

2016-6

## Exploring the Values of Mobile Phone Technology in Tanzania Tourism SMEs

Deirdre Lillis

*Technological University Dublin, deirdre.lillis@tudublin.ie*

Renatus Mushi

*Technological University Dublin, renatus.mushi@tudublin.ie*

Follow this and additional works at: <https://arrow.tudublin.ie/scschcomcon>



Part of the [Technology and Innovation Commons](#)

---

### Recommended Citation

Lillis, D. & Mushi, R. (2016). Exploring the Values of Mobile Phone Technology in Tanzania Tourism SMEs, *22nd ICE/IEEE ITMC 2016 – IEEE International Technology Management Conference 2016*, Trondheim Norway. doi:10.21427/j3h7-nm91

This Conference Paper is brought to you for free and open access by the School of Computing at ARROW@TU Dublin. It has been accepted for inclusion in Conference papers by an authorized administrator of ARROW@TU Dublin. For more information, please contact [yvonne.desmond@tudublin.ie](mailto:yvonne.desmond@tudublin.ie), [arrow.admin@tudublin.ie](mailto:arrow.admin@tudublin.ie), [brian.widdis@tudublin.ie](mailto:brian.widdis@tudublin.ie), [aisling.coyne@tudublin.ie](mailto:aisling.coyne@tudublin.ie), [fiona.x.farrell@tudublin.ie](mailto:fiona.x.farrell@tudublin.ie).



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 3.0 License](#)

# Exploring Values of Mobile Phone Technology in SMEs

A case of Tanzania Tourism Sector

Renatus Mushi  
Computer Science  
Dublin Institute of Technology (DIT),  
Dublin, Ireland

Dr. Deirdre Lillis  
Computer Science  
Dublin Institute of Technology (DIT)  
Dublin, Ireland

**Abstract—** SMEs have been one of the reliable sources of income and employment worldwide. Mobile technologies have widely been used in performing a number of activities for SMEs. Mobile phone technology is maintained by a single or few operators which leave end-users with huge relief as they no longer deal with technical issues. However, despite the notable advantages of using mobile phone technology in SMEs, their values have been explained in a generic way. Specifics on direct and indirect benefits and concerns on particular aspect and circumstances have not been explored. The main challenge is that it is difficult to single out the values of a technology in organisations because there are other separate factors which also contribute to the overall performance. Identifying specific values of mobile technology on the performance of SMEs is vital for improving the utility of such performance in accomplishing the strategic objectives.

This study explores values of mobile phone technology in Tanzania tourism SMEs. The methodology is grounded in the theory of Value Focused Thinking, which uses deep face-to-face interviews, with the employees and managers the in Tanzania tourism SMEs. The analysis shows that mobile phone technology improves collaboration and sharing of information between SMEs stakeholders. Among the main concerns to the SMEs level include the security, battery capacity, mobile network coverage, Quality of service and operational costs. Also, implications and future studies are highlighted in this study.

**Keywords—** Value Focused Thinking, ICT, SMEs, mobile phone technology, strategic values and mobile devices

## I. INTRODUCTION

Mobile technology is among the best options of Information and Communication Technology (ICT) by the Small and Medium Enterprises (SMEs). Other desktop computing technologies are highly perceived to be too expensive, difficult to maintain and have a

high level of sophistication that needs skilled people to use them [1], [2]. According to Maugis et al [3] in the concept of technology leapfrogging, there is no need for developing countries to replicate the technological investments which were done by developing countries. Rather, they are likely to utilize mobile technology as a way of achieving economic developments. Similarly Chowdhury and Wolf [4] highlights that due to the high level of digital divide experienced by African countries, the demand of mobile phones and internet access is growing steadily. The gain of popularity in the use of mobile technology in organisations can be attributed to the wide usage in applications like access of company internet [1], mobile brokerage services[5] and mobile payment and banking services [6], [7].

Studies have shown that Information and Communication technology (ICT) help SMEs in achieving a number of goals. For example, ICT helps to save costs to significant margins in terms of transport and processing costs [8]. Also, ICT sets ensures better financial management in the firms [9], [10]. Moreover, ICT enables better customer services[11] and helps to provide products of high quality in the manufacturing sectors [12]. The results of empirical study conducted in 2003 in Tanzania, Kenya and Uganda by Chowdhury and Wolf [4] indicate the negative impact of ICT on labour while there is positive impact on market expansion in general.

Studies show that one of the successes of technological innovation depends on its perceptions towards users[13], [14]. Most of the adoption models explain the technology adoption behaviours in the form of factors which have been tested in several contexts [15]. This study, however, does not represent information in a form of a model. Instead, it is uses a grounded theory in Value Focused Thinking (VFT)[16] to collect analyse and present

fundamental objectives of SMEs on mobile phone technology. These fundamental objectives will represent limitations, benefits, and problems which are experienced by employees of SMEs in maximising their performance. The findings will then help to uncover issues which are necessary for effective acceptance of mobile phone technology in the SMEs. The results of this study will be used to discuss implications and future directions in this context.

Despite the popularity and usage of mobile technology in SMEs, their values with benefits have not clearly identified. Most of the previous studies highlight the advantages of using mobile technology in SMEs. In other words, such studies use the “what” questions when assessing the performance of the firms. The nature of “what” questions tends to return responses which comprise of the aggregate effect of multiple business processes supported by a number of firm’s resources [17]. Eventually, the later approaches fail to indicate clearly the benefits which are specifically contributed by ICT itself. Therefore, this research deploys the Value Focused Thinking (VFT) approach [16] to explore the benefits of mobile phone technology in SMEs. The target audience is SMEs which work in the Tanzania tourism sector. The rest of this paper is organized as follows: section two introduces the Tanzania Tourism SMEs, section three introduces the mobile technology, section four describes the methods which can be applied to explain the values of ICT in the firms while section five explain the methodological details of this study. Section six discusses the results and analysis while Section seven is the conclusion of this article.

