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The Impact of Mobile Technology on Micro and Small Enterprises in Zimbabwe in the Post- Hyperinflation Economic Era

Research Paper

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ABSTRACT

This paper investigates the impact of mobile technology on Micro and Small Enterprises (MSEs) in the developing world in the post-hyperinflation era. Data was collected from a multi-staged sample of 114 MSE owners within the capital province of Zimbabwe, Harare. The data was collected and analyzed using descriptive quantitative survey methods, which comprised of hard-copy questionnaires, structured interviews and online questionnaires. The findings suggest that mobile technology has incremental, transformational and production influence on MSEs in Zimbabwe. The findings show that mobile technology amplifies communication and relations with customers, MSE's productivity and MSE's revenues. Mobile technology is also spurring new and innovative offerings such as mobile money, mobile banking and mobile advertising for the MSEs. This paper also provides the evidence that mobile technology is contributing to the creation of jobs in the indirect mobile industry sector, such as mobile money service and mobile application development. The paper generates insights that inform and compel creation of policies that enable and support the creation and growth of business in the mobile money, mobile retail services and mobile application development sectors.

Keywords (Required)

Mobile Technology, Hyperinflation, Developing Countries, ICT4D, M4D, Micro and Small Enterprises, Impact.

INTRODUCTION

Mobile technology has helped in shaping our new global society. In some of the developing countries more people have access to mobile technology while they lack necessities such as clean water, electricity, sanitation and bank accounts (Kelly & Minges, 2012). Mobile technology is increasingly

recognized as a contributor to social, economic, political and environmental transformation, due to the universal and prevalent nature of mobile technology flooding all populations, even those at the bottom of economic pyramid (Kelly & Minges, 2012; GSMA Intelligence, 2013).

Mobile technology is unlocking extraordinary solutions for world's socio-economic challenges, particularly for the developing countries. Some of these solutions include mobile-mediated learning (mobile learning), provision of health services through mobiles (mobile health), ubiquitous platforms for government and citizens' interactions (mobile government), application of mobile technology to agricultural value chains (mobile agriculture), and financial services through mobile technology (Kelly & Minges, 2012).

Micro and Small Enterprises (MSEs), which are significantly contributing to economic progress in developing nations through creation of employment and income generating opportunities, are not an exception to this growing chorus of the transformative power of mobile technology (Donner & Escobari 2010; Liedholm & Mead, 2013). There has been increased scholarly attention on the topic of the development impact of mobile technology on MSEs in developing countries, which include India, Palestine, Malawi, Ghana, Côte d'Ivoire, Nigeria, Kenya and Tanzania (Patnaik, 2013; Rabayah & Qalalwi, 2011, Katengeza, Okello & Jambo, 2011; Boateng, 2011; Mao, Shuai, Ahn & Bollen, 2013; Jagun, Heeks & Whalley, 2008; Gikenye & Ocholla, 2013; Melchioly & Sæbø, 2010), however, there is lack of published scholarly works on the connection between mobile technology and MSEs within the context of the developing country of Zimbabwe.

The nation of Zimbabwe is an interesting research site in the developing world because of its unique economic status. Zimbabwe recently recovered from a decade-long debilitating economic crisis, characterized by hyperinflation (UN Zimbabwe, 2013). Zimbabwe is the first country to experience hyperinflation in the 21st century and ranked second in the world hyperinflation record books (Hanke, 2008; 2009). This paper seeks to investigate the impact of mobile technology on MSEs in a specific economic context of post-hyperinflation era in the developing world. The paper seeks to learn the role of the mobile technology on the growth and survival of MSEs towards economic recovery from a dire economic situation.

The choice of study focus on MSEs was motivated by the dominance of MSE sector in the economy of Zimbabwe. According to the FinScope's survey on Zimbabwean Micro, Small or Medium Enterprises (MSME) of 2012, the entire MSME sector which is dominated by MSEs provides about 5.7 million jobs and annual turnover of about US\$7.4 billion (FinMark Trust, 2013).

The study focuses on the MSEs in the capital province of Zimbabwe, Harare for two reasons. First, the Province of Harare is most populous province in Zimbabwe with 16 percent of the total population (ZIMSTAT, 2012b). Harare province has the highest number of MSEs compared to all other provinces in Zimbabwe (FinMark Trust, 2013). Because of the high proportions of both the general populace and MSEs, the research results drawn from Harare will provide a general reflection of the impact of mobile technology within the developing nation of Zimbabwe.

Second, this paper seeks to contribute to the body of knowledge on Mobile for Development (M4D) academic discipline, which is a branch of a broad ICT for Development (ICT4D) academic discipline. The paper will provide new insights on the impact of mobile technology on MSEs in the developing regions in the context of post-hyperinflation economy era. Specifically, this paper seeks to respond to the question: What is the impact of mobile technology on Micro and Small Enterprises in the developing regions in the post-hyperinflation economic era?

This study seeks to learn about the consequences of the mobile technology on MSEs in the developing regions in context of the post-hyperinflation economy. This paper argues that the mobile technology has incremental, transformational and production influence on MSEs in developing regions that are in the post-hyperinflation economic era.

Mobile innovations supporting MSEs

Mobile financial services exists within a holistic ecosystem interlinking finance and mobile industries (Taylor et al, 2013 & Donovan, 2012). The major players in the mobile money ecosystem include mobile operators, banks, payment cards firms and cash agents (Donovan, 2012). Cash agents or merchants are part of mobile money distribution channel who carry out the cash-in and cash- out transactions for a commission (Donovan, 2012: 2013). The mobile financial services fall into three broad categories namely mobile payments, mobile finance and mobile banking as depicted in Figure 1.

Within the mobile payments category, there are four types of payments which are Person-to-Person (P2P), Consumer to Business (C2B), Business-to-Business (B2B), and Business or Government to Consumer (B or G2C) (Tobin, 2013, Donovan, 2012 & Gencer, 2011). P2P are domestic or international remittance payments between individuals, C2B are online or in-store payments to merchants by customers, B2B are payments between businesses, and B or G2C are business or government salary payments to employees, or government benefit and pension disbursements to citizens (Garang, 2014 & Gencer, 2011). Mobile finance category includes services such as mobile insurance (Gencer, 2011). Mobile banking branches into two sectors: transactional (service such as mobile bill payments) and informational (service such as account balance inquiry) (Garang, 2014, Donovan, 2012 & Gencer, 2011).

Mobile government services (m-government) are the use of mobile technology to extend access to existing government services, expand the delivery of new services, and to increase active citizen participation in government issues (OECD/International Telecommunication Union [ITU], 2011). In general, there are four primary delivery models of m-government: government-to-citizens (G2C), government-to-government (G2G), government-to-business (G2B), and government-to-employees (G2E) (OECD/ITU, 2011). Government-to-Citizens services provide a platform for responsive interaction and communication between citizens, enabling citizens to stay current on government information, to make inquiries and request for services (OECD/ITU, 2011). Government to Business (G2B) services include provision of information related to policies, regulations, forms, and applications related to licensing, permits and tax remittances, as well as support of micro, small and medium enterprises and business development. (OECD/ITU, 2011). It is postulated that G2C and G2B m-government models have a role to play in the MSE development and growth, based on the above descriptions.

