or beneficiaries, as they felt that their negotiating power, status quo and authority was considerably diminished and threatened.

6.2.1 Live payment reconciliation and complaint redress. The institutional framework illustrates how the effects of DI inscribed standardized procedures and processes for delivering digitized cash. By enabling management to retrieve payment information status in real time, the institutionalization of technology led to the live reconciliation of large volumes of payments that could easily be tracked and monitored by both management and beneficiaries. Transformation of organizational practices accounted to new formal reporting procedures which assisted managers in the receipt and compilation of accurate and timely data on beneficiary's payment status. Hence, the automated payment system facilitated management at the head office to access reliable data that was mostly consistent with the payment records held at the regional offices. This was expressed by a BISP Director and banker,

As it is a real-time system, even the staff at the head office can check and validate whether the money has reached the beneficiary or not (Deputy Director, BISP).

Reconciliation of digital payments is much faster and better as compared to previous cash transfers, and the bank manages the reconciliation of reports (Manager, Alfalah Bank).

Likewise, on the recipient end, digital payments facilitated beneficiaries to check payment information and in case of any missed or delayed payments, they could instantaneously report and register the complaint directly with the regional office staff. As stated by a field officer,

So digital technologies gave us an edge so that we could communicate with each beneficiary regarding her payment status. Before, Pakistan Post provided information after a few months, and even in that, there were many errors. With digital payments, there is no time lag so we obtain real-time information on payment status immediately (BISP Field Officer).

In addition to accessing payment information and status in real-time, beneficiaries could register their complaints directly and transparently on the system. Hence, technology as a situated actor facilitated management to swiftly and efficiently redress beneficiaries' complaints which decreased the administrative burdens for BISP staff. As processes became more routinized and structured, the previous manual lengthy and cumbersome tasks were replaced with digital procedures that enhanced public delivery performance (Krishnan *et al.*, 2013; Gust *et al.*, 2017). The Director General avowed,

Initially, we did not have any state-of-the-art system for complaint redress, so situational complexities started creeping in . . . and then we received complaints that postmen 'devour' the money. Thus, it became mandatory that an effective complaint redress mechanism needs to be in place, and now digital payment channels have significantly reduced the number of complaints (Director General, BISP).

These amended practices replace the earlier inept reporting measures that account to the deinstitutionalization of existing work practices.

6.2.2 *Efficiency and security.* In uniformity with other studies (Sang *et al.*, 2009; Nam, 2018), technology as a powerful tool enabled BISP management to deliver public services in the most efficient manner. The shift to digitized payments lowered transaction and administrative costs for management resulting in normative efficiencies. Powell (1991) claims that even the most efficient organizations rely on socially constructed beliefs. Hence, this suggests how institutional elements operate at the core of technically dominated environments to deconstruct organization definitions of rationality and technical efficiency. As echoed in the literature (Devereux and Vincent, 2010; Emmett, 2012), this study further elucidates how DI afforded efficient and secure modes of delivering grants to a wider beneficiary base. As a consequence of more routinized and standardized procedures, operational efficiency increased. As remarked by a banker,

The move from cash-based payments to digital payments in the delivery of social cash ensures that social cash payments are delivered to the actual beneficiary in a secure, quick and most efficient manner, especially to those who were impossible to reach before (Manager, UBL).

Furthermore, digital payments extended the outreach of social cash to those beneficiaries residing in remote areas, or in regions where political volatility and instability posed grave security threats. As evidenced by a Case Specialist at BISP,

Digital channels are secure for making large volumes of social cash payments to beneficiaries living in political volatile or far flung regions (Case Specialist, BISP).

Figure 4 below illustrates how the process of DI unfolds from the institutional interactions to determine the progressive transformation of organizational practices.

In summary, we highlight how institutional actors socially construct technology through complex institutional interchanges that constitute organizational change. DI rejects both the purely technological and social deterministic perspectives that drive organizational change. This implies that technology cannot be adequately explained either as an “enabler” or as a “contributor” to the situated processes of organizational change (Avgerou, 2000, 2010). Rather, we argue that DI combines the institutional forces that neither drive, nor are subsumed in the forces of organizational change but rather interact with each other. This

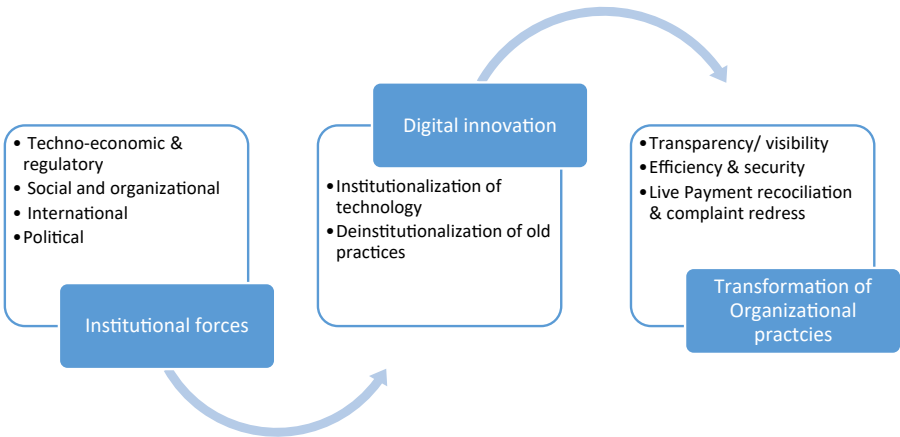


Figure 4.
Digital innovation for
progressive
transformation of
organizational
practices

Source(s): Authors’ own

socially embedded perspective on the nature of DI also explains the institutional effects of technology for progressive transformation.

