Some implications of Information and Communication Technologies (ICTs) on public service work environments in South Africa[1]

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Abstract

ICT is a compound term that is used to refer to the convergence of a wide array of new computer-based communication technologies that are presently being developed and used in the creation, processing and transmission of information. The public services referred to in this study are key government departments responsible for servicing society, devising policies, and ensuring their implementation. The main aim of this study was to examine the use, types, availability, and impact of ICTs in four government departments in the KwaZulu-Natal province (KZN) in the context of work productivity and creativity. Through a survey, government departments that are considered to be central to service delivery were targeted. Due to the diverse and dispersed nature of the public sector in South Africa, the scope was narrowed down to government departments in KZN. In order to obtain a representative sample, a systematic sampling method was applied. Using this technique, five (5) out of eleven (11) suitable district municipalities were selected, where every second district was selected from a list. The sample size of the whole study was two hundred and sixty managers. One hundred and fifty-two (152 questionnaires were completed and returned. The five (5) district municipalities selected were uMgungundlovu, uMzinyathi, Zululand, uThungulu, and Sisonke. In these districts, four government departments were targeted, namely the Departments of Arts and Culture, Home Affairs, Education, and Health. These departments were sampled using purposive and systematic sampling techniques. Three selection strategies were used: i) Identifying highly dispersed and service-intensive departments; ii) Categorizing the personnel in the selected departments into top, medium and lower level management; and iii) Dividing the service areas into rural or urban-based centers.

The data collected was analysed using thematic categorisation and tabulation, and the findings were presented descriptively. The study's findings indicate that a variety of ICT tools and services have been adopted in the sector for interaction and communication. The respondents' level of interaction with some of the ICTs 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 a lack of necessary skills, the lack of an ICT policy, and the lack of proper planning

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for the adoption and diffusion of ICTs in the sector. Detailed recommendations for the way forward are provided.

1. Introduction

Information and Communication Technologies (ICTs) are perceived to be key catalysts in current and future social and organizational evolutions. 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 or information recording, handling and transmission, and include computers, telecommunications, satellites, fibre optics, video-based multimedia applications, automated speech outputs and electronic broadcast technologies. The use of the term 'Information and Communication Technologies' by Kling (2001), considered by many to be the "father" of social informatics, and others such as Ngenge (2003:1-2), often refers to the use of a set of specific ICT applications, such as email applications, word processors, databases and the Internet. De Sutter (2003) describes ICTs as a combination of all these elements, capped by a vision of how technology can help an organization reach its goals. Ngenge (2003:1-2) also defines ICTs as all those technologies that enable the handling and storing of information and facilitate communication between humans and electronic systems, and between electronic systems. This view embraces the full range of ICTs and includes capturing technologies that collect and convert information into digital form, e.g. keyboards, mice, voice recognition systems, barcode readers, and image scanners, to name a few. Following closely are storage technologies such as magnetic tapes, hard disks, optical disks (such as Compact Disk-Read Only Memories – CD-ROMs) and smart cards (such as those used for financial transactions). To these one can add the latest in storage devices, such as micro cards.

ICT application and its impact are contextualized and conceptualized within social and community informatics (Le Roux, 2010). According to Kling (1999) and Le Roux (2010), social and community informatics began with studies of computerisation in workplaces and organisations that date back to the early 1970s, although the specific label of social informatics was not yet in use. Because of the work and research done by Professor Rob Kling at Indiana University in the late 1990s, the term 'social informatics' became a popular vehicle for describing the integrated and complex relationships that are developed between humans and communication technology. Social informatics (SI) and later community informatics (CI) built on bodies of research that were previously known by labels such as "computers and society," "the social impacts of computing," "social issues of computing," "social analysis of computing," and "behavioral information systems". Le Roux (2010) provides a fresh narrative on the past, present and future of social and community informatics by recognizing Kling and other contributions and unfolding the origin and associations of the two concepts in reasonable detail. Kling (2000) observed that since the deployment of the first commercial digital computers in

