

Open Research Online

The Open University's repository of research publications and other research outputs

ICT-mediated organizational change in microfinance organizations: a case study

Journal Item

How to cite:

Badruddozza Mia, Mohammad and Ramage, Magnus (2018). ICT-mediated organizational change in microfinance organizations: a case study. *Problems and Perspectives in Management*, 16(3) pp. 40–47.

For guidance on citations see [FAQs](#).

© 2018 The Authors



<https://creativecommons.org/licenses/by-nc/4.0/>

Version: Version of Record

Link(s) to article on publisher's website:

[http://dx.doi.org/doi:10.21511/ppm.16\(3\).2018.04](http://dx.doi.org/doi:10.21511/ppm.16(3).2018.04)

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's [data policy](#) on reuse of materials please consult the policies page.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy,
40022, Ukraine

www.businessperspectives.org

Received on: 5th of March, 2018

Accepted on: 8th of June, 2018

© Mohammad Badruddozza Mia,
Magnus Ramage, 2018

Mohammad Badruddozza Mia,
Ph.D., Assistant Professor of
Management, School of Business
and Economics, United International
University, Dhaka, Bangladesh.

Magnus Ramage, Ph.D., Senior
Lecturer of Information Systems,
School of Computing and
Communications, Open University,
Milton Keynes, United Kingdom.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution-Non-
Commercial 4.0 International license](https://creativecommons.org/licenses/by-nc/4.0/),
which permits re-use, distribution,
and reproduction, provided the
materials aren't used for commercial
purposes and the original work is
properly cited.

Mohammad Badruddozza Mia (Bangladesh), Magnus Ramage (United Kingdom)

ICT-MEDIATED ORGANIZATIONAL CHANGE IN MICROFINANCE ORGANIZATIONS: A CASE STUDY

Abstract

A strong research tradition on the economic and social impacts of microfinance intervention has been going on. But a dearth of studies on microfinance organizational and management perspectives is there, although the social and economic impacts of this development program largely depend on its organizational setup and intervention management. Information and Communication Technology (ICT) has been used in microfinance organizations for quite a long period of time. This study looks into the ICT-mediated material and social changes that happen in this unique type of organization and its management. The study was conducted using exploratory case study in two organizations. A number of semi-structured interviews and focus groups have been conducted at different layers of the organizations. The study found that ICT has profound implications for change in different material and social aspects of microfinance organizations. As a catalyst, ICT causes organizational structure shrank both horizontally and vertically. Because of the use of ICT a loss-of-middle phenomenon emerges in organizational structure and a tendency of centralized decision authority prevails. It helps boosting up the operational performance and transparency and lowering the long-debated interest rate of microfinance. It engenders profound changes in human resources and socio-cultural aspects of microfinance organizations. However, if protective mechanism is not adopted then the use of ICT may have detrimental effects to the social performance of microfinance. This study contributes to the knowledge domain of ICT-mediated organizational change and the microfinance policy makers by exploring the implications of ICT to different organizational aspects. It contributes by unearthing the detrimental effect of ICT to the development outcome of microfinance intervention.

Keywords

Information and Communication Technology,
organizational change, microfinance organization

JEL Classification

M14, M15

INTRODUCTION

Use of Information and Communication Technology (ICT) into an organization usually engenders material and social changes. The impact of ICT within organizations has become an area of interest. As a result, a working group (The Interactions of Information Systems in Organizations) has been formed under IFIP (International Federation on Information Processing) on this area. Studies on organizations with different characteristics on the interplay between ICT and organizational aspects found different results, sometimes with contradictory conclusions (Volkoff et al., 2007; Zachariadis et al., 2010). ICT-mediated organizational change in microfinance organizations has been an unexplored area in information systems and organizational change research. The characteristics of microfinance organizations, and the economic, human resource, social and cultural contexts within which the organizations operate are different from that of any other organization (Charitonenko & Campion, 2003; Iyengar et al., 2010). This paper looks into the ICT-mediated organizational change that happens in microfinance arena in a developing country context.

