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# Mobile Technology Usage for Street Traders' Market Search in Dodoma—Urban Tanzania: An Exploratory Study

Research Paper

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## ABSTRACT

Increased access to mobile technologies has significantly contributed to almost all types of work, including informal work. Mobile phones are one such technology that has been exponentially adopted and used by street traders. However, there is limited information about how street traders use mobile phones to search for new markets. This study investigated street traders' mobile usage for new market search in Dodoma, Tanzania. Qualitative data were collected using in-depth interviews with 29 street traders, followed by a focus group discussion with eight street traders. Thematic analysis was used to analyze the data. The results show that using mobile phones to search for new markets is scarcely practiced due to certain challenges, such as high costs, technical problems, misuse of mobile contacts by customers, and a concentration of similar products in one location. The findings call for a reduction of mobile service costs, improvement of mobile infrastructure, and provision of education to street traders and customers so that they learn how to use mobile phones for business communication more effectively as well as to abide by communication ethics.

**KEY WORDS:** Mobile technology, Mobile phone, Street traders, Market search, Tanzania

## INTRODUCTION

Mobile technologies provide numerous development opportunities and innovation in different forms (Loudon, 2016). For instance, the rapid adoption of mobile phones and the subsequent development of mobile applications have greatly transformed the ways in which entrepreneurs carry out their businesses nowadays (Aker and Mbiti, 2010). The decision to choose mobile phone technology is attributed to its being among the information and communication technology (ICT) devices that are affordable, available, accessible, and easy to operate. For example, in Africa, no technology has spread faster throughout the continent than mobile phone technology (Deen-Swararay, Mpho and Christoph, 2013). Mobile phones have inspired vast populations around the world to admire, adopt, and use them (Boateng, Robert, Rakiya and Longe, 2014). Informal workers (e.g., street traders) are also among the numerous individuals influenced to use mobile phones.

Through mobile phone usage, informal workers have the opportunity to utilize the mobile phone-enabled services, such as voice calls, short messaging services (SMS), multimedia messaging services (MMS), mobile application-based services, mobile money, and other applications. The findings by Mramba, Rumanyika, Apiola, and Suhonen (2017) show that numerous ICT solutions for informal workers run on ordinary mobile phones and smartphones. Additional research by Mramba (2018) points to mobile phones as important technological tools that could transform street trade.

Street trading is the most visible segment of an informal economy, primarily available in developing countries. Cross (2000) defines street trade as “the production and exchange of legal goods and services that involve the lack of appropriate business permits, violation of zoning codes, failure to report tax liability, and non-compliance with labor regulations.” Wongtada (2014) defines street traders as “persons who offer goods for sale to the public without having a permanent built-up structure” They are also known as hawkers, peddlers, street vendors, urban vendors, or micro-traders (Wongtada, 2014). In Tanzania, the Kiswahili word for the street trader is *Machinga* (Mramba, Apiola, Sutinen, Msami, Tina and Haule). In Dodoma and Tanzania in general, thousands of people who are less educated and poor, are joining street trade on a daily basis. The main reasons for this relate to falling out of formal employment, low agricultural outputs, and lack of support from the government (Mramba, 2018). These reasons, and the proliferation of street vendors, motivates more research to be conducted that focuses on empowering them, particularly through accessible mobile technology.

There are a number of studies that address how street traders search for new markets or develop a new market in Tanzania. A study by Mramba et al. (2015) reports conventional market search as the most common technique used by street traders. This technique comprises of street traders walking in streets or displaying products in stationary places on temporary structures soon after purchasing wholesale products. Another reported technique is the use of estimates and long-term experience with high or continuous population areas. The latter are bus stands, traffic jam roads, universities and higher learning institutions, nearby government and private offices as well as local auctions (Malefakis, 2015; Mramba et al., 2015).

Katrijn (2016) also reports that the street traders search for new markets in the Moshi municipality is done by attracting customers and creating brand awareness through promotion of supporting tools such as microphones and amplifiers. Other known techniques include young traders holding improvised performances to draw a crowd's attention. With respect to the ICT tools used for new market search, several studies provide evidence from various perspectives. A study by Wetengere (2013) reveals that the use of mobile phones has provided timely and accurate market information and has improved the

negotiating power of small-scale farmers (SSFs) with their products' buyers. A study by Barakabitze, Fue, and Sanga (2017) shows that 80% of SSFs in Tanzania access agricultural information through SMS and MMS because the majority of them own mobile phones, which enable easy communication with customers, agricultural researchers, and extension officers. From various evidence, there is little doubt that both conventional and mobile phone use for new market search still prevails among informal workers.

Despite the evidence shown by recent research on the potential and contribution of mobile phone technology for market search among informal workers in Tanzania (Kiberiti, Sanga, Mussa, Tumbo, Mlozi and Haug, 2016), there is still limited information pertaining to how street traders use mobile phones to attract new markets in urban parts of Dodoma. A study conducted by Mramba et al. (2015) in Dar es Salaam reveals that street traders do not have reliable information about existing potential customers and product demand in different locations at different times. Thus, most street traders walk long distances in search of regular or new customers by coincidence. In most cases, street traders cannot communicate and make follow-ups with their customers after initial sales because the relationship between the two ends once a transaction is concluded. Consequently, customers cannot recommend street traders to their fellow customers and street traders cannot keep track of their customers. This prevailing business approach limits their market expansion. Thus, similar situations could also be taking place in Dodoma, where street traders could either be using mobile phones or not using mobile phones to search for new markets. Details about the street traders' use of technology in various contexts are largely uncharted. Consequently, this study explored how street traders make use of mobile phones to search for new markets in Dodoma, Tanzania.