There are various definitions of m-learning in literature, but for the purpose of this paper, Traxler's, (2009) definition is adopted. The simple definition of m-learning is the provision of education and training through mobile devices (Traxler, 2009). Various models of m-learning delivery include mobile training and performance support, which involves the use of mobile technologies to improve productivity and efficiency of employees by delivering timely and accurate information and timely support.

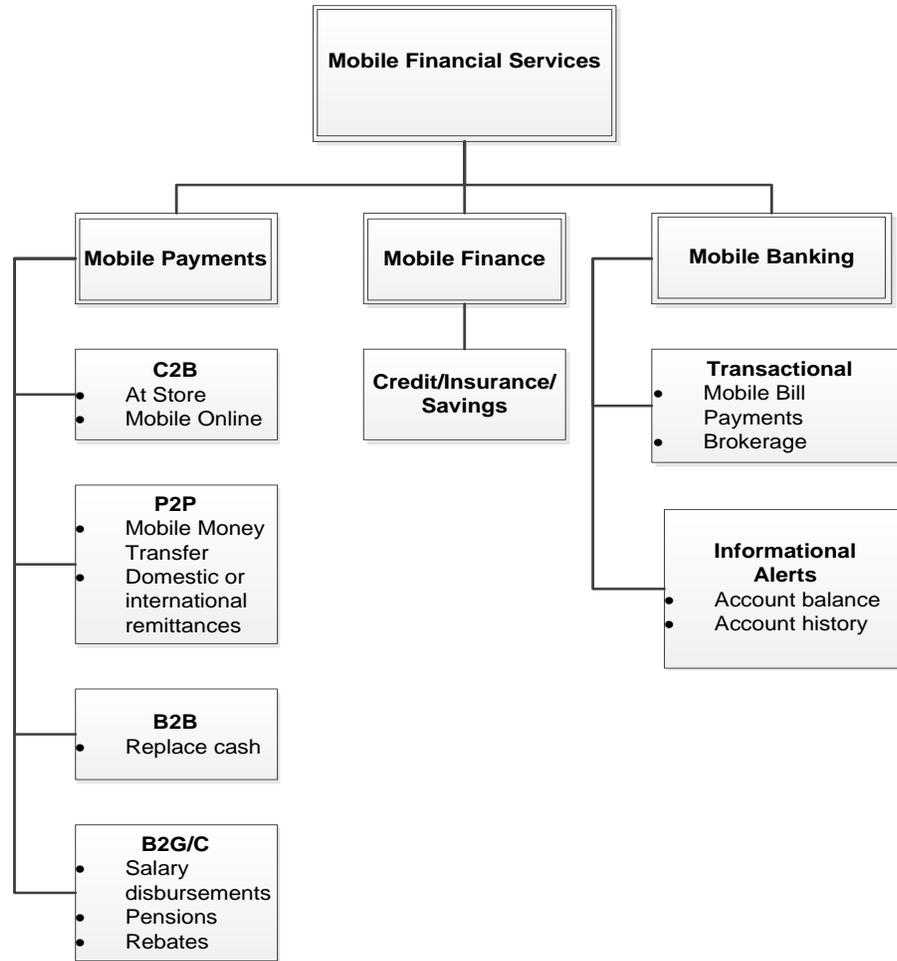


Figure 1: Mobile Financial Services (Adapted from Gencer, 2011, p.4.)

ZIMBABWEAN CONTEXT

This section provides a socio-economic and political background of the country of Zimbabwe, which is the targeted research location

Geography and demography

Zimbabwe is a landlocked country in the sub-Saharan region of Africa bordered by Mozambique to its east, South Africa to the south, Botswana to the west and Zambia to the north (UN Zimbabwe, 2013). Zimbabwe is divided into 10 administrative provinces and 62 districts, with Harare being the capital city and Bulawayo, Gweru, Kadoma, Kwekwe, Masvingo and Mutare being the other major cities (UN Zimbabwe, 2013). According to the population census, which was carried out by the Zimbabwe National Statistical Agency (ZIMSTAT) in the year 2012, the population of Zimbabwe is estimated at 12.974 million with 51.9 percent being female and 48.1 percent being male (ZIMSTAT, 2012a).

Zimbabwe's economic overview

Zimbabwe experienced economic meltdown for almost a decade up to year 2009 (UN Zimbabwe, 2013). The peak of this economic crisis was in 2007 and 2008. Inflation recorded insane levels of 231 million percent in July 2008; the national economy operated below 10 percent of its capacity by January 2009, unemployment was estimated at 80 percent by March 2009 and severe shortages of fuel, food and foreign currency were experienced throughout the nation (Manjengwa, Kasirye & Matema, 2012; UN Zimbabwe, 2013; ZIMSTAT, 2013). During the height of the economic crisis in Zimbabwe, as of year 2004, four out of five jobs were in the informal economy sector (Kanyenze, Kondo, Chitambara & Martens, 2011).

In February 2009, a major shift on economic policies was taken which saw Zimbabwe abandoning its own currency and adopting a multicurrency system, the implementation of Short Term Economic Recovery Plan (STERP) and a revised 2009 national budget in US dollars. These economic measures provided recourse to the economic decline and stimulated economic recovery (Manjengwa et al., 2012; UN Zimbabwe, 2013). Because of these economic policy initiatives, the inflation dropped to 7.7 percent as of December 2009 and industry capacity utilization from 10 percent to between 35 and 60 percent by December 2009 (UN Zimbabwe, 2013).

According to Human Development Report 2014, Zimbabwe's Human Development Index (HDI) value for the year 2014 is 0.492, in the low human development category positioning the country at 156 out of 187 countries and territories (UNDP, 2014). The HDI is an aggregated measure for assessing long-term progress in three basic dimensions of human development which are a long and well lived life, access to knowledge and a decent standard of living (UNDP, 2014).

Micro and Small Enterprises in Zimbabwe

The government of Zimbabwe recognizes Micro, Small Enterprises and Medium Enterprises (MSMEs) as an important vehicle to economic development and poverty alleviation. It is against this background that the government of Zimbabwe formed a dedicated Government Ministry - Ministry of Small and Medium Enterprises and Co-operative Development (MoSMECD), whose mandate is to "create a conducive and enabling environment that promotes the development and growth of Micro, Small and Medium Enterprises and Cooperatives" (MoSMECD, 2013). As part of MoSMECD's initiative to deliver its mandate, it created a government-controlled corporation, Small Enterprises Development Corporation (SEDCO). SEDCO is a development finance institution for the promotion and development of MSMEs in Zimbabwe (SEDCO, 2013).

