AN ASSESSMENT OF THE POTENTIAL OF ICT ADOPTION IN IMPROVING SERVICE DELIVERY IN PRISONS AND CORRECTIONAL FACILITIES: A CASE OF CHIKURUBI MAXIMUM PRISON, ZIMBABWE

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ABSTRACT

Technological innovations have transformed the way prisoners are admitted, supervised and followed up through the criminal justice system. This study examines the potential of Information and Communication Technology (ICT) adoption preparedness and potential for ICT adoption in correctional facilities in Zimbabwe, focusing on Chikurubi Maximum Prison in Harare. The study used specifically designed semi-structured interviews and questionnaires for use with organizational personnel to measure the state of ICT adoption preparedness and benefits for correctional services. The findings suggest that although there are rigid organisational structures that inhibit the introduction of ICT, ICT can greatly improve the rehabilitation of convicted prisoners and transform service delivery in prisons and correctional facilities since the organisation under investigation is investing in ICT personnel development internally and externally.

Keywords: *Prisons and Correctional Facilities, ICT adoption*

INTRODUCTION

Prisons and correctional services have the role of protection of society from criminals through effective management of inmates in line with their needs and the dangers they pose to the community. The way prison and correctional officers perform their duties has been transformed through the use of modern technology in prisons and correctional facilities aimed at improving security. Technology has been integrated into prison design in an effort to improve security, the level of control that officers have over the prison environment, and the level of supervision that officers have over prisoners. The use of Information and Communication Technologies (ICTs) based security systems have made it easy to vet and screen visitors and officers entering the prison institution, thus limiting the chances of contraband to get access into prison. The effective use of ICTs in prisons and correctional facilities has the potential to improve security and service delivery and improved communication and opening of wider opportunities to share information.

The Zimbabwe Prisons and Correctional Service (ZPCS), is a government department that has a constitutional obligation to protect society from criminals through the incarceration and rehabilitation of convicted prisoners and the administration of prisons and correctional facilities (Zimbabwe, 2013). The organisation manages 70 prisons and correctional facilities nationwide.

Limited use of ICTs or lack of technology to properly maintain inmates and personnel records is a prevailing situation which is causing inefficiencies and impedes corrections and rehabilitation programmes in Zimbabwe prisons and correctional facilities. The absence of

advanced technology in prisons and correctional facilities is dangerous in an environment with potentially dangerous population (Blanding, 2008).

LITERATURE REVIEW

The way prisoners are admitted and supervised in prisons has improved and transformed through the use of technological innovations (Parrish, 2006). Technology implementation enhances corrections at all levels by reducing costs and improves security by ensuring effective supervision of inmates (Gondless, 2005).

There are several ICT adoption theories that help to advance the adoption and use of ICT in organisations (Korpelainen, 2011). These theories include, Technology Acceptance Model (TAM); Diffusion of Innovations (DOI); and the Unified Theory of Acceptance and Use of Technology (UTAUT).

Technology Acceptance Model

The Technology Acceptance Model (TAM) theorise that a number of influencing factors affect decision making in terms of how and when to use technology if presented with it (Davis, 1989). Key innovation characteristics that are expansively used within the adoption approach perceived usefulness (PU) and perceived ease of use (PEOU), and these characteristics build on TAM. The TAM helps to explain the acceptance or rejection of ICT in organisations (Mpofu et al., 2013).

Doubts over job security usually make workers fear and be uncomfortable about ICT initiation in an organisation and as a result, employees may not appreciate the positive outcome from the use of a new ICT (Bull, 2003). The attitude along with PU and PEOU can affect the acceptance of ICT introduction in an organisation by its users (Irani et al., 2001). Furthermore, operating through the internet makes some organisations to feel threatened and exposed to the fear of losing information which is a concern that stand in the way of ICT adoption in organisations (Tan et al., 2009).