## II. TANZANIA TOURISM SMES

SMEs are companies which have limits in the head counts and financial resources [18], [19]. In Tanzania, SMEs comprise of companies with head counts up to 99 and financial resources of up to 444,000USD [20]. Despite the fact that both SMEs and large companies to benefit from technological innovations, large firms have material advantages, due to their greater capability to support Research and development activities when compared to SMEs [18]. However, SMEs have behavioural advantages that give them greater flexibility and ability to adapt to changes in the market. In addition, Ghobakhloo et al [8] point out that management technique such as financial analysis, forecasting, and project management are rarely used by SMEs. Moreover, SMEs employ generalists rather than specialists and tends to rely on short time planning, informal and dynamic strategies and decision-making process and lack of standardization of operating procedures [12], [18]. All these attributes illustrate the need of getting their insights towards the usage of specific technology.

Mawona and Mpogole [6] analysed the impact ICT on financial inclusion through the adoption of

mobile phone banking among Small business owners in Tanzania where they assert that the definition of small businesses might happen to vary from country to country or from sector to sector. On the other hand the Tanzania Small Industries Development Organisation (SIDO) uses the definition which is identified in the SME policy as seen in the table 1 although they also insists that in the event of an enterprise falling under more than one category, then the level of investment will be the deciding factor [20].

TABLE 1: THE DESCRIPTION OF DEFINITION OF SMALL, MEDIUM AND LARGE ENTERPRISE (ADOPTED FROM [20])

Type of Enterprise	Micro	Small	Medium	Large
No. of Employees	0-4	5-49	50-99	100 and above
Working Capital	2,777 USD	>2800-111,100 USD	111,100-444,400USD	444,400USD and above

On the contrary, the Tanzania Revenue Authority (TRA) has different definitions for small businesses. They term a small business as the one whose annual taxable turnover is less than TZS 40 Million (USD 22,500). In this study, SMEs are defined as the businesses which comprise of five up to 99 employees and with a capital starting from 5 million (2,800 USD) up to 800 million (444,000 USD).

In Tanzania, tourism activities are given high priority due to its significance to the national economy. According to Miga [21] and URT [22], Tanzania is the only country in the world which has protected more than 25% of its landmass as a conservation area, wildlife national parks, and game reserves. Tanzania has fourteen national parks, thirty-one game reserves, fifty game controlled areas and one conservation area. The Tanzania tourism sector is managed under the tourism division which is within the Ministry of Natural Resources and [23]. For a company to run a tourism business in Tanzania, it must obtain a license from the Business Registrations and Licensing Agency (BRELA). BRELA is housed under the Ministry of Industry Trade and Marketing (MITM). In addition, each tourism company must have a valid tourism license from Tourist Agency Licensing Authority (TALA). However, the new Tanzania Tourism Act [22] requires the Tanzania Tourism Licensing Board (TTLB) to be responsible for issuing tourism licenses while the issues relating to ICT have are still being administered and regulated by the Tanzania Communications Regulatory Authority (TCRA).

The majority of tourism activities involve some activities which are performed remotely from the head offices. That means, at some time, some employees are working remote from the office. When Sitts [24], was exploring the roles of tourism to the economic development in Tanzania, he asserts that the 'primary tourism service providers' in Tanzania are hotels and safari companies in which clients/visitors often makes bookings through travel agents in their countries [24]. This practice, which is also discussed by [25] in their research agenda on Tourism supply chain management involve the concepts of tourism value or tourism value chains. This idea has also been discussed in the way companies joins to form a vertical integration industry [26]. In the tourism sector, a typical tourism value chain which is normally linked into a single supply chain consist of four components which are tourism supplier, tour operator, travel agent and customer [27].

Table 2 show a summary of the international breakdown of companies which perform tourism related activities. The sample used in this study belong these categories although some of them failed to be appropriate in this study due to failure to meet SMEs criteria in terms of financial and head counts. Therefore, after analysing the SMEs which comply with the categories, this study visited a bar, safari and tours company, sports and recreational company, studio and film production, restaurant, lodge and car rental company. The selection of appropriate sample depends on among others, the extent of usage of ICT and mobile phone technology and the SMEs criteria eligibility in terms of head counts and financial resources.

### III. MOBILE TECHNOLOGY

Mobile technology is characterised mainly by mobility as a building block [28]. In mobile technology, the computing services and internet are accessed by the mobile devices in the wireless medium [2]. The main experienced advantage of mobile technology is its mobility [29]. This mobility allows users to access computing services anywhere and at any time [29]. The time and space which are required to access information are highly reduced through the usage of mobile technology [29].