According to the survey FinScope MSME Survey Zimbabwe 2012 conducted by FinMark Trust in 2012, approximately 46 percent of the adult population in Zimbabwe are Micro, Small or Medium Enterprises (MSME) owners (FinMark Trust, 2013). The same survey reports that there are approximately 2.8 million small business owners in Zimbabwe owning 3.4 million businesses, employing about 2.9 million people, and generating a turnover of US\$ 7.4 billion in 2012 (FinMark Trust, 2013). Of the 3.4 million MSMEs in Zimbabwe, 99 percent are Micro and Small Enterprises (MSEs) (FinMark Trust, 2013), thus indicating the dominance of the MSEs in economy of Zimbabwe. It is for this reason that this study focuses on MSEs. Considering the fact that the entire MSME sector provides about 5.7 million jobs and annual turnover of about US\$7.4 billion, the MSE sector is playing a major role in poverty alleviation, employment creation and economic development in Zimbabwe.

In the case of Zimbabwe, micro and small enterprises are classified according to industrial sectors they belong to. Table 1 provides the classification of MSEs in Zimbabwe according to the Small Enterprises Development Corporation (SEDCO) Amendment Bill of 2011.

<i>Industrial Sector</i>	<i>Class</i>	<i>Maximum Total number of employees</i>	<i>Maximum total annual turnover USD\$</i>	<i>Maximum gross value of assets USD\$</i>
<i>Agriculture</i>	<i>Small</i>	30	500,000.00	250,000.00
	<i>Micro</i>	5	30,000.00	10,000.00
<i>Arts, Entertainment Culture, Education and Sport</i>	<i>Small</i>	30	500,000.00	250,000.00
	<i>Micro</i>	5	30,000.00	10,000.00
<i>Mining and Quarrying</i>	<i>Small</i>	40	1,500,000.00	1,000,000.00
	<i>Micro</i>	5	50,000.00	50,000.00
<i>Manufacturing</i>	<i>Small</i>	40	500,000.00	500,000.00
	<i>Micro</i>	5		
<i>Construction</i>	<i>Small</i>	40	1,000,000.00	1,000,000.00
	<i>Micro</i>	5		
<i>Energy</i>	<i>Small</i>	40	500,000.00	1,000,000.00
	<i>Micro</i>	5	50,000.00	10,000.00
<i>Financial Services</i>	<i>Small</i>	30	500,000.00	250,000.00
	<i>Micro</i>	5	300,000.00	10,000.00
<i>Transport</i>	<i>Small</i>	40	500,000.00	250,000.00
	<i>Micro</i>	5	30,000.00	10,000.00
<i>Retail</i>	<i>Small</i>	30	500,000.00	250,000.00
	<i>Micro</i>	5		
<i>Tourism and Hospitality</i>	<i>Small</i>	30	500,000.00	250,000.00
	<i>Micro</i>	5	30,000.00	10,000.00
<i>Services</i>	<i>Small</i>	30	500,000.00	250,000.00
	<i>Micro</i>	5	30,000.00	10,000.00

Table 1: Classification of Micro and Small Enterprises in Zimbabwe (Adapted from SEDCO, 2011, p. 16.)

Information and Communication Technology (ICT) sector in Zimbabwe

According to International Telecommunications Union (ITU)'s Measuring the Information Society 2014 Report, Zimbabwe is ranked on position 121 out of 166 countries worldwide in terms of ICT sector development (ITU, 2014). The same report ranks Zimbabwe on position 8 out of 38 countries in the African region (ITU, 2014)

As of September 2015, there were three operational mobile network operators in Zimbabwe namely Econet Wireless Zimbabwe (EWZ), NetOne and Telecel. Econet Wireless is Zimbabwe's largest provider of telecommunications services, providing solutions in mobile and fixed wireless telephony, internet access and payment solutions (EWZ, 2013). Telecel is jointly owned by Telecel Globe and a Zimbabwean Consortium -Empowerment Corporation (Telecel, 2013). NetOne is a private company

100 percent owned by the government (NetOne, 2013). TelOne, which is 100 percent government-owned, is the sole provider of fixed telephony services in Zimbabwe (AFDB, 2011).

Mobile Money Product	Services on offer	Service Provider
EcoCash	<ul style="list-style-type: none"> • Airtime top up • Bill payment • Peer to Peer (P2P) transfers (Domestic) • Merchant payment 	Econet Wireless
One Wallet	<ul style="list-style-type: none"> • Airtime top up • Bill payment • P2P transfer (Domestic) 	Netone
Telecash	<ul style="list-style-type: none"> • Airtime top up • Bill payment • Peer to Peer (P2P) transfers (Domestic) • Merchant payment 	Telecel
Nettcash	<ul style="list-style-type: none"> • Other bulk payment • Airtime top up • P2P transfer (Domestic) • Bill payment • Merchant payment 	Nettcash

Table 2: Mobile money services for Zimbabwean MSEs (Adopted from GSMA, 2015 and Telecel, 2015).

According to the statistics released by the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) for the first quarter of year 2015, Econet Wireless Zimbabwe had approximately, 6.6 million active subscribers (POTRAZ, 2015). Telecel had approximately 2.1 million subscribers whereas Netone had approximately 3.1 million subscribers (POTRAZ, 2015). During the reported period, the active mobile subscribers were approximately 11.9 million against an estimated total population of 13 million. This translates to a 90.8% mobile penetration rate. The same report indicated that they were 329, 252 active fixed telephony subscribers during the same period (POTRAZ, 2015).

BROAD IMPACT OF MOBILE TECHNOLOGY

Numerous scholarly works (Jagun and Heeks, 2007; Nxele, 2009; Boateng, 2011) indicate that the mobile technology has the potential to deliver three broad impacts on Micro and Small Enterprises (MSEs), namely incremental, transformational and production.

First, incremental impact is about improving efficiency, productivity, and communications and reducing costs and risks of the existing processes and activities of the MSEs (Jagun and Heeks, 2007). The incremental impact on MSEs emanates from the reduction in costs related to search and coordination for input prices, output prices, potential buyers and potential sellers and as well as enhancement of productivity due to the use of mobile technology (Aker and Mbiti, 2010; Boateng, 2011). Traditionally, information, such as market information, was searched through personal travel, radio, postal letters, print media and television (Aker and Mbiti, 2010). Now with mobile technology, the MSEs are now able to communicate directly with potential customers and suppliers to get accurate information on pricing, markets, product and service availability (Boateng, 2011).

The mobile technology provides a platform for MSEs to communicate at a lower cost with the existing and potential buyers, even those beyond their geographical boundaries (Donner and Escobari, 2010). The mobile technology enables the MSEs to reach new markets and to find better prices for their

products and services (Melchioly and Sæbø 2010). Melchioly and Sæbø (2010) and Esselaar et al. (2007) argue that mobile technology usage for keeping in contact with customers and clients is more prevalent compared to any other form of communication among most of the MSEs. Moreover, emerging innovative low-cost mobile technologies, such as Voice over Internet Protocol (VOIP) and instant messaging services (WhatsApp and Skype) have a great potential to reduce communications costs for the MSEs.