1. BACKGROUND LITERATURE: ICT-MEDIATED ORGANIZATIONAL CHANGE

It is claimed that if one thing has come to dominate management and organizational thinking over the past two decades, it is ICT-driven organizational change (Pettigrew et al., 2001; Sturdy & Grey, 2003; Grant et al., 2004; Fay & Luhrmann, 2004; Scott & Van, 2004). Several studies looked into the ICT-driven organizational change at different organizational settings (Orlikowski, 2000; Pettigrew et al., 2001; Fay & Luhrmann, 2004; Scott & Van, 2004; Iyengar et al., 2010; Volkoff et al., 2007). However, the transformative effects of ICT are not the same in all situations within all types of organizations. Brynjolfsson and Lorin (1998) assert that the diffusion of ICT in workplace may benefit some types of organizations more than others, and sometimes it may have negative implications on some aspects of organizations too. The interplay between technology and organizational systems is not the same in all organizational settings, because organizations vary in their internal dynamics. Barrett et al. (2006) argue that a considerable proportion of planned organizational interventions designed to engender change with ICT resulted in significant, widespread, and often unanticipated organizational change. Orlikowski and Yates (2006) assert that the technological innovation is rarely neutral in its effect upon different organizational forms.

The nature of relationship between ICT and organizational design has been under scrutiny since the mid-1990s. For instance, the question of whether ICT tends to favor centralized decision-making or decentralization has been a subject of contentious debate (Orlikowski, 1992; Wyner & Malone, 1996). In an early study, Orlikowski and Barley (2001) argued that the more rigid the institutional norms, structures and working procedure in an organization, ICT is less potential to engender changes within the organizations. Later, Orlikowski and Yates (2006) described ICT within organizations as messy, dynamic, contested, contingent, negotiated, improvised, heterogeneous, and with multilevel characteristics that depend on the internal and external contexts within which the technology acts and interacts. However, the changing

influence can be direct and indirect, influencing one subsystem may have influence on others in a dynamic way (Bertalanffy, 1973; Midgley, 2003; Skyttner, 2005; Amagoh, 2008). The intensity of technology-mediated organizational change largely depends on the institutional norms, structure and procedure (Pettigrew, 1990; Avgerou, 2001).

2. MICROFINANCE: AN OVERVIEW

Microfinance is a development program that provides small amounts of credit to the poor, especially women in poor households. The overall belief behind the concept of microfinance is that, using this credit, the borrowing households would be able to break out of the cycle of poverty through creation of self-employments, and that the social development will take place within the borrowing community through the process of microfinance program interventions. People who are in extreme poverty cannot access to the formal financial services, as they do not have any documentary collateral. As Smith (1776) stated, "Money, says the proverb, makes money. When you have got a little, it is often easy to get more. The great difficult thing is to get that little" (p. 111). Microfinance programs are designed to provide this 'little capital' as a 'micro-credit' to the people in poverty, along with maintaining an awareness-building and social development process so that they can break out of the vicious cycle of poverty in a sustainable way (Yunus & Jolis, 1998). Unlike traditional lending systems, microfinance does not require documentary or physical collateral from the borrower against the credit, as the target community does not have the ability to provide documentary or physical collateral for the credit. Microfinance providers form social groups of borrowers at the community level and provide financial services to the members of the groups. Microfinance intervention is based on trust, social-collateral (group members collectively provide assurance for each credit of the group) and intensive monitoring mechanisms at the borrowers community level. Microfinance intervention usually takes place from branch offices and one frontline staff member is assigned to the borrowers' group for taking care of all financial and social development activities of the group on the notion of collectivism.

Microfinance is one of the largest poverty interventions of the world that covers more than 200 million borrowing households and their family members by thousands of organizations around the world (Reed, 2015).

3. OVERVIEW OF THE ORGANIZATIONS

The study was conducted on the following organizations that provide microfinance services to the economically and socially marginalized people in Bangladesh.

3.1. ASA

Association for Social Advancement (ASA) is one of the largest microfinance organizations in Bangladesh that covers about 4 million microfinance borrowers from its 2,932 branch outlets by 20,000 staff members. ASA started its microfinance program in 1992, and since then it has been implementing only microfinance program and developed a low-cost operational model for financial service delivery at the community level that has been followed by different microfinance organizations in the country and abroad. As ASA has been implementing only microfinance program, the organizational structure and working procedures are relatively less complex than that of organizations implementing multiple development programs like BRAC.

