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## **DISCLAIMER**

The views expressed by the editors of this book and the authors of the various papers are those of the individuals, not the organisations to which they are affiliated. While editorial changes have been made to the papers in terms of shortening, streamlining, and consistent formatting, every effort has been taken not to change the meaning or the distinctive styles of the different authors.

# FOREWORD

At the Directorate for ICT Support, Makerere University, our philosophy is driven by the belief that ICT is not about technology: it is about creating efficiency and cost effectiveness; it is about seizing the opportunity of major transformation to review and redesign business processes; it is about timely access to relevant and accurate information that enables people and adds value to their daily activities; it is about new methods and culture of work; it is about good governance and transparency; it is about both organisational mutation and organisational evolution.

We accept that ICT is a catalyst and opportunity for change, but insist that it must never be the driver of change. We believe that just like any other major organisational change, ownership, and willingness by people to change, rather than technological expertise, are the keys to success. This is not to understate the need for expertise across the entire ICT technology spectrum, but to underscore the fact that understanding and being able to deal with people challenges is more important.

This is the thinking and approach we have taken in supporting and guiding the integration of ICT services and systems in the Makerere University fabric. We conceptualise and implement our role not as the expert support for hard and soft ICT resources, but knowledge support and enabling organisational transformation. Expert support for hard and soft resources is just a small (albeit important) aspect of what we do. Full understanding of the motivation and direction of organisational vision and mission as well as priorities becomes a key pre-requisite. The ability to think for the organisation as well as social engineering become key skills.

Our thinking, involvement and experience have led us to recognise the challenge of applying ICT to the development processes that should enable our poor and marginalised communities which make up the majority in most African countries, and hence the countries themselves, to break out of the vicious spiral of poverty. We recognise the opportunity that this gives us to be agents of change in that respect, and we have accepted this role by applying ourselves to this challenge through various avenues. This is not just being altruistic: in doing so, we respond to one of the strategic pillars of Makerere University: Community outreach.

We are therefore happy to consolidate and publish, through the various papers in this book, not only our thinking, but the thinking of other university based academics and researchers **who are** trying to make a difference. It is only right and necessary that we do so, because the success of our universities depends on the success of our communities, and vice versa: *“I am because we are” (Ubuntu philosophy)*

**F. F. Tsubira,**  
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## **PREFACE**

This preface breaks down and focuses the theme of the conference: Universities – taking a leading role in ICT enabled human development. It also highlights the papers contained in this book.

Why Universities? This is the broader question, articulating not only the social responsibility of universities playing a key role in national development, but recognising that they have the intellectual potential and the tools to do so, provided universities are conscious of this responsibility and are willing to assume the role. Regardless of the area of endeavour, universities can carry out baseline research, policy research (synthesis, evaluation and analysis), and impact / outcome research. They can conduct pilots aimed at proof of concept within clear frameworks that enable lessons and good practice to be documented and also guide replication. Universities like Makerere do not rely only on the intellectual potential of faculty, but on a continuous flow of the best students in the country at both undergraduate and graduate level. This rich resource has over the years been applied to areas like medicine and agriculture. We now need to apply this resource to ICT, and take it on as our own rather than a foreign concept, and investigate its integration in development.

By taking on the challenge, benefits will occur within the universities themselves, among the universities working together, and, the main thrust, will support human development in our countries.

Let us now address the second part of the theme, which takes the role of universities to the specific context of ICT enabled human development. This is within the framework of recognising that ICT is not the solution, but an important component thereof. Universities, that are not only centres of ICT literacy and awareness but also major beneficiaries of the limited resources available in the poor countries, have a critical role to play in evolving frameworks and playing a pioneering role in applying ICT to development. This is what motivated the international conference hosted in 2004.

It has become apparent that, in many of the initiatives and literature to date, the question that is responded to is: How can we construct human development around ICT? ICT then becomes, and indeed has been the main driver in many initiatives. The thinking is then ict4D, with ICT as the main focus, and human development being a welcome consequence. We must change the question to: How can human development initiatives and activities utilise ICT to create efficiency, cost-effectiveness, and new development opportunities? This then gives us ict4D, in which human development is the driver.