## Research Questions

To address the research gaps identified above, this study sought answers to two research questions:

*RQ1:* How do street traders currently use mobile phones to search for new markets in Dodoma, Tanzania?

*RQ2:* What are the advantages and disadvantages of present mobile phone usage for market search?

## LITERATURE REVIEW

### Mobile Phone Usage for Micro and Small Enterprises in Tanzania

Micro and small enterprises (MSEs), or micro businesses, are terms that refer to small capital businesses with less than five employees on average (URT, 2002). The majority of researchers who focus on Tanzania have concentrated on the adoption and use of ICTs for MSEs or micro businesses (Matambalya and Wolf, 2001; Mwakaje, 2010). Other studies on mobile phone use have concentrated on understanding how mobile phones are used for communicating agricultural information (e.g., Nyamba and Mlozi, 2012) and on the use of mobile phones for the economic development and performance of small and medium enterprises (SMEs) (e.g., Melchioly and Øystein, 2010; Rashid and Elder, 2009).

However, the use of ICTs, especially mobile phones, has frequently been mentioned by several scholars as an opportunity to transform the challenges facing informal workers. For example, Mramba (2018) recommends the design and development of various ICT-enabled services, such as product databases, catalogues, electronic-word of mouth, electronic- buyer, seller platforms, and pricing and promotion

applications, to improve the street traders' marketing strategies. Mobile phones have also brought financial inclusion to street traders and to micro business in general. For instance, in Tanzania, a person can borrow up to (US\$170.98 or 399,650.04 TZS) through mobile money services (e.g., Airtel Timiza), and others without collateral (Citizen, 2017). These services are available anywhere, anytime, without any bureaucratic procedures, and the amount obtained is enough for anyone to start a small business. In addition, mobile phones also provide an educational opportunity to micro business entrepreneurs like street traders (Gomera and Apiola, 2015).

For small scale traders and farmers, mobile phones provide an opportunity to connect in order to obtain instant marketing information, including demand, price, and supply, and to make an affordable informed decision (Tadesse and Bahigwa, 2015). Social networks, such as Instagram, WhatsApp, Twitter, YouTube, and others, offer an avenue through which traders can advertise their products and consequently increase their sales. For example, a study by Barakabitze et al. (2017) shows that 80% of small scale farmers in Tanzania access agricultural information through SMS and MMS because the majority of small scale farmers own mobile phones, enabling easy communication with customers, agricultural researchers, and extension officers. Mobile phones are anticipated to assist many forms of communication for small scale farmers, women entrepreneurs, own manager suppliers, product transporters, and many others (Giridher, Kim, Rai, Hanover, Yuan, Zarinn, Scharff, Wasilewska and Wong, 2009; Komunte, 2017).

## Market and Market Search Definitions

*Market.* The definitions of a market vary from country to country and from researcher to researcher. Kotler and Armstrong (2012) define the market as “a set of actual and potential buyers of products or services.” These buyers share a particular need or want that can be satisfied through an exchange of worth. Likewise, Nyström (2002) defines the market as a “physical or virtual set up where the buyers and sellers exchange goods and services.” These two definitions share similar views, indicating that a market exists when buyers and sellers exchange goods or services.

*Market search.* Market search is not precisely defined in the literature. However, this study adopts the concept presented by Hall (2008), which defines market search as “recruiting and adapting the principles of marketing to find new customers.” Market search is sometimes compared to the search-matching model in which firms make an effort in advertising to form long-term contractual relationships and bargain over prices with their customers (Matha and Pierrard, 2011). The market is always incomplete, therefore, there is often a continuous need to search for more customers through advertisements, promotions, and similar marketing strategies (Matha and Pierrard, 2011). Based on these viewpoints, market search is similar to market development, which originates from Ansoff (1957) and is also known as the *Ansoff Matrix* (Ansoff, 1957).

According to this model, market development is done by presenting existing products to fresh and new markets (i.e., penetrating new markets using existing products). A new market may be a new segment, new customers, new country, or a new distribution channel. Marketing development means selling existing products to a new market. Thus, market search or market development is about acquiring new customers for something someone is selling (i.e., increasing market size). Market search/development can be conducted through serving new market segments, acquiring new distribution channels, or going to new geographic areas. This theory believes that current markets are fully satisfied, therefore, new markets should be acquired to make more sales and increase market share. From this viewpoint, a

marketer is obliged to enable potential buyers to recognize, analyze, interpret, evaluate, and remember to recommend their products (Ham, Nelson and Das, 2015). In this study, the term market search and market development were used interchangeably.

## THEORETICAL LITERATURE REVIEW

This study adopted the conceptual framework of mobile phone impact on micro-trading developed by Boateng (2011). This is due to the scarcity of the specific theory (or theories) that exactly fit the study which is related to mobile technology usage for informal workers, or micro-enterprises, or micro-business. The evidence shows that the penetration of mobile phones in Sub-Saharan Africa countries was high at the end of the first decade of the 21st century (Aker and Ksoll, 2016), therefore, theories that exactly guide the studies related with ICT diffusion for informal workers are few.