*"Users of mobile technology can have access to the Internet and mobile applications whenever the need arises, such as when "traveling, wandering, and visiting" [29].*

TABLE 2: THE DESCRIPTION OF COMPANIES PERFORMING TOURISM-RELATED ACTIVITIES [30]

<b>55</b>	<b>Hotels and Restaurants of which:</b>
	<i>551 Hotels, camp sites, and other commercial accommodation</i>
	<i>552 Restaurants, bars, and canteens</i>
<b>60</b>	<b>Land Transport, of which:</b>
	<i>601 Railways</i>
	<i>602 Other land transport</i>
	6021 Other scheduled passenger land transport
	6022 Other non-scheduled passenger land transport, including taxis
<b>61</b>	<b>Water transport of which:</b>
	<i>611 Sea and coastal water transport</i>
	<i>612 Inland water transport</i>
<b>62</b>	<b>Air transport of which:</b>
	<i>621 Scheduled air transport</i>
	<i>612 Non-scheduled air transport</i>
<b>6304</b>	<b>Travel agencies, tour operators, and tour guides</b>
<b>7711</b>	<b>Car rental</b>
<b>92</b>	<b>Recreational, cultural and sporting facilities of which:</b>
	<i>921 Motion picture, radio, television and other entertainment activities</i>
	9212 Motion picture projection
	9214 Dramatic arts, music and other art activities
	9219 Other entertainment activities
	<i>923 Libraries, archives museums and other cultural activities</i>
	9232 Museum activities and preservation of historical sites and buildings
	9233 Botanical and zoological gardens and nature reserves activities
	<i>924 Sporting and other recreational activities</i>
	9241 Sporting activities
	9249 Other recreational activities
	<i>Other tourism-related industries, e.g. retail of tourism activities, financial services etc. (see TSA)</i>

Mobile technology require reliable telecommunications infrastructure which can support technologies such as Wireless Application Protocol (WAP), Bluetooth, 3G, and General Packet Radio Service (GPRS) as well as the devices which will act as a client on the user side such as mobile phones, Personal Digital Assistants (PDAs) etc. [1], [28].

#### IV. METHODS FOR EXPLORING STRATEGIC VALUES

Different approaches have been proposed to be used to explore the benefits of a specific technology in some scenarios. For example, Mooney et al [31] established a process-oriented conceptual framework for assessing the business value of information technology to enhance our understanding of the associations between organisations and IT as well as the subsequent effects on the performance of firms. Basically, they analysed how IT influences the operational (doing business) processes and management (administration, allocation, and control) processes. In their study, operational processes are

affected by technologies such as robotics, Computer Aided Drafting (CAD), flexible manufacturing, data capture devices, imaging, and workflow systems while management processes are improved by ICT through improving availability and communication of information by emails, databases, and video conferencing.

On the other hand, Mooney et al [31] combined the concepts of business re-engineering and process innovation and other applications of ICT to design a framework seen in table 3 in which the value of ICT in business organization are grouped into three effects on business processes namely; 1) automational effects which involve efficiency perspective of value deriving from the role of ICT as a capital asset being substituted for labour, 2) informational effects which emerge essentially from the capacity of ICT to collect, store, process, and disseminate information and 3) transformational effects which comprise of the value derived from IT's

ability to facilitate and facilitate transformation and innovation of processes.

TABLE 3: POTENTIAL IT BUSINESS VALUE METRICS [31]

Business Processes	Dimensions of IT Business Value		
	<i>Automational</i>	<i>Informational</i>	<i>Transformational</i>
<b>Operational</b>	Labor costs Reliability Throughput Inventory costs Efficiency	Utilisation Wastage Operational flexibility Responsiveness Quality	Product & Service innovation Cycle times Customer relationships
<b>Management</b>	Administrative expense Control Reporting Routinisation	Effectiveness Decision quality Resource usage Empowerment Creativity	Competitive flexibility Competitive capability Organisational form

The steps which are followed in VFT approach in decision making are seen in fig. 1.

Another method which could be used to in this research is described by Soh and Markus [32]. Their method is in the form process theory which shows the relationship between ICT investment and business value. The compilation of this method involves the Lucas [33]'s idea of "Appropriate Use" which is concerned with how IT increases firm performance, Grabowski and Lee [34]'s idea of "Strategic Fit" which focus on the fit between strategic type of an organization, cost structure and IS application portfolio; and the study of Markus and Soh [35] which focuses on the "IT assets" between IT investments and organizational performance.

Another approach is based on generating alternatives followed by evaluating them and choosing the best one based on different criteria [36]. This approach is perceived by Keeney [16] as a reactive rather than proactive in the sense that it does not come up with new ideas from all stakeholders. As a result, Keeney et al [36] proposed the idea of Value-Focused Thinking (VFT). In VFT, instead of alternatives, values are treated as the primary focus of decision-making. Keeney (1994) asserts that alternatives are relevant only as a way of finding the values. This study uses VFT in exploring these strategic benefits.

#### V. METHODOLOGY AND DATA COLLECTION

VFT involves conducting deep one to one interviews to articulate and organise the data from the individuals. Keeney [37] define values as principles which are used for the evaluation. That is, values are the desires of individuals in particular decision context. According to Keeney [37], these values of concern to the explicitly identified by first identifying the objectives. An objective is defined by Keeney [37] as a statement of something that is desired to be achieved by someone. An objective should have specific attributes like a decision context, an object and a direction of preference [38]. fundamental objectives highlights which consequences of the decision are important enough to drive decision-making [39]

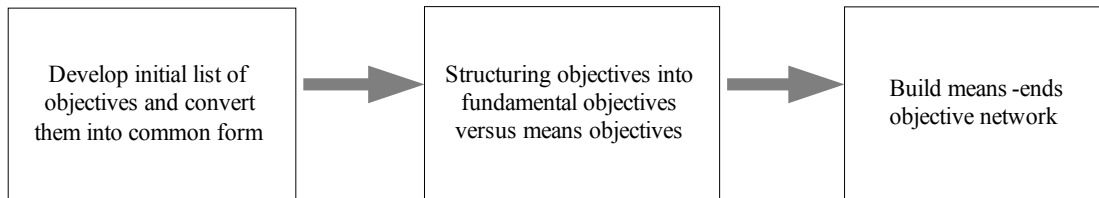


Fig 1: Procedures of Value-Focused Thinking (adopted from [37])