the 1950s, their potential power to extend human and organizational capabilities excited the imaginations of virtually all who came into contact with them. Kling was also of the view that computers evoked fears that their use would lead to massive social problems, such as widespread unemployment. Despite or precisely because of these fears, people have overwhelmingly accepted computers, without which modern work and living requirements cannot be imagined. Kling's early research and views were largely based on developments in the second half of the 20th century. In the 1950s and 1960s, digital computers were relatively expensive (often costing hundreds of thousands of dollars) and relatively few were in use. Consequently it was difficult to observe their effects, and writings on computerization were primarily speculative. It is interesting to view these speculations from a modern day, twenty-first century (21st) perspective, where computer systems have become ubiquitous and professional workweeks seem to have expanded (Kling, 2000).

In the 1980s, the range of topics studied in this area included studies on the extent to which people would communicate more or less effectively with organizational electronic mail systems, and the extent to which "expert systems" could improve the quality of decision making and services in organizations, such as the medical profession. Computerization in the 1980s was primarily taking place within organizations, and there was therefore significant pressure for information systems professionals to design and develop systems that would be useful and usable by a variety of people. SI research was thus used to educate information systems (IS) professionals through dissemination in textbooks, workshops, and some professional articles in magazines and journals. In the 1990s, as the use of the Internet grew more widespread, the question of the extent to which Internet use would decrease or enrich the quality of local civic life in communities became an important aspect or sub-field in SI research. Political participation and grassroots groups' use of the Internet to organize more effectively, online mobilization for groups that could previously not get access to mainstream press, the ability of voters to obtain more complete information through online sources, and the ability of campaigns or candidates to raise funds using the Internet all became important research areas of SI.

Given the above, this study on SI is relevant in modern development, particularly in Africa where the utilization of ICTs is either low or underdeveloped (Kling, 2000; Kling, 1999; UNDP, 2000; William, McIver, and Traxon, 2002). In terms of human needs, the use of ICTs has been echoed by numerous researchers as both fundamental and healthy, especially in public offices where the impact and consequences of ICTs take into account the interaction between institutions and culture, particularly in government ministries (Kling, 1999 and Carol, 1998). These authors reaffirm that the social aspects of computers, telecommunications and related technologies are crucial in shaping organizational and social relations and in enhancing the ways in which the social settings influence the use and design of ICTs.

Researchers have noted that in Africa, and in the province of KwaZulu-Natal (KZN), service delivery is often poor because modern communication technology is not utilized or not available (Ntetha, 2010). Despite the notions and labels accredited to the role of social informatics in integrating and building on bodies of research that integrate

computers and society, very little has been done in South Africa, and this inspired the current study to integrate this knowledge through research. It is believed that a social informatics study focusing on civil servants in KwaZulu-Natal (KZN) will encourage:

- Civil servants to extend their abilities in accessing data and in communicating. It is common for many technology-centered accounts of new ICTs to emphasize the ways that they enable new kinds of actions that were previously more costly, difficult or impossible.

- The use of ICTs in government ministries to restructure the public sector by incorporating them into the everyday lives of the civil servants.

- Civil servants to make effective use of existing and new ICTs to drastically reduce some of the communicational restrictions of space and time.

The majority of South Africans are not aware or conversant with SI. However, it has been observed that the use of ICTs by some civil servants is generally low both in frequency and variety. For example, the School of Information and Media (2000) observed that the use of ICTs by some civil servants is generally restricted to word processing and the use of specific applications. Their study in 2000 found that any other types of ICTs, such as the Internet and WWW, databases and video conferencing, were used relatively less. Civil servants identified a range of issues that they regarded as inhibitors to their effective use of ICTs, particularly lack of access/ availability of hardware/ software, and lack of ICT education, skills and knowledge.