The adopted conceptual framework is suitable for this study because it describes three important stages of micro-trading in relation to the use of mobile phones. The first stage includes using mobile phones during pre-trade activities e.g., communicating with wholesalers. The second stage concerns using mobile phones during trade activities e.g., keeping sales records. The third stage involves using mobile phones during post-trade activities e.g., booking products and tracking debtors. These mobile phone uses, in all aforementioned trading stages are expected to create operational, relational, and strategic benefits that are crucial for the transformation of micro-business activities, including those of street traders. Based on this perspective, our study discussed how street traders use mobile phones in all three trade-activity stages along with the reference to market search. Therefore, our study used the terms *pre-market search*, *during-market search*, and *post-market search* to fit the study objectives.

In the adopted and modified conceptual framework, presented in Figure 1 below, the relevant applied technology is the mobile phone. The benefits of using mobile phones are improved communication, advertisement, customer retention, and cost reduction. This implies that, when mobile phones are used effectively in the search for new customers, there is an opportunity to increase the number of customers, which is similar to expanding the market. Boateng (2011) considers the adoption of mobile phones to be a crucial approach leading to efficiency and business performance improvement. Mobile phones consist of features that offer opportunities for diverse functionalities and applications, such as convenience, personalization, immediacy, and instant connection (Boateng, 2011).

The readiness to adopt mobile phones and use them for business activities provides the chance for the users to experience their potential features, benefits, and opportunities. The perceived benefits received from mobile phone use are, namely, strategic, relational, and operational. The operational benefits, in connection to this study, include the reduction of product or service delivery costs. Through mobile services, such as SMSs (e.g., bulk messages), voice calls, promotional packages, and advertising platforms (e.g., WhatsApp, Twitter, Facebook, and Instagram), and other mobile apps contextualized to suit user requirements, street traders are expected to reduce their costs. These include frequent long journeys to find customers -instead they can now receive orders through their mobile phones. Street traders can further reduce the costs of communicating with customers using promotional packages, such as bulk messages and promotional packages, to inform customers about their products. The expected strategic benefits are associated with an increase in the number of customers from advertisements on social media. Based on the opportunities mobile phone technology offers street traders, this study adopted and modified the conceptual framework of mobile phone impact on micro-trading developed by Boateng (2011). The framework shows that there is a significant relationship between micro-trading

activities and mobile phone use during three important trade activity stages-pre-trade activities, during-trade activities, and post-trade activities.

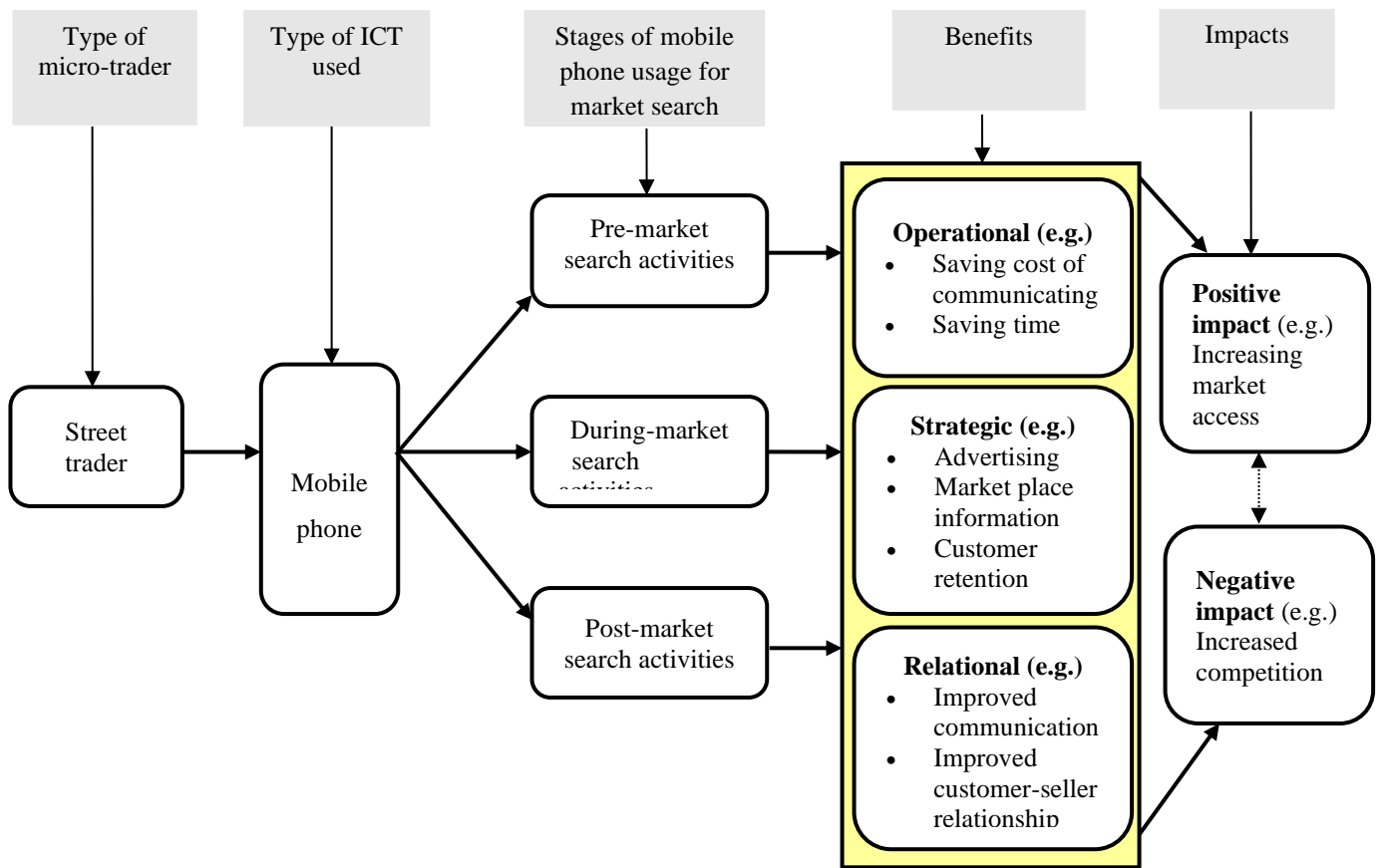


Figure 1. Framework for Mobile Phone Usage in Street Traders' Market Search, as Adopted from Boateng (2011)