According to Keeney [37], the first step is to develop an initial list of objectives and convert them into a common form. Also, Keeney [37] points out several techniques which can help to identify possible objectives including ‘wish list’, alternatives, problems and shortcomings and consequences. However, the experience the users have on mobile technology usage influences the technique which can be used. For example, in a case study in a corporate scenario where the existing Enterprise Resources Plan (ERP) was intended to be replaced by mobile technology (which was not in place), the wish list seemed to be the preferable technique used to identify the values (see [40]). Similarly, the scenario where the values of mobile applications in the education environments in which students and lecturers had a significant experience in the usage of mobile technology by then, two techniques were used: “*benefits and problems*” and “*wish list*” (see [28]). The usage of mobile phone technology by SMEs in the developing countries like Tanzania has, obviously, been in place for a significant long time. Therefore, this study assumes that managers and employees in SMEs have enough knowledge of identifying the benefits mobile technology offers to them as well as the other concerns they have on the mobile technology towards their business usage. Therefore, this research targeted the benefits, problem and challenges and any limitations which are associated with using mobile phones in SMEs.

The second step is to structure objects-fundamental objectives versus means objectives in order to differentiate fundamental objectives from means objectives. According to Keeney [37], fundamental objectives refer to ‘*the ends that decision makers value in a specific context*’ while means objectives refer to the ‘*methods to achieve ends*’. Separating means objective from fundamental objectives needs a specific approach. Sheng et al (2005) used a test called “*why is that important (WITI)?*” in each of the identified means objective. Asking WITI tends to force respondents to think critically about the relationships between objectives[28], [41]. Therefore, the question is repeatedly asked until the fundamental objectives were reached. On the other hand, asking “Why is that important” is described by Sheng et al.[38] that it results with two main outputs; 1) this objective among essential reasons for interest in the situation and is fundamental for decision making and (this is fundamental objective) and 2) will help understand its implication to some other objectives (this is called

means objective). Therefore, in case a respondent poses a means-objective and happen that it cannot be broken or explained further through WITI approach that means it is actually a fundamental objective by itself.

The third step of VFT is to build the means-ends objective network. This hierarchical network is in the form of a model which contains specific interrelationships among the discovered means objectives and how they influence the fundamental objectives. The technique used to organise the means-ends objective network is also called Means-Ends Chain theory (MEC)[41]. A Means-ends chain refers to the model which explains how a service or product is used to achieve desired end states[41]. Means-ends chains are normally elicited by using laddering technique[41]. Laddering is a technique which involves in-depth, one –to-one interview to develop an understanding on how consumers translate the attributes of products into their personal values[41].

Therefore, at the end of the third stage of VFT, the values of mobile phone technology in the tourism SMEs will be able to be articulated. The probing questions which were asked to our subjects are:

- 1) What are the benefits offered by the usage of mobile phone technology to your company?
- 2) What features you wish to be included in the mobile phones?
- 3) What are the problem and challenges you face in using mobile technology in your company?

The assumptions are that, through asking these questions, both the concerns and benefits of using mobile phones in the SMEs will be determined. The problem and challenges will help to uncover issues for improvements.

The VFT is perceived to be suitable for this study because it is a flexible approach which can easily be used in multiple contexts in terms of technology types, organization types as well as locations, therefore, it can fit well with this study once it is contextualized to Tanzania. For example, VFT has also been used in the disciplines in the likes of environmental risk consultations [42] improving watersheds [43] in which its diversity nature into multiple contexts have been realised.

The average time duration for each interview was approximately 40 minutes. The idea of seeking

information from both managers and employees was to acquire insights from both operational and managerial roles in the SMEs. Some of the objectives were suggested by respondents in their own expressions, therefore they were grouped according to their logical meanings. The stoppage of each interview depended on whether the author was satisfied that the respondents explained all means-ends objectives until no further breakdown was essentially possible through WITI approach.

## VI. ANALYSIS OF RESULTS AND DISCUSSIONS

The interviewed subjects comprised of 17 of which 8 were managers/owners and 7 are ordinary employees in the SMEs. The techniques which were used to identify the values from these subjects were mainly benefits (of using mobile phone technology), problems and challenges encountered, their wishes towards on mobile technology functionalities and features as well as any other concerns they have. The means objectives which were identified are explained in detail in Table 4. Principally, these means objectives are the one which helps to generate the fundamental objects.

TABLE 4: MEANS-ENDS OBJECTIVES

<p><b>Maximise Network Coverage</b> Example: Improve areas of accessibility coverage Maximise the ways of accessing mobile banking services</p>	<p><b>Maximise Security Features</b> Examples: Protecting user information Ensure safety in mobile money transactions</p>
<p><b>Maximise Usability of Mobile Phones</b> Example: Improve applications to suit SMEs needs Improve the easy-of-use of mobile applications</p>	<p><b>Increase Bandwidth of Network</b> Example: Increase amount of data packets Ensure reliable and constant data access in different locations</p>
<p><b>Maximise QoS of Mobile Services</b> Example: Improve mobile network quality Improve performance of mobile phones</p>	<p><b>Maximise speed of network connections</b> Example: Ability to download and upload large packets of data Allow multitasking network-related activities</p>
<p><b>Minimise Mobile Money Transaction Costs</b> Example: Reduce transfer costs for withdrawing money from phones Reduce costs in SIM banking (transferring funds from bank to mobile phones and vice versa)</p>	<p><b>Maximise performance of mobile services</b> Example: Increase speed of processing tasks Reduce delays in sending/receiving files to customers and employees</p>
<p><b>Maximise Phone Battery life</b> Example: Having batteries which stay longer before they diminish charge</p>	<p><b>Maximise Utilisation of Mobile Money Services</b> Example: Maximise options of mobile money services to more banks Maximise merchandise payments in the supply offices through mobile money accounts</p>
<p><b>Improve User interface of Mobile Phones</b> Example: Improve size and interactivity of mobile phone contents Include features which will favour users regardless of age and gender</p>	<p><b>Maximise Profits in the SMEs</b> Example: Open more business opportunities Simplify work processes and improve productivity Ability to manage business progress at any time anywhere</p>
<p><b>Maximise Collaborations between stakeholders</b> Example: Able to clarify specifications of products and services Manage customer contacts Allow broadcast of business updates</p>	<p><b>Facilitate Contactless Businesses</b> Example: Ability to conduct business supply chain without eye-to-eye meeting Allow mobile phone to keep details on specific business deal</p>

