

Perception of Ultimate Utilization of Information and Communication Technology (ICT) as an Impetus in Enhancing Employee Performance in a Few Selected Municipalities in the Eastern Cape of South Africa

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ABSTRACT Realistically and interestingly, ICT utilization within the Local Government Administration (LGA) in many countries of the developing world with South Africa being no exemption continues to show a panacea to sustain, enhance and improve employee performance and apparently is more effective in providing qualitative service delivery. The aim of this paper therefore is, through systematic literature review, to explore the state of the perception of ICT utilization as an impetus in enhancing employees' performance in the Eastern Cape Province of South Africa. Findings indicate the following factors as being responsible for the phenomenon of perception of crucial utilization of ICT within the municipalities in South Africa: providing adequate support infrastructure such as communications, connections, interactions, relations and exchanges of information to alleviate employees' performance; improve qualitative service delivery among the employees and ensure adequate job accuracy within the municipalities. However, lack of Information Technology (IT) skills and training and perhaps, unawareness of the importance of ICT are identified as some of underpinning obstacles confronting the ultimate utilization of ICT. The following strategies have been suggested to surmount the identified impediments: government intensifying efforts in providing adequate ICT infrastructures, municipalities' management adopting employees monitoring and evaluation performance through effective IT training and employees' skills development. The paper concludes by calling upon governments, municipalities' managers and policymakers to undergo a paradigm shift of policies, ideologies and practices that will enhance and improve employees' performance in order to provide qualitative service delivery in LGA in South Africa.

INTRODUCTION

Information and Communication Technology (ICT) as an important tool has a crucial role to play in the innovative system of native authority (Pratchett 1999: 736). Innovative ICT can provide the technological facility on which complicated organizations can be sustained. They may also provide the capability to influence exterior generated information so that local agencies are enhanced in order to be able to understand the economic and social background and make balancing policy to react to them (Pratch-

ett 1999: 736). According to Khalifa et al. (2004), cited in Gichoya (2005: 178), Information and Communication Technology (ICT) assessment brings in both quantitative and qualitative methods and usefulness of the ICT to the organization. The management and employees' job performance cannot be concluded as to be a perfect or imperfect job when ICT policies that enhance local government efficiency are lacking in the organization. The scientific or equipped introduction of ICT infrastructure is of paramount importance to enhance the effective operation and administration of local government competency. The innovative perception accentuates ICTs as "self-management and self-reliance, contextual interactions, communication orientation, and right to participate in planning and implementing indigenous knowledge to people's participation in decision-making" (Nair and White 1993: 16).

ICTs are usually seen as important opportunities that enhance employees' performance effectively and efficiently within LGA. In addition, they may also result in greater risks for social

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and economic segregation. ICTs require broadly based social capabilities if they are to be used effectively and efficiently in enhancing employees' performance within the municipalities. If these potentials and competencies are not developed, then it will be difficult for the municipalities' employees, individuals, groups, organizations and even the whole country to contribute or partake in the opportunities that the advancement of ICT relevance is making accessible (Crede and Mansell 1998). The subject matter for the 2002 World Telecommunication Day, "ICT for all: Empowering people to cross the digital divide" emphasizes, "the fact that contemporary communication technologies have not brought about consistent effects in all countries. While the developed countries have generated large amounts of revenue from innovative communication technologies, many of the developing countries have not yet been able to access these technologies" (International Telecommunication Union (ITU) 2002).

Innovative communication technologies have shaped a great digital divide between the information affluent and the information underprivileged (Goonasekera 1997: 6). According to "the 2002 World Telecommunication Development report issued by the ITU, the gap between the developed and emerging nations in terms of telephone diffusion (fixed-line plus mobile telephones)" is shutting. Wireless appliances, the utilization of the Internet for a broad diversity of important information broadcasting on every day jobs, hold the promise of overcoming basic hurdles that have affected or hindered the developing world from achieving their million goals and objectives (United Nations Development Programme (UNDP) 2002: 2). Consequently, the foreword or establishment of innovative technologies and the indispensable or innovative infrastructure will open the gates of sustainable development, opulence and affluence.