2. Purpose of the study

This study set out to examine the design, use, impact, interaction and contextualization of ICTs through a social informatics analysis of civil servants within the civil service work environment in the KwaZulu-Natal government. The paper answers the following research questions:

- What types of ICTs are available in government departments?
- What are the civil servants' levels of interaction with ICTs?
- What are the computing skills of the civil servants?
- How can civil servants' education and training needs be addressed?
- What impact do ICTs have on the civil servants' work environment?
- What is the purpose of using ICTs in government departments?
- What strategies and solutions can address the challenges faced by civil servants as far as ICT utilization is concerned?

3. Methodology

A survey targeting key government departments was used to collect data. Because of the diverse and dispersed nature of the public sector in South Africa, the study narrowed its scope to government departments in KZN. In order to obtain a

representative sample, the systematic sampling method was applied. In this technique, five out of eleven suitable district municipalities were selected, where every second district from a list was taken. The sample size of the whole study was two hundred and sixty managers. One hundred and fifty two (152) questionnaires were completed and returned. The five (5) district municipalities selected were uMgungundlovu, uMzinyathi, Zululand, uThungulu, and Sisonke. In these districts, four government departments were targeted, namely the Departments of Arts and Culture, Home Affairs, Education, and Health. These departments were sampled using the purposive and systematic sampling techniques. Three selection strategies were used: i) Identifying highly dispersed and service-intensive departments; ii) Categorizing the personnel in the selected departments into top, medium and lower level management; and iii) Dividing the service areas into rural or urban-based centers. The data collected was analysed using thematic categorisation and tabulation, and the findings were presented descriptively.

4. Results and discussions

The discussions below provide the demographics of the respondents, types of ICTs used, why they were used, how they were used, and the training needs and challenges faced.

4.1. Demographic profile of the respondents

The respondents ranged from assistant managers to district managers, with the majority (33; 22 %) holding the position of assistant manager. Most of the respondents (66; 43 %) had bachelor degrees. A study by Ayoo (2001) established that most professionals above the age of 40 years in developing countries are often conservative and slow in keeping pace with ICT advancements. A large number of the respondents in this study were between the ages of 40 to 49 (47 %), followed by respondents in the 30 - 39 year age group (28 %). Respondents who were over 50 years and those between 20 and 29 ranked third and fourth respectively.

It was also vital to assess gender proportionality in the study, as it is a widely held view that males dominate use and access to ICTs. Earlier studies have identified women and girls as disadvantaged in their uptake of ICTs (Hafkin and Odame, 2002; Botha et al. 2001; Ngenge, 2003). Cullen (2001) found that disparities in the use of ICTs are much greater in Africa, with the involvement of women being as low as 5 %. Majanja and Kiplang'at (2003) have also suggested that gender disparity among professionals in Africa can be attributed partly to the educational system and partly to factors inherent in society at large. This issue is revised by Shaw and Gant (2002), who argued that it has been empirically proven that women and men differ in their attitudes towards, comfort with, and anxiety with respect to computer technology. The results of the study indicate that there was clear male dominance (89; 59 %) in the sample population. In terms of the level of management, most of the respondents (68; 45 %) were top managers.

4.2 Types of ICTs currently in use

Increasingly, governments all over the world are adopting ICTs in order to carry

out their activities and operations, resulting in what we refer to as e-government. Ultimately, for civil servants to be able to deliver services quickly and efficiently, they need to have access to ICT tools and services. The study established that a variety of ICT tools and services are available and have been adopted in government departments with the intention of improving work productivity and creativity in the sector. These ranged from computers to telephones, copy machines, printers, and Internet and intranet utilities. The most available ICT tools and services in government departments were found to be telephones, computers, e-mails, fax machines, mobile phones, the Internet, intranets, copy machines and printers, in that order. Most of the respondents were based in urban or semi-urban areas and had physical access to ICTs. They also held managerial positions in their respective departments, which normally guarantees ICT access and use. A large number of the respondents (95 %) indicated a high reliance on mobile phones. This did not come as a surprise: South Africa is the fourth-fastest growing mobile communications market in the world.

