THE DIFFUSION OF SOCIAL INFORMATICS IN THE CIVIL SERVICE WORK ENVIRONMENT IN KWAZULU-NATAL

BY

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South Africa

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DECLARATION

I, Blessing Thuthuka Mbatha, do hereby declare that this study, “The Diffusion of Social Informatics in the civil service work environment in KwaZulu-Natal” is my own work, both in conception and execution. All the information that was used has been duly acknowledged in the text and references.

Signature………………………… Date: 5\textsuperscript{th} October 2011

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APPROVAL

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DEDICATION

This thesis is first and foremost dedicated to the Almighty God, “Thank you Lord that you have shown me favour. The appointed time has come” (Psalm 102:13).

It is also dedicated to my exquisite wife Mbali Pearl Mbatha and my beloved and handsome sons Mvelo and Melisizwe Mbatha, who have been by my side throughout this period, and who without knowing it, have always inspired me and given me the strength to carry on.
ACKNOWLEDGEMENTS

I wish to extend my profound gratitude and appreciation to Prof DN Ocholla for accepting me as his PhD candidate. I really appreciate his time, effort, incisive input, compelling attitudes, continual encouragement, support and patience. Most of all, I thank him for seeing me through the most difficult times of my study.

It was of course an uphill task, but with his support I weathered both the challenges to keep fit physically and to balance this with the intellectual rigors of PhD expectations. I am also indebted to my co-promoter, Prof MO Adigun for the financial support he accorded me. It was indeed a laborious journey.

I also wish to acknowledge all the people who nurtured, supported, and fuelled me in the course of research. I wish to thank:

- The University of South Africa’s Research Directorate for giving me the funds (MDSP) necessary to finalize this study;

- My late father, Mr Samuel Mbatha, who always had faith in me and who never lived to see his dream come true;

- My mother, Mrs Margaret Ntombiyezizwe Mbatha, and my siblings for their support and encouragement;

- The respondents from the targeted government departments for their enormous goodwill, time and for agreeing to respond to such a lengthy questionnaire; and

- My colleagues at the University of South Africa.
ABSTRACT

ICT is a compound term that is used to refer to the convergence of a wide array of new technologies presently being developed and used in the creation, processing and transmission of information. Broadly speaking, these technologies encompass all aspects of data / information recording, handling and transmission, and include computers, telecommunications, satellites, fibre optics, video-based multimedia applications, automated speech outputs, and electronic broadcast technologies. The public services referred to in this study are government departments, and they are responsible for servicing society, devising policies, and ensuring that they are implemented. The civil servants referred to in this study are government employees.

The focus of this study was to examine the use, types, interaction, and availability of ICTs in four government departments in KwaZulu-Natal, South Africa, in the context of work productivity and creativity. In order to achieve the stated aim, the following research had to be answered: What types of ICTs are available in government departments? What problems are experienced by the civil servants in their utilization of ICTs? How can the education and training needs of the civil servants be addressed? To what extent are ICTs used by the civil servants in their work activities? What strategies and solutions can address the problems faced by the civil servants?

This study adopted mixed methods where aspects of both quantitative and qualitative approaches were employed. The quantitative method was used to solicit information from the civil servants, while the qualitative approach was used in the review of different social informatics studies. The literature review was undertaken across a broad spectrum of sources.
including conference papers, journals, government policy documents and several Internet sources.

The study used multistage probability sampling to select the elements for the survey and to achieve the desired representation from the population. Probability samples helped the researcher acquire a demonstrable degree of reliability and validity. The sampling techniques used were simple random, systematic, and stratified sampling. Simple random sampling was first used to identify government departments in the province that have considerable reach and are service intensive, namely the Departments of Arts and Culture, Home Affairs, Education, and Health. Secondly, systematic sampling was used to select suitable district municipalities. This sampling technique was used in order to increase the chances of obtaining a representative sample and to prevent bias in the selection process. The initial starting municipality in this technique was selected randomly and every second district municipality from a list was selected thereafter. The departments were selected from the following district municipalities: uMgungundlovu, uMzinyathi, Zululand, uThungulu and Sisonke.