Subsequent study concerning the scenario of employees importantly utilizing ICT within municipalities' reveals that the management consistently has initiatives, however, they do not have discernible understanding about ICT utilization (Chang and Victor 2002 cited in Dlamini 2009). In addition to this, they stressed further that some of the other realistic problems could as well be lack of IT skills and lack of IT training. Conceivably, unawareness of the importance of physical access to ICT utilization by the municipalities' employees also poses a number of challenges in enhancing and improving job perfor-

mance. Rooksby et al. (2002) pointed out that lack of awareness on the importance of Information and Communication Technologies (ICTs) by considering the physical access was as well perceived as another important obstacle confronting employees in enhancing their performance. This paper, therefore, describes the importance or ultimate utilization of ICT and drawbacks that are associated with the utilization of ICT in enhancing employees' performance in municipalities in the Eastern Cape Province of South Africa and proposes strategies to improve the situation.

Objectives of the Study

The objectives of the study are to investigate the perception of vital utilization of ICT in enhancing employees' performance and snags underpinning employees' poor performance in utilizing ICT in the LGA. In addition, the paper therefore intends to provide recommendations to enhance solutions to some of the hitches effectively.

Research Questions

The study is carried out to provide responses to the following questions:

- ♦ To what extent could the ICT be important in improving employees' job performance in the LGA?
- ♦ What are the obstacles affecting employees' job performance in utilizing ICT within the LGA?
- ♦ What are the solutions to overcome the identified hitches and strategies to be adopted in order to reduce the failure rate of ICT utilization in the LGA in South Africa?

Significance of the Study

The main significance of this paper is premised on the notion that ICT has a relevant contribution to make in the development of the South African economy, most especially in Local Government Administration (LGA). This paper thus attempts to provide an effective and efficient solution to identified challenges and impact as well as strategies to be adopted in order to reduce the failure rate of ICT utilization in the LGA in South Africa. This in turn, implies that it is necessary to improve the levels of manpower or human skills and economic growth in

the country. In addition, the paper could also be seen as an important document of information for policymakers in the government sector. It intends to contribute to the empirical literature on the impact of ICT support in promoting the quality and not quantity of service delivery in LGA of South Africa.

Problem Statement

The incontrovertible fact that ultimate ICT utilization in enhancing employee performance has continued to improve and promote qualitative service delivery within the municipalities in South Africa and other developing countries is hard hit by the obstacles, which continues to immensely pose difficulties in improving employee performance. Despite the well-known fact that ICT utilization would make employees improve their performance, it is worth exploring other factors that may be increasing the vulnerability of employees to the snags confronting them. This is because the ICT utilization phenomenon has presented a panacea underpinned in enhancing employees' performance. This state of difficulties in utilizing ICT in enhancing employees' performance within the LGA needs to be addressed, especially in countries hard hit by the obstacles such as South Africa. This is important because different perspectives may be vulnerable to different employees' state of affairs. Specific contextual analysis and exploration is therefore pertinent. The sad state of affairs is that the municipalities' employees find it difficult to utilize ICT effectively and efficiently due to lack of IT skills and training and lack of awareness of the importance and benefits of ICTs physical access. In addition, they could not assist themselves without government support in improving their performance and as a result, most of the municipalities' employees perform below expectation in providing qualitative service delivery within the municipalities in South Africa. Factors that exacerbate this state of vulnerability, therefore, need to be addressed timeously. The findings are likely to inform the government to provide the necessary ICT infrastructures such as Internet facilities that would facilitate employees IT training.

METHODOLOGY

This paper uses a systematic review of literature from journals, books, conference reports,

dissertations and internet sources; and also the researchers' intuitive experience and knowledge in Public Administration, Government and United Nations Development Programme (UNDP) publications, discourses on issues pertaining to the perception of ultimate utilization of ICT as an impetus in enhancing employees' performance in LGA in the Eastern Cape Province of South Africa.

