

## ICT and the turning-around of the Zimbabwean Economy

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**Abstract.** *The purpose of the study was to determine how ICT could possibly contribute to the turning-around of the economy of Zimbabwe. The study was based on literature review, theoretical underpinnings, and a review of Rwanda as a case study. The case shows strong political will, vision and top-level commitment as driving forces of the turn-around. The study recommends that the Government of Zimbabwe should computerise its operations, and provide a conducive environment and policies to the private sector, in order to make effective use of ICT. The government can impact on the use of technology through various interventions, such as, regulation, liberalisation, subsidies to firms, tax regimes, educational policies that impinge on the skilfulness of employees, and the enforcement of standards. This paper argues that there exists a theoretical basis for the successful implementation and proliferation of ICT that could contribute towards strategies that might turn-around the economy of Zimbabwe.*

**Keywords:** Information and Communication Technologies, Turn-around, Zimbabwe, Rwanda

### INTRODUCTION

Information and Communication Technologies (ICT) have become the keys to the efficient running of virtually all facets of the national economy, transcending every industry and service (Posthumusa & von Solms, 2005; Shanker, 2008). ICT “encompasses all technologies that enable the handling of information and facilitate different forms of communication among human actors, between human beings and electronic systems, and among electronic systems” (Hamelink, 1997). ICT is becoming the harbinger and epicentre of global socio-economic transformation, in addition to being a strategic resource and foundation of every economic activity (Bedia, 1999; Kabanda, 2011). ICT accelerates economic activities, such as consumption, investment, government-service delivery and export competitiveness (Bedia, 1999). Moreover, ICT enhances competitiveness, as well as economic and societal modernisation, because of its revolutionary power as a key catalyst for change, modernisation and innovation – connecting people and communities, improving standards of living, and creating new trade opportunities – both locally and globally. This offers developing countries the opportunity to leap-frog over stages of economic development by modernising their production systems and rapidly boosting their competitiveness.

Developing countries have the prospect of achieving sustainable economic growth and social transformation by using ICT to build their economies – or risk being left behind (UNCTD, 2003; UNDP, 2004).

ICTs can enable the achievement of the Millennium Development Goals, as these technologies are pervasive and include more people in social, economic and political participation. In education, ICTs facilitate the expansion of distance learning and the health-sector applications, such as telemedicine. ICTs have proved successful for diagnostics and treatment costs in remote areas (Government of Zimbabwe,

2012). All these benefits impact positively in poverty-reduction through direct employment in down-and-up-stream industries.

Technology could help nations and individuals to overcome periods of stagnation in their development (World Economic Forum, 2012). A stagnant development is a period of no economic development. Due to its pervasive nature, ICT should be seen as an essential means to drive economies to greater heights, as the world progress further into the knowledge economy. The power of ICT lies in the unprecedented growth of its world-wide network – and the ability to connect computers and several individuals – without any of the barriers of geographic space.

ICT could help streamline supply chains to better delivery of services, improved interactions of business and industry, as well as to facilitate access to information for citizens, thereby improving their decision-making. This would impact economies significantly – resulting in increased transparency, convenience, revenue growth, cost reductions and a subsequent decline in corruption. Furthermore, networked businesses can explore new business models, which could include dynamic business partnerships and radical market restructuring (UNDP, 2004).

Interestingly, the Government of Zimbabwe (2012) has identified ICT as one of the pillars for economic turn-around.

### ***1.1 The decline of the Zimbabwean Economy***

In the years 2000 to 2008, Zimbabwe was embroiled in an economic and political crisis. The economy shrank by 40% in 8 years (Biti, 2009) and suffered an unprecedented inflation, which peaked at 231 million per cent in July 2008 (Gono, 2012). This resulted in a massive brain drain and a decline in all sectors of the economy. The setting-up of the Government of National Unity (GNU), as well as the introduction of the multi-currency system, brought some prospects of political and economic stability. The immediate challenge is on which development path the country should pursue.

The Government of Zimbabwe (2012) has identified ICT as one of the pillars for the desired economic turn-around. The ICT sector was identified as one of immense importance in stimulating and supporting the economy to greater performance as a sector, and as a supporting unit in services to all the other sectors. Massive investments have been made by both the government and the private sector in the ICT sector. These investments include a terrestrial link and an optic fibre cable en-route to the undersea cable in the Indian Ocean.