DI in social
cash
organizations

7. Conclusion and contributions

The BISP case study generates invaluable insights underpinning the nature of DI, as a socio-political process, that necessitated negotiation, dialogue and cooperation between the normative, coercive, covert power and mimetic actors. Especially, the institutionalization of technology draws our attention to covert power forces that were subtle and entangled with other organizational forces and also somewhat resistive owing to power imbalances between institutional actors. Through this complex process, technology was socially-embedded as a situated actor within the organizational context, through institutional interactions. We further argue how the institutionalization of technology occurred as a parallel process to the deinstitutionalization of established practices that conferred new rules, norms and procedures within BISP. Thus, DI *per se* was not merely an “outcome” involving multifarious institutional pressures, but rather was perceived as a “socio-political” process’ reliant on the mutual interpretations, while negotiating conflicting interests between various actors.

This paper also unveils that the institutionalization of technology steers new organizational practices that account for the institutional strengthening and e-governance of organizations (Diwivedi *et al.*, 2012; Janowski, 2015, 2016; Lindgren *et al.*, 2019). This accounted to “progressive transformation” (Avgerou, 2010) as new practices were socially embedded within the organizational fabric of BISP. Although we saw that covert power disrupted the power equilibrium between certain institutional actors, this force was initially subtle and latent, but not oppressive to steer DI at BISP. Other scholars also confirm that the digitization of public projects become the focal point for multifaceted stakeholders, whose ideas converge at levels of policies and practice to maintain stability (Kromidha and Cordoba-Pachon, 2017).

Furthermore, we challenge the general view that top-down principles that guide the successful implementation of digital projects in the public sector may not necessarily be similar for all organizations. This implies that the nature of DI in public sector projects is characterized as a process of improvisation, rather than pre-calculation that underlines the notion of the social embeddedness of technology. Moreover, it is note-worthy that covert power becomes visible, as a resistive force, to subtly interfere with the methodical actions of managers, but overall does not affect the process of change.

The paper presents unique theoretical, empirical and practical contributions in this unique empirical setting. Theoretically, the paper extends the neo-institutional framework to a unique public-sector context and introduced covert (structural) power forces as the more visible construct in this empirical setting. In doing so, it complements neo-institutional theory’s well-known constructs beyond its fundamental concepts and postulates the notion of covert (structural) power (Bradshaw and Boonstra, 2004). Covert power as a political force became visible with the enactment of structural power (Bradshaw and Boonstra, 2004) that subtly affected power dynamics amongst institutional actors. Although the political forces were resistive, they did not impede the innovation process since covert power was not disruptive in nature. The institutional framework sheds light on these socio-political interactions which unfolded from the unique institutional context. These insights offer a novel contribution to both the IS innovation and institutional theory strands of knowledge. However, the application of a specific power lens to focus on power relationships only lies outside the scope of institutional theory in this paper.

Second, the institutional framework extends our understanding of the empirical basis of the propositions linked to DI within the novel and distinct setting of a government social cash

organization in Pakistan. Empirically, we gained rare access to, and support from a government-backed social cash organization in Pakistan (an understudied country in the Global South), which made the data and the consequent analyses even invaluable. This made the empirical contribution within this geographical setting even more worthy, since this case study has received little attention from indigenous scholars in the past. The empirical findings showcased a unique set of contextual factors that were subject to BISP and interpreted through an account of socio-cultural sensitivities.

Third, the paper provides practical implications for policymakers and practitioners, emphasizing the need to address institutional challenges, including covert power, during the implementation of digitalization projects in the public sector. It has certain potential for inspiring future e-government related (or public sector focused) studies. It may guide both private and government policy-makers and practitioners in presenting how to overcome certain institutional challenges while planning and implementing large scale multi-stakeholder digitization projects in similar country contexts. So while there is scope of linking the digitization of public sector organizations to anti-corruption measures in other Global South countries, it may not be that straightforward with the private sector involvement. The private sector aims to protect its economic interests first before collaborating with the public services sector. Unless private stakeholders are offered incentives from the government, only then can such a partnership thrive. Hence, the DI process is inherently influenced by covert power. From this study, lessons may be learned for the ongoing digitization of India's well-known Public Distribution System (PDS) of food security that has been extensively researched by scholars. Managers must be aware of the conflicting/mutual interests that permeate the innovation process that arise from stakeholder involvement and how the negotiation process is politically driven to embed the narratives of powerful actors. Other examples of social cash digitization projects relate to Brazil's Bolsa Familia Programme, Colombia's conditional cash transfer programme, Mas Familias en Acción, and in the Democratic Republic of Congo, a programme of demobilization of grants to ex-guerrilla fighters that involve public-private stakeholder alliances ([Iazzolino, 2018](#)). The biggest lesson for policy-makers and practitioners is to harmonize the interests of all actors in order to stabilize and sustain the partnerships and networks. It is important to note that over time, interests of stakeholders may diverge, especially those of regulatory actors, since current regulatory frameworks may be inadequate to address the data justice concerns.