- Maximise business information between SMEs of



<p><b>Minimise Cost of Mobile Phones</b></p> <p>Example: Minimise cost to be affordable by many people</p>	<p><b>Maximise Marketing Effectiveness</b></p> <p>Example: Ability to exist more mobile applications which allow sharing of information and communications with low cost</p> <p>Improve SMEs communication mechanisms</p>
<p><b>Maximise Sharing of Information</b></p> <p>Example: Facilitate feedback reviews on services</p> <p>Ensure that the purchased good has agreed specifications for contactless situations</p>	<p><b>Maximise Communication with customers and employees</b></p> <p>Example: Ability to configure organisational-customised mobile network with security features</p> <p>Allow SMEs group-based communication in which queries can be attended by any of the employees.</p>

As seen in table 5, the analysis of the means-ends objectives yields are five identified fundamental objectives; maximise mobile network coverage and quality, maximise collaboration and sharing of information, maximise security in the provision of mobile services and maximise battery life and processing capacity of mobile phones. According to Keeney [37], these objectives represents the fundamental values of mobile phone technology in the SMEs as perceived by managers and employees. In this sense, the fundamental reasons for designing mobile phone technologies for SMEs should be based on these objectives. The means –ends objective network is shown in Fig. 2. The summary of each of these fundamental objectives is discussed below.

#### A. Maximise Mobile Network Coverage and Quality

Most of developing countries have low readiness features in terms of poor ICT infrastructure, low financial capabilities, low Skills of individuals, unreliable electric power supply etc. [19]. Eventually, SMEs are shifting to the usage of mobile phones in performing their activities. The fact that they are ready to shift to the mobile technology even though they have not been into the usage of personal desktop computers is hinted in the concept of technology leapfrogging [3]. Maugis et al. ([3] assert that the ICT readiness in a country or society cannot be explained by measuring access to internet services only. Instead, each society or country has not only specific priorities but only opportunities and strength which explain their actual ICT readiness. In this scenario, Developing countries in the likes of Tanzania are taking advantage of mobile technology to advance to higher levels. However, despite the notable contributions mobile phone technology has, the network coverage is still a great challenge. These challenges have also been highlighted by Sedoyeka, E [44], Mashenene [45] and Mawona & Mpogole [46]. The challenge is more serious on the accessibility of data services in most of the rural areas. The usage of internet in performing business activities as discussed by our subjects is of much concern since it supports not only marketing of their products through social media but also enabling business-related discussions through online chats. The other side of this challenge is based on the quality of service (QoS). The subjects report their concerns on call dropouts and unreliability of network services. For example, they assert that this becomes realised when they perform data services

which involve downloading or uploading large files. This challenge has also been discussed in a study of Tanzania by Mtaho & Ishengoma [47] by exploring the key factors which are associated with the QoS of cellular networks in Tanzania. One of the findings in their study is that despite having moderate network coverage in urban areas, the network capacity is still limited, by providing an example of an area surrounding the University of Dodoma (UDOM) Tanzania. They assert that, despite having more than 23,000 mobile phone subscribers at UDOM, the area had only three Base Transceiver Stations (BTSs) which could handle an average of approximately 7500 mobile phone subscribers per single BTS. This number is too large for one BTS [47].

TABLE 5: FUNDAMENTAL OBJECTIVES

<p><b>Improve security in mobile devices and money transactions</b></p> <p>Example: Ensure security in using mobile phones</p> <p>Ensure security of mobile money transactions</p>	<p><b>Minimise Acquisition and Operational Costs</b></p> <p>Example: Reduce costs in acquiring mobile devices</p> <p>Reduce operational costs and taxes in using mobile phones</p>
<p><b>Maximise Battery life and processing capacity of mobile phones</b></p> <p>Example: Ability of battery to survive for longer time</p> <p>Increase the capacity of mobile phones to store large amount of data and higher processing speeds</p>	<p><b>Improve Mobile Network Coverage and Quality</b></p> <p>Example: Enable accessibility of mobile services in wide possible area</p> <p>Improve service quality around the country</p>
<p><b>Maximise Collaboration and Sharing of Information</b></p> <p>Example: Provide affordable means of broadcasting information</p> <p>Allow sharing of large files with or without access to network data availability</p>	

*B. Minimise Acquisition and Operational Costs*

Despite the fact that the acquisition costs of mobile phones are relatively less compared to the desktop computers is one of the reason of accepting it [48]. However, the financial capacity of most of the people in developing nations is relatively low as compared to the developed counterparts [49]. In the existing situation, a number of people can afford to buy an ordinary phone which can perform basic functionalities for SMEs such as mobile banking, calls, and text SMS. However, for them to access internet enabled handsets, they need more sophisticated ones which are more expensive. The need for internet services calls for more reduction of acquisition costs to affordable prices.