This project has enabled reliable, high-speed internet access, enhanced voice – in addition to data services – at affordable prices. This has also been complemented by similar projects within Zimbabwe being done by network operators, to link major cities by optic fibre. These measures create and support an enabling ICT environment for industry, government, service deliveries, education, and communications. The tele-density rate continues to improve; and it is estimated to reach 79% by December 2012 from 68% in 2011. The internet penetration rate continues to steadily improve, and is estimated to reach 19% by the end of 2012 – from 13% in 2011 (Biti, 2012). Thus, it may be noted that the basic foundation for sound electronic communication- within Zimbabwe and also with the rest of the world - is in place.

### ***1.2 ICT Challenges in Zimbabwe***

There is a lack of institutional mechanisms, as well as a clear guideline for ICT integration into the country's economic development strategies (Mhlanga, 2006). It is, as yet, unclear as to how the ICT hardware and software are being employed, as organisations continue to use traditional ways in an attempt to remain competitive, and in their customer offerings. With the exception of a few services, the

citizens and businesses in Zimbabwe have to obtain services in the traditional way: waiting in queues to obtain multiple documents from different sources – to satisfy the requirements of a specific transaction – and then repeating the process again and again. This way of interacting is cumbersome, as it costs people time and money; it causes dissatisfaction; it creates opportunities for corruption; and it increases costs to the government (Government of Zimbabwe, 2012). The challenges above are the result of duplication, information redundancy and lack of/or poor system integration.

The economy of Zimbabwe is poorly networked, slow, with revenue leakages and bottle-necks. There is a considerable loss of opportunities for the full benefits of utilisation of ICT infrastructure – due to weak utilisation, the absence of collaboration, networking, better services, efficiency and effectiveness (Ruhode, Owei, & Maumbe, 2008; Chimhangwa, 2012).

The Zimbabwean economy is still in a fragile state, although there is a relatively stable macro-economic environment in the country. The country is facing many challenges, although there are output improvements in some sectors. On the other hand, the country has a basic ICT backbone in place – to offer and utilise high-level ICT services. However, ICT is currently being used for very basic purposes only. The success of the economy hinges on the full exploitation of ICT – to improve and enhance the national economy (Bedia, 1999).

The usage levels have remained relatively low, particularly in the banking sector (Dube, Chitura & Runyowa, 2009) and also in agribusiness (Mupemhi, Mupemhi, & Duve, 2011), which is the backbone of the country's economy. The usage level in Small and Medium Enterprises (SME) is still at the embryonic stage (Dube, Chitura, & Runyowa, 2010). The improving economic conditions have, however, enabled the availability of computers at home and access to the internet. However, the internet continues to be used for non-commercial purposes, such as: social networking, entertainment and visiting news sites (Shoko, 2012).

Although organisations use computers and the internet, internet usage is still largely restricted to email usage, faxes, searching for suppliers and visiting suppliers' websites. No online payments are being utilised (Mupemhi et al., 2011). This shows that there is weak utilisation and an ineffectual use of these technologies. Genuine value from the utilisation of ICT only occurs when key stakeholders use ICT to deliver economic value. Simply owning ICT assets does not generate business value, in terms of gaining competitive advantage, improving business processes, or reducing costs. However there has been dramatic growth in the use of mobile money service by all the three Zimbabwean mobile service providers for transferring, receiving and paying of services using mobile phones. Banking institutions which have not been providing customers with debit and credit cards and internet banking facilities are surprisingly in the forefront to offer mobile banking services. One mobile company has partnered with a bank in providing such services and the same organisation has also acquired a bank to enhance the provision of mobile money transfers. However, mobile money transfer are not being used for international business and in making online payments.

Although it is generally known that ICT could play an influential role in the economy, and assist in turning-around the economy of the country, ICT does not yet play such a role in the general economy of Zimbabwe. If a robust ICT policy could be implemented – by digitalising all sectors of the economy – then weak utilisation would be eradicated, as it clearly indicates a loss of those opportunities that ICT presents to the economy.

With this in mind, the objective of this paper is to identify, suggest and motivate some guidelines and mechanisms, whereby ICT could play a major contributing role in turning-around the economy of Zimbabwe.

## **2. Methodology**

The methodology followed to address this objective, as stated above, is based on extensive literature studies conducted, along with two semi-formal cases studies conducted on the Zimbabwean and Rwandan situations. These two case studies were chosen, because both Zimbabwe and Rwanda have emerged from political conflicts. Rwanda suffered a traumatic past, characterised by social disturbances and wars that culminated in the 1994 genocide, which decimated the country's population and economy.