OBSERVATIONS AND DISCUSSION

Assessment of Essential Utilization of ICT in Enhancing Employees' Performance in the Local Government Sphere

Assessment of employees' performance is an important part of ensuring motivated and skilled personnel in an organization. Assessing ICT policy can to a certain extent be difficult and can at times be quite influenced (Currie 1995; Bannister and Remenyi 2000; Delone and Mclean 2002; Heeks 2002; Bannister and Remenyi 2004 cited in Gichoya 2005: 178) and there is no specific ICT assessment technique that can be useful to all circumstances (Khalifa et al. 2004). Heeks (2002) cited in Gichoya (2005: 178) describes assessment as an influence that can depend on situations as well as period. Assessment leads to the determination of accomplishment or failure of ICT policies.

According to Alberts (2011: 1), "government communication is a strategic and planned process aimed at ensuring effective dialogue between government and communities. He stressed further that as communication is one of the strategic functions of government, strategizing for communication needs to be a frequent and ongoing exercise in local governments (that is, municipalities)". The Government Communications Information Service (GCIS 2008) and the South African Local Government Association SALGA (2008) cited in Alberts (2011: 1) identify three spheres of government, namely, national, provincial and local. The local government is otherwise known as the municipalities in South Africa. Local government or municipality is a type of government, which is closest to the grassroots. However, this laid a specific and massive duty on municipalities as one of the three spheres of the government to perform an extensive range of communication functions, such as marketing, media liaison, direct, inten-

sive and unmediated communication advertising and branding. Municipalities as a third sphere of government, have a responsibility to provide to the community access to information about initiatives, services, policies and programs.

Government is an enormous and complicated “organization, whose operations and strategic focus could be completely enhanced by the application of Information and Communication Technologies (ICTs) to maintain enhancement in efficiency, management success and the value of services offered to people” (Gichoya 2005: 175). Although the significance of ICT in government cannot be over-emphasized, there are numerous concerns about its achievement as well as the policies to be adopted in execution of organization functions in different nations. Municipalities as one of the government organizations in South Africa have in recent years often been faced with a lot of impediments in order to operate like private organizations.

Discernible Perception of Crucial Utilization of ICT in Enhancing Employees Performance in the Local Government Spheres

ICT Infrastructure Support

Apparently, important utilization of ICT in enhancing and improving employees’ performance in the LGA cannot be over-emphasized in the contemporary technology dispensation in South Africa. Prominently, ICT infrastructure such as communication, connections, interactions, relations and exchanges of information to alleviate employees’ performance are glaringly seen as an impetus and a momentum that immensely enhance and improve employees’ performance within the municipalities. Perhaps, ICT infrastructure such as Internet facilities is as well perceptively seen as a drive in improving and enhancing employees’ performance in order to provide qualitative service delivery within the municipalities.

Improve Qualitative Service Delivery among the Employees

Contemporarily, maximum utilization of ICT is apparently glaringly seen as an important force and impetus that possibly and eventually improves and enhances employees’ performance. It contributes immensely in enhancing, improv-

ing and providing qualitative service delivery by the employees in the LGA.

Ensure Adequate Job Accuracy within the Municipalities

Glaringly enough, the crucial utilization of ICT in enhancing and improving several employees’ performance within the government organizations’ in some developing Africa countries with the municipalities in South Africa inclusion, the development and increase capacities of ICT has spread to improve the municipalities employees’ qualitative job performance. In addition, it has also immensely improved qualitative service delivery accurately within the municipalities.

Impact of ICT Utilization in Enhancing Employees Performance in the Local Government Sphere

Realistically, the impact of ICT utilization in government organizations in improving, enhancing employees’ performance and promoting qualitative service delivery within the municipalities cannot be exaggerated. Hence, there are copious anxieties about its accomplishment and most importantly the policies to be adopted in execution of organization functions in diverse nations. Chang and Victor (2002) cited in Dlamini (2009: 1) pointed out that the municipalities are confronted with diverse barricades, which mired their process, operation, development, improvement, step up, upgrading, enhancement, progress and expansion as well as efficiency. Furthermore, Chang and Victor (2002) cited in Dlamini (2009: 1) stressed that most government organizations such as the municipalities face some major internal problems such as: lack of IT skills and lack of IT training. In addition to these impediments highlighted above, they however, revealed likewise that to ensure there is enhancement, good organization and competency in job performance outwardly, the private organizations as well as the community members must also pressurize the government to urgently respond to their problems. Perhaps, unawareness of the importance of physical access to ICT utilization could also hinder employees in improving their performance in utilizing ICT effectively and efficiently within the municipalities. Similarly, Rooksby et al. (2002) pointed out that “lack of awareness of the importance and benefits of ICTs by consid-

ering the physical access such as: basic computer facilities, word processing, data storage and printing, advanced communication and information services, web browsing, searching and discussion mediums” as well as another important obstacle confronting employees in enhancing their performance.