Operational costs are another serious challenge of concern to the SMEs stakeholders in Tanzania. Despite the big number of mobile phone operators in the country, the service costs are still high as perceived by the users. However, there is promising news recently due to the continual distribution of the

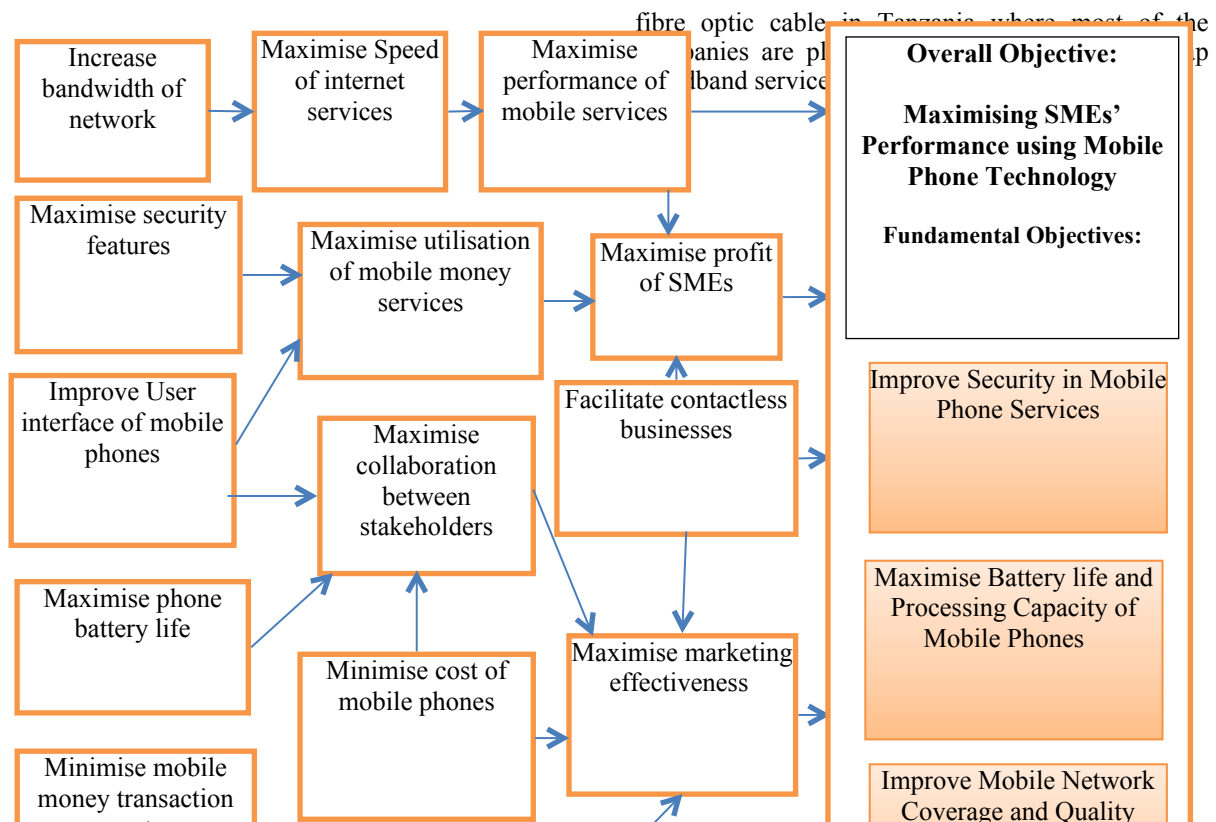


Fig 2: Means-ends objective network

### *C. Maximise Collaboration and Sharing of Information*

The mobile phones built in the current age are full of many applications which can perform a number of business activities in the SMEs [45]. However, this study found that only a small portion of functionalities of mobile phones are fully utilised for the benefit of SMEs. For example, functionalities such as alarms and memos are rarely used by a number of interviewed people while also they are unaware of some of the useful applications which could have helped them to a large extent. There are several opportunities which come along with mobile phone usage in Tanzania. The large part of Tanzania SMEs use mobile phones for communications in performing a number of activities. It is therefore suggested to find a way of bringing the services the SMEs by considering the infrastructural characteristics of Tanzania.

### *D. Maximise Security in Provision of Mobil Money Services*

The mobile phone allows a business to be conducted by parties anywhere anytime. The special aspect in the developing context is the ability of the mobile phone to act as a tool for making payments [13], [46]. The business models in developed countries involve payment methods such as internet banking which have been subjected to different studies on how to deal with security aspects. Eventually, the security has been a serious issue starting from the company up to the law and policy levels.

Unfortunately, security issues in the mobile banking in the developing countries have mostly been left to the regulatory authorities and operators with possible gaps in the policy and law aspects. This can be attributed also to the lack of studies in the contexts of developing regions as compared to the developed nations.

The nature of business practices in SMEs does not confine with policy and regulations in the work environment. For example, most of the business are done contactless where the overall process chain from agreement up to the payment does not require face-to-face meetings. In these types of businesses, trust is the key aspect. Therefore, the wishes of the users of mobile technology are to see them keeping on with the business with guaranteed safe environment.

### *E. Maximise Battery Life and Processing Capacity of Mobile Phones*

Dealing with the usage of mobile phone technology at the company level poses a challenge of the battery capacity. Taking into consideration the fact that the supply of electricity is not constant while is not available in the majority of rural areas in the country, users face difficulty to stay on the network for a long time. Even though there are alternative initiatives such as solar power supply which have seen to bring huge relief [51], it is still also expensive to be financed at the SMEs level.