Diffusion of Innovation

The DOI is used to explain the level of reach of new technology in an organisation or individual within a community (Rogers, 2003). It is a process by which ICT innovations are spread over time within a community. DOI outlines the role opinion leader's play to influence the adoption and use of technology (Korpelainen, 2011).

Leadership in an organisation has a final say when it comes to adoption and implementation of an ICT initiative in an organisation (Kilangi, 2012). The perception of organisational leadership has been noted to be integral if it comes to successful ICT adoption and use in an organisation and that no individual employee has autonomy regarding the same. This is so because the allocation of resources for ICT implementation rests with top organisational management (Yap, 1989). Individual attitude or resistance to change in the use of an ICT initiative can be addressed by the support of organisational leadership so that a tolerable transition from the existing way of doing things to the current required information system becomes possible (Thong et al., 1994).

DOI has also been criticised for having left out other important factors that include among others, organisational context, technological context and environmental (Kilangi, 2012).

Unified Theory of Acceptance and Use of Technology

The UTAUT model has been considered sensible and broad by many researchers because of its ability to explain the varying use of ICT when compared with TAM and DOI. The model

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(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
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has been noted to be able to explain the intention to use ICT and the behaviour that follow the intention and that the model offers ways for management to evaluate the probability of success of ICT implementation in an organisation (Korpelainen, 2011). The perception of people regarding ICT adoption is persuaded by performance expectancy, effort expectancy, social factors and facilitating conditions; the factors that are also restrained by gender, age, experience and voluntariness (Tibenderana et al., 2010).

ICT Adoption, Challenges and Barriers

Lack of awareness, mindset and top management commitment are the major obstacles that stand in the way of ICT introduction in organisations (Tusubira and Mulira, 2004). ICT introduction may be perceived as complicated development that requires a lot of resources and not appreciated as a means of creating efficiency and cost effectiveness in an organisation.

Transacting through the internet poses a lot of challenges for many organisations that place issues of security on top priority due to fear of exposure and losing of their information, a development that hinders ICT introduction in some organisations (Tan et al., 2009).

Employees, on the other hand, may see ICT adoption as a threat to their jobs and not as a way of improving and enhancing their work (Bull, 2003).

Studies on the ICT adoption in Government to improve service delivery in Zimbabwe revealed that lack of funding, rigid organisation structures, poor ICT infrastructure, low ICT literacy rate, high human resource turnover, are some of the challenges that hinder ICT adoption (Ruhonde et al., 2008). In spite of the adoption challenges discussed above, Zimbabwe has a lot ICT potential as some opportunities exist in the country for ICT adoption and use which include the existence of ICT policy framework, skilled ICT workforce and computerisation enhancing policies (Ruhonde et al., 2008).

An ICT policy should be the starting point for an organisation in the adoption and use of ICT in an organisation. ICT policies highlight information distribution, application, introduction and implementation of ICT in the organisation. An organisational ICT policy sets the direction to be taken by the organisation and parameters as well as targets of ICT in an organisation, hence the need for the policy to be defined and agreed upon (Tusubira and Mulira, 2004).

Potential Use of ICT in Prisons and Corrections

Technology has been initiated and introduced in prisons to assist prison authorities in their endeavour of guarding against incidents like fire, assault, suicide and escapes, thus improving security and control of prisoners. Timely retrieval of all pertinent data and information in an organised way calls for the introduction of ICT in prisons and corrections (Wells and Brennam, 2009). The management of databases in organisations is meant to merge data records that have been held separately prior, in files and folders into ease of access database that can be reached by a number of application programs (O'Brien and Marakas, 2006).

ICTs are used in prisons to enhance inmate management that enables supervision and tracking inmates within prison environments and also as a means of communication (Gondless, 2005). Inmate management information systems aim to ascertain inmate supervision and for accountability purposes through the use of a smart card in combination with a biometric key.

Biometrics technology has remarkable potential when introduced in prisons and correctional institutions (Turner, 2000). Biometrics technology is made up of automated means of identification of an individual based on his or her behavioural or physiological description like fingerprint, facial or voice detection.

