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### Information technology in developing countries Closing the digital divide

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## **Information Technology in Developing Countries:**

### **Closing the Digital Divide**

This special edition of JGITM is devoted to Information Technology in Developing Countries (ITDC). It arises from the co-editors' collaboration with the Hawaii International Conference on Systems Sciences (HICSS), one of the foremost events on the calendar for researchers in IT and Information Systems. The HICSS mini-track on IT in Developing Countries is attracting increasing world-wide interest among academics and professionals alike. Each year we receive an increasing number of high quality papers, and it is always a tough decision as to which to include in the conference. It is evident that the special problems experienced by developing countries and an attendant rapid growth in the application of IT to the solution of those problems warrants our focus on IT in developing countries. Furthermore, we are heartened by both the depth and breadth of talent that we have encountered in our dealings with authors from developing countries, as represented by the HICSS papers we now have the opportunity to share with readers of JGITM.

It is most fitting that the vibrancy and diversity of a subject like ITDC should be reflected in the pages of this journal. In its short existence, JGITM has carved out an international reputation for its incisive commentary on the global impact of IT. Naturally, we perceive a great deal of resonance within issues relating to the global impact of IT and the plight of the developing nations that are trying desperately to keep up with the developed nations. Global forces are simultaneously working to increase the digital divide as well as providing the means for reducing it. In bringing forward the message embodied by the papers in this special edition, we expect to foster a greater understanding among developed nations of the predicament of most developing nations in making sense of the globality of IT and the potential it carries for sustainable human development. Annual growth rates in ICT markets in Asia/Pacific and Latin America are now twice those in North America and Western Europe. Although they are starting from a much lower base, developing countries can now actively participate in global ICT developments, tapping directly into international markets whilst avoiding costly investments in earlier generations of ICTs. Furthermore, in reporting the research that has given rise to the papers here, it is our intention to cultivate a potent research discipline that recognises both the specificity and the diversity of the subject.

As a discipline, ITDC remains something of a Cinderella pursuit: it is young, undefined, thinly represented among the formal research outlets (HICSS and JGITM notwithstanding) and seldom perceived as relevant to mainstream IT/IS research. Consequently, it is not attractive to newly qualified researchers who are trying to establish a reputation and a career in a competitive academic work environment. Additionally, ITDC suffers acutely from one of the ailments of IS research in general, that of excessive diversity. Those of us with any experience of more than one developing country will be quick to point out that each has its own set of problems that are usually quite distinct from the other. We need to be able to identify common threads that can be distilled from such diverse experiences, and then make them contribute to a coherent body of knowledge which we can justifiably differentiate as ITDC.

The spirit of the HICSS mini-tracks that we have organised over the last two years has been to solicit papers offering original perspectives on technologies relevant to specific developing countries rather than to any accepted norms prevalent elsewhere. Specific technology areas that we identified as appropriate for this special issue included: Internet usage and access; IT in rural areas; national IT policies; social impacts of IT and its implementation; education issues; and cross-cultural studies, e.g. cultural barriers to IT diffusion.

With the selected papers, we present here four quite different perspectives of key issues in ITDC. Two of the papers come from Africa, one from Latin America and one from Asia. The subjects covered include electronic commerce, Internet access, textbook development and critical success factors for software development. Three of these papers were originally presented at the 32<sup>nd</sup> HICSS, though they appear here in significantly revised and extended versions.

In the paper that opens this special issue, Sid Huff and Harvey Enns chronicle the difficulties experienced during the development of Internet services provision in Mongolia. They present a framework that categorises the factors considered critical to technological success in developing countries, and they apply this to the Mongolian context. They also present the experiences of one company that has implemented a series of telecommunications projects to allow access to the Internet for Mongolian companies, governmental organisations and other subscribers.

The next paper, by Charles Davis, documents the emergence of electronic commerce in Spanish speaking Latin America. This region is characterised as one where growth rates for Internet access and general IT development are among the highest in the world. Business and technical information from developed countries is widely available, though the quality of the telecommunications infrastructure, is currently weak. New opportunities for commerce, particularly electronic, abound, but challenges lie ahead. These are explored in detail.