## RESEARCH METHODS

This study was an exploratory qualitative study. An exploratory study is regularly conducted when a researcher wants to explain and define the nature of a problem for which further studies can be conducted. Often, this type of study is preferred when the characteristics and relations of the research subject at hand are unclear (Emory and Cooper, 1991). The major objective of an exploratory study is to collect and explore as much information as possible regarding a specific subject or research problem. It is a study approach designed to identify and initialize the process toward describing the problem and stating the criteria on which the exploration can be successfully judged (Yin, 1994).

### Data Collection

The data collection was performed in two phases. The first phase involved conducting in-depth interviews with 29 street traders. The majority of the interviewed street traders were found by visiting the locations where street traders are highly concentrated. These are the Majengo market, Jamatini area (previously serving as a city commuter bus stand), Sabasaba market, and Uhuru street in Dodoma. Most

of these are located near the central business district (CBD) and are highly concentrated with traffic, public and private offices, banks, private shops, and other nearby commercial activities that take place there. Other street traders were met by coincidence while they were moving in search of customers. Before interviewing a street trader, the researcher approached him/her for familiarization and introduced the research topic. The informants were informed about their right to withdraw, about the voluntary nature of their participation, and about the anonymity of their responses.

### Sample Size Determination

In qualitative research, the sample size is determined through data saturation (Mason, 2010). Before conducting interviews, a minimum sample size for initial analysis and a maximum number for extra interviews were defined. Francis, Johnston, Robertson, Glidewell, Entwistle, Eccles, and Grimshaw (2010) propose that the criteria for selecting the initial analysis sample is at least 10 interviews. Thereafter, successive interviews follow until no new themes emerge. This is what is referred to as the *saturation point*. Thus, in this study, we conducted in-depth interviews with 29 street traders from various parts of the Dodoma area. The interviews lasted a minimum of 40–60 minutes in order to provide ample information. They were conducted based on the following procedures. First, 10 interviews were conducted and data was simultaneously analyzed but new themes emerged. Second, 10 more successive interviews were conducted and data was simultaneously analyzed but new themes still emerged. We continued conducting interviews and by the 29th interview no new themes emerged—our saturation point was reached. This aligned well with the suggested sample size of between 20 and 30 respondents for purposes of qualitative research (Creswell, 1998).

After conducting the interviews, a focus group discussion (FGD) with eight street traders was conducted. At this phase, three participants were selected from a group of 15 street traders who had participated in the creation of a bookkeeping application system conducted at the College of Business Education, Dodoma Campus (Mramba, Tulilahti and Apiola, 2016). The three street traders selected from this group were requested to bring two more traders each but with the condition that they must not have also been a part of the aforementioned group. This brought us to a total of nine street traders for the FGD but, unfortunately, one street trader dropped out on the FGD day and, therefore, we ended up with a total of eight participants. In order to minimize domination by some participants in the group, the researcher acted as a moderator, giving each participant a chance to share his/her opinions regarding the questions at hand. Participants who hesitated to speak out were given special opportunity by the researcher to react to the topics under discussion. The FGD lasted for 90 minutes, taking into consideration that all participants had participated fully. Both the interviews and the focus group discussion were conducted in the Swahili language and both the audio and video were recorded using a mobile phone and a computer, while the notes were taken using a traditional notebook.

### Data Analysis

The data obtained from both individual and focus group interviews were analyzed using thematic analysis (TA). The data from individual interviews were translated from Swahili to English and transcribed, while the data obtained from the FGD were analyzed using verbatim transcription. For this study, thematic analysis was considered the appropriate method because it is used when analyzing large qualitative data sets (Lorelli, Norris, White and Moules, 2017). Similarly, Braun and Clarke (2006) consider thematic analysis to be a method used for identifying, analyzing, and reporting patterns



(themes) found within data. A theme is something that captures the key idea from the data in relation to the research question and represents some level of patterned response or meaning within the data set (Braun and Clarke, 2006). Thematic analysis was also used because it provides a better understanding of the participants' attitudes and reflections on issues that could be used as a measure for best statements and because it provides an opportunity for researchers to move beyond calculating statements or expressing ideas (Ibrahim, 2012). It also permits a researcher to apply an inductive research approach. This approach or thought process is a bottom-up approach, where a researcher uses the participants' views to build broader themes and generate a theory that interconnects the themes. This implies that the inductive approach moves from specific observations about individual occurrences to broader generalizations and theories.

### Steps for Conducting Thematic Analysis

Qualitative data analysis using the thematic approach always expects a researcher to undergo six important phases in order to ensure the study trustworthiness (Lorelli et al., 2017). Study trustworthiness is always determined by assessing its credibility, transferability, dependability, and confirmability criteria, as suggested by Lincoln and Guba (1985). The six important phases we followed to establish study trustworthiness are explained below.

*Phase one: Familiarizing the data.* In this step, the familiarization with data was done through listening to recorded audio from the interviews and FGD several times, reading the observational notes taken, and summarizing the notes written immediately after the interviews.