Apparent Hurdles Confronting Municipalities’ Employees’ in Utilizing ICT Effectively

Perhaps, the following hurdles below could as well be perceived as some of the noticeable ones affecting employees to enhance their performance effectively and efficiently for the purpose of delivering qualitative services within the municipalities.

Internal Hurdles

The majority of municipalities’ employees in South Africa are immensely confronted with many internal problems most especially in their endeavor to utilize ICT effectively and efficiently in order to execute their daily duties or responsibilities and also to provide qualitative service delivery within their municipalities. These internal problems however, have led to the employees performing ineffectively, inefficiently and in fact, below the municipalities’ expectation. Realistically, the hurdles stated below are some of the hindrances confronting municipalities’ employees from delivering qualitative services within their municipalities.

Lack of IT or ICT Skills

In fact, despite the fact that the ultimate utilization of ICT brings about innovation in the service delivery, however, lack of IT or ICT skills has posed a number of hurdles in the enhancement and enrichment of the employees’ performance in the LGA in South Africa. These snags are as a result of low levels of computing and technology skills and as a matter of fact, the majority of the municipalities’ employees are less exposed to the vibrant opportunities that are achievable from utilizing ICT. Perhaps, lack of access to ICT infrastructure such as Internet facilities, low educational achievement and lack of computer skills contribute immensely to the drawback confronting employees in the dissemination of such skills within the municipalities.

Impertinently, many employees in most of the government organizations such as municipalities in South Africa have been found performing ineffectively, inefficiently and below government expectations due to lack of Information Technology skills. Perhaps because most of the employees in these municipalities are unskilled, they merely managed to complete high school education probably with poor examination results. This could hinder their performance and acquisition of computer skills in order to provide qualitative service delivery within the municipalities. Therefore, it is on this note that there is a need to improve and enhance employees’ performance in order to ensure quick and qualitative service delivery within the municipalities.

Lack of IT Training

Interestingly, IT training is one of the most important ways whereby employees in any government organization could acquire IT skills. It is common knowledge that computer training or IT training is all about IT preparation, IT education, instruction, guidance, exercise, teaching and schooling. To this end, it could result in effective employees’ IT skills, which would invariably improve and enhance employee performance. However, absence of IT training in acquiring IT skills by the municipalities’ employees has resulted in ineffectiveness, inefficiency, drastically and eventually rendering their ability futile.

Unawareness of Importance and Benefits of ICTs Physical Access

Most employees in the municipalities perform inefficiently and ineffectively due to unawareness of the importance and benefits that could be derived from utilizing ICT such as: computer amenities or services, data processing, and input and output of data.

Rooksby et al. (2002) also revealed that lack of awareness of the importance and benefits of Information and Communication Technologies (ICTs) by considering the physical access such as “basic computer facilities, word processing, data storage and printing, advanced communication and information services, web browsing, searching and discussion mediums” was as well considered as another most important obstacle

confronting employees in enhancing their performance. Nevertheless, according to Black and Atkinson (2005) "access is defined as the aptitude to gain unfailing physical access to ICT resources at logical and consistent levels", for instance maximally utilizing ICT or computer for effective and faster Internet access.

Despite the fact that some of the employees use laptops, own computers to access the Internet, the majority of them have little or no full capacity or opportunities to connect to the Internet and also faced fluctuated Internet access snags and as a result, they are "unaware of the socioeconomic crucial benefits that ICTs can bring to their lives" (Black and Atkinson 2005) as well as, in enhancing and improving their job performance. To this end, therefore, it is believed that because of the non-attendance of effective and thorough demonstration projects and to campaign for the influence of ICTs on improvement and enhancement of employees' performance within the municipalities was due to inadequate availability of information to access to ICT.