Current statistics show that South Africa's telecom sector boasts the continent's most advanced networks in terms of the technology deployed and services provided (Paul Budde Communication, 2010). The country has a vibrant mobile market that has seen rapid uptake since competition was introduced 15 years ago. With market penetration at over 100 % and with the availability of number portability, the network operators – Vodacom, MTN, Cell C and Telkom SA – are increasingly forced to find innovative ways of distinguishing themselves from the competition in order to gain and retain customers. While emerging as the country's leading broadband providers, the major mobile operators are also aggressively entering the fixed-line market in a rapidly converging environment. The government has, in the meantime, introduced Broadband InfraCo, a national infrastructure company that provides cheap backbone network capacity to service providers (Paul Budde Communication, 2010). Despite the significantly increased competition between different service providers, many municipalities in South Africa, including the country's largest cities, are introducing their own fibre and wireless broadband networks (Paul Budde Communication, 2010).

The availability of ICT tools and services in government departments suggests that improved service delivery can be expected. However, it should be noted that this availability does not necessarily mean that they are being used, as their use is hampered by a lack of computer skills, low levels of confidence, and negative perceptions towards ICTs. Everett Roger's (1995), in his now famous "Diffusion of Innovations (DoI) Theory", argued that one of the greatest pains accorded to human nature is the pain of a new idea. Thus, the fact that innovations (ICTs) are available in government departments does not necessarily mean that they are being used. Some inventions like the cell phone "take the world by storm" while others (video conferencing) seem to fail. Others (like the fax machine) lie dormant for decades, but when their "time comes", their use spreads rapidly, even explosively. Conversely, most new innovations (depending on their purpose, need and acceptance) often achieve slow penetration at first, but then grow quickly as their adoption and rate of use increases. Others may grow fast in the beginning but slow down as their use is exceeded by newer, simpler and cheaper technology. A good example here is the use of broadband Internet access. Its adoption and utilization is

directly related to its availability, speed and affordability with respect to both government departments and the general public.

These views are supported by Roger's Diffusion of Innovations Theory in that innovations are more readily adopted when they provide a relative advantage to older ideas, and even more so if they are compatible with the existing value system of the adopter. Roger (1995) postulates that there are certain characteristics that determine the rate at which an innovation is adopted by a social system, and that these characteristics include relative advantage, compatibility, complexity, trialability and the observability of the innovation. This confirms what is happening in government departments when it comes to the use of some ICTs. The findings indicate that some ICTs have proven to have a relative advantage over others, such as the Internet, computers and email, to name a few. Other ICTs have no relative advantage, such as video conferencing, video recorders, data and overhead projectors, cameras, and tape recorders. Although these latter ICTs are available in the surveyed government departments, their use is minimal.

ICTs such as radios and cameras were used relatively less in the government departments surveyed. This is not unusual, as limited use could be attributed to a number of reasons, such as the irrelevance of the tools in job execution. Numerous researchers such as West (2005) and Kling (1999) have pointed out that the escalation of ICTs has had a considerable impact on the way governments function. In his study, West (2005) observes that the use of ICTs in government (or e-government) is on the rise with 19 % of all government organisations worldwide offering online services.

As far as the level of user interaction with ICTs is concerned, it was important for this study to establish the extent to which the civil servants interact with ICTs. It is believed that if the level of interaction with ICTs is high, the level of work productivity and creativity would also improve, and civil service success would be achieved. The study found that the respondents' level of interaction with ICT tools and services such as email, personal computers, Internet, intranet, printers, telephones, and mobile phones was very high (152; 100 %). As a way of improving service delivery, the government is now communicating with South Africans by sending information to their cell phones. For example, if a person has applied for an identify document, the Department of Home Affairs notifies the applicant of the status of his or her application by sending information to his or her cell phone. These findings tie in well with the studies conducted by Wakari and Ocholla (2010) and Shongwe (2010), who note that mobile phones are the most popular ICTs, citing very well known reasons such as access, functions, availability, easy usage and ownership.