*Phase two: Generating the initial codes.* This phase was accomplished by organizing the data systematically to obtain meaning in relation to the research questions. The coding involved writing memos in the margin of the text analyzed using a colored pen to indicate potential patterns. Since our concern was to address specific research questions and to analyze the data from this viewpoint, coding involved any data segment or something interesting related to the research questions. Then, we compared, discussed, and modified our codes before progressing to other transcripts.

*Phase three: Searching for themes.* This stage involved examining the codes, sorting different codes into potential themes, and collating all the relevant data extracted within the identified themes. In this study, some codes clearly fit together into a single theme e.g., we had numerous codes that corresponded to the street traders' mobile phone usage as well as the advantages and disadvantages of mobile phone use. We organized these into an initial theme called "the ways street traders use mobile phones to search for new markets and the perceived advantages and disadvantages." Several codes were organized into broader emerging sub-themes that looked to say something specific about the research questions. The obtained themes were descriptive and described patterns found in the data relevant for the research questions.

*Phase four: Reviewing themes.* At this stage, we reviewed, modified, and developed the preliminary themes identified in phase three. We gathered all the data relevant to each theme and examined whether they really support them. To make the themes coherent and distinct from one another, we were obliged to analyze whether they made sense, whether the data supported them, whether there were emerging sub-themes, and whether there were other themes within the data. Consequently, some themes were re-arranged, some were dropped, and some were condensed into one overarching theme.

*Phase five: Defining and naming themes.* This phase included deciding and refining what themes should be presented in the final analysis after identifying the essence of each theme. We examined what each

theme was about and looked at how the sub-themes obtained interacted and related to the main theme as well as how the main themes related to each other. The relationship between the themes was provided by including the narrative of how street traders use mobile phones and the received advantages and disadvantages of mobile phone usage. The narrative part shows the views and experiences of street traders regarding mobile phone usage and its perceived advantages and disadvantages.

*Phase six: Producing the report.* This final phase entailed report writing, comprising of the meaning and contribution of the final selection of themes. A clear, concise, coherent, logical, non-repetitive, evidenced, relevant, and straightforward report, describing each emerging theme using an important data set, was written with reader understanding in mind. Direct quotations, including both long and short quotations from participants as essential components of the final report, were accompanied by a unique identifier to demonstrate that various participants were represented in the results.

After establishing the necessary requirements for analysis, the analysis itself proceeded as follows. First, the research questions were labeled with an anchor code, aiming to simplify the organization of the initial codes. Research question one (RQ1) was labeled according to how street traders currently use mobile phones for market search/development during the pre-market search stage, the during-market search stage, and the post-market search stage. Research question two (RQ2) was labeled as the advantages and disadvantages of mobile phone use for market search/development. Second, magnitude coding was used to identify significant information and to organize the data systematically under generated anchors to obtain the meaning in relation to the research questions. A notepad was used for writing memos, texts, and ideas in the form of short phrases, arising from the recorded written and audio materials. Third, all initial codes were compiled from a list of the 29 individual respondents' statements and eight focus group discussion statements. All potential themes were sorted out without abandoning any of them. Fourth, the themes were reviewed and re-arranged to allow their codes to be combined into their respective anchor codes and to organize the data in accordance with appropriate thematic contents. At this stage, data reduction was performed, whereby some statements were dropped and others were combined to deal with important statements that matched the overall study framework. Fifth, tallying was conducted to obtain the frequency or the number of times that a code was received and how the data related to the main theme and sub-themes. Sixth, the report was written based on the relationship between the main themes, sub-themes, and the participants' quotations (both short and longer, block, quotations). The written texts came from interviews and focus group discussion audio recordings of eight respondents, which were written and listened to several times to ensure their accurate translation and transcription.

## Research Context

The study was carried out in parts of Dodoma city, which is the capital city of Tanzania. The motivation for carrying out this study is attributed to the recent broad diffusion and adoption of information and communication technologies (ICTs), particularly mobile phones. Mobile phones have created new opportunities for informal workers' activities in this country. Understanding the experience of street traders, in relation to market development using mobile phones, would help researchers familiarize themselves with both the potentials and the challenges street traders are experiencing. This would pave the way toward empowering recent enterprising strategies aiming to minimize the challenges of using mobile phones. Previous studies and projects focusing on street traders stick on matters such as legislation, legal opportunities, and financial empowerment (Molony, 2008; Molony, 2009). Therefore, there is a scarcity of existing studies and projects that have tackled the potentials and challenges of

technologies used by informal workers by taking street traders in Dodoma as an example. Another factor to be accounted for is the exponential growth of the urban population in this city, resulting from the shift of the government capital from Dar es Salaam to Dodoma.

## FINDINGS

### Demographic Characteristics

The study findings are presented in Table 1 and summarize the important demographic characteristics of street traders within a limited urban area of Dodoma, Tanzania.

### Distribution of Gender Among Street Traders

In Table 1, the study findings show that the degree of participation in street trading between males and females has some variations. The result indicates that 59.5% of street traders, who participated in this research, were male and 40.5% were female.