Thus, lack of unawareness of the benefits and the importance of ICT physical access and other vital information that could assist the employees in improving their poor performance at the point of utilizing ICT in order to provide qualitative service delivery within the municipalities has posed a number of problems. In addition to this, poor computer knowledge, which results in inexperience in utilizing and accessing computers appropriately or accessing appropriate computer database, which facilitates effective job specification and job enrichment within the municipalities is as well deficient.

CONCLUSION

The findings of this paper confirm that the employees in the LGA have inadequate Internet facilities, lack of Information Technology (IT) skills, ICT illiteracy or lack of IT knowledge, lack of awareness of the importance and benefits of ICT and lack of ICT accessibility. In fact, these are identified as the hurdles underpinning the employees' in utilizing ICT effectively and efficiently in order to enhance job performance within the LGA.

Realistically, the ultimate utilization of ICT in enhancing employees' performance within the LGA in South Africa needs to be duly and strict-

ly put into the consideration in order to improve qualitative service delivery not only in African countries but also in the rest of the world. The government and its policymakers as well as the Local Government Administrators or Managers need to facilitate and ensure that maximum utilization of ICT is extremely and thoroughly enhanced, monitored and evaluated at regular intervals in order to ensure that employees enrichment is adequately maintained.

Despite the presence of crucial utilization of ICT enhancement and the panacea the municipalities' employees have achieved in the LGA, it is saddening to note that the employees' poor performance in utilizing ICT within the municipalities displays ineffectiveness and incompetence. The findings also show that employee performance in utilizing ICT were relatively below expectation in providing qualitative service delivery. The government, policymakers and Local Government Administrators or Managers need to accept these hazardous, harmful glitches confronting the employees in ultimately utilizing ICT effectively and efficiently to enhance their performance and therefore also accept to undergo a paradigm shift of policies, ideologies and practices that will see employees utilizing ICT to a greater extent in order to provide qualitative service delivery and improve job performance within the municipalities in South Africa. This would be a pivotal way to the LGA in the Eastern Cape Province of South Africa as a nation progressively achieving success, development and enhancement in promoting and maintaining socioeconomic growth in the country.

Finally, the paper's findings are expected to inform the government to provide the necessary ICT infrastructure such as Internet facilities that would facilitate employees IT training, legislators to enact laws, which can improve the state of employees' essentially utilizing ICT in enhancing their performance within the municipalities in South Africa.

RECOMMENDATIONS

The following strategies are suggested to circumvent the identified impediments:

Ample Government Strategies to Improve the Ultimate Utilization of ICT or Intensify Efforts to Provide Adequate ICT Infrastructures

This paper therefore, recommends that the South African government should provide suf-

ficient, desirable, satisfactory or panacea strategies to improve the utilization of ICT infrastructure to the maximum level in order to enhance employees' job performance within the municipalities. This is pivotal in ensuring that employees have enough skills to utilize ICT. The government should also endeavor to organize ICT training plans, campaigns or strategies, workshops and seminars to all the municipalities' employees in order to enhance their jobs performance and improve their skills in rendering qualitative service delivery.

Government Implementation Strategies to Improve Information Technology (IT) Skills

The government needs to implement appropriate strategies that would augment and supplement employees' performance in utilizing ICT in the LGA in order to provide quality service delivery. This is pivotal in ensuring that employees have enough IT skills and knowledge to maintain and sustain them successfully. Thus, governments could also be a source of support that could be used to provide adequate IT training facilities that would supplement the municipalities' employees in utilizing ICT in order to improve performance needs.

Enhancing IT training within the Municipalities

This is critical to achieve maximum utilization of ICT in order to enhance employees' performance effectively and efficiently. The employees need to be trained to change to relatively newer and effective ways of executing their jobs. This can be achieved through improvement of equipment and newer technologies. The government of South Africa should also endeavor to provide adequate IT training centers located within or around the municipalities' establishment to facilitate the acquiring IT skills and knowledge by employees.