The increased communication between MSEs and supply chain partners will eventually lead to long-term strategic relationships with the supply chain partners (Boateng, 2011). Still, on the long-term relationships with supply chain partners, some scholarly works assert that mobile technology enable MSEs to have a direct contact with the supply chain partners and in the process by-passing the middlemen (Boateng, 2011; Rabayah and Qalalwi, 2011). Contrary to the foregoing, Jagun et al. (2008) provide evidence of the way mobile technology reinforced the role of intermediaries in a case of clothing supply chains in Nigeria, rather than leading to market disintermediation.

Mobile technology usage on MSEs has an incremental potential on the MSE's revenues. Essegbey and Frempong (2011) found in a study of the mobile telephony usage in Ghanaian MSEs that 60 percent of the MSEs perceived mobile technology to be contributing to the MSE's revenue base. Frempong (2009) points out that the reduced operational costs such as reduced transport and coordination costs and saved labour-hours contribute to the MSE's cost savings thereby contributing to the MSE's revenues.

Second, transformational impact is a result of the mobile usage in unlocking new services and opportunities, which were traditionally inaccessible without mobile technology (Boateng, 2011). The usage of mobile technologies can bring transformation to the MSEs' business model such that the MSEs will be able to offer new products and services (Boateng, 2011; 2014). In addition, mobile technology usage enables differentiation of products and services by MSEs (Thulani, 2014). Boateng (2011) and Thulani (2014) stipulate mobile financial services, mobile advertising and mobile internet as examples of transformational impact.

The topic of the impact of mobile money on MSEs in developing countries has drawn remarkable research attention (Mbogo, 2010; Gikenye and Ocholla, 2013; Bångens and Söderberg, 2011; Otiso et al., 2013; Wanyonyi and Bwisa, 2013). The general review of the aforementioned literature shows a number of benefits that comes with the use of m-money on MSEs. The m-money services saves money and time on journeys for banking, payments and order processing. The use of mobile money services for ordering and payments shortens the supply chain time between order and delivery thereby improving the firm's liquidity. The use of mobile money service reduces risks associated with physical cash handling. Gikenye and Ocholla (2013) rightly point out that mobile money exists in a virtual account and substitute physical cash, which is safer and remains safe even if the mobile device is lost. Third, the use of mobile money has the potential to increase the MSE sales. This is due to the increased efficiency in order processing and payments.

Fourth, the production impact on the MSE is realized when mobiles enable the creation of new livelihoods (Nxele, 2009). The production impact is a result of the trading in mobile industry rather than with mobile technology (Jagun and Heeks, 2007).

The mobile industry has the potential to unlock entrepreneurship and employment opportunities, in form of direct jobs, indirect jobs and jobs both on the supply and demand side (Sørensen, 2014, Faggio, 2014, Tiarawut, 2013 & Andjelkovic and Imaizumi, 2013). Direct jobs range from engineers to sales support staff in the mobile network operators and manufacturers sectors of the mobile industry (van der Boor, 2014, Carmody, 2013 & Andjelkovic and Imaizumi, 2012). According to GSMA (2013), in the year

2012, the mobile industry provided direct employment to approximately 9 million people worldwide. Indirect jobs are associated with industries such as application development, content provision, and call center operations, which are created by mobile network operators, manufacturers, and device producers (Andjelkovic and Imaizumi, 2012 & West 2012). According to GSMA (2013), development and marketing of online content, including smartphones applications, games, mobile TV and ringtones is one of the fastest growing employment sectors in the mobile industry. In the United States alone, the mobile app industry provided almost a half million jobs and revenue in excess of 20 billion US dollars for the period starting from 2007 to 2012 (Mandel, 2012).

Mobile application development presents vast opportunities for entrepreneurship due to limited barriers to market entry for MSEs (West 2014, Tiarawut, 2013 & Andjelkovic and Imaizumi, 2012). There are many doors for app development. Mobile Network Operators (MNOs), software companies, freelance developers, content providers or device manufacturers can develop the apps (Martin, 2013, Andjelkovic and Imaizumi, 2012). The mobile application development sector has also spurred the creation of mobile incubators. Mobile incubators are facilities for defining business opportunities, identifying talent, promoting open innovation and soliciting funding support in the mobile application sector (Cunningham, 2014 & Andjelkovic and Imaizumi, 2012).

Mobile money services have proved to be generating employment and entrepreneurship opportunities in developing countries. The largest mobile-money service provider in Zimbabwe, EcoCash, which is provided by the mobile operator Econet Wireless, recruited 4000 agents in their distribution channel in the first 18 months of operation (Levin, 2013). Furthermore, EcoCash offers green kiosks to its agents, from which MSEs have the opportunity to merchandise airtime, accessories, and solar lanterns and offer phone-charging services to subscribers (Levin, 2013).

RESEARCH METHODOLOGY AND APPROACH

Research location

The purpose of this study is to investigate the impact of mobile technology on Micro and Small Enterprises (MSEs) in the capital province of Zimbabwe, Harare

The Harare province was selected as the research location because of two reasons: first, the Province of Harare is the most populous province in Zimbabwe with 16 percent of the total population (ZIMSTAT, 2012b). Second, the Harare province has the highest number of MSEs compared to all other provinces (Finmark Trust, 2013). Therefore the results drawn from Harare, should reflect the general trend of the impact of mobile technology throughout Zimbabwe.

Study population and Sampling Technique

The Finscope survey on Micro, Small and Medium Enterprises (MSME) conducted in the year 2012 estimates the MSE population in Harare at 410, 268 (Finmark Trust, 2013). The value of 410, 268 was adopted as the sampling population of this research.

Calculating the appropriate sample size from a population of 410, 268, at 99 percent confidence level and at 10 percent margin of error, yielded a sample size of 166 (Creative Research Systems, 2012). Thus, the survey strategy of this study targeted a sample size of 166 MSE owners. The sampling population of the study was drawn from all 29 political constituencies in the Harare province using a multi-stage sampling. Multi-stage sampling was the best choice due to the absence of a complete sample

frame of geographically dispersed MSEs in Harare. The sampling population comprised of MSE owners in Harare, who:

- i. are 18 years or above
- ii. perceive themselves to be generating an income through small business activities
- iii. have employees not exceeding thirty (30)

Data collection

Quantitative data was collected from 114 MSEs in Harare through online questionnaires, paper-based questionnaires and structured interviews as tabulated in Table 3. The choice of quantitative research methods in this study enabled the generalization of the findings from a sample of MSEs in Harare to the entire population of MSEs in Harare (Saunders et al., 2009).