In spite of this traumatic history, there is evidence of social, political and economic transformation in the country (Mwangi, 2006). Zimbabwe and Rwanda are both land-locked and have almost homogeneous economies based on agriculture, mining and tourism. These two countries have identified ICT as pillars to turn-around their economies. The purpose of including the Rwandan case study was to identify whether Zimbabwe, or other similar third-world countries, could learn some lessons from the Rwandan experience.

## **3 The case of the Zimbabwean economy**

The following are a number of critical aspects to consider when addressing the role that ICTs could play in an economic turn-around strategy for Zimbabwe.

### ***3.1 International Competitiveness***

The world is rapidly becoming a knowledge-based economy, which is propelled by ICT, as well as efficient transport and communication systems. These help to promote and improve the functioning of the markets, to reduce transaction costs, and to increase productivity – thereby, improving international competitiveness (Gono, 2005). Zimbabwe is not doing very well, according to the World Economic Forum (WEF) ICT Global Competitiveness index. Zimbabwe's competitiveness is ranked at 136 out of 139. The e-readiness has also been ranked very low, at 124 out of 139 – with a score of 3.7 out of 8 (WEF, 2012). Consequently, it is clear that Zimbabwe is not competing well from an ICT-competitive point of view.

### ***3.2 Lack of Access to international markets***

Another serious problem is that trade and commerce, especially marketing products and services to overseas markets. The major shortfall is in the failure to advertise and market online, which has forced several companies to use traditional, and largely outdated, ways of marketing. The Ministry of Agriculture is a notable example, where agricultural commodities are poorly marketed – even though agriculture is the backbone of the Zimbabwean economy.

Alongside the Ministry of Agriculture, others that are suffering from the lack of modern marketing initiatives are: Tourism, Industry, Mining and International Trade. It is important to point out that the internet and intranets are the solution to the problem of inaccessible information like forms, examination results, tourist information, and virtually all information that the public must access (Ruhode et al., 2008).

### ***3.3 Uncompetitive Local Products***

Zimbabwe is a land-locked country; and its manufacturing industry is not competitive (Mupemhi et al., 2011) because the country faces many costs in the selling and distribution of its products (Chimhangwa, 2012), as well as high production costs. Most of its production processes are still manual – with little or no involvement of technology. This is further compounded by the fact that the country has to pay high costs for transporting both raw materials and products to and from overseas.

In order for these products and goods to be competitive, they have to leverage on lower production processes and costs. The locally produced goods continue to face stiff competition from lower-priced

imports. The competitiveness of locally produced goods could be improved – through cost-reduction – by automation and the use ICT. According to Collier (2007), being land-locked does not mean to be e-locked, however. ICT could change the way Zimbabwean products compete on the world market.

From the above, it becomes clear that the Zimbabwean economy is definitely not internationally competitive. Furthermore, ICT is definitely not being utilised in the general economy to its full potential; and this definitely contributes to Zimbabwe's low competitiveness, from an economic point of view.

#### **4. The case of the Rwandan economy**

The emergence of Rwanda from the 1994 genocide, which decimated the country's population and economy, into an East African technological hub, is in many ways surprising to many. Many wonder how a land-locked country, which was devastated and impaired by genocide, with few natural resources, has managed to turn-around its economy to such a degree – simply by using ICT. Before for the 1994 genocide, Rwanda was one of the most technologically deficient countries. Within a short space of time, the country has transformed itself into a country where government business is conducted online; and wireless internet is available throughout the country.

Businesses throughout the country are linked by VISA electronic banking and mobile money services for those who are unable to do electronic payments. The mobile services allow subscribers to transfer, withdraw and pay pre-paid electricity and television bills using SMS messages (Tafirenyika, 2011). Rwanda has become a shining beacon and model for deployment of ICT in Africa (Lacity, Willcocks, & Rottman, 2008). The economy has been growing by an average of 7% for the past 10 years (CIA, 2012). After studying the successful Singapore example, Rwanda decided to focus its attention on improving its ICT infrastructure, and by providing an ICT education to its citizens. The government of Rwanda launched the National Information and Communications Infrastructure plans in 2001. These were rolled out in four five-year plans, which have been subsequently developed into Vision 2020, championed by President Kagame (Mwangi, 2006). This Vision aims to transform the country's economy by 2020.

As a result, the Rwandan Development Board was established, the telecommunication sector was deregulated, and ICT equipment is imported without the imposition of any duty. In line with this vision, high-speed fibre optics has been laid across the country. The technological advances in the country have transformed the daily lives of Rwandans in terms of how they communicate, do business, trade, and pay for goods and services (Tafirenyika, 2011). VISA is linking businesses, shops and cash machines, with its extensive global network – to enable electronic payments.

