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### Enhancing human resource development through information and communications technology

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# Enhancing Human Resource Development Through Information and Communications Technology

## Editorial Introduction to the Special Issue

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Over the past decade, the International Federation for Information Processing (IFIP) Working Group (WG) 9.4 has gained greater significance in terms of its relevance and reach. The topic area of information and communications technology (ICT) and development has now become a regular feature in global policy meetings, with events such as WSIS (World Summit on the Information Society) and WITFOR (World Information Technology Forum) attracting large audiences. Equally, each month there are at least around 15 academic conferences in different parts of the world on various theme areas related to the topic. In addition to being available in greater numbers, these conferences have gained sophistication in terms of encouraging critical reflection and theory development appealing to a broad range of researchers in the social sciences, in fields such as development studies, globalization, organizational theory, government, social policy, and anthropology.

A more recent aim of the working group, and one they are striving hard to achieve, is to encourage not only good scholarship, but scholarship that offers relevant and useful implications for policy makers. No doubt, better utilization of research in ICT and development policy making can improve the quality of life for many citizens in the developing world. But one of the particular challenges facing scholars is to take into account the wide range of different contexts that policies appear in and to analyze the interplay between these contexts and the fast-changing macrolevel political context. The recent Abuja conference (May 2005) provided a useful testing ground for the aim of bridging research and policy in the area of ICT and development. The theme of the conference provided a forum to discuss issues related to building and sustaining human resource capabilities with strong implications for human capital policy within countries and regions in the developing world.

The importance of human capital as a critical component of any development initiative is widely acknowledged. A central goal of human resource development involves increasing

the knowledge, skills, and capacities of all the people in a society as well as the promotion of their well-being through economic growth and development. This can be achieved through a number of means, including the development and delivery of practical and appropriate education and training for members of the society, on-the-job learning, self-development, empowering citizens to access information and knowledge, and improvements in health and nutrition. Changes in ICT and their applications have placed new demands on the stock of human capital required to function effectively in the changing global technological and business environment. At the same time, knowledge and skills that are relevant to local issues are seen as fundamental in preparing developing countries (DCs) for a greater role within the information society (Avgerou, Navarra, Miller, Sahay, & Volkow, 2003).

Therefore, as developing countries strive to achieve a balance between global competitiveness and relevant context-sensitive development initiatives, this is believed to be an opportune moment to examine new ways in which ICT are being deployed in the process of developing human resources that will contribute to economic, social, and political progress in DCs. In a study examining the role of the Internet in socioeconomic development, Madon (2000) suggests that an effective exploitation of the potentials of ICT lies not just in the existence of Internet connections, VSAT (Very Small Aperture Terminal) technologies, and state-of-the-art ICTs alone, but on the acquisition, dissemination, and usage of relevant information and knowledge. This line of argument suggests that effective participation in current globalization trends must be based on learning and adaptation to promote innovative use of information to meet local priorities and needs. Therefore, the challenge for governments and policy makers in DCs is how to provide the incentives and capabilities to use such information effectively.

Enhancing human resource development through ICT—the theme of the 2005 IFIP WG 9.4 conference and of this special issue—focuses on how ICT is being used to unleash human expertise to achieve economic, political, and social growth, and ultimately for developing countries to participate effectively within the globalization process. The motivation for the special issue is borne out of the need to address the much-publicized issue of manpower shortage in the effective utilization of ICT in DCs. At the meeting of the IFIP WG 9.4 held in Ahmedabad in 1991, this issue of manpower shortage and development was the theme of the conference, and some of the major manpower challenges hindering effective uptake of ICT in DCs were highlighted during the conference (Bhatnagar, 1992). One of the major issues to emerge from the conference was the acute dearth of skilled manpower to effectively implement, manage, and use the increasing number of ICTs being implemented in DCs at that time. The 2005 conference, therefore, is an attempt to highlight how far we have come in our quest to provide skilled manpower in ICT by providing illustrations of what is actually being done in the area of promoting ICT human capital in DCs.

Another motivation for this special issue comes from the understanding that a much bigger role exists for ICT in building effective human capital in any nation. The debate, subsequently, has been broadened from just a consideration of skills required to implement, manage, and use ICT to actually deploying ICT to strengthen human capital in economic, social, political, and other sectors of any nation. Issues such as sustainability, empowerment, inclusion, and scaling are increasingly seen as important issues that need to be addressed in the process of enhancing human resource development through ICT. There are more and more examples of how ICT is being used in rural administrations to enhance

the skills of rural dwellers through innovative distance learning programs,<sup>1</sup> and to empower the rural population and provide access to appropriate and relevant information and knowledge required to improve their well-being.<sup>2</sup> Other studies show citizen empowerment through the publishing of government documents and activities, which helps to bring greater transparency and inclusiveness in the running of government services.<sup>3</sup> In other areas, ICTs are being used to enhance the administration of government services in DCs through the use of e-mail and videoconferencing systems, as well as through the implementation of telecenters, electronic kiosks, and Internet cafes.<sup>4</sup> Implementation of these systems subsequently leads to improved human capacity either through the training users are given to utilize them or through improved access to relevant and timely information, which can allow for better decision making and increased bargaining power (Bhatnagar, 2000) and also through a deeper understanding of issues involved in the design and implementation of systems that are appropriate for local usage in the context of developing countries (Kanungo, 2004; Musa, Mbarika, & Meso, 2005).