Item	Type of questionnaire	Number of respondents
1	Online questionnaires	47
2	Delivery and collection questionnaires	50
3	Structured Interviews	17
		114

Table 3: Data Collection through questionnaires

Three types of the questionnaires were designed following a uniform structure. The questionnaire structure was designed with the aim to probe questions that are in line with conceptual framework presented in Figure 2. Table 4 presents the uniform structure of the online questionnaires, delivery and collection questionnaires, and structured interviews.

Topic	
Introduction and screening	
A	Characteristics of Micro and Small Enterprises (MSEs) Industrial classification, number of employees, age of the enterprise, location and more
B	The impact of mobile technology on MSEs What is the impact of direct mobile services to the MSEs? What is the impact of indirect mobile services to the MSEs?

Table 4: Research Instrument design

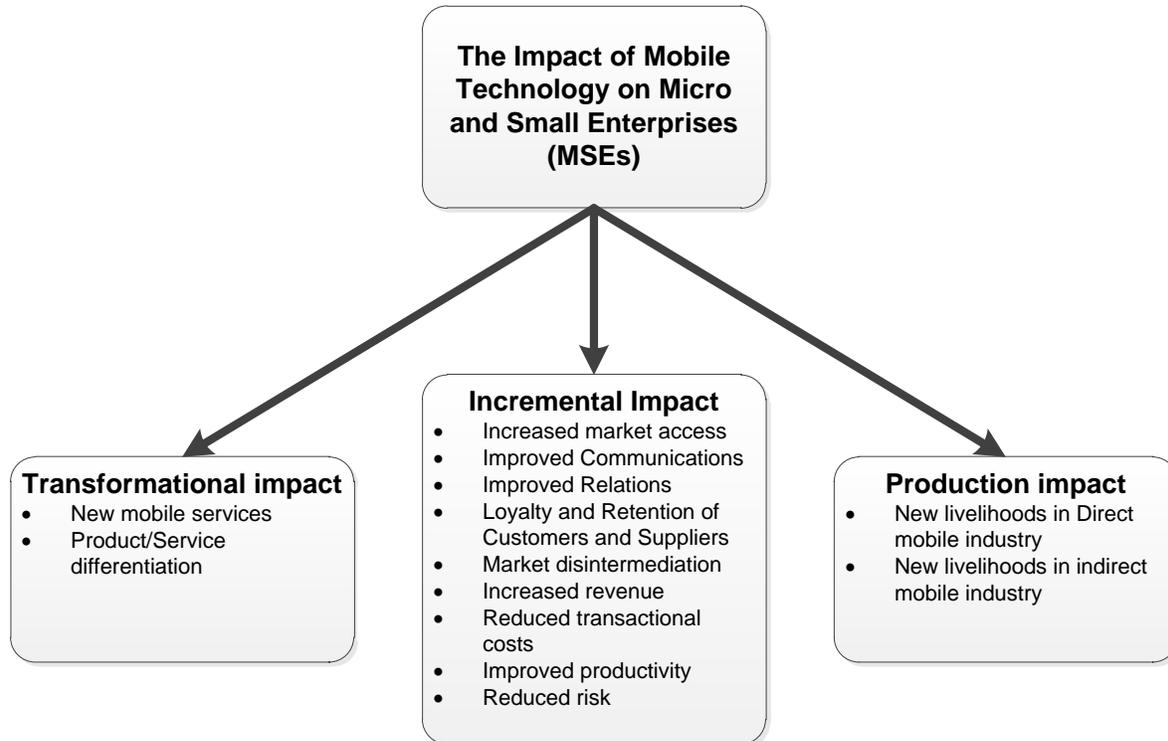


Figure 2: Conceptual framework for the impact of mobile technology on Micro and Small Enterprises

The collected data was analyzed using descriptive statistics through the software capabilities of Survey Monkey analytical tools and Microsoft Office Excel 2013.

GENERAL OVERVIEW OF RESULTS

The issues discussed here include the characteristics of the MSEs that participated in the survey, the results on the impact of the mobile technology on MSEs. The results from the study were helpful in drawing of conclusions and policy implications on the impact of mobile technology on MSEs.

Sample characteristics of MSEs in Harare

Distribution of Micro and Small Enterprises (MSEs) by industrial sector

Wholesale and retail trade and Manufacturing industrial sectors dominated the Micro and Small Enterprises segment in Harare. 24.6 percent of MSEs in Harare are involved in wholesale and retail trade, while 21.1 percent of MSEs are in the manufacturing industrial sector. The results are a broad reflection of the FinScope's survey on Micro, Small and Medium Enterprises (MSME), which reported agriculture, wholesale and retail, and manufacturing as the most dominant MSME industrial in Zimbabwe (FinMark Trust, 2013). The results indicated limited agricultural industrial activities in Harare. This may be attributed to the fact that Harare province is predominantly an urban province, with only five (5.4) percent of population residing in semi-rural areas (ZIMSTAT, 2012b).

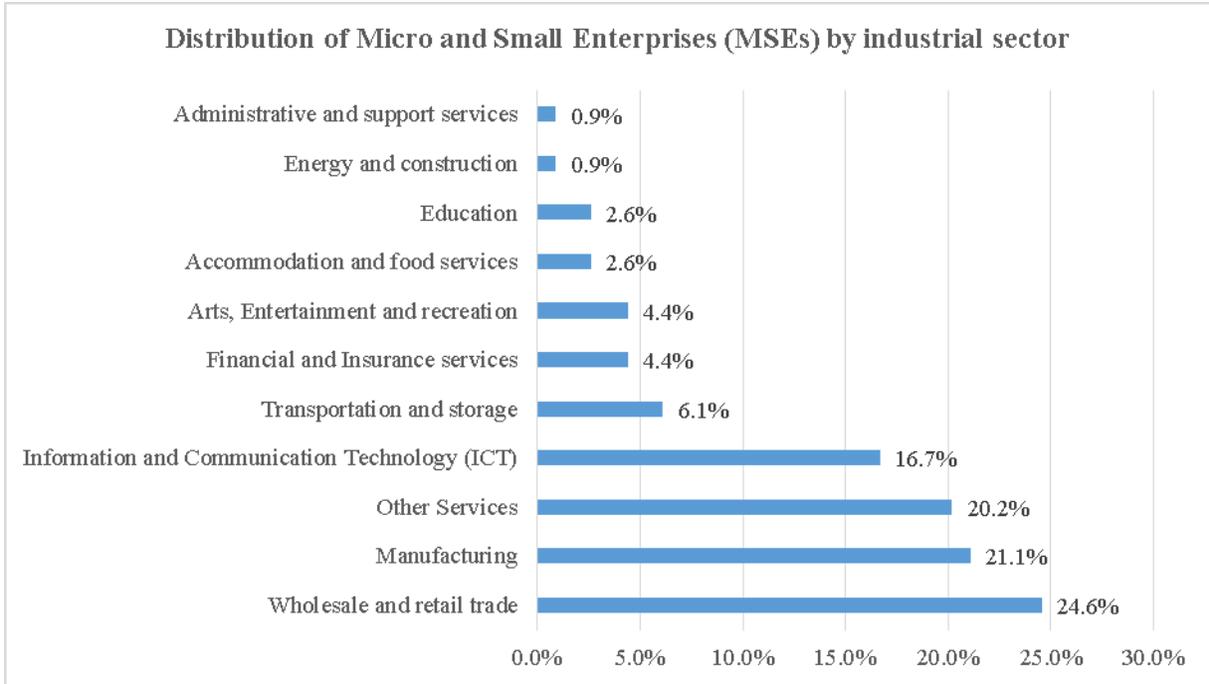


Figure 3: Distribution of Micro and Small Enterprises (MSEs) by industrial sector (n = 114)