3.2. BRAC

BRAC is one of the largest development organizations of the world having 1,11,000 employees and covers about 138 million socially and economically marginalized people under its development endeavors in the country and abroad. BRAC started its journey in 1972 just after the liberation war in Bangladesh. It has been implementing multiple development programs in social, economic, agricultural, health, education and legal sectors. Microfinance program is one of the largest development programs of BRAC that started in 1974. Presently, BRAC provides financial services to 5 million borrowers and their families by 25,000 staff members from 2,083 branch offices throughout the country. The organizational structure and working procedure of BRAC are not as straightforward as

ASA, as it provides support from different development programs for the same community people from relatively complex organizational structure with different norms and values than that of ASA.

4. METHODS

An exploratory case study was conducted on two organizations, namely ASA and BRAC, that provide microfinance services in Bangladesh. In this study, a number of semi-structured interviews and focus groups discussion (FGD) have been conducted as shown in Table 1. Semi-structured interviews were conducted with management staff members at head offices and field offices, and the focus groups were conducted with the frontline staff members of the organizations. The interview and the focus group data were recorded using research instruments designed for the study and the voice recorder, and the field notebook was used to record data from observations and informal discussions. The data were processed and analyzed using NVIVO.

Table 1. Methods of data collection

Organization	Semi-structured interview	Focus group
ASA	21	7
BRAC	22	6
MRA (regulatory authority)	3	–
PKSF (apex funding body)	5	–
Total	51	13

5. FINDINGS AND DISCUSSION

The material and social perspectives of change, the causality and process of change, the attribute-dependency of the artifacts of ICT and the detrimental effects of ICT on development that have been observed in this study are discussed below.

5.1. Organizational change: material perspective of change

It has been observed that a significant ICT-driven structural change occurs in microfinance organizations through reducing the organization-

al structure both horizontally and vertically. ICT reduces the support service structure horizontally, and the management and supervisory layers vertically. ICT causes the mid-level structure to 'shrink' in microfinance organizations. Because of the use of ICT, information about the field level performance goes directly to the head office on the same day. Previously, it used to go through the mid-level managers, where they were largely involved with information collection and compilation process. Because of this ICT-mediated change, a loss-of-middle phenomenon emerges.

ICT helps boosting the operational performance significantly, especially at the frontline operational level. It has been observed that after using ICT, operational staff works with almost double client-portfolio, and the span-of-supervision expanded significantly. ICT also engender changing the mechanism of supervision from frequent site visiting to analyzing the performance indicators remotely. Because of the increased operational performance, organizations are able to lowering the long debated interest rate of microfinance.

It has been observed that the ICT has two contradictory influences on the delegation of authority in microfinance organizations. The use of ICT at the lower level of the organization increases the ability to make decisions because of the availability of decision support information. Because of the availability of decision support information at the lower level, the higher authority develops trust about the capabilities of lower level, which leads to decentralization. On the other hand, as the higher authority gets more information about the lower level operations using ICT and can communicate in a quicker way, a better scope for making control over the lower layer is possible. Finally, a tendency towards centralization of authority prevails in this financial organization.

Microfinance has been criticized as a corruption-prone intervention in the developing countries (Karim, 2008; Ahmad, 2002). In this study, the major types of corruption that have been identified were – disbursing a loan in a fake name, providing a new loan for recovering running or previous loan(s), collecting loan repayment and savings installments, but not depositing at the office, disbursing a loan to a borrower who has run-

ning-credit with other organization(s), not holding group meetings, and excluding poorer segments of the community during borrower selection. In short, this study found that ICT prevents most of the corruptions through making the information transparent, but it largely depends on the 'ethical ambiance' for this highly distributed financial intervention. Because of the use of ICT, the evidence of misappropriations is difficult to hide for long time and, hence, the tendency of doing this has been declining that helps a better ambiance in microfinance arena.

5.2. Organizational change: social perspective of change

The study found a significant ICT-mediated changes in human resources and socio-organizational perspectives in microfinance organizations. Typically, working in microfinance organizations, especially at the operational level, has been perceived as a very laborious, risky and socially shameful job, and, hence, people are reluctant in seeking microfinance job even in the countries like Bangladesh, where a significant share of people are unemployed. In a typical microfinance organization, both male and female staff members need to work from 7 a.m. to mid-night, almost 7 days in a week within a risky and unpleasant environment. It was observed that ICT played an emancipatory role in the working procedures and social perspectives in microfinance organizations. Because of the use of ICT, staff members can complete their daily works within much shorter period of time. Because of this, the employee retention rate has been improved. The practice of bullying, which is common in typical microfinance organizations, has reduced significantly. Because of the use of ICT, the overall professional skill of staff members of all levels has increased. However, a share of human resources those who have low educational background, but working for a long period of time for the organization have been sidelined. Because of the use of ICT, the way of working and working hours have been changed, and it has an implication for change in the gender ratio of the human resources with an increased share of female members in the organizations. Female staff members are more suitable in microfinance, as most of the borrowers of microfinance are female, and for that the female staff members have

some advantages over male in working with the female borrowers within the socio-cultural context of the community. ICT-mediated changes are more suitable for female frontline workers in this development organization.

