ISBN: 978-93-90847-98-3

6. Information and Communication Technology (ICT) –Enabled Transformation into Development

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Abstract:

While information and communication technology for development (ICT4D) research examines the diverse range of topics, settings, and technologies, there has been a lack of attention on theorizing the process of information and communication technology (ICT)-enabled development.

The turbulent environment of the organizations and rapidly change in Information Communication Technology (ICT) require organizations to be transformed for their survival in future. Moreover, change management, knowledge management, business process management and IT governance served as "enablers" of ICT enabled organizational transformation. The issues and challenges faced by the top management during transformational process were explored and the role of potential enablers in proactively managing issues and challenges are discussed. The potential means and enablers identified played an effective role in the successful transformation initiative.

Finally, the research findings provide guidelines to the organizations interested in transforming themselves for their survival in future.

Keywords:

ICT, Information technology, Development, Information.

6.1 Introduction:

It is now widely accepted that Information and Communication Technologies (ICT) have an important role in national development. However, the nature of the link between the two remains unclear.

Much of this state is due to lack of clarity on how ICT is conceptualized in this context. While some conceptual frameworks have been proposed, they lack important aspects that can give a more comprehensive picture. [1]

Considering the world being a global village, Information and communication technologies (ICT) have become more valuable entity in all aspects of life. Over thirty years, the use of ICT has fundamentally changed the practices and procedures of nearly all forms of exertion surrounded by business, governance and education.

In recent years, many organizations and governments have worked to increase frankness and clearness in their actions on how Information and communication technologies (ICTs) are understood by many people as a cost-effective and suitable means to promote candidness and social changes in E-government, E-learning and social interaction in particular.

Some of these individual efforts have received considerable attention on the issue of whether these ICT-enabled efforts have the ability to create a substantive social change in approaches toward transparency or not. [2]

ICTs are indisputably important part of our social setting today. The term ICTs has been used to embrace technological innovation and merging in information and communication transforming our world into information or knowledge societies. The rapid development of these technologies has faint the boundaries between information, communication and various types of media. [3]

The fast-tracking merging between telecommunications, broadcasting multimedia and ICTs is the driving force that gradually changes many aspects of our lives, including knowledge dissemination, social interaction, economic and businesses, politics, media, education, health, leisure and entertainment.

The emergence of Internet, World Wide Web, mobile cell phones, digital television, and several other new electronic devices pertaining information and communication technologies(ICTs) are opening a fresh passageways for transforming the way we live, work, learn, communicate and also provides a strategic opportunities of diverse and significant social and economic benefits to people across the globe. [4]

6.2 ICT:

ICT basically comprises of the H/W, S/W, N/Ws and media for collection, storage, processing, transmission and presentation of information may be voice, data, text or images along with related services. ICTs can be broadly divided into two parts;

- Information and Communication Infrastructure (ICI): Dealing with physical telecommunications systems and networks like cellular, broadcast, cable, satellite, postal and [5]
- ICT allied services like Internet, voice, mail, radio and television and Information Technology (IT) referring to the hardware and
- software of information collection, storage, processing, and presentation.

6.3 Need of Transformation:

The top management engaged professional consultants to analyze the performance of the company. Finally the consultants submitted their report to the top management which revealed the following major causes that adversely affected organizational performance.

- The operational cost of this company was too high as compared to its competitor. It was cause of financial loss leading to declining in share price of the company.
- Inconsistent work processes being practiced were causing lot of delay in reporting and integration of information for centralized decision making.
- Lack of ICT infrastructure and services required and [6]
- Lack of updated information for strategy formulation at the global level.

6.4 Challenges in the Implementation of ICT:

However, this new potential and opportunity is accompanied by significant challenges and possible threats for large established INGOs.

- **Sustainability and scale:**

The use of ICT in development programs supported by INGOs has, to date, been relatively ad hoc, with many examples of small initiatives or pilots but very few large-scale, sustainable, ICT-supported programs. To unleash the full potential of ICT in development programs, a new level of collaboration, both internally and with other organizations, and a new approach to scaling solutions to achieve a really material impact are needed. This will necessitate significant coordination between INGOs, technology companies, private sector organizations, universities, and government entities (central and local), as well as with traditional development partners.