Age Distribution of Micro and Small Enterprises (MSEs)

Young and growing enterprises dominated the MSE sector in Zimbabwe. As shown in the Figure 4, the majority of MSEs (65.8%) reported that their business is 5 years or younger, including 35.1% that are in the infant phase (0 to 2 years in operation), as well as 30.7% that are in the growth phase (3 to 5 years in operation).

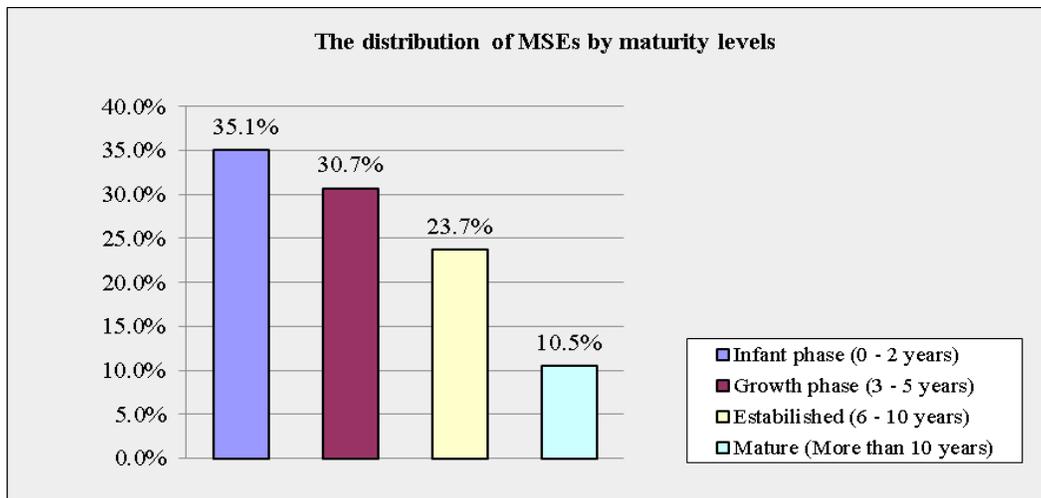


Figure 4: Distribution of Micro and Small Enterprises (MSEs) by the age of enterprise (n=114)

Distribution of MSEs by formality

The collected data was analyzed to classify the MSEs into formal and informal MSEs. The research survey instruments consisted of the following questions:

- i. is the enterprise registered with Registrar of companies or Local authority?
- ii. is the enterprise registered with tax authorities?
- iii. does the enterprise operate a separate banking account for enterprise financial management?
- iv. does the enterprise have formal contracts with its employees?

The MSEs that responded positively to all of the above questions were classified as formal enterprises, and the MSEs who responded negatively to at least one of the questions were classified as informal enterprises. The results are shown in Table 5 of 59.6 percent informal MSEs and 40.4 percent formal MSEs.

MSE formality classification	Percent %
Informal	59.6
Formal	40.4
	100

Table 5: Distribution of MSEs by formality (n=114)

These results broadly reflects on other previous studies on the Zimbabwean economy, which reported that Zimbabwe's economy is highly informal (Kanyenze et al.,2011; FinMark Trust, 2013).

The impact of mobile technology on Micro and Small Enterprises

The objective of this study was to assess the impact of mobile technology on Micro and Small Enterprises (MSEs) in the province of Harare in Zimbabwe. Literature indicates that the mobile technology has the potential to deliver three broad impacts on Micro and Small Enterprises (MSEs): incremental, transformational and production.

Incremental impact of mobile technology on MSEs

The incremental impact of mobile technology is realized when the use of mobile technology results in improving efficiency, productivity, and communications and reducing costs and risks of the existing processes and activities of the MSEs (Jagun and Heeks, 2007).

The MSEs were subjected to a five-point agreement Likert scales which examined how strongly MSEs agreed or disagreed with statements on the incremental benefits that arise from the use of mobile technology on their enterprise. The five-point agreement Likert scale had the following scale:

- (1) Strongly disagree,
- (2) Disagree,
- (3) Neutral,
- (4) Agree,

(5) Strongly agree,
and N/A Not Applicable.

The percentages of the ‘Agree’ and ‘Strongly Agree’ were added to come up with the total percent of MSEs who agreed on each statement pertaining to incremental benefits of mobile technology on MSEs. Figure 5 presents the consolidated view of incremental impact of mobile technology on MSEs.

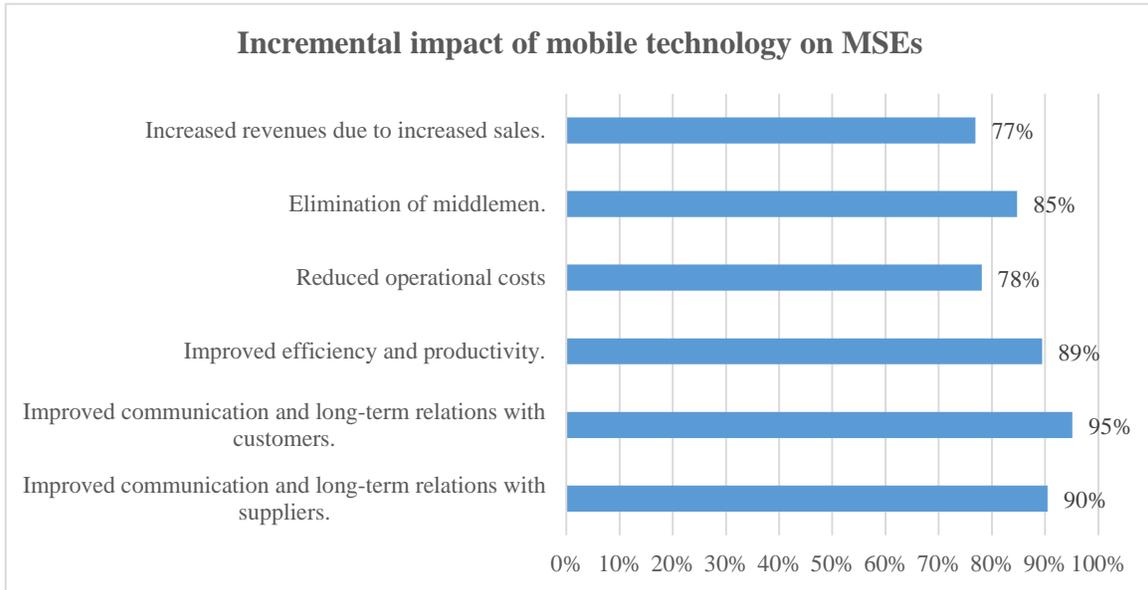


Figure 5: Incremental impact of mobile technology on MSEs

Transformational impact of mobile technology on MSEs

The transformational impact is a result of the mobile usage in unlocking new services and opportunities, which were traditionally inaccessible without mobile technology (Nxele, 2009; Boateng, 2011). This study inquired on the transformational benefits of mobile technology on MSEs and the responses of the MSEs were summarized as in Figure 5.