5.3. Organizational change: the causality and process of change

The ICT-mediated changes discussed above have their own dynamics and intensity depending on the content of the information systems and the context within which the change unfolds (Pettigrew, 1987; Walsham, 1993). The changes have their dynamic pluralities and the process of change moves through structural and functional nodes of different internal and external subsystems of the organizations (Skyttner, 2005). The nodes are being changed with the functions of ICT, and, in turn, make changing influences upon other nodes in a dynamic engagement. These changing implications are intertwined and dynamic rather than singular or static (Orlikowski et al., 1996; Orlikowski & Yates, 2006). It has been observed that the process of ICT-mediated change flows in microfinance organizations like a 'billiard-ball', putting influence of change to different aspects both in direct and indirect way depending upon the organizational and social contextual settings in which the ICT operates. The dynamics of the influence upon related aspects have their multifarious characteristics, sometimes with endless loops among them. For instance, the use of ICT helps increase operational performance, which leads to the increased income and financial self-sufficiency of the organizations. The increased income and financial self-sufficiency of the organizations are associated with the decline of interest rate, and this change may influence other changes too. In this way, changes take place through influencing each other in a dynamic way in microfinance organizations.

5.4. Organizational change: organizational attributes and intensity of change

The nature and the intensity of ICT-mediated change depend upon the organizational and external contexts, such as human resources, institutional attributes and policy frame of external

influencing bodies. The profile of the human resources of the microfinance organizations and borrowers community is a determining factor for how effective the change would be. It has been observed that the education and awareness profiles of the human resources of microfinance organizations and the borrowers' community are significantly lower than that of formal financial institutions. So the intensity and the pace of change are somewhat limited by the basic quality of human resources who use ICT.

The nature and intensity of ICT-mediated change largely depend on the overall institutional attributes of the organizations (Avgerou, 2000; Orlikowski & Barley, 2001). The institutional attributes, such as the formal and informal structures, the legal systems, cognitive frameworks, such as norms, values and intellectual properties, organizational power and politics, and the decision making processes influence the nature and extent of change. It has been observed in the study that the microfinance organizations that already have strong institutional attributes, the implications for change of the use of ICT are weaker than the loosely-framed organization with less explicit rules and procedures. In the loosely-framed organization, ICT can affect radical change and play a strong role in making the organization more rule-based through setting organizational policies and rules (Orlikowski & Barley, 2001). However, implementing the ICT within the loosely-framed organization is harder than doing so within the more organized one. For example, ASA implemented ICT in all of its branch offices in about three months, whereas BRAC needed years to do so. As observed, ASA did not move much from its operational rules, policy and procedures. This phenomenon comply with the theoretical statement of Orlikowski and Barley (2001) that the more rigid the institutional norms and structures in an organization, the less potential is ICT to affect changes within organizations of this sort.

It was observed in the study that the organizations that exclusively implement microfinance programs, such as ASA, tend to have stronger institutional attributes than BRAC that implements microfinance together with other development programs. The potential for ICT-mediated change may also vary between the organizations that work

under the strong policy frame of external funding agencies, and the organizations that do not work under such type of external policy frame. The ICT-mediated changes are likely to take place faster, and to a greater extent within the organizations that do not work under the rigid policy frames of external agencies. Organizations that works under the policy and procedures of regulatory authority is less free to adapt changes that the ICT offers, as they cannot go beyond the policy frame of the external regulatory authority.

5.5. Organizational change: detrimental effect of ICT on development

ICT is thought to be an effective means of development. Since the beginning of this century, with the participation of government agencies, national and international development organizations, a very strong movement called ICT4D (ICT for Development) has been going on throughout the world. ICT has been used in almost all development sectors for uplifting the social and economic conditions of unprivileged people. However, in this study, it has been observed that if appropriate measures are not taken then ICT can also be detrimental to the fundamental development objectives of microfinance interventions.