Gender of respondents	Frequency	Percent
Male	22	59.5
Female	15	40.5
<b>Total</b>	<b>37</b>	<b>100</b>

**Table 1. Respondent Distribution by Gender**

Even though the researcher struggled to find as many female street trader participants as male, this attempt was not successful. There are a number of reasons why the majority of the women in Tanzania may not participate in certain entrepreneurial opportunities. One of the reasons is that women undertake business activities which are in harmony with their traditional gender role which also happen to be less profitable (Tundui, 2012). Other reasons are associated with women being afraid of the environments in which street trading is conducted, which tend to be unhealthy, with heavy sunshine, wind, and dust. Other negative associations include fatigue, confrontations with local or municipal authorities, police, and customer assaults, circumstances that cannot be endured by the majority of women in Tanzania (Katrijn, 2016).

### Age of Respondents

In Table 2, the presented findings show that the majority of street traders were in the 18–28 age range (48.6%), while the 29–39 age range was the second most-represented one (32.4%). In Tanzania, the persons with age range between 15–35 are regarded as youths and about 67% of them are unemployed (URT, 2007; URT, 2012). Similarly, the national employment policy permits persons aged above 18 years to participate in wage jobs. This implies that the street traders with age range between 18–28 and 29–39 are the majority working class in informal and formal sectors. The majority of these street traders have family responsibilities, with families and dependents to take care of. In order to meet their day-to-day family living expenses, the younger generation has to find other sources of income, including starting businesses. One of the owner-manager businesses that requires low capital investment and does not necessitate a micro-entrepreneur to follow several bureaucratic procedures is street trading. On the

other hand, only 5.4% of the respondents were between 51–60 years of age or above. This group has fewer family responsibilities, as most have few dependents because their children live independently. No street traders were found over 60 years of age, because the compulsory retirement age in Tanzania starts at 60 and, therefore, majority of people opt for home-based jobs at this age, which do not involve movement and uncondusive environments.

Age of respondents (years)	Frequency	Percent
18–28	18	48.6
29–39	12	32.4
40–50	5	13.5
51–60	2	5.4
Above 60	none	-
<b>Total</b>	<b>37</b>	<b>100</b>

**Table 2. Respondent Distribution by Age**

### Education Level

In Table 3, the study results show that the majority, 45.9%, of street traders had primary education, 32.4% had secondary education, 13.5% had various certificates and qualifications, 5.4% had diploma education, 2.7% had a bachelor's degree, and none had an education level above the bachelor's degree. It may be that the higher the education level, the lower the participation in micro or small businesses. This is because the majority of bachelor's degree graduates (and those with even higher degrees) prefer to be employed in the public sectors and value the socially prestigious, white-collar jobs. Similarly, there is a poor perception of street trading professionals from the local communities.

Education Level	Frequency	Percent
Primary school	17	45.9
Secondary	12	32.4
Certificate	5	13.5
Diploma	2	5.4
Degree	1	2.7
Postgraduate	None	-
<b>Total</b>	<b>37</b>	<b>100</b>

**Table 3. Respondent Distribution by Education**

Street traders are regarded as people with low education, who cannot secure a job in either the government or private sectors that need highly educated men and women. From the local community's perspective, the white-collar jobs are for highly educated persons, while micro or small businesses are regarded as jobs for those less educated or for people with no permanent employment.

## How Street Traders Use Mobile Phones to Search for New Markets (RQ1)

The first research question aimed at exploring how the street traders in Dodoma use mobile phones to search for new markets. Some street traders reported using mobile phones for the pre-market search, during-market search, and post-market search. During the pre-market search, street traders use mobile phones to remind potential customers about products, do market research, and forecast sales. During the during-market search, street traders use mobile phones to acquire customers' mobile contacts, take orders for extra product selling, and distribute mobile contacts. During the post-market search, street traders use mobile phones to retain customers and receive feedback. The most common mobile services used to fulfill the three important stages of street traders' market search are summarized in Table 4.

Sub-theme	Explanations	Recommendation
<i>Voice calling</i>	Few respondents described calling regular customers once or twice a day to convey information about the products they possess as well as receiving some calls from customers. Voice calls depended on business promises and the long-term relationships or arrangements between the traders and their regular customers.	Voice call is mostly preferred because it conveys the message at the actual and right time, although it involves costs to some extent.
<i>Texting SMS</i>	Some street traders explained having texted messages to their regular customers once or twice a day as well as receiving messages from customers. Sending and receiving SMS depended on the initial trader–customer agreement.	Texting SMS is not normally preferred because it takes time to compose, while majority of traders are mobile and even those stationed are in struggle for customers. Other factors include message failure due to network problems and recipients being offline or inactive.
<i>Social media</i>	Limited number of street traders who own smartphones explained that they use mobile phones for advertising or marketing their products on social media platforms, such as WhatsApp, Twitter, Instagram, and Facebook.	The small number of smartphone users is attributed to the majority owning older mobile phone models that lack support for modern services and to a lack of smartphone use experience.

**Table 4. Mobile Phone Services Used for Market Search Activities**

### Example Scenarios from Respondents

*Voice calling.* Few street traders described having used mobile phones to call their regular customers. Calling depends on the mutual relation between the seller and the buyer or on the existing business exchange agreement. For example, street traders would inform their daily customers about new products, unique products, quality products, and the suitability of ordered products. Some respondents explained their calling strategy during the FGD “*Sometimes we use our mobile phones to communicate with customers about the ongoing situation with our products or to remind them about the orders they inquired hitherto*” Similarly, customers also called street traders based on business conversations or any sort of business exchange agreement. Therefore, calling regular customers with the intention of selling products or making negotiations about upcoming product sales is common for a few street traders, although the practice fluctuates on a daily basis. However, during individual interview sessions, one respondent described mobile phone use as follows:

*Brother, when I get the new stock of used clothes, I call my regular customers to come and select the best and quality ones at a reasonable price before starting walking in the streets. I usually do this because of the long-term relationship and showing them appreciation. I do not send this information to unknown customers because I expect to find them in the streets, where I sell my products at higher prices, so that I get high profits from new customers.*

This reveals that voice calling is specifically conducted for a certain type of customer and even the selling price depends on their progressive relationship. It also proves that calling potential and known customers with the intention of selling, showing new products, or making negotiations about upcoming products is done for a limited number of customers.