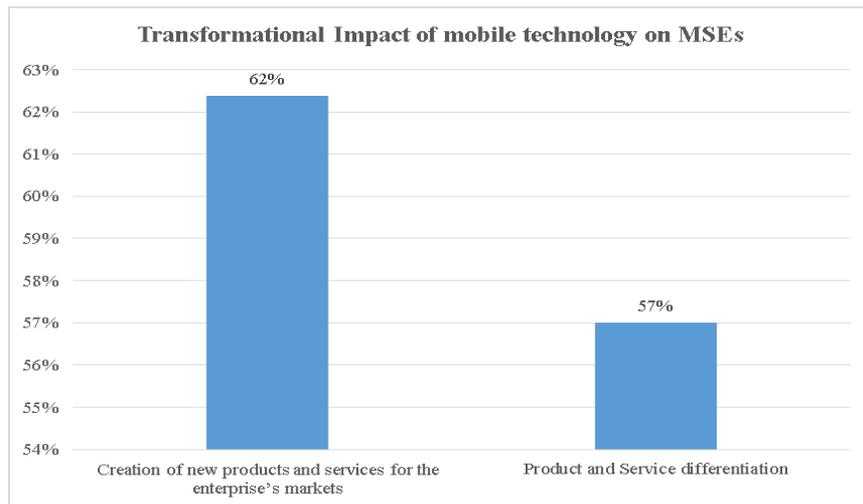


Figure 6: Transformational Impact of mobile technology on MSEs

The results indicate that the use of mobile technology on MSEs has transformational impact on MSEs. Sixty-two percent of MSEs reported that use of mobile technology results in the creation of new products and services for the enterprise and 57 percent agreed that mobile technology results in service and product differentiation.

Production impact of mobile technology on MSEs

The production impact of mobile technology on MSEs is realized when mobile technology enables creation of new livelihoods (Nxele, 2009).The production impact is a result of the trading in mobile industry rather than through the use of mobile device (Boateng, 2011).

In this research, the MSEs were subjected to questions that sought to assess the potential of mobile industry in creating both direct and indirect jobs. The MSEs were examined whether they were creating revenue or employment through direct jobs such as manufacturing or assembly of mobile devices.

Creation of Direct jobs and direct revenues

The results provide little evidence to support that MSEs are creating employment or generating revenues through direct mobile industry services, such as mobile device manufacturing or assembly. Only a marginal 1.1 percent of MSEs reported to be involved in the manufacturing or assembly of mobile devices or accessories. Perhaps, mobile manufacturing/assembly business is too complex and capital intensive for MSEs. Moreover, on the global scale, international manufacturers (such as Samsung, LG, Lenovo and Apple) from developed nations dominates the mobile manufacturing industry, leaving no space for MSEs in developing regions (IDC, 2013).

IS YOUR ENTERPRISE INVOLVED IN MANUFACTURING OR ASSEMBLY OF MOBILE DEVICES OR ACCESSORIES?		
ANSWER OPTIONS	RESPONSE PERCENT	RESPONSE COUNT
YES	1.1%	1
NO	98.9%	88
ANSWERED QUESTIONS		89
SKIPPED QUESTIONS		25

Table 6: The potential of Mobile industry in creating direct jobs and direct revenues

Creation of indirect jobs and indirect revenues

The results in Table 6 show low proportions of indirect mobile players among MSEs. Mobile money agents, mobile dealers and mobile application developers recorded significant figures among these indirect mobile players. About 18.4 percent of MSEs reported to be involved in offering mobile money service, including 4 percent of MSEs who are solely involved in mobile money business only. About 14.9 percent of MSEs were involved in selling of mobile devices, accessories or airtime and 9.6 percent of MSEs were involved in development of mobile applications.

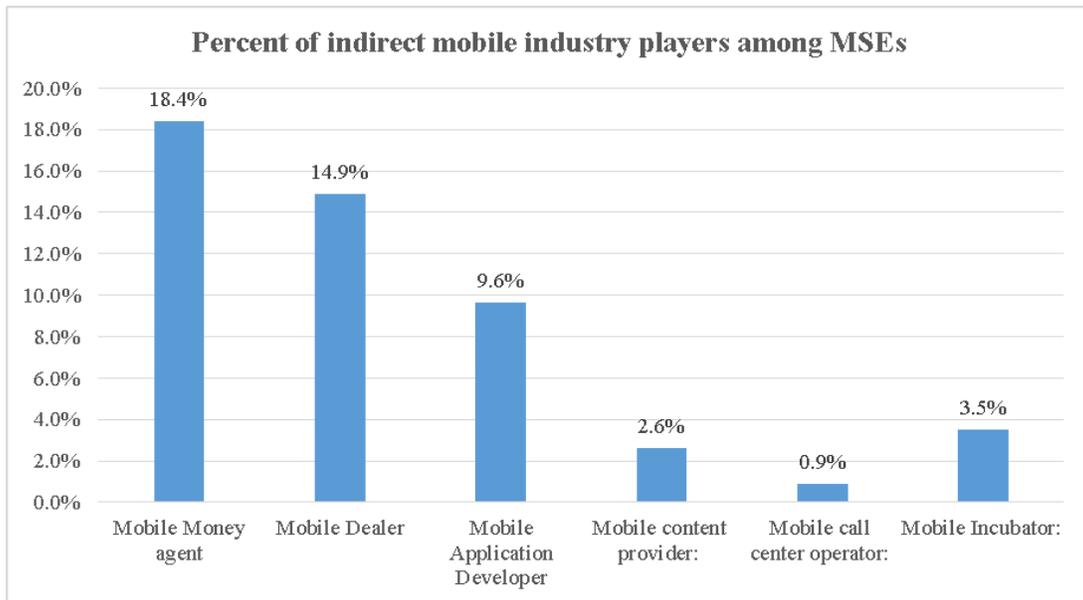


Figure 7: Percent of indirect mobile industry players among MSEs

This study also examined the contribution of indirect mobile services revenues to the MSEs’ total revenues. Figure 7 shows the average contributions of indirect mobile services to MSE revenues.