Mobile phones are also being used in the health sector to provide health-related updates to local clinics, to call ambulances, to track pregnant women, to respond to emergency alerts and patient management systems. In the fight against counterfeit drugs, consumers can now send a text code by using SMS to a database, and then get an SMS reply indicating whether a drug is genuine or not (Tafirenyika, 2011).

Farmers can now receive market updates for their produce, thereby eliminating the need for the 'middlemen' who used to exploit the farmers. Other services include SMS voter registration, making driving license bookings and driving tests results online (Tafirenyika, 2011).

The country has also seen an array of other innovative products and systems, which are transforming the daily lives of ordinary Rwandans, such as the introduction of a smartcard bus ticketing system.

In its quest to transform the national economy by using ICT, the Rwandan government considers the educational sector to be pivotal in developing the necessary human capital. Since 2000, there has been a concerted effort to introduce computers in all schools, and to integrate ICT into the education curriculum

at all levels of education through a variety of initiatives. These initiatives include the one-laptop-per-child project.

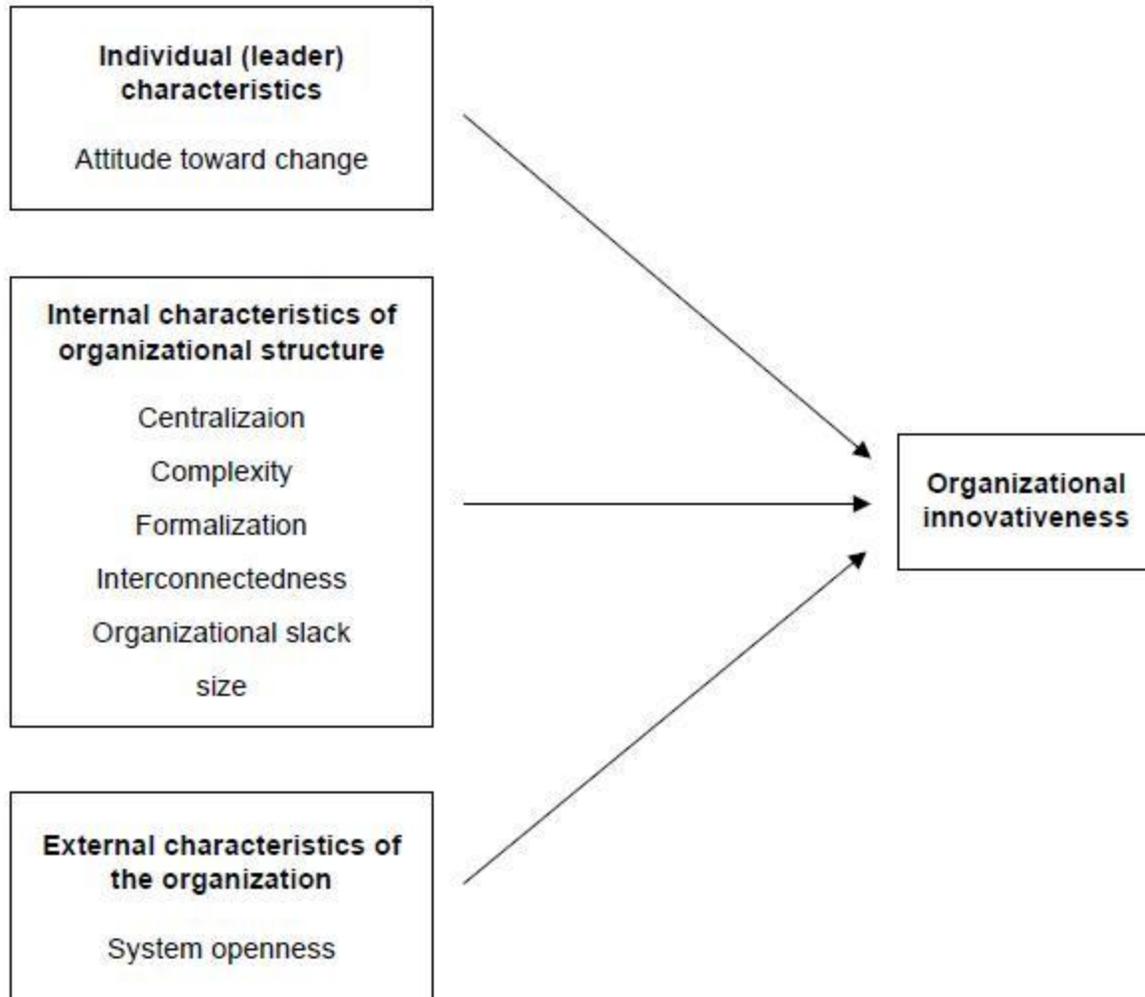
Furthermore, the government has signed an agreement with Carnegie Mellon University to establish a campus in Rwanda; and the Cisco Academy was established at Kigali Institute of Technology to teach computer engineering and to train teachers. By the end of 2006, 400 out of about 500 secondary schools in Rwanda had received computers (Mwangi, 2006).