One of the cornerstones of microfinance program intervention is collectivism. As per design, all the activities of program intervention will take place in groups of borrowing members formed with the help of microfinance providing organization at borrowers' community level. The groups are consist of about 20 homogeneous members and it is broken into 4-5 sub-groups on different socio-economic aspects such as education, health, agriculture, gender, and so on depending on the development needs of the community (Yunus & Jolis, 1998). The group will hold weekly meetings in

presence of microfinance staff member assigned to that group and discuss different social and economic issues. They can use the learning from the discussion in their lives. In this meeting, they will also formulate and propose microfinance projects for themselves with social collateral. They will collect weekly or fortnightly credit installments and savings money in the meeting and the social and economic activities of each member is monitored and facilitated by other members. In this process, the transparency of the projects, regularity of credit and savings installments payment are ensured, and the social development of the community takes place. Without social development, the economic development of the borrowing households does not take place or persist (Anderson et al., 2002; Feigenberg et al., 2010).

If ICT, such as mobile phones are used by the borrowers to pay the credit and savings installments, then, the importance of visiting community and holding group meetings to the microfinance staff members will decline drastically. Borrowers will pay the installments individually using mobile phones. This kind of use of ICT will eliminate the sub-groups on social issues, or making them non-functional, weaken the ties among the members of the group. Gradually, the concept of borrowers' groups will not be there. It will drive microfinance towards 'individualism' and lose the social benefits of 'collectivism'. Microfinance intervention will remain only with providing credit and taking installments without social performance. It is also destructive to recovery rate of the credit, as no social collateral will be here. As discussed earlier, ICT engenders significant positive changes in microfinance, but if appropriate mechanism is not adopted that allows the use of ICT at borrowers' group level keeping the group functional, then, it can be detrimental to the development outcome of microfinance program interventions.

CONCLUSION

ICT engenders significant changes in material and social aspects of microfinance organizations. The intensity and the pace of change depend on different internal and external contextual aspects in which ICT unfolds changes. The changes are intertwined and have their multifarious characteristics – one aspect of change influences others with a dynamic engagement, sometimes with endless loops among them. As a catalyst, ICT plays a vital role in changing microfinance with profound positive implica-

tions. However, the study found that the use of ICT at borrowers' group level may have detrimental effect to social performance of microfinance program. It may drive microfinance towards 'individualism' destroying the concept of 'collectivism', a cornerstone of the development objectives of microfinance program intervention. Policy makers should consider this detrimental side of ICT and find mechanism that allows to use of ICT at borrowers' group level keeping the group functional so that the social performance of the program is maintained, which is inevitable for sustainable poverty alleviation.