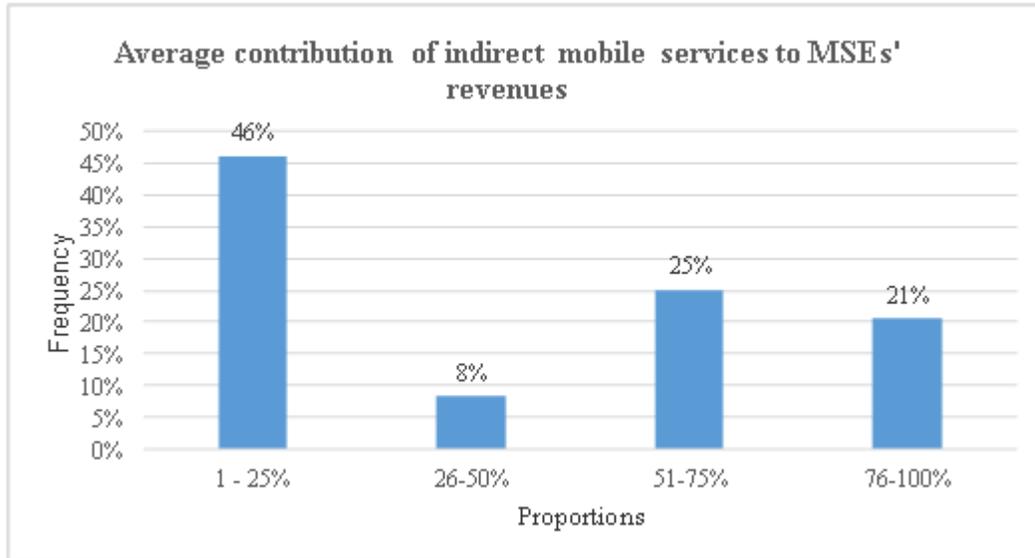


Figure 8: Average contribution of indirect mobile services to MSEs' revenues

The results in Figure 8 show that indirect mobile services are creating opportunities for increasing MSEs’ existing revenues and creating new revenue streams for some of the MSEs. On average, about 54 percent of the MSEs involved in indirect mobile services were getting between 1 to 50% percent of their

revenues from indirect mobile services, while 46 percent were getting revenues above 50% from indirect mobile services.

DISCUSSION

The results demonstrated that the use of mobile technology on MSEs in Harare result in incremental, transformational and production benefits on MSEs. Largely, the MSEs agreed that the use of mobile technology result in increased revenues, market disintermediation, increased productivity, increased communication and relations with suppliers and customers. These findings are in concurrence with the findings from previous studies (Melchioly and Sæbø, 2010; Boateng, 2011; Essegbey and Frempong, 2011; Rabayah and Qalalwi, 2011).

The incremental impact of mobile technologies on MSEs highlights the importance of communication with customers and suppliers. Concerning the transformational benefits of mobile technology on MSEs, a greater share (62 percent) of MSEs (62 percent) attributed the use of mobile technology in their business operations to be contributing to the creation of new products and services for the enterprise markets. In the same vein, 57 percent of MSEs attributed the use of mobile technology to be contributing to product and service differentiation. Consistent with Boateng's (2011) paper on mobile financial services, which indicate the high impact of mobile phones on micro trading, mobile advertising and mobile internet as examples of transformational effects of mobile technology on MSEs, the results indicate high-level usage of these transformational mobile services.

Contrary to previous studies (Donner and Escobari, 2010; Boateng, 2011) which found insufficient evidence to prove that the production impact of mobile technology on MSEs are significant, this paper actually proves otherwise. The available evidence suggests that the MSEs that are involved in offering indirect mobile services such as mobile money and mobile retail services are able to generate income and jobs from these services. Almost one-fifth (21 percent) of the MSEs involved in indirect mobile services reported to be getting between 76 and 100 percent of the total income from the trade in the indirect mobile industrial sector. The results provided insignificant evidence to support the potential of direct mobile industrial sector to create employment and income generation opportunities for the MSE sector. The direct mobile industrial sector consists of the services such as assembly and manufacturing of mobile devices.

CONCLUSION, IMPLICATIONS, AND FUTURE RESESRCH

First, this paper explores the impact of mobile technology, namely incremental, transformational and production impact on MSEs in the capital province of Zimbabwe, Harare.

Second, the valuable insights and lessons for research and practice about the impact of mobile technology on Micro and Small Enterprises (MSEs) within the developing world are discussed. Concerning the implications to theory, this paper contributes to the body of knowledge on Mobile for Development (M4D) academic discipline, which is within broad ICT for Development (ICT4D) academic discipline. Contrary to previous studies (Boateng, 2011; Donner and Escobari, 2010) which reported the absence of production impact on MSEs, this paper provides the evidence that mobile technology is contributing to the creation of jobs in the indirect mobile industry sector, such as mobile money service and mobile application development. The conceptual framework developed in this study, as shown in Figure 2, extends the knowledge on the models of assessing the impact of mobile technology on small enterprises. The conceptual framework presented enables the assessment of the impact of mobile technology on a wide spectrum of MSE sector such as manufacturing, agriculture and so on.

Third, this paper provides a number of implications for the development community that include mobile service providers, mobile device manufacturers, mobile regulatory authorities, government institutions, not-for profit organizations and small enterprises' associations.

This research proves that mobile technology has a role to play in the creation, survival and growth of the MSEs in developing countries thereby contributing to economic development. This study identified indirect mobile players such as mobile money agents, mobile dealers and mobile application developers to be contributing to the creation of employment in the MSE sector in Zimbabwe. This evidence informs and compels creation of policies that enable and support the creation and growth of business in the mobile money, mobile retail services and mobile application development sectors.

Fourth, the authors suggest a number of areas in which future research can focus on. For one, the sample for this study was confined to a single province out of ten provinces in Zimbabwe. Future studies on the same topic with a national sample are suggested. The MSE sector is a broad economic sector, which can be broken down according to many variables such as size, industrial sector, formality or maturity. This provides a room for a wide range of investigations on the use and impact of mobile technology on various MSE subsectors. Also, the new evidence in this study, which demonstrates the potential of mobile money and mobile application industrial sectors in creating livelihood opportunities, ignites new interesting research momentum.

Further investigations on the potential and contribution of mobile money industry in creation of employment and income-generating opportunities within the Zimbabwe MSE sector are suggested. There is need for further detailed analysis of the potential and contribution of mobile development industry to the economic development of the nation of Zimbabwe, taking into account the post-hyperinflation challenges and opportunities.

Further research on the aforementioned topic will inform the development practitioners on whether or not they should cultivate mobile application innovation in the Zimbabwe economy. The development practitioners can then accelerate mobile innovation in the economy through establishment of mobile incubators or hubs that provide platform for training, advocates for sound policies and solicits for funding. The mobile development incubation capacity in Zimbabwe is still in its infancy, with the first technology hub only recently launched in 2013 (Rutsito, 2013).

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