The study also found that a few respondents called their friends, relatives, and other people known to them, who are located in the farther wards/districts, to ask about the demand and supply of products in their areas. This was a common occurrence particularly when there was a high demand and supply of products in the city center. Some of the street traders had mobile phones but had never used them to search for new customers. They neither called new customers nor explored new market opportunities and information in this manner. However, they reported receiving a few calls from customers who were asking about the product supply. These results were mostly obtained from female street traders who sold fruits and vegetables. Interviews with them showed that they acknowledged the possibility of using mobile phones for calling new customers in the future, as they continue being influenced by other entrepreneurs surrounding them. This is what one representative stated during interviews:

*I have never used my mobile phone to search for new customers, although I receive calls from different customers working in government or private offices to supply them with bananas and other fruits every Friday; I feel bashful to call unknown people and convince them to buy my products; I feel better to walk in front of them and convince them to buy.*

**Texting (SMS).** Some street traders explained that they send text messages to customers once or twice a day and that they also receive messages from regular customers, requesting available products and the means to meet for the business exchange. Sending and receiving SMS depends on the initial trader–customer agreement and the relationship that exists among the two parties. Texting SMS is not normally preferred because it takes time to compose the messages, while the majority of the traders are mobile and struggle for customers. Street traders explained that they do not choose to text messages because they are worried that the messages can fail due to network problems, recipient status i.e., being offline or inactive to respond immediately- and the attitude of the reader toward responding to messages. The respondents described that prior to sending messages to customers, they first exchanged mobile phone numbers as well as set an agreement upon which important issues to communicate. The results showed little use of SMS to look for new customers, promote products, and look for the new marketing opportunities for their products. For example, the research conducted found that none of the street traders use bulk SMS<sup>1</sup> or MMS even though they have great potential and could reduce the burden of walking tens of kilometers to find new customers. Few respondents reported sending SMS to their permanent customers mainly, informing them about different products' information. Texting messages to unknown customers is limited due to a fear of receiving negative responses. Street traders described their texting use during the focus group discussion, and this is what they stated:

*We are obliged to send messages to customers when there is no alternative way of conveying the information to them; although texting messages to customers is one way of creating business*

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<sup>1</sup> Bulk messaging is the dissemination of large numbers of SMS messages for delivery through mobile phone terminals.

*awareness, we still lag behind on this services because of the nature of our business, the existing low attitude of the readers to respond and avoiding incurring fiscal costs and consuming time for vending.*

Contrary to that, some street traders acknowledged receiving messages from their permanent customers, asking them for information pertaining to the products they hold. Ideally, in this form of communication, the sender of the message is only assured of the text message communication receipt when the recipient sends feedback.

*Social media.* A limited number of street traders who own smartphones explained that they use mobile phones for advertising or marketing their products on social media platforms, such as WhatsApp, Twitter, Instagram, and Facebook. The small number of such users is attributed to the majority of street traders owning ordinary phones that lack support for modern mobile services. Others explained this as a lack of smartphones use experience. Those who have managed to use social media platforms as a method for finding customers are those who own smartphones. Most of the street traders who use smartphones as tools for marketing target their well-known customers. This was declared by one of the respondents during an individual interview session:

*I used WhatsApp for social communication in past days, fortunately, my friend explained to me how he uses it to advertise his products to his customers by uploading the products' photos, I was impressed, and I did the same to my regular customers although the response from them is very rare.*

This shows that some street traders have started using mobile phones to expand their products' markets through social media, although their number is still limited. We visited the Instagram accounts of a few respondents and saw several posts regarding their products, welcoming messages, video clips for their products, and other forms of marketing promotions. Through the advertisements, these street traders were inviting and persuading people to buy, informing customers of their product availability, reminding of and creating awareness about their products. Street traders reported having some friends who have Facebook, Instagram, and YouTube accounts through which they invite customers with the intention to search for new markets. The major challenge was the slow adoption of customers, resulting from various reasons (the details of which are presented in the discussion section of the paper).

## **Advantages and Disadvantages of Mobile Phone Usage for Market Search (RQ2)**

The findings of this exploratory study found several advantages and disadvantages pertaining mobile phone usage for market search/development for street traders as structured by the research question (RQ2) above.

### **Advantages of Mobile Phone Usage for Market Search**

A number of street traders who attempted to use mobile phones for market searching had positive views about the potential, opportunity, and contribution of mobile phone technology for market search. The major findings are summarized in Table 5.