The time spent per day using ICTs is a strong measure of interaction. The daily time people spend on ICTs is a partial measure of the success of ICT tools. Anderson, Brynin, Gershung and Raban (2007:79), in their study on ICTs in society, note that positive attitudes towards ICTs have a positive impact on both usage time and the depth of use. A positive attitude towards ICTs is promoted by the usefulness of the technology in question. A positive attitude towards ICTs is also promoted by possessing relevant skills and an understanding of ICTs and their capabilities. The study thus sought to gain

an insight into the amount of time that civil servants spend per day using the different ICTs that are at their disposal. When asked to comment on the time they spend per day using different ICTs, the respondents (152; 100 %) implied that they spent six to ten (6 - 10) hours per day. This measure, however, does not apply equally to all types of ICTs but varies from technology to technology, as demonstrated in Table 1 below.

Table 1: Time spent per day on ICTs for work purposes (N=152)

ICT TOOLS AND SERVICES	LESS THAN 1 HOUR		1-5 HOURS		6-10 HOURS		11-15		MORE THAN 16 HOURS	
	F	*%*	*F*	*%*	*F*	*%*	*F*	*%*	*F*	*%*
Television	6	4	10	7	-	-	-	-	-	-
Radio	2	1	3	2	-		-		-	-
Video camera	149	98	3	2	-	-	-	-	-	-
Video recorders	145	95	7	5	-	-	-	-	-	-
Tape recorder	148	97	4	3	-	-	-	-	-	-
Projectors	11	7	58	38	83	55	-	-	-	-
Laptop	-	-	16	11	136	89	-	-	-	-
Fax machine	2	1	144	95	6	4	-	-	-	-
V conferencing	-	-	-	-	-	-	-	-	-	-
P computer	-	-	-	-	152	100	-	-	-	-
Internet	-	-	-	-	152	100	-	-	-	-
Intranet	-	-	-	-	152	100	-	-	-	-
Mobile phones	-	-	-	-	152	100	-	-	-	-
Databases	65	43	77	51	10	7	-	-	-	-
Telephone	7	5	8	5	137	90	-	-	-	-
Copy machine	146	96	6	4	-	-	-	-	-	-
Printer	4	3	7	5	141	93	-	-	-	-
Scanner	151	99	1	1	-	-	-	-	-	-
E-mails	-	-	3	2	149	98	-	-	-	-

The table represents multiple responses

4.3 Training needs of the civil servants

In order to be able to use any technology effectively, a person must be well equipped with the skills necessary to use that technology. Therefore one of the objectives of this study was to identify the type of training that would equip civil servants with the skills necessary to effectively use ICTs for service delivery and also to improve work

productivity and creativity in their respective work environments. The issue of computer skills has always been a serious issue in many countries, and South Africa is no exception. This is evident in the number of civil servants who indicated different areas of training that they required in order to help them interact with ICTs more often and more effectively. The results of the survey indicate that training on word processing and e-mail (152; 100 %) and information processing (87; 57 %) was not necessary, as most of the civil servants used these services on a daily basis. However, 134 (88 %) of the respondents indicated that they required training on how to use databases to search for information. Interestingly, all the civil servants surveyed were found to have complete access to ICTs - their computers were connected to the Internet and they also had access to e-mails. Training needs therefore lay more urgently in database searching and information retrieval.

Under this item, the study sought to work out the respondents' ICT competencies. Basically this item required the respondents to rate their ICT skills on the Likert Scale demonstrated in Table 2 below.

Table 2: Level of ICT competence (N= 152)