Prisons and Corrections facilities visits can now be conducted through the use of video conferencing (VC) in real time (Phillips, 2012). The visit through the use of VC offers advantages to prisons and correction by reducing the rate of contraband entering into prisons, and in that few officers would be required to conduct the prisoners' visits (Eickhoff, 2010).

The Closed Circuit Television (CCTV) is used in prison to assist the prevention of contraband entrance into prison and escapes from taking place (Allard et al., 2006). It can also assist officers in remote access control and makes the harmonisation of incidents since it has become possible to distantly have a vision of the prison institution.

METHODOLOGY

The aim of the study was two-fold: to find out the state of ZPCS preparedness in adopting ICT and the potential of ICT in ZPCS. The UTAUT model was adopted in this study to help explain the intention of using ICT and the behaviour that follow this intention. Since ICT adoption perception based on UTAUT model is persuaded by performance expectancy, effort expectancy, social factors and facilitating conditions. These facets were also considered in the current work.

The study was conducted at the biggest and modern maximum security prison in Zimbabwe. The prison accommodates high-risk security prisoners where modern ICT security systems are mostly required to cope with the threat paused by the high-risk prisoners lodged therein.

The sample was divided into three non-overlapping homogenous groups (Marscham-Piekkari and Welch, 2004). The first group is the top Management Level who were officers of the rank of Assistant Commissioners and above; middle management who were officers of the rank of Chief Prison Officers to Chief Superintendent; and operational level managers who were officers of the rank of Prison Officers Grade Two to the rank of Principal Prison Officers.

The information needed for the study was collected through the use of semi-structured interviews and questionnaires. The questionnaire and interview guide were specifically designed for use with organisational personnel and was meant to measure information on ZPCS state of ICT adoption preparedness, key ICT adoption attributes and benefits, ICT adoption challenges, ICT potential and priority in ZPCS as well as the effectiveness of ZPCS ICT policy.

DATA PRESENTATION AND DISCUSSION

The pattern which emerges from the responses is consistent with the principles of UTAUT model as revealed from other studies reviewed in the literature.

State of ZPCS Preparedness in Adopting ICT

The respondents were asked for their views to indicate whether the organisation (ZPCS) was making adequate use of ICT in the administration and management of prisons in general. There was a substantial agreement (96%) respondents indicated that the organisation is not doing enough, while only 4%; indicated that the organisation was doing enough and adequately using ICT technologies.

The responses could be attributed to the fact that officers were not seeing any tangible evidence of ICT use in the organisation. On the other hand, since policy issues emanate from

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ISSN: 2186-845X ISSN: 2186-8441 Print
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top management, such information can be known by top managers and protected from the rest of employees due to the need for confidentiality and security.

Interviews were conducted with ZPCS Management to ascertain if the organisation has qualified personnel to drive ICT programmes in the Organisation. In response, all the interviewees highlighted that the organisation has enough qualified personnel to advise and to spearhead ICT programmes in ZPCS. The researcher was further informed that the organisation is investing in personnel development and that some of its officers were sent to other countries to further their training in ICT development.

Respondents were requested on a multiple response questions to give their own views as to what they consider as the main barriers to ICT adoption in ZPCS. About 61% of the respondent stated monetary constraints, 65% stated uncertainty on the benefits of ICT, 22% stated lack of necessary internal skills, 35% stated lack of relevant technology and the majority; 74% were of the view that lack of top Management support and planning is the major factor that hinders ICT adoption in ZPCS. The results indicate various and different perceptions that can be attributed to different rank structures that respondents belong coupled with their age and experience in the organisation.

The findings from the interviews also concur with reasons from questionnaire responses with one additional reason of the unreliability and high cost of the internet service in Zimbabwe.