## **5. Theoretical underpinning for an economic turn-around based on ICT**

Having studied some of the factors that helped Rwanda to turn-around its economy, it may be argued that there is a clear relationship to the Diffusion of Innovations Theory, as shown below in Figure 1. This theory can indeed be used in forming a national ICT Diffusion Strategy – by assuming that the typical organisation is seen to be a microcosm of the national economy.

The motivation for such an analogy is beyond the scope of this paper. Based on this theory, however, innovativeness is dependent on variables, such as individual (leadership) characteristics, internal organisational structural characteristics, and external characteristics of the organisation, according to Figure 1. Individual characteristics describe the leader's vision and commitment that influences followers to adopt new technologies. Internal characteristics of organisational structure show how power and control are distributed in the government.

The complexity refers to levels of knowledge and skills in a country's citizens and the country's infrastructure. Formalisation is the degree to which members of the society follow rules and procedures; interconnectedness is the degree to which the economic units are linked; organisational slack is the degree to which uncommitted resources are available to an economy; and "size is the total population of a country. External characteristics of organisation refer to system openness and to how receptive the country is to foreign investment and international cooperation (Tiago Oliveira and Maria Fraga Martins 2011).



**Figure 1: Diffusion of innovations**

The three factors of individual (leader) characteristics, internal organisational structural characteristics, and external characteristics of the organisation (economy) support the embracing of new technologies by individuals, businesses and government, which encourage entrepreneurship, innovativeness and the introduction of new services in an economy.

The common thread in all the ICT-based economic turn-arounds has been that no matter how robust a policy framework is, the following aspects are necessary to transform the above-mentioned theory into success, as demonstrated through the case of Rwanda. The following are a number of guidelines and conclusions, based on the Theory of Diffusion of Innovations and related successes experienced in Rwanda.

### **5.1 Strong Political Will**

The success of the Rwandan ICT sector starts and ends with the President of Rwanda (Mwangi, 2006). The Rwanda case illustrates how strong political will and commitment at the highest level of government can help transform an economy. The President and the cabinet should be committed not only in terms of rhetoric, but also in action. The Rwandan President is considered the Champion of ICT (Mwangi, 2006).

While appreciating the Zimbabwean School Computerisation Program, and allowing duty-free imports of ICT equipment, more needs to be done – especially in dealing with bottle-necks to entry and growth into the ICT sector – and an integrated all-encompassing policy should be formulated to minimise policy conflicts. The ICT Ministry should be run from the President’s Office. There must be the top-down approach, not the current scenario, where the Ministry of ICT has to rely on persuasion to other ministries, in order to facilitate some of its mandate, which intersect with other ministries, such as for example, Education.

Zimbabwe should take advantage of its more than 90 per cent literate population to educate on how to use ICT products.

### ***5.2 Quasi-government Organisation***

The study recommends the establishment of a quasi-government organisation, similar to the Rwanda Information Technology Authority (RITA), to co-ordinate activities in the ICT sector. This organisation should be responsible for the upgrading of the infrastructure; giving incentives to both local and international investors, monitoring training in both the public and private educational institutions, and for general monitoring of the ICT sector in the country as a whole.

### ***5.3 Foreign Investment***

The Rwandan government reforms, from the year 2001, liberalised, and deregulated the telecommunication sector, and also permitted 100% foreign ownership of companies among other incentives, such as the duty-free import of ICT equipment, and zero tax on exported products. The restoration of international relations with Western countries should be prioritised by Zimbabwe. Zimbabwean Governments should overhaul business laws, to be user-friendly to businesses and foreign investors. These laws are instrumental in attracting foreign investments – or in scaring away foreign investors (WEF, 2012). The legislative environment can deter or attract foreign investment. The 51%/49% indigenisation rules must exempt firms in the ICT sector.