- **Lack of knowledge:**

Many INGOs are not well equipped internally to support and nurture the effective exploitation of ICT to benefit development. They simply do not have the knowledge, expertise, or organizational capacity needed. The use of information technology is often seen as a thorny, problematic issue relating to back office systems. Furthermore, ICT often has a questionable reputation as a result of previous unsuccessful or costly initiatives. [7]

- **Pace of change:**

INGOs' current structures, staffing, and ways of operating have a strong momentum that is not easy to halt or redirect. It is relatively easy to utilize ICT to sustain and improve current organizational constructs and approaches, making useful but incremental progress. It is incredibly difficult to conceive of new ways of working with organizational constructs that are fundamentally different from the status quo and require a shift in terms of strategy, competence, skills, and organizational structure.

- **Funding:**

There also is a significant challenge in adequately planning and financing the use of ICT in development programs. With cyclical donor funding and pressure to minimize administrative and management costs, it is often difficult for INGOs to properly plan and resource financial and human investments in ICT as a core capacity for development programs.

- **Changing roles and norms:**

The emergence of new ICT possibilities potentially presents some more fundamental and far-reaching questions, challenging or even undermining the assumptions on which INGOs came into being. When we reflect on why INGOs were originally founded, we can isolate a number of specific gaps between people and communities in poverty and those in more affluent, developed parts of the world. For example, if we think about gaps around understanding and information, traditionally INGOs helped us understand the dire need of communities in the poorest parts of the world. There are also gaps in terms of access, communication, and of course resources that INGOs have historically played an important role in addressing. [8]

- **Illiteracy:**

Text user interfaces do not work very well, innovative Human Computer Interfaces (see Human Computer Interaction) are required. Lack of means to maintain the project: some projects may be left to deteriorate in time because maintenance is sporadic and if a component breaks it is costly to obtain skilled people and parts to make a repair

6.5 Review of Literature:

The organizational transformation is not just a routine change but a fundamental change that substantially may alter an organization's relationships with one or more key constituencies, e.g. customers, employees, suppliers, and investors (Rouse and Baba 2006).[9] Public as well as private sector organizations are in constant state of flux and have a sense of feeling that why not such enterprises to be transformed to meet

the current challenges of globalization, mergers, acquisitions new markets and new technologies (Davenport 2013; Eddy 2014). [10]

It claims that rules of business may be changed to get true benefits of new technology. Organizations need to adopt futuristic approach towards customers, products and services to meet the challenges ahead (Hammel and Prahalad, 1994) [11]. ICT evolution has become the major driving force in initiating and introducing a major change in the organization (Hanna 2009) [12].

Keeping in view complexity of organizational transformation the past research studies advocate to understand such complex phenomena and further explore means exploited by the top management to make transformation a success story in organizations (Molla and Bhalla, 2006).[13]

ICT enabled organizational transformation seems to be a complex phenomenon. The success rate of organizational transformations is not encouraging and it appeared as one of the challenging task for top management to deal with such complex matter. (Rouse and Baba 2006). [14]

Rouse and Baba (2006) claimed that organizations who have introduced fundamental change in their working environment may face challenges related to people, process and technology. Organizations may face social as well as technical challenges during ICT enabled organizational transformation. Treating technological change or people change individually may result in failure of transformation (Srinivasin and Nightingale, 2011) [15]

According to Warwick and Kershner (2008) [16] the significance and advantages of ICT should be known by teachers in order to conduct a meaningful lesson with the use of ICT. Indeed, teachers should be sent to attend training courses to learn about integration ICT in teaching and learning process. Nonetheless, many school schools used peer-tutoring systems. A more skillful teacher in ICT would assist and guide another teacher who has less experience with ICT along the preparation work for teaching and learning process. As what has been discussed, there are many factors to enable the use of ICT in classroom teaching and learning.

Begin with policy, follows by the supplement of all the ICT hardware and software facilities, continued by readiness and skills of teacher to integrate it into pedagogical process (Agbatogun, 2012) [17]

ICT has distinctive importance within the system of education and in the implementation of social transactions. The use of ICT has brought about immense improvements in the ways of working of teachers as well as the other members of the educational institutions. The approach of ICT within the teaching-learning processes and instructional strategies has a positive effect upon the system of education.

In other words, the members of the educational institutions are able to carry out their job duties in a well-ordered and manageable manner and feel pleasurable and contented. The use of ICT promotes a favorable learning environment. Within the favorable learning environment, the students and teachers are able to render a satisfactory participation and work in collaboration and integration with each other in the achievement of academic goals.