Change of paradigm necessarily redefines roles and approaches. In ict4D, which is the commonest framework, ICT know-how is key, and ICT issues take centre stage in the processes. In ict4D, development issues take centre stage, with ICT as an enabling tool in the development processes and activities. The thinking framework must be addressed before our countries can truly take advantage of the digital opportunities. By thinking ict4D, we shall focus on equipping development professionals with the ICT skills they need to integrate ICT in development, and equipping ICT professionals with development skills so that they can understand better the driving role of development in ict4D.

The multi-faceted approach to ict4D is evident in the papers in this book that capture not only thinking but give some examples of what is being by academics (with diverse backgrounds) in addressing development issues.

The book has been divided into four sections:

### **(a) Transforming Organisations and Creating Awareness and Literacy**

This section has five papers. The first paper, *“Integration of ICT in organisations: Challenges and best practice recommendations based on the experience of Makerere University and other organizations”* by F. F. Tsubira and N. Mulira provides valuable insights based on conceptual approaches and practical experience for integrating ICTs in large institutions of higher learning and other organisations, as well as best practice recommendations in responding to the challenges. It provides both conceptual and practical approaches for policy makers, administrators, ICT project managers, and implementers.

Benjamin Kanagwa, in the paper *“Creating ICT Awareness, Literacy and Expertise”* notes that promotion of ICT awareness, literacy and expertise is a major challenge to universities, private companies and governments alike. He analyses awareness, literacy and expertise needs and uses the experience, especially from Asia, in proposing good practice to African universities and governments.

The paper *“Lessons learnt in the transformation of the University Computing Centre (UCC) from a University Unit to a Limited Liability Company”* by Beda Mutagahywa and Respickius Casmir, gives an example of how sustainability and human resource retention challenges have been addressed by the University of Dar es Salaam. The University of Dar es Salaam University Computer Centre (UCC) has demonstrated that such transformation enables better support for ICT services to the University and contributes to national development through ICT services and technology transfer.

The challenge of information literacy is addressed by Ruth E Nalumaga in her paper *“From Library Skills to Information Literacy: Considerations for Makerere University Library and Faculty”*. The author states that libraries, as traditional custodians and organisers of information have a leading role to play in promoting skills that the evolution of Information Literacy demands. She presents information literacy as a concept and competence that can no longer be ignored by academics and intellectuals as it impinges on the aspect of lifelong learning.

The last paper in this section is *“The role of universities in creating ICT awareness, literacy and expertise: Experiences from Tanzanian public universities”* by E.T Lwoga et al. This paper discusses, analyses and gives a way forward in the creation of ICT awareness, literacy and expertise in public universities.

### **(b) Knowledge and Copyright Challenges**

This section has only two papers. In her paper, *“Knowledge as a Commons: Scholarly Communication, Resource Sharing, and the Potential of Digital Libraries”*, Charlotte Hess reports on new research aimed at advancing the study and practice of knowledge and information as a “commons.” This paper gives a brief overview of the concept of the knowledge commons within the university environment. It discusses an investigation of the possibility of putting the knowledge commons into practice by building an OA digital library that would serve both local and international collaborating researchers.

The second paper by T. D Kanakulya is *“Challenges To Development And Indigenous Knowledge Management: Informing University ICT Pedagogical Frameworks In Africa”*. This paper holds that ICT can enhance authentic African development but that the emergence of Indigenous Knowledge (IK) within development discourse presents considerable challenges. IK could significantly contribute

to sustainability of development in Africa if incorporated into the ICTs framework of tools. The author addresses the challenges posed in incorporating IK into ICTs.

### **(c) Applications**

The five papers in this section deal with applications, both from the specific and the conceptual point of view, in enabling the successful use of ICT services and systems. *“Software ‘enabled’ research? Fears, hopes, and some ‘new’ vistas for social science research in Africa”* by Julius F. Kikooma deals with the challenge of computerizing qualitative research using existing programs and approaches. He argues that there are legitimate concerns about the effects of technology on practice that help define the problems to be addressed in computerizing research. Such concerns, he argues, point to the deeper issues such as: Is the software just a tool or does it in some way drive the research? Does specific software favour or preclude particular research methods?