LIMITATIONS AND AREA FOR FURTHER RESEARCH

It is possible that not all the studies on importance of ICT utilization are taken into consideration despite an exhaustive Internet search by the researchers. In addition, the paper focus-

es specifically on ultimate ICT utilization in enhancing employees' performance in a few selected municipalities in the Eastern Cape and thus, does not cover all the municipalities. Studies on important utilization of ICT in enhancing employees' performance in other provinces were not included and as a matter of fact, the results of this paper cannot be generalized to include the whole of South Africa. This paper investigated the perception of important utilization of ICT in enhancing employees' performance with particular reference to a few selected municipalities in the Eastern Cape Province of South Africa. Future researchers may repeat this paper by using a larger population such as a whole province or nation. Also, future researchers could focus on the triangulation research designs, which include both qualitative and quantitative research techniques in order to obtain an in-depth understanding of the research problems.

IMPLICATIONS OF THE STUDY

Generally speaking, the implications of this study are mostly relevant to the Local Government Administrators or executives and government as well as the policymakers in order to provide effective and efficient ultimate utilization of ICT infrastructure such as communications, connections, relations and exchanges of information or facilities that would improve and enhance employees' performance within the LGA. The government and the policymakers need to see to it that the problem areas are attended to. The researchers may also locate gaps for research based on the propositions for further studies.

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REFERENCES

- Alberts G 2011. *The Role of External Government Communication on Service Delivery at Mangaung Local Municipality*. Masters Mini-Dissertation, Unpublished. Mafikeng: North-West University.
- Bannister F, Remenyi D 2000. Acts of faith: Instinct, value and it investments. *Journal of Information Technology*, 15(3): 231-241.
- Bannister F, Remenyi D 2004. *Value Perception in it Investment Decisions Ed. Nr Reading*. England: Academic Conferences Limited.
- Chang EK, Victor RP 2002. *E-Government Readiness: A Research Framework and an Action Research Case of a Municipal Government*. USA: University of North Texas.
- Crede A, Mansell R 1998. ICTs in Developing Countries: The Importance for Sustaining Development. The Hague: IICD. (Booklet I)."8/98. From <<http://www.iicd.org/search/show-entry.ap?entryid=2975&part=all>> (Retrieved on 20 November 2014).
- Currie W 1995. *Management Strategy for it: An International Perspective*. London: Pitman.
- Delone WH, Mclean ER 2002. Information Systems Success Revisited Homepage of IEEE Computer Society. From <<http://csdl.computer.org/comp/proceedings/hicss/2002/1435/08/14350238.pdf>> (Retrieved on 29 August 2014).
- Dlamini SC 2009. *Assessing the Integration of Information Communication Technology (ICT) in the Public Sector*. Masters Dissertation, Unpublished. KwaZulu-Natal: University of KwaZulu-Natal.
- GCIS, SALGA 2008. *Guidelines for Municipal Communication*. Pretoria: Government Printer.
- Gichoya D 2005. Factors affecting the successful implementation of ICT projects in government. *The Electronic Journal of E-Government*, 3(4):175-184.
- Goonasekera A 1997. Communication revolution. *Inter Media Special Report*, 25(6): 6-9.
- Heeks R 2002. *Information Systems and Developing Countries: Failure, Success, and Local Improvisations*. Philadelphia: Taylor and Francis.
- ITU 2002. World Telecommunication Development Report 2002. From <http://www.itu.int/ITU-D/ict/publications/wtdr_02/> (Retrieved on 29 September 2014).
- Khalifa G, Irani Z, Baldwin LP, Jones S 2004. *Evaluating Information Technology with you in Mind*. Reading, England: Academic Conferences Limited.
- Nair K, White S 1993. *Perspectives on Development Communication*. New Delhi: Sage Publications.
- Pratchett L 1999. New technologies and the modernization of local government: An analysis of biases and constraints. *UK Public Administration*, 77(4): 731-750.
- Rooksby E, Weckert J, Lucas R 2002. The rural digital divide: The rural society. *Rural Society*, 12(3): 197-210.
- UNDP (United Nations Development Programme) 2002. *Promoting ICT for Human Development in Asia – Realizing the Millennium Development Goals (2002)*. An Initiative of the Asia-Pacific Development Program and Human Development Resource Centre (UNDP). New Delhi: Sage Publications.