Security concerns were highlighted in interviews as one of the challenges that act as barriers and hinder ICT adoption in ZPCS. Security of the information especially when dealing with the internet was a noted concern that was feared could compromise security. Secondly, the issue of job security was also noted as another concern as there was a general fear that ICT may replace some personnel. One interviewee testified:

> *"Remember with the rate of unemployment that is rated at around 90% in Zimbabwe. What will happen if we automate our prisons, it means we will have to stop any future recruitments a situation that is not healthy for our nation".*

The organisation under study is a security organisation that requires confidentiality and high security of information pertaining to its operations and inmates. The introduction of ICT in the organisation is aimed at complementing human effort so as to improve service delivery.

All the 5 top management interviewees highlighted limited budgetary support as the first challenge towards the organisation's failure to adopt and use ICTs. Financial resources were required to purchase hardware and software and to maintain the ICT infrastructure to ensure continued use of the same in the organisation. Middle and low-level managers who were interviewed were of the different view from top management views. This group were of the view that while appreciating the limited budgetary support, lack of Management support and misdirected priorities was the major factor that hinders ICT adoption in ZPCS. The interviewees stated that Management was directing the resources meant for ICT development towards petty issues.

ICT Potential in ZPCS

Respondents were also asked through a multiple response questions to give their views as to what they consider to be priority areas that ICT should focus in the prisons and correctional facilities in Zimbabwe to improve service delivery; given limited resources. About 65.2% favoured the use CCTV, while 87% favour inmate management system; 48% favoured biometric technology; 13% favours VC and 35% favour networking and 52.2% indicated the favour for human resource management system.

Dealing with inmates is the core business of the organisation under study hence the high response rate in favour of the inmate management information system.

Similarly, from the interviews, the need to have a computerised inmate management information system drew a lot of interest from the interviewees.

Networking was also noted as one of the areas that require attention so that the organisation can reduce the cost of telephone bill and increase efficiency. One interviewee based at Chikurubi Maximum prisons highlighted the following:

> *"The organisation has a telephone bill that is accumulating into hundreds of thousands of dollars which we are struggling to settle. Imagine phoning to Regional and National Headquarters on daily basis to report on the unlock figure, the state of inmates rations and any incident that takes place at any time. The unlock figure reporting on its own can take over twenty minutes and increase the bill which is not healthy for the organisation. All these hundreds of thousands could be saved by electronically transmitting the required information on daily basis".*

Networking facilitates the organisation to collaborate and able to share information and intelligence pertaining to inmates who are admitted in various prisons.

The biometric technology could be of great value to the organisation in the identification of recidivists and reduce the high rate of pseudo names entering into the prison system. This is also a sign that most of the respondents are privy to the latest technologies that can be used by ZPCS to improve service delivery.

Respondents were asked about their knowledge about the organisational ICT policy. The majority of the respondents highlighted their ignorance of the organisational ICT policy. About (22%) of the respondents indicated that the organisation does have an ICT policy, (22%) highlighted that ZPCS does not have one while (57%) were not sure.

Interviews were also conducted to ascertain the correct position regarding ZPCS ICT policy. The majority of the interviewees confirmed that the organisation has no approved ICT policy and some were not sure. It was revealed that the first draft that was made in 2002 was not approved by ZPCS management and no follow up was done due to the bureaucratic nature of the organisation. The delay in the finalisation of national ICT policy was stated as the major challenge that hinders finalisation of ZPCS ICT policy. The interviewees stated that the national ICT policy is the one that should direct government departments to come up with ICT policies; meaning its delay is also a delay to government departmental ICT policies.

Coming up with an ICT policy may suggest the start of the motion towards serious ICT adoption in an organisation as the policy sets the direction as well as targets in the organisation.

To check on the conversance of the respondents with organisational policy issues, respondents were questioned on their knowledge pertaining to ZPCS long term ICT adoption plans. The majority of the respondents stated that they were not aware of any plans by the organisation to embrace and use ICT in their long term plans. About 74% stated that they are not aware while only (26%) indicated yes.