Hence, at a practice level, the paper dismisses that DI is a top-down strategic process that is solely reliant on normative forces. Rather, the socio-political nature of the innovation process underpins negotiations, mutual agreements and conflict that demand stakeholders' attention. This further connotes that well-coordinated efforts are required to overcome the resistive nature of covert power forces that may impede any progress or efforts of DI in the public sector. Moreover, the paper signals how to embed value in service delivery for multi-stakeholder projects through embarking on DI projects ([Cordella and Bonina, 2012](#); [Criado and Gil-Garcia, 2019](#)).

Furthermore, the qualitative case study ([Walsham, 1995](#); [Walsham and Sahay, 2006](#)) generated rich insights to entangle the subjective discourses on the social, techno-economic, political and organizational fronts. However, we acknowledge some of the limitations of the qualitative case study that restricts the generalizability of findings over transferability and credibility in the case findings. However, the unique empirical setting and methodological preference brought to the forefront some invaluable insights and reflections that has contributed to scholarship. Within this context, it is important to recognize that DI is a continuous organic process that requires adjustments of its procedures in order to adapt in unpredictable environments ([Mergel et al., 2019](#)). Looking ahead, IS researchers will face continuous challenges in striking a balance between digitalization initiatives in public sector projects which intricately intercept with the current data justice debates ([Martin and Whitley, 2013](#); [Marjanovic and Cecez-Kecmanovic, 2017](#); [Taylor, 2017](#); [Masiero and Das, 2019](#); [Hosein](#)

and Whitley, 2019). Along this knowledge frontier lies the future opportunity to advance research on DI, incorporating artificial intelligence (AI) that has huge implications in the digital welfare state.

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Note

1. Exchange rate of 1 USD equivalent to 285.36 Pakistani Rupees (PKR) approximately in June 2023.
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About the authors

Dr Atika Ahmad Kemal is a Lecturer in Management at the Essex Business School, University of Essex, UK. Her research interests focus on the emerging themes of digital technology innovation intersecting across the domains of management/organizations, development studies and the digital economy. Mainly, her work revolves around the socio-organizational, ethical and political aspects of the digital artefact – delineating into areas of e-governance, data justice and social/financial inclusion of marginalized communities, particularly in the Global South. Her work has been instrumental to shape policy and practice in the government social cash sector in Pakistan. Dr Kemal's research has been published in high quality international journals, including *Information Technology for Development* and *Association of Information Systems electronic library (AISel)*. She is a reviewer for international journals: *Information Systems Journal*, *Information Technology and People*, *Information Technology for Development and Gender*, *Technology and Development Journal*. She has presented her scholarly work at highly acclaimed international conferences; including European Conference of Information Systems (ECIS), UK Academy of Information Systems (UKAIS) and Development Studies Association (DSA) Conference. In addition, her work has received attention from the international media, including *BBC World International*, *Business Daily* and *BBC Urdu*. Atika Ahmad Kemal is the corresponding author and can be contacted at: atika.kemal@essex.ac.uk

Mahmood Hussain Shah is an Associate Professor of Information Management at the Newcastle Business School, co-chair of BAME. He is also a Senior Editor of *Information Technology and People Journal* (ABS 3*). Previously he was a Senior lecturer in e-Business within the School of Strategy and Leadership, Coventry University, UK. He has held academic posts at the University of Central Lancashire, Cranfield University and the University of Hertfordshire during last twenty years. He is acting as a consultant to several UK banks and online retailers on information security and e-banking management related issues. His present research interests include identify theft prevention in online retailing and e-Banking as well as in health information systems and IS strategy. He has published several books in the area of information security, e-Banking and mobile technologies. He has also

published many papers in high quality Journals such as the *Computer and Human Behavior*, *Information Technology and People*, *European Journal of Information Systems*, *International Journal of Simulation Modelling*, *Health Informatics* and the *International Journal of Information Management*. He also acts as a reviewer for journals such as the *British Journal of Management*, *Information Technology and People* and *International Journal of Operations and Production Management*. He is a guest editor for a special issue of *Information Technology and People* on cyber-crimes prevention and a special issue of *Computer and Human Behavior* on e-marketing. He has successfully supervised 14 PhD students in the past and is supervising 3 at present.

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