REFERENCES

1. Ahmad, M. M. (2002). *NGO Field Workers in Bangladesh*. Aldershot: Ashgate.
2. Amagoh, F. (2008). Perspectives on Organizational Change: Systems and Complexity Theories. *Public Sector Innovation Journal*, 13(3), 28-42.
3. Anderson, C. L., Locker, L., & Nugent, R. (2002). Microcredit, Social Capital and Common Pool Resources. *World Development, Elsevier*, 30(1), 95-105. Retrieved from <http://faculty.ucmerced.edu/ecampbell3/slkiva/Nugent-Common-MF-2002.pdf>
4. Avgerou, C. (2000). IT and organizational change: an institutionalist perspective. *Information Technology and People*, 13(4), 234-262.
5. Avgerou, C. (2001). The Significance of Context in Information Systems and Organizational Change. *Information Systems Journal*, 11, 43-63.
6. Barrett, M., Grant, D., & Wailes, N. (2006). ICT and Organizational Change: Introduction to the Special Issue. *Journal of Applied Behavioural Science*, 42(1), 6-22. Retrieved from <http://journals.sagepub.com/doi/abs/10.1177/0021886305285299>
7. Bertalanffy, L. V. (1973). *General Systems Theory: Foundation, development, application*. London: Penguin (original American publication, 1968).
8. Brynjolfsson, E., & Lorin, M. H. (1998). *Information Technology and Organizational Design: Evidence from Micro data*. MIT Sloan School.
9. Charitonenko, S., & Campion, A. (2003). Expanding Commercial Microfinance in Rural Areas: Constraints and Opportunities. Case study presented at *conference on Paving the Way Forward for Rural Finance*. Washington, DC, USA.
10. Fay, D., & Luhrmann, H. (2004). Current themes in organizational change. *European Journal of Work and Organizational Psychology*, 13(2), 113-119. Retrieved from <https://www.tandfonline.com/doi/abs/10.1080/13594320444000029>
11. Feigenberg, B., Field, E. M., & Pande, R. (2010). *Building Social Capital Through Microfinance* (Working Paper 16018). National Bureau of Economic Research, Cambridge, Massachusetts, USA.
12. Grant, D., Hardy, C., Oswick, C., & Putnam, L. (2004). Introduction – Organizational discourse: Exploring the field. In D. Grant, C. Hardy, C. Oswick, & Putnam, L. (Ed.), *The Sage Handbook of Organizational Discourse* (pp. 1-36). London: SAGE.
13. Iyengar, K. P., Quadri, N. A., & Singh, V. K. (2010). Information Technology and Microfinance Institutions: Challenges and Lessons Learned. *Journal of Electronic Commerce in Organizations*, 8(2), 1-11. Retrieved from <https://www.igi-global.com/article/information-technology-microfinance-institutions/42978>
14. Karim, L. (2008). Demystifying Micro-Credit: The Grameen Bank, NGOs, and Newliberalism in Bangladesh. *Cultural Dynamics*, 20(5), 5-29.
15. Midgley, G. (2003). *Towards an Appropriate Social Theory for Applied Systems Thinking: Critical Theory and Soft Systems Methodology, Systems Thinking*, 4, London: SAGE.
16. Orlikowski, W. J. (1992). The duality of technology: rethinking the concept of technology in organizations. *Organization Science*, 3(3), 398-427.
17. Orlikowski, W. J. (1996). Improvising Organizational Transformation over Time: A situated change perspective. *Information Systems Research*, 7(1), 63-92. <https://doi.org/10.1287/isre.7.1.63>
18. Orlikowski, W. J. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organizational Science*, 11(4), 404-428.
19. Orlikowski, W. J., & Barley, S. R. (2001). Technology and Institutions: What Can Research on Information Technology and Research on Organizations Learn from Each Other? *MIS Quarterly*, 25(2), 145-165.
20. Orlikowski, W. J., & Yates, J. (2006). ICT and Organizational Change: A Commentary. *Journal of Applied Behavioural Science*, 42(1), 127-134.
21. Pettigrew, A. M. (1987). Context and action in the transformation of the firm. *Journal of Management Studies*, 24(6), 649-670.
22. Pettigrew, A. M. (1990). Longitudinal Field Research on Change: Theory and Practice. *Organization Science*, 1(3), 267-292.
23. Pettigrew, A. M., Woodman, R., & Cameron, K. (2001). Studying Organizational Change and Development: Challenges for future research. *Academy of Management Journal*, 44(4), 697-713.

24. Reed, L. (2015). Mapping Pathway Out of Poverty. *Microcredit Summit Campaign*. Washington DC, USA.
25. Scott, P. M., & Van, V. A. (2004). *Handbook of organizational change and innovation*. New York: Oxford University Press.
26. Skyttner, L. (2005). *General Systems Theory: Problems, Perspective, Practice*. World Scientific Publishing Company.
27. Smith, A. (1776). *An Inquiry into the Nature and Causes of Wealth of Nations*. W. Strahan and T. Cadell, London.
28. Sturdy, A., & Grey, C. (2003). Beneath and beyond organizational change management: Exploring alternatives. *Organization*, 10(4), 651-662. <https://doi.org/10.1177/13505084030104006>
29. Volkoff, O., Strong, D. M., & Elmes, M. B. (2007). Technological Embeddedness and Organizational Change. *Organization Science*, 18(5), 832-848.
30. Walsham, G. (1993). *Interpreting Information Systems in Organizations*. John Wiley & Sons.
31. Wyner, G. M., & Malone, T. W. (1996). *Cowboys or Commanders: Does Information Technology Lead to Decentralization?* Proceedings of the International Conference on Information Systems, December 15-18, Columbus, OH.
32. Yunus, M., & Jolis, A. (1998). *Banker to the Poor*. The University Press Limited, Dhaka.
33. Zachariadis, M., Scott, S., & Barrett, M. (2010). *Exploring critical realism as the theoretical foundation of mixed-method research: evidence from the economics of IS innovations* (Working Paper Series 3/2010). Judge Business School, Cambridge, UK.