*The “African Virtual Open Initiatives and Resources (AVOIR)”* is presented in the paper by Derek Keats and Melisse Benn. It describes the motivation and methodology in creating an African virtual “centre of excellence” in open source software engineering. This project is about harnessing the enormous potential that exists within Africa and the African diaspora to create a core of open source software developers who are able, through software development activities, to create educational and business opportunities that contribute to development on the continent. Although world-class software will be produced within this project, the real objective is about human development, about capacity building, and about creating opportunities for people through the formation of trans-national alliances both within and outside Africa.

In her paper *“A Service Approach for Information Systems Implementation in Institutions of Higher Learning - Interim Lessons”*, Nora K. Mulira deals with the challenges of implementing information system. The paper presents an analysis of information systems (IS) implementation in Institutions of higher learning, addressing the question: “What is the key to success or failure of ICT projects aimed at improving performance of the core business processes?” The author observes that universities in Africa have been key beneficiaries of funding for technology projects aimed at capacity building, but most ICT projects are yet to realize the intended performance gains within the universities’ mandates of research, academics and learning. The proposal and investigation of the IS service approach as a possible solution for mitigation is part of a research project that is yet to be concluded, but key interim lessons drawn from the findings of preliminary case studies are discussed to provide lessons for current and future IS implementation.

The Botswana experience is given through the paper *“ICT Human Development in an African University - The Conception and Implementation of the University of Botswana Skills-based ICT Education and Training Programme”* by Sunday O Ojo. Experiences at the University of Botswana in the conception and implementation of an ICT human development programme are presented. The national and institutional context and needs for the programme provide lessons for African universities which are implementing or planning to implement e-learning.

*N.S. Zarummai et al* discuss experience and lessons from Nigeria in the paper *“The Deployment of Free/Open Source Software Tools for Long Distance e-Learning in African Universities”*. The authors argue, based on the Nigerian experience that the quality of educational delivery and mass access to education in Nigeria and most African countries, impaired due to poor or inadequate materials, can benefit from the deployment of ICTs. The paper focuses on the status of ICT in Nigerian universities and some of examples of what is being done to facilitate long distance and e-learning.

#### **(d) National and Community Outreach**

While all the papers in this book can be related to community and national impact, this section has three papers specifically addressing this. Two of them show-case examples of specific national and community outreach, and the third gives a critique of approaches and proposes a new framework.

The first paper is *“Developing A National Information Infrastructure Agenda for Uganda”* by *Nora K. Mulira*, describing and discussing the process and outcomes of developing a National Information Infrastructure Agenda (NIIA) Project. It provides valuable insights for policy makers, planners and development projects implementers at the national, district and community levels. The NIIA for Uganda emerged out of a year- long project which was funded by *infoDev* (World Bank) and conducted under the auspices of the Institute of Computer Science (ICS), Makerere University. This was a planning process that addressed the uncoordinated strategies in implementing and sustaining ICT enabled development in Uganda through six (6) high impact development sectors namely: Agriculture, Education, Health, Commerce, Information & Communication Technology.

The second paper, again based on an initiative initially supported by *infoDev*, is *“The Uganda Development Gateway – Networking Communities”* by *F. F. Tsubira et al.* The Uganda Development Gateway (UDG) project illustrates a process of implementing mutually beneficial development networks amongst communities, NGOs, CBOs and other development partners. Solutions/ answers to everyday development dilemmas can thus be compiled and shared with others. The paper presents the UDG process and envisaged outcomes of facilitating dialogue and interaction amongst development stakeholders in Uganda.

The third paper, *“Building an Information Society: Current Approaches, Challenges and the Way Forward”* by *J. Walubengo, KCCT* starts with an analysis and critique of existing approaches prescribed by developed nations on how to bridge the development gap, and finds them deficient. It asserts that current approaches are given by developed world and adopted by the developing nations without careful analysis of context. A model based on the ICT Value Chain is presented and suggested as a more holistic approach to tackling the digital divide problem while avoiding the digital (re)colonization of Africa and other developing nations.