ICT tools and services	Excellent		Good		Satisfactory		Poor		Very poor	
	F	*%*	*F*	*%*	*F*	*%*	*F*	*%*	*F*	*%*
Television	152	100	-	-	-	-	-	-	-	-
Radio	152	100	-	-	-	-	-	-	-	-
Video camera	88	58	56	37	8	5	-	-	-	-
Video recorders	93	61	59	39	-	-	-	-	-	-
Tape recorder	152	100	-	-	-	-	-	-	-	-
Projectors	26	17	31	20	56	37	39	26	-	-
Laptop	152	100	-	-	-	-	-	-	-	-
Fax machine	152	100	-	-	-	-	-	-	-	-
V conferencing	9	6	25	16	14	9	41	27	63	41
PC	152	100	-	-	-	-	-	-	-	-
Internet	42	28	31	20	52	34	27	18	-	-
Intranet	23	15	54	36	57	38	18	12	-	-
Mobile phones	152	100	-	-	-	-	-	-	-	-
Databases	19	13	37	24	53	35	43	28	-	-
Telephone	152	100	-	-	-	-	-	-	-	-
Copy machine	152	100	-	-	-	-	-	-	-	-
Printer	126	83	26	17	-	-	-	-	-	-
Scanner	94	62	27	18	31	20	-	-	-	-
E-mails	152	100	-	-	-	-	-	-	-	-

All the respondents (152; 100 %) appeared to possess the skills necessary to effectively use ICTs such as the telephone, copy machines, computers, fax machines, television and the radio. However, the respondents' levels of competence when it came to using ICTs such as projectors, video conferencing, Internet, intranet and databases were poor. It is vital to note that in order for ICTs to improve work productivity and creativity in government departments, civil servants should be equipped with these skills as well. The issue of Internet skills appears to be confusing. A significant number of the respondents (87; 57 %) signified that they did not need training with respect to the Internet. An even bigger number of respondents indicated that training on information retrieval was not very essential (148; 97 %), implying that they possessed the necessary information retrieval skills. Notably, the results show that not all ICTs could be used by the civil servants as the majority (104; 68 %) revealed that they lacked the skills necessary to use some ICTs, as indicated in the table above.

In his study on the use of ICTs in government departments, Nwasike (2007:11) concludes by suggesting that training should be made compulsory for civil servants, especially when there is a choice and access to training. The findings indicate that as technology changes, so does the need for training in the use of emerging technologies. This issue is revised by the Ghana Resource Centre (2008), which states that it is vital for every government employee to equip themselves with the latest ICT technology in order to reap the benefits of technology and improve productivity and creativity, which are intrinsic to a government's success.

The study also attempted to establish how the civil servants acquired their ability to use the ICTs. Most of the respondents (64; 42 %) revealed that they acquired their skills through self-study/ self training, while 57 (38 %) revealed that they were taught by their colleagues. Only 31 (20 %) acquired computer and Internet skills through in-house courses offered by the department. Less than 28 (18 %) acquired computer and Internet skills through on-the-job experience. Notably, only 23 (15 %) of the respondents indicated that they acquired computer and Internet skills through a continuous education course. It is clear that the government is not doing enough to equip its civil servants with the ICT skills that they require in order to improve work productivity and creativity in the sector.

4.4 Challenges in the use of ICTs

If the South African government wishes to diffuse and adopt the use of ICTs, a number of important issues need to be addressed first. The first involves training civil servants in order for them to be able to use ICTs effectively. Equally important is the need for a well developed and efficacious ICT policy, and proper planning for the adoption and diffusion of relevant ICTs that would improve productivity and creativity. In light of the above, the study sought to identify the main barriers that prevent civil servants from using ICTs more effectively. The most popular obstacles cited by the civil servants include: the need for adequate and well structured planning; the need to make funds available for the purchase of all the necessary ICT facilities and resources; and lack

of the necessary skills' set. The issue of planning revealed here is crucial as embarking on any new innovation requires adequate planning. Tella (2007) is of the opinion that adequate and proper planning usually results in success. The author suggests that institutions that fail to plan before embarking on a particular programme usually end up in a deadlock. In other words, "failure to plan is to plan to fail" (Tella, 2007).