The use of multimedia makes the learning environment within the classroom lively and suitable to the needs and requirements of the students (Kaur, 2015) [18]. Research has indicated that the effect of computer-aided learning is more beneficial in primary schools as compared to secondary schools. It was the joint effect of large increases in ICT funding and a productive background for making an efficient use of it. This has led to positive effects in educational expenditure on educational performance. Therefore, the increase in ICT funding is not enough to ensure improvement in quality education. The successful implementation of ICT depends upon the human resources and financial resources within the educational institutions (Gupta, & Haridas, 2012) [19]

6.5.1 Objectives:

- To study components of ICT
- To study ICT Accessibility
- To study Integrative framework of ICT in development
- To study challenges in ICT development

6.5.2 Research Methodology:

A research methodology is a universal way to addressing a study subject through data collection, data evaluation, and results based on the findings of the study. A research technique is a plan for carrying out a research study. The methodical gathering and analysis of facts and information for the advancement of knowledge in any area may be loosely defined as research. The goal of the study is to use systematic techniques to find solutions to intellectual and practical problems. The current study is descriptive in nature and is based on secondary data gathered from a variety of sources, including books , education, and development, journals, scholarly articles, government publications, and printed and online reference materials.

6.5.3 Result and Discussion:

The three conceptualizations presented above in terms of ICT use, ICT views, and ICT impact can be seen to affect national development.[20]

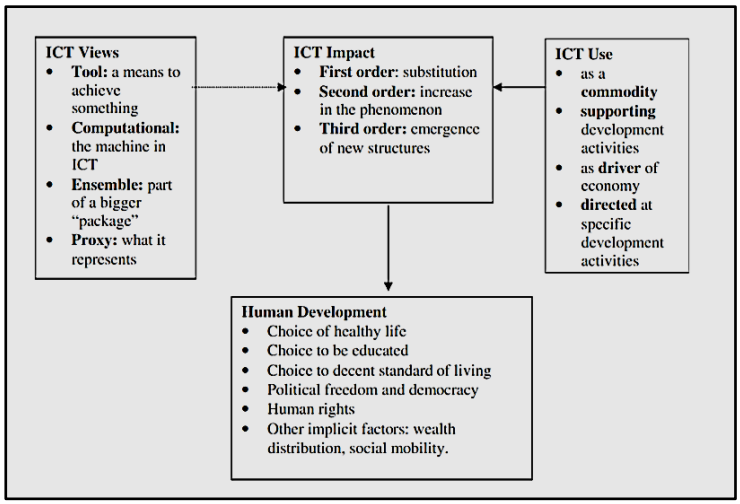

Figure 6.1: Integrative framework of ICT in development

ICT provides a broader access to people, services, and information as shown in a tabular form below.

Table 6.1: ICT Accessibility ICT provides a broader access to people, services, and information as shown in a tabular form above

ICTs provide access to People	Kind of ICT activities	Kind of ICT activities
How you interact with people, with whom you communicate, who you know and where and when you interact with them.	Intercreativity between individuals and within groups; like one-to-one, one-to-many, many-to-many, many-to-one communication.	E-mails special forums, and other interpersonal internet based interactions; talking or sending text messages by cell phones, collaborating in virtual networked teams, learning through online lectures, playing online multi-player games.
Services influences what you can do online, when you can do it, and how much it costs to do it, where and when you buy other products and services, who pays to whom, and how it is paid.	Conducting electronic transactions and obtaining electronic services from distant or nearby sources.	Electronic and Web-based delivery of welfare payments, tax returns, and other public services; online shopping, banking, and other e-business interactions; online downloading of music, video, and graphical art; doctors viewing X-rays from remote locations.
Information Affects how and what you read, hear, see, and know.	Producing and using ICT knowhow, equipment, and techniques to shape access to, and use and consumptions of, the Internet and other ICTs.	Providing and using wired and wireless telecommunications and Internet service provision; Web browsers; network security; anti-virus, anti-spam and child-protection software.

Figure 6.2: Components of ICT

Various technologies are combined and allowed to use by the people and Organizations to interact in the digital world.

6.6 Conclusion:

On this paper, I tried to illustrate how ICTs can be designed and used to transform access in the lives of people and the workings of government, business, and other organizations.

The potential uses and impacts of ICTs on social transformation to our environment are many and varied. Although the ICT enabled organizational transformation got popularity in the developed countries, however, it is very unfortunate that transformational potential of ICT has not yet been well explored and realized in the public/private sector organizations of developing countries. ICT has brought everything available at the finger touch.

In today's era ICT has occupied every aspect of life and research is one of them. ICT has its prominent importance in research and allied aspects of it.

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