The indication that the majority of the respondents were not aware of any long term ICT adoption plans may suggest that such issues are only known by top level management who happen to be the minority.

This study found out that the organisation has no ICT policy. A draft ICT policy was initiated in the organisation as early as 2002, but it was not approved by management. Since the ICT

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ISSN: 2186-845X ISSN: 2186-8441 Print
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policy is the starting point for ICT adoption in any organisation, its absence in ZPCS means the organisation is still yet to adopt ICT initiatives to improve service delivery. The bureaucratic nature of ZPCS could be the reason why the 2002 ICT policy was never approved as the ICT personnel could not push their management to approve it. This confirms one of the findings that rigid organisational structure stands in the way of ICT introduction in various government departments in Zimbabwe (Ruhonde et al., 2008).

The study findings signify that the organisation has adopted lower and basic levels of ICT that include computers, fax, the internet and web technologies. The adoption and use of the low levels of ICT-based technologies in ZPCS could be explained by the already discussed historical, institutional, and ICT infrastructural problems.

The major issue revealed in this study is that there is generally inadequate usage of ICTs by ZPCS and that the majority of the prison officers are not aware of any future intentions and long-term plans for the organisation to adopt ICT. Surprisingly, the findings indicated that the organisation's website use is limited to a few knowing its existence and therefore it can be concluded that this is due to the limited use of the website to advertise, communicate and creating awareness among its publics, the public and corporate world.

A variety of challenges were revealed some of which were limited financial support, lack of top management support and planning, uncertainty about returns on investments, security issues and concerns and unreliability and a high cost of the internet services. Interestingly, the analysis also reveals that the organisation face extra unique challenges such as infrastructure inadequacy, high security and confidentiality requirements for its operations and the implication of the national ICT policy.

This study confirms that top management support significantly determines the success or failure of ICT initiatives in the organisation through policy directives and resource allocation for ICT implementation. Though limited budget support was a case in ICT adoption, top management attitude and support was the key issue to ICT adoption in ZPCS and unless and until they come to realise and become aware of ICT benefits, the adoption of ICT was not foreseeable in the near future.

The study provides varying conclusions depending on the results of the study and the benefits to the organisation. Inmate management information systems or simply computerised database management has been the much-favoured area by the majority of the respondents. Computerised prison management information systems in Zimbabwe prisons and corrections was still in a budding stage with the manual system of files being the order of the day that was used to organise prison records, a system that was inefficient and burdensome and tiresome when it comes to looking for specific information about inmates. This study, therefore, makes a conclusion that inmate management information system (IMIS) was long overdue in ZPCS and that this was possible through the use of the available resources in the organisation, with few additional requirements.

Taking into consideration that the organisation has trained ICT personnel and that there are computers at the prison under study, there was nothing that can stop the organisation from implementing IMIS. On the other hand, the study concludes that it was possible for the organisation to start moving towards adoption of CCTV, HRMIS, networking and biometric technology in phased approach; all meant to improve service delivery in the organisation. These are meant to complement and not to replace the services of humans in service delivery.

CONCLUSION

This study found out that the organisation has no ICT policy. Since ICT policy is the foundation that sets the direction, boundaries as well as targets of ICT in the organisation, it can then be concluded that its absence in the organisation means that the organisation is still a long way, in terms of ICT adoption and use. Unsurprisingly, it is the reason behind the low-level uptake and preparedness of ICT adoption in ZPCS.

Based on respondents' choice and priority, ZPCS should take a phased approach in the implementation of the inmate, human resource, CCTV and biometric technology to cater for the limited budget support and improve its services. For this to make sense to ZPCS Management, they should be afforded an opportunity to visit prisons and corrections in other countries for practical ICT benefits appreciation, so that the visits can act as learning experiences to motivate them to consider seriously, ICT initiatives in service delivery.

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ISSN: 2186-845X ISSN: 2186-8441 Print
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