The first stage of stratified sampling consisted of the division of the service area into rural and urban based areas. In the second stage, stratification of personnel in the selected departments into top, medium and lower level management was done. This was to ensure that all the levels of management were represented in the study. In the last stage, a simple random sample was used to select the sample elements from the different levels of management. Government departments in South Africa have a well defined organogram such that the number of managers is almost equal across all departments. A sample size of 20% of the population elements was used and this resulted in 65 personnel being selected from each ministry and a target sample of 260 managers. A questionnaire was used to collect
quantitative data. The data collected was analyzed using thematic categorization and tabulation, and the findings were presented descriptively.

The findings show that a variety of ICTs have been adopted in the sector. All the civil servants surveyed indicated that they used ICTs to communicate with fellow colleagues, for spreadsheet purposes, word processing, printing, and to disseminate departmental information. The respondents’ level of interaction with some of the ICTs, such as e-mail, personal computers, Internet, printers and telephones, was very high, while the use of ICTs such as video conferencing, television and radio was very poor. The most common obstacles to the effective use of ICTs in government departments were found to be lack of skills / competence, the lack of a comprehensive ICT policy, and the lack of proper planning for the adoption and diffusion of ICTs in the sector. The civil servants particularly voiced the need for training on database searching and information retrieval. The contextual conditions that need to be adapted in order to improve the use of ICTs in government departments include the need for adequate and well structured planning; an introductory a comprehensive ICT policy that would provide sufficient frameworks for ICT development and/or use in the public sector; provision of proper and sufficient ICT infrastructure; funding for the purchase of all necessary facilities and resources for ICTs; and the training of staff on how to use ICTs.

The issue of planning revealed here is very important as embarking on any new innovation requires adequate planning. Other recommendations include training sessions for civil servants so that they can use the acquired ICT knowledge and skills in their daily work and activities. Where necessary, the government should continually review the ICT training it offers to civil servants, especially considering the rate of developments in the ICT industry.