In addition, mobile phone devices have low memory and processing speeds compared to the desktop computers[14]. Also, the unfriendly small display in the majority of mobile devices poses a challenge for its usability and interactivity[52]. These challenges leave SMEs in the utilisation of mobile phones as a supportive technology in most of the core activities.

## VII. CONCLUSION

This article has explored the wishes, concerns, problem and concerns of users of mobile phone technology who are working for SMEs in the Tanzania tourism sector. This information is presented in the form of fundamental objectives which eventually represents the values mobile phone technology has to their usage context. The methodology used to capture and analyse this information is grounded to the VFTtheory in which the means objectives were used to identify the fundamental objectives which are the key values of mobile phone technology in the Tanzania tourism SMEs. The results were analysed where implications and future studies were also highlighted.

## REFERENCES

- [1] F. F.-H. NAH, K. SIAU, and H. SHENG, 'The VALUE of Mobile Applications: A Utility Company Study', *COMMUNICATIONS OF THE ACM*, vol. 48, no. 2, p. 85, 2005.
- [2] C. López-Nicolás, F. J. Molina-Castillo, and H. Bouwman, 'An assessment of advanced mobile services acceptance: Contributions from TAM and diffusion theory models', *Information & Management*, vol. 45, no. 6, pp. 359–364, 2008.
- [3] V. Maugis, N. Choucri, S. E. Madnick, M. D. Siegel, S. E. Gillett, F. Haghseta, H. Zhu, and M. L. Best, 'Global e-readiness—For what? Readiness for e-banking', *Information Technology for Development*, vol. 11, no. 4, pp. 313–342, 2005.
- [4] S. K. Chowdhury and S. Wolf, *Use of ICTs and the economic performance of SMEs in East Africa*. WIDER Discussion Papers//World Institute for Development Economics (UNU-WIDER), 2003.
- [5] C. A. Looney, L. M. Jessup, and J. S. Valacich, 'Emerging business models for mobile brokerage services', *Communications of the ACM*, vol. 47, no. 6, pp. 71–77, 2004.
- [6] A. Mawona and H. Mpogole, 'ICT and financial inclusion: Adoption of mobile phone banking among small business owners in Iringa, Tanzania', in *IST-Africa Conference and Exhibition (IST-Africa), 2013*, 2013, pp. 1–9.
- [7] J. D. Rumanyika, 'OBSTACLES TOWARDS ADOPTION OF MOBILE BANKING IN TANZANIA: A REVIEW', 2015.
- [8] M. Ghobakhloo, D. Arias-Aranda, and J. Banitez-Amado, 'Adoption of e-commerce applications in SMEs', vol. 111, pp. 1238–1269, 2011.
- [9] P. Datta, 'A preliminary study of ecommerce adoption in developing countries', *Information Systems Journal*, vol. 21, no. 1, pp. 3–32, 2011.
- [10] M. Runevad and S. Olofsson, 'ICT Adoption Among Tanzanian SMEs: Barriers Hindering Internet Use', 2014.
- [11] J. D. Rumanyika, 'The Dynamics of Mobile Phone Technologies and the Performance of Micro and Small Enterprises in Tanzania', *ISBN: 978-1-63415-751-3*, no. Proceedings of the Third Asia-Pacific Conference on Global Business, Economics, Finance and Banking (AP15Singapore Conference), 2015.
- [12] N. Rizk, 'E-readiness assessment of small and medium enterprises in Egypt: A micro study', 2004.
- [13] R. A. Onyango, R. W. Ongus, F. M. Awuor, and C. Nyamboga, 'Impact of Adoption and Use of Mobile Phone Technology on the Performance of Micro and Small Enterprises in Kisii Municipality Kenya', *World Journal of Computer Application and Technology*, vol. 2, no. 2, pp. 34–42, 2014.
- [14] J. van Biljon and P. Kotzé, 'Modelling the Factors That Influence Mobile Phone Adoption', in *Proceedings of the 2007 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on IT Research in Developing Countries*, New York, NY, USA, 2007, pp. 152–161.
- [15] T. Oliveira and M. F. Martins, 'Literature Review of Information Technology Adoption Models at Firm Level', *The Electronic Journal Information Systems Evaluation Volume 14 Issue 1, (pp110- 121)*, 2011.
- [16] R. . Keeney, 'Value-focused Thinking', *Harvard University Press, Cambridge, MA*, 1992.
- [17] C. Soh and M. L. Markus, 'How IT creates business value: a process theory synthesis', *ICIS 1995 Proceedings*, p. 4, 1995.
- [18] M. Hourali, M. Fathian, A. Montazeri, and M. Hourali, 'A Model for E-Readiness Assessment of Iranian Small and Medium Enterprises', *Journal of Faculty of Engineering*, vol. Vol. 41, No. 7., pp. 969–985, 2008.
- [19] W. H. Makame, J. Kang, and S. Park, 'Factors influencing electronic commerce adoption in developing countries: The case of Tanzania', *South African Journal of Business Management*, vol. 45, no. 2, pp. 83–96, 2014.
- [20] URT, 'Tanzania SME Development Policy 2003: "ten years after", Implementation Review'. 2013.
- [21] MIGA, 'Attracting Investment in Tourism: Tanzania Investor Outreach Program: World Bank Group: Multilateral Investment Guarantee Agency'. 2006.
- [22] URT, 'Tanzania Profile: Ministry of Natural Resources and Tourism, The Republic of Tanzania'. 2008.
- [23] URT, 'Tourism Master Plan: Strategy and Actions: Ministry of Natural Resources and Tourism, The United Republic of Tanzania'. 2002.
- [24] S. Sitts, 'Tourism and Economic Development in Tanzania '. 2009.