A significant number of the respondents indicated that the issue of computer skills was hampering their interaction with ICTs. Without the right human capacity, the ICTs would lack someone to operate and use them, or make minor repairs. Civil servants, more especially those operating in managerial positions, are required to have a fairly broad and extensive knowledge of ICTs. As leaders, they should be effective users of the technologies. The Ghana Resource Centre (2008) emphasizes that training sessions for civil servants should be conducted so that they can use the acquired ICT knowledge and skills in their daily work and activities. A related study by Petty (2007) notes that because of governments' continuous move towards the e-government culture, civil servants have to be involved in programs that will help them serve the public effectively with the ICT-related services they require. Mutula and Mostert (2008) suggest that the ICT infrastructure of a country acts as the backbone to its ability to provide utilities and services conducive to the utilisation of ICT tools by the government and the general public.

Many studies have examined barriers to the adoption and diffusion of e-government. Ebrahim and Irani (2005) provided a review of the barriers to e-government adoption in literature using five dimensions: IT infrastructure, security and privacy, IT skills, and organizational and operational costs. Lam (2005) also identified these barriers and organised them in four categories, namely strategy, technology, policy and organisation. Vassilakis, Lepouras, Fraser, Haston and Georgiadis' (2005) study of stakeholders in G2E and G2C e-Government categories documented five categories of barriers to e-government adoption and use, in order of perceived importance, as follows: legislative, user-related, administrative, technological and social barriers. Gilbert, Balestrini, and Littleboy (2004) reported e-government adoption barriers to be end users' attitudes towards online trust relationship establishment, the security of financial data and the quality of the information provided, skills, and time and money as adoption benefit factors in predicting the potential use of e-government.

5. Conclusion

The main focus of this study was the design, use, impact, interaction and contextualisation of ICTs through a social informatics analysis of civil servants within the civil service work environment in the KwaZulu-Natal government. A variety of ICTs have been adopted in the sector for interaction and communication purposes. This paper has demonstrated the importance of ICTs in government ministries and also cited various interventions needed to effectively propel civil servants onto the arena that is the emerging information economy. Needless to say, ICTs play a crucial role in speeding up the flow of information and knowledge in government ministries as well as transforming the way in which the government and citizens directly interact. ICTs have proved to be

key catalysts in increasing work productivity and creativity in the public sector. ICTs have also brought about a dramatic reduction in the cost and time involved in storing, processing and transmitting information, leading to a fundamental reshaping of government ministries and society as a whole. ICTs are generating changes in markets, private and public sectors, and economies in the more- and less-developed world, and advancing in every area of economic, social, and political activity. They have become indispensible as they continue to improve the way we do work and communicate on a daily basis, and it is therefore imperative for civil servants to be able to proficiently use them.

6. Recommendations

Suggestions on improving the use of ICTs in government departments as suggested by the civil servants include the need for adequate and well structured planning; introducing a good ICT policy that would provide sufficient frameworks for ICT development and/or use in the public sector and in South Africa as a whole; provision of proper and sufficient ICT infrastructure; the need to make funds available for the purchase of all necessary ICT facilities and resources; and the advanced training of staff.

An ICT policy in government departments in South Africa is absolutely essential. We believe that the challenges faced with respect to ICTs are easily contained when a policy exists. Several studies have highlighted the importance of ICT policies as empowering instruments at both micro and macro levels (World Development Report, 1999/2000; Raseroka, 1997). A good policy provides a sufficient framework for ICT development and/or use in an organisation or country, such as in areas of strategising implementation, staff development and communication. Odedra (1992a) observes that ICT policies and/or strategic buying plans should clearly identify the needs that are likely to bring overall benefit to a nation or institution, and establish what may be achieved with the available resources. He observes that although some regulatory policies covering procedures for the acquisition of hardware and software exist in a few institutions, the aim of these policies is to typically mandate the centralized acquisition of ICT products in the public sector and tax private companies and non-government organizations in order to either discourage imports, or raise the convertible currency for the state. Such interventions therefore only partly and indirectly address the issue. ICT implementation without policy, especially for a country or institution, is poor planning because it often leads to wastage and misplaced priorities. In her study, Majanja (2004:89) argues that policy issues at organisational level do not often attract much attention, yet the implementation of ICTs without a proper policy is often found to be haphazard, leading to the duplication of efforts and increased costs

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