A good policy would also provide sufficient frameworks for ICT development and/or use in government departments, for instance in areas of strategizing implementation, staff
development and communication. Policies to foster the uptake of ICTs are insufficient. Moreover, policies specific to ICT diffusion and use will not, on their own, lead to stronger performance; they should be part of a comprehensive set of actions to create the right conditions for growth and innovation. The diffusion and adoption of ICTs in government departments require expertise at various levels. The South African government is still working on putting together a comprehensive national ICT policy that would guide ICT use in the country.
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<th>Description</th>
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<tr>
<td>3G</td>
<td>Third Generations</td>
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<tr>
<td>ABC</td>
<td>African Broadcasting Company</td>
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<tr>
<td>ADSL</td>
<td>Aerospace Systems Design Laboratory</td>
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<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<td>ANC</td>
<td>African National Congress</td>
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<tr>
<td>ASGISA</td>
<td>Accelerated and Shared Growth Initiative of South Africa</td>
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<td>BBC</td>
<td>British Broadcasting Corporation</td>
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<td>BEE</td>
<td>Black Economic Group</td>
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<td>CD-ROM</td>
<td>Compact Disk Read Only Memory</td>
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<td>CIA</td>
<td>Central Intelligence Agency</td>
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<td>CMC</td>
<td>Computer-Mediate Communication</td>
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<td>CNN</td>
<td>Cable News Network</td>
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<tr>
<td>COMESA</td>
<td>Common Market for Eastern and Southern Africa</td>
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<tr>
<td>CSIR</td>
<td>Council for Scientific and Industrial Research</td>
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<td>CSN</td>
<td>Community Services Network</td>
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<td>DBSA</td>
<td>Development Bank of Southern Africa</td>
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<td>DCN</td>
<td>Digital Cellular Network</td>
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<td>DoC</td>
<td>Department of Communications</td>
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<td>DRC</td>
<td>Democratic Republic of Congo</td>
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<td>DSTV</td>
<td>Digital Satellite Television</td>
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<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>DTV</td>
<td>Digital Television</td>
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<td>DVD</td>
<td>Digital Video Discs</td>
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<td>E-gov</td>
<td>Electronic government</td>
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<tr>
<td>EIU</td>
<td>Economist Intelligence Unit</td>
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<td>E-mail</td>
<td>Electronic mail</td>
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<td>EU</td>
<td>European Union</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HDTV</td>
<td>High Definition Television</td>
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<td>HIV</td>
<td>Human Immune Virus</td>
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<td>HSDPA</td>
<td>High-Speed Downlink Packet Access</td>
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<td>HSGIC</td>
<td>Heads of State and Government Implementing Committee</td>
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<td>ICASA</td>
<td>Independent Communications Authority of South Africa</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>International Development Research Center</td>
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<td>IS</td>
<td>Information Society</td>
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<td>Internet Service Providers</td>
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<td>International Steering Committee</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>ITU</td>
<td>International Telecommunications Union</td>
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<td>JINX</td>
<td>Johannesburg Internet Exchange</td>
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<td>KZN</td>
<td>KwaZulu-Natal</td>
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<td>LAN</td>
<td>Local Area Network</td>
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<td>MACIS</td>
<td>Mamelodi Community Information Services</td>
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<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>MCA</td>
<td>Multi Choice Africa</td>
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<tr>
<td>M-Net</td>
<td>Electronic Media Network</td>
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<td>MNP</td>
<td>Mobile Number Portability</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organization</td>
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<tr>
<td>NGN</td>
<td>Next Generation Network</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Corporation and Development</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
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<tr>
<td>PCEHR</td>
<td>Personally controlled electronic health records</td>
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<tr>
<td>PSTN</td>
<td>Public Switch Telecommunications Network</td>
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<tr>
<td>PTNS</td>
<td>Public Telecommunications Networks</td>
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<tr>
<td>RDP</td>
<td>Reconstruction and Development</td>
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<td>RSG</td>
<td>Radio Sonder Grense</td>
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<tr>
<td>SABC</td>
<td>South African Broadcasting Corporation</td>
</tr>
<tr>
<td>SADC</td>
<td>Southern African Developing Community</td>
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<tr>
<td>SAFE</td>
<td>South African-Far East</td>
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<tr>
<td>SANDF</td>
<td>South African National Defense Force</td>
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<tr>
<td>SATA</td>
<td>Southern African Telecommunications Association</td>
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<td>SATCC</td>
<td>Southern African Transport and Telecommunications Commission</td>
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<tr>
<td>SAUSA</td>
<td>South African Universal Service Agency</td>
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<td>SDTV</td>
<td>Standard-Definition Television</td>
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<tr>
<td>SKA</td>
<td>Square Kilometer Array</td>
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<tr>
<td>SI</td>
<td>Social Informatics</td>
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</table>
SIM  School of Information and Media
SMB  Small Medium Business
SNO  Second National Operator
SRII  Sub-Regional information infrastructure
SUNSAT  Stellenbosch University Satellite
TELI  Technology Enhanced Learning Institute
TRASA  Telecommunications Regulatory Authority of Southern Africa
UEFA  Union of European Football Association
UK  United Kingdom
UNDP  United Nations Development Programme
USA  Universal Service Agency
USAID  United States Agency for International Development
VANS  Value Added Networks
VoIP  Voice over Internet Protocol
VSAT  Very Small Aperture Terminals
WAN  Wide Area Network
WAP  Wireless Application Protocol
WASC  Western Africa Submarine Cable
W-CDMA  Wideband Code Division Multiple Access
WSIS  World Summit on the Information Society
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