- [25] X. Zhang, H. Song, and G. Q. Huang, 'Tourism supply chain management: A new research agenda', *Tourism Management*, vol. 30, no. 3, pp. 345–358, Jun. 2009.
- [26] K. R. Harrigan, 'Vertical integration and corporate strategy', *Academy of Management journal*, vol. 28, no. 2, pp. 397–425, 1985.
- [27] M. Kaukal, H. Werthner, and W. Hoepken, 'An approach to enable interoperability in electronic tourism markets', *ECIS 2000 Proceedings*, p. 121, 2000.
- [28] H. Sheng, K. Siau, and F. F.-H. Nah, 'Understanding the values of mobile technology in education: a value-focused thinking approach', *ACM SIGMIS Database*, vol. 41, no. 2, pp. 25–44, 2010.
- [29] S. Sarker and J. D. Wells, 'Understanding mobile handheld device use and adoption', *Communications of the ACM*, vol. 46, no. 12, pp. 35–40, 2003.
- [30] OECD, 'Measuring the Toel of Tourism in OECD Economies: The OECD manual on Tourism Satellite Accounts and Employment'. 2001.
- [31] J. G. Mooney, V. Gurbaxani, and K. L. Kraemer, 'A process oriented framework for assessing the business value of information technology', *ACM SIGMIS Database*, vol. 27, no. 2, pp. 68–81, 1996.
- [32] C. Soh and M. L. Markus, 'How IT creates business value: a process theory synthesis', *ICIS 1995 Proceedings*, p. 4, 1995.
- [33] H. C. Lucas Jr, 'The business value of information technology: a historical perspective and thoughts for future research', in *Strategic information technology management*, 1993, pp. 359–374.
- [34] M. Grabowski and S. Lee, 'Linking information systems application portfolios and organizational strategy', in *Strategic information technology management*, 1993, pp. 33–54.
- [35] M. L. Markus and C. Soh, *Banking on information technology: converting IT spending into firm performance*. IGI Global, 1993.
- [36] R. . Keeney, 'Value-focused Thinking', *Harvard University Press, Cambridge, MA*, 1992.
- [37] R. . Keeney, 'Value-focused Thinking', *Harvard University Press, Cambridge, MA*, 1992.
- [38] H. Sheng, F. F.-H. Nah, and K. Siau, 'Strategic implications of mobile technology: A case study using value-focused thinking', *The Journal of Strategic Information Systems*, vol. 14, no. 3, pp. 269–290, 2005.
- [39] R. L. Keeney, 'Creativity in decision making with value-focused thinking', *Sloan Management Review*, vol. 35, pp. 33–33, 1994.
- [40] H. Sheng, F. F.-H. Nah, and K. Siau, 'Strategic implications of mobile technology: A case study using value-focused thinking', *The Journal of Strategic Information Systems*, vol. 14, no. 3, pp. 269–290, 2005.
- [41] Reynolds and Gutman, 'laddering theory, method, analysis, and interpretation', 1988. [Online]. Available: <https://www.google.ie/webhp?sourceid=chrome-instant&ion=1&espy=2&ie=UTF-8#q=Reynolds+%26+Gutman%2C+1988>. [Accessed: 11-Mar-2016].
- [42] R. Gregory, J. Arvai, and T. McDaniels, 'Value-focused thinking for environmental risk consultations', *Research in Social Problems and Public Policy*, vol. 9, no. 3, pp. 249–73, 2001.
- [43] J. R. Merrick and M. W. Garcia, 'Using value-focused thinking to improve watersheds', *Journal of the American Planning Association*, vol. 70, no. 3, pp. 313–327, 2004.
- [44] E. Sedoyeka, 'Obstacles in bridging the digital divide in Tanzania', *International Journal of Computing and ICT Research*, vol. 6, no. 1, pp. 60–72, 2012.
- [45] R. Mashene, 'The Dynamics of Mobile Phone Technologies and the Performance of Micro and Small Enterprises in Tanzania', 2015.
- [46] A. Mawona and H. Mpogole, 'ICT and financial inclusion: Adoption of mobile phone banking among small business owners in Iringa, Tanzania', in *IST-Africa Conference and Exhibition (IST-Africa), 2013*, 2013, pp. 1–9.
- [47] A. B. Mtaho and F. R. Ishengoma, 'Factors Affecting QoS in Tanzania Cellular Networks', *arXiv preprint arXiv:1410.0533*, 2014.
- [48] G. O. Essegbey and G. K. Frempong, 'Creating space for innovation—The case of mobile telephony in MSEs in Ghana', *Technovation*, vol. 31, no. 12, pp. 679–688, 2011.
- [49] I. Marmaridis and B. Unhelkar, 'Challenges in Mobile Transformations: A Requirements Modeling Perspective for Small and Medium Enterprises.', in *ICMB*, 2005, pp. 16–22.
- [50] TCRA, 'Tanzania Communications Regulatory Authority: "QUARTERLY TELECOM STATISTICS"'. 2013.
- [51] La. Nolan, 'How Solar Phone Charging Businesses in Tanzania are meeting the Energy Demand of Mobile Phone Users'. Global Village Energy Partnership (GVEP) International, 19-Jan-2015.
- [52] T. S. Teo, V. K. Lim, and R. Y. Lai, 'Intrinsic and extrinsic motivation in Internet usage', *Omega*, vol. 27, no. 1, pp. 25–37, 1999.