Our third paper presents an entirely different perspective of IT, describing the development of an introductory Information Systems textbook in South Africa. Geoff Erwin and Craig Blewett criticise many contemporary IS texts for their North American-centricity and their predilection for topic chunking. South African students who use this text, many of whom have never used a computer before coming to university (some not having electricity at home), are given local examples of IT use and learn in a problem-driven approach, with technology introduced and integrated with a case that is developed over the course of the text.

Anja Mursu, Abimbola H. Soriyan, Karen Olufokunbi and Mikko Korpela's investigation of software risk issues in Nigeria is the final paper in this special issue. The authors contend that the implementation and use contexts are especially relevant to software risks analysis in developing countries, using a Delphi study of project managers in Nigerian companies to analyse these risks. In an African context, implementation of new systems can be expected to exert profound socio-economic impacts, for example better sustainable living conditions for people. Their results indicate that a range of issues are important in the Nigerian context. While these include those found in studies of developed countries, they also cover political, economic and user-participation issues.

Our penultimate item features an interview with Gabriel Accascina, Regional Co-ordinator of the Asia-Pacific Development Information Programme (APDIP) of the United Nations Development Programme (UNDP). APDIP is an initiative developed and funded by the UNDP and covers 42 countries in the region through 24 UNDP offices. APDIP aims at assisting member countries in the use of Information Technology to foster social and economic development.

Our final section in this special issue is a review of Cees Hamelink's book "Trends in World Communication, on Disempowerment and Self-Empowerment". The book reflects on the discrepancies between northern and southern countries, focusing on the inability of the vast majority of the world's population to enjoy the fruits of the global information

revolution. This is a well-written and powerful text, though some may find that it paints too dismal a picture of the world of the information superhighway.

We commend the papers, interview and book review to your reading and trust that they will be thought provoking. We hope that they will stimulate further research and knowledge dissemination in the area of Information Technology in Developing Countries.

**Robert Davison, Roger Harris, Doug Vogel, Gert Jan de Vreede**

### **Special Editors**

Robert Davison received his PhD in Information Systems from the City University of Hong Kong, where he is currently an Assistant Professor of Information Systems. His current research interests span the academic and business communities, examining the impact of group support systems on group decision making, learning and communication, particularly in cross-cultural and developing country settings, and informed by interpretive research methods. His previous work has been published in *Communications of the ACM*, *Decision Support Systems*, *Information and Management* and the *Journal of Global IT Management*.

Roger Harris has an MSc. in Business Systems Analysis and Design from the City University of London and a Ph.D. in Information Systems from the City University of Hong Kong. He is a Lecturer in the Faculty of Information Technology at Universiti Malaysia Sarawak (UNIMAS). Roger occupied a variety of management and consultancy positions in Africa and Asia, advising organisations on process improvement and organisational effectiveness, before embarking on an academic career in order to pursue his interests in the use of Information Technology in developing countries. He sits on the editorial advisory boards of the “*Journal of End-User Computing*”, the “*Journal of Global Information Management*” and “*Computer Personnel*”. Roger is also Vice Chair of the International Federation of Information Processing Working Group 9.4 on IT in Developing Countries, representing the Asian region, and he is Chair of the Programme Committee for the group’s inaugural conference on IT in Asia, to be held in Kuching, Malaysia, this coming September.

Douglas R. Vogel is Professor of Information Systems at the City University of Hong Kong. He has been involved with computers and computer systems in various capacities for over 30 years including President of a manufacturing company. Professor Vogel’s interests bridge the

business and academic communities in addressing questions of the impact of management information systems on aspects of business process improvement, group problem solving, education, and organizational productivity. Professor Vogel has widely published and has directed extensive research on aspects of business process improvement and technology support for education. He is especially active in introducing group support technology into enterprises and educational systems. His particular focus emphasizes integration of audio, video, and data in interactive distributed group support.

Gert-Jan de Vreede is an Associate Professor at the Faculty of Technology, Policy and Management of Delft University of Technology in the Netherlands. He received his PhD in Systems Engineering from the same university. He is responsible for the Group Support Systems research program at his school. His research interests include the application of collaborative technologies to facilitate organizational design activities, and the adoption and diffusion of GSS in both Western environments as well as developing countries. His articles have appeared in *Journal of Decision Systems*, *Journal of Creativity and Innovation Management*, *Holland Management Review*, *Journal of Management Information Systems*, and *Journal of Simulation Practice and Theory*.