Given the importance of national contexts in influencing human resource development practices (McLean & McLean, 2001) the inclusion of articles has been motivated by a desire to select articles that will be of practical use to policy makers in DCs. To summarize, the objectives of this special issue are manifold. First, an attempt was made to shift the focus of debate from the narrow (though extremely important) discussion of ICT skills to a much broader focus on human capital and the role of ICT in the process of developing appropriate skills that are required for promoting social, economic, and political development in DCs and to showcase how ICT is currently being used in that process. An additional aim was to expose how some of the aforementioned issues of sustainability, scaling, and empowerment are being addressed in the implementation of ICT. A third goal was to use the insights gained from research to guide policymakers toward more effective human capital intervention. The articles focus on the important role of intermediary institutions in the process of human capital formation in order that ICT can be adopted to benefit a nation globally and also to assist vulnerable groups within the country.

With these objectives in mind, 10 articles from the Abuja conference were initially selected. This group was later reduced to the five that best fit the objectives. The editors now have the pleasure of presenting the following articles:

- Sundeep Sahay and Geoff Walsham, "Scaling of Health Information Systems in India: Challenges and Approaches." Through opening the black box of scaling of information systems (IS) the article by Sahay and Walsham provides interesting insights to the issue of scale and scaling of information systems (IS), a topic that has not been frequently studied in IS studies. Based on a project to implement health information systems within the primary health care sector in India, the article provides a conceptual lens of scaling that looks at the issue not from a technical-rational perspective, but from a more sociopolitical viewpoint that examines political, standardization, and customization issues. This view considers scaling as a political process consisting of multiple and often conflicting interests and not treating people as mere statistics.

<sup>1</sup>There are a sizeable number of these projects, which cannot all be listed here. See, for instance, Bhatnagar and Schwabe (2000).

<sup>2</sup>See "The ITC eChoupal Initiative" case study by Upton and Fuller (2004).

<sup>3</sup>See Bhatnagar (2004) and Heeks (2001) for a list of such initiatives.

<sup>4</sup>See, for instance, ITU's Information and Communication Technology (ICT) success stories, available at [http://www.itu.int/osg/spu/wsis-themes/ict\\_stories/](http://www.itu.int/osg/spu/wsis-themes/ict_stories/)

- Jonathan Ezer, "Gandhi's Third Assassination: Information and Communications Technology Education in India." This article describes a socialization process whereby students in India are socialized into believing that ICT is a tool toward personal development and the development of society. This process of socialization thus serves as a means of educating people on the role that ICT can play in enhancing human resource development. Using India as a case, the article describes how the university system is being employed in this process of institutionalization.
- Philip F. Musa, "Making a Case for Modifying the Technology Acceptance Model to Account for Limited Accessibility in Developing Countries." This article draws on a human-development approach to modify models of technology acceptance to make them relevant for developing countries. Musa focuses on the lack of availability and accessibility of technology and its implications for how individuals place value on ICTs in the light of other pressing basic needs. The author concludes that despite the importance of availability and accessibility of ICTs, exposure to basic forms of technology over a period of time is needed to achieve the necessary learning and adaptation required to benefit from ICTs.
- Edoardo Jacucci, Vincent Shaw, and Jørn Braa, "Standardization of Health Information Systems in South Africa: The Challenge of Local Sustainability." This article contributes to the discussion of the implementation of routine health information systems in developing countries. The focus is on unraveling the process of interdependence between the process of appropriating global standards and the process of local adaptation of those standards. The main message from the authors is that for standards to be relevant, they should be flexible enough to be locally adapted. This flexibility can be enhanced by creating and nurturing support networks consisting of a range of intermediary institutions.
- Nicolau Reinhard and Marie Anne Macadar (View From Practice Paper): "Governance and Management in the São Paulo Public Telecenter Network." This article provides a description of the practical managerial and governance issues that influence the effective implementation of a telecenter project in a developing country megacity. They recommend that more effort should be directed toward constructing and managing the set of complex relations and exchanges between the critical actors involved in implementing telecenter initiatives.

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**Shirin Madon** has been researching the impact of ICTs on planning and administration in India for the last 15 years. At present, she is studying the development impact of a selection of e-governance projects in India. These projects include using ICT to improve the administration and planning of rural development programs in Gujarat, e-services applications in the state of Kerala, and telecenter projects that aim to generate local wealth in rural Andhra Pradesh and Kerala.