### ***5.4 Public-Private sector Partnership***

An effective government-private-sector partnership should be created, as neither government nor the private sector can undertake the development of the ICT capacity alone. The ICT sector needs enough energy, reliable communication systems, an efficient transportation system, and equally important, a predictable operating environment. Zimbabwe must learn from best practices in this sector. Information centres, kiosks and technology parks should be built. When the ICT infrastructure is firmly in place, the industries should grow at a higher rate.

### ***5.5 Government use of ICT***

The Government of Zimbabwe has not fully computerised its functions, as many are still being done manually. This is indicative of the slow rate in which the government is adopting ICT in its day-to-day operations. Since the government is the largest consumer in any country, low use of ICT by government translates to low demand for the domestic market. In this regard, the government is expected to be the pacesetter in the adoption of the new technology. In addition, Government could sub-contract some of the ICT companies to provide services to its institutions, so as to increase demand.

### ***5.6 Implementation of agreed Policies***

The Rwandan experience shows that the implementation of good policies is critical to success, rather than just having policies on paper, and failing to implement them. Rwanda moved fast in this regard and performed better than twenty-five other African countries, which had started using ICT before Rwanda. The implementation of good policies has transformed Rwanda from a technological laggard to that of a technological leader in Africa (Lacity et al., 2008).

### **5.7 Diaspora**

The return of the Rwandan educated elite assisted in the development of ICT and related services in the country (Rubagiza et al., 2011). The brain-drain over the years can now easily turn into an important gain for the country if Zimbabweans in the diaspora could be lured back to the country. The skills they have acquired could then be used to profit the economy.

### **5.8 IT Governance**

ICT governance is achieving strategic alignment between the business and ICT, in order to make sure that money spent on ICT is delivering value to the businesses. An effective ICT governance programme would help Zimbabwean organisations to understand the issues and risks surrounding the strategic importance of ICT, to ensure that ICT would sustain operations, and to help enable companies to use ICT for their competitive advantage. The value ICT would depend on how companies exploit ICT to enhance their management processes and operations. ICT assets on their own can produce no value to a company; whereas ICT assets entrenched in a company's daily operations are usually found to be indispensable – as a multi-purpose technology.

### **5.9 Individual Usage**

For individuals to assimilate technology would depend on their perception, willingness, availability and affordability of the services. Other factors include the level of education, ICT skills and security concerns. Zimbabwe should take advantage of its high literacy rate and affordable broadband ushered in by the country linking with the undersea terrestrial optic fibre to provide social and economic services through ICT. Once security and perception issues are addressed, there could be a high subsequent uptake of ICT.

### **5.10 Business Usage**

ICT developments raise the need for business organisations to use ICT to support, sustain and grow their businesses. Simply possessing ICT assets will not produce business value in providing competitive advantage, enhancing business process or reducing costs. Value from ICT only arises when information technology is used to provide business value. The use of ICT has rendered the obstacles of time and geography less relevant. Zimbabwean companies must come up with new business models and new ways of offering their services to fully benefit from the usage of ICT. ICT equipment must be used to the maximum potential, thereby increasing the organisation's returns on investment.

### **5.11 Entrepreneurship and Innovation**

The use of such technology would encourage entrepreneurship and innovation thereby the introduction of new services. This would help the economy to grow subsequently turning- around the economy.

Strong political will can have an impact on the development and diffusion of technology through various possible interventions, such as, regulation, liberalisation, and subsidies to firms, tax regimes, educational policies that impinge on the skilfulness of employees and the enforcement of standards. The implementation of right policies positively impacts the individual, business and government usage of ICT, thereby encouraging entrepreneurship and innovation which in turn can lead to new services that could help to turn-around the economy.

## **6 Conclusion**

ICT can be used to turn-around an economy. This can be achieved through a strong political will, vision and top-level commitment to implement good policies that would lead to ICT development and diffusion. The government and business should commercially exploit the current technological trends to revolutionise the manner in which business and the general public trade. ICT could improve revenue, enhance competitiveness, assist in the economic and societal modernisation. It can further facilitate innovation, connecting people and communities, and improving standards of living and new trade opportunities both locally and globally.

The study recommends that the Government of Zimbabwe should create an enabling environment to promote ICT development and diffusion. A quasi-governmental organisation should be set up to coordinate the activities in the ICT sector. The country should fully utilise ICT investment and the abundant human resources in the country. The embracing of technology by individuals, business and government would encourage entrepreneurship and the introduction of new services, which in turn, would help the economy to grow – thereby turning-around the economy.

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