Sub-theme	Explanations
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<i>Communication</i>	In comparison with the past two decades, when communication was done in face-to-face, mobile phones have improved the communication between street traders and regular customers.
<i>Customer retention</i>	SMS and voice calls are used to retain regular customers by reminding them about available products in the market or of other relevant business talk, although the traders cannot tell the exact figure of regular customers because social and business contacts are not separate in their mobile phone databases.
<i>Advertisement</i>	Social media platforms, such as WhatsApp and Facebook, have been used by several traders for advertisement despite the low knowledge and awareness they have about these new applications.
<i>Saving costs</i>	Mobile phones somehow minimize the costs of voice calls and SMS through cheap promotion bundle subscriptions and utilization of free transactions services offered by some mobile network operators (MNOs). Street traders reduce the risk of making unnecessary and frequent long journeys to meet customers by communicating with them before starting their movements.
<i>Marketing research</i>	Mobile phones are sometimes used by street traders to study the customers' needs, wants, status, and behaviors so that they can make the right market search decisions as well as ensure that the market is well informed about the products and offers available. The common mobile services used are SMS and voice calls.
<i>Acquiring the customers' mobile contacts</i>	When street traders conduct personal sales (i.e., during-market search) by going directly to buyers and convincing them to purchase, they also get a chance to acquire and save the mobile contacts of some new customers.
<i>Taking orders for future product sales</i>	During a market search, stage street traders have a chance to collect a number of orders from customer for further product sales. The service commonly used for this purpose is the mobile calendar.

**Table 5. Advantages of Mobile Phone Usage for Market Search Activities**

### Example Scenarios from Respondents of the Advantages of Mobile Phone Usage

*Communication.* The use of mobile phones has, to some extent, improved the communication between the street traders and their surrounding markets/customers in comparison with earlier times when communication was strictly done face-to-face. The interviewed street traders reported that, through voice calls, SMS, WhatsApp, and other social media platforms, they can communicate with their markets/customers more easily than before. They reported not investing much effort to make calls or send SMS to ask for the demand, supply, price, or any other marketing information, instead of using physical communication. The respondents were of the opinion that they are currently more attached to their permanent markets than before. Some reported having made beneficial arrangements with customers and managing to deliver the products on time. This scenario was described by those street traders who have used mobile phones for communication. To quote one statement from a respondent during an individual interview:

*Some of my customers who are satisfied with my services call me or text message for ordering the service others recommend my service to their fellow friends; therefore, it is not a surprise to receive a call or text from an unknown person asking for services, although they are not many, but at least communicating with regular and new customers has somehow been simplified.*



During the focus group discussion, the idea of mobile phones as devices that simplify communication was highly acknowledged. Those who tried to use a mobile phone to connect with customers appreciated the technology. To quote one among many similar statements provided during the group discussion:

*Indeed, since the introduction of mobile phones, the business landscape has changed to a large extent; nowadays, you can order, communicate with customers anytime anywhere; previously we depended on fixed line phones, which are actually difficult to move with; thanks to the development of smartphones, these new portable devices provide us with multimedia features, such as high-quality voice calls, listening to music, video calls, video games, internet searching.*

*Customer retention.* Mobile phones usage has facilitated the practice of retaining regular customers through the exchange of mobile contacts. Following the exchange of mobile contacts some street traders have managed to communicate with their customers several times. Customer retention has positive impact on street traders' businesses as it facilitates repeated purchase and product persuasion. Customer retention is linked to customer satisfaction and expectations from service providers. In this viewpoint customer retention prevails when there is frequent communication between customers and street traders. One respondent, who paints women's nails, said the following during the interview session: "I exchanged my mobile phone contact with some ladies around the town, from that moment they started calling me in case they need my service, I quickly rush to attend them because they are nowadays my potential customers." There were more respondents describing how they use mobile phones during post-market search to retain customers through frequent voice calls and short messages. Some of the street traders reported receiving orders and comments on their WhatsApp account from their followers. Through social media platforms, these street traders were able to reach more customers in a wider geographic location than they previously could by physical means. During the focus group discussion, some respondents noted that

*It is wonderful, nowadays, I am receiving orders from Bahi, Kondoa, Chamwino, and Kongwa (other districts in the Dodoma region) through mobile calls. Customers visited my Facebook and Instagram webpages and saw the photos of products I'm selling. This is brilliant because through Instagram and Facebook we are able to get more customers than ever. (Reported by an herbal medicine vendor in Dodoma)*

*Advertisement.* Among the 37 street traders who participated in this research study, one female with a bachelor degree explained, competently, that she has used a smartphone to post product photos on WhatsApp and Facebook social media platforms. During the individual interview session, she described what happened by saying "I used my smartphone to take photos of my products and I posted them in a WhatsApp group; some customers responded positively and ordered my products." She explained that posting photos in various social media groups is one way of attracting customers and keeping them informed about what is new in the market. During the focus group discussion, one street trader explained:

*Some customers who managed to visit my Facebook and Instagram webpages have seen the pictures of my products and some have continued to order more products because everything about the products is detailed; through Instagram and Facebook I'm able to get more customers than ever.*

At this point, many street traders showed interest in social media usage but were affected by having no access to a smartphone due to being low-income earners and from a lower education background.

*Cost reduction.* Some street traders reported that using mobile phones for market search has been cost sensitive in comparison with the traditional model of searching for customers that involves walking long distances while not being assured of sales. It is easier and less costly for a street trader to purchase a voucher and subscribe to a cheap service provided by mobile network operators (MNOs), which offer large data bundles for connection, voice calls, and bulk SMS. Furthermore, using the offered cheap data packages, talk time, and beeping strategy to communicate with potential customers and posting product details on social media platforms is generally inexpensive. In this manner, street traders reduce indirect costs, such as time for physical movement when looking for unplanned customers, and fatigue. The other minimized direct costs are those paid for public or private transport fares to follow customers without having prior information about their presence. During an interview session, one representative said:

*My mobile phone helps me to reduce the number of direct and indirect costs; for example, instead of converting unnecessary movements from one street to another, I use my phone to communicate with potential customers so that I get assured that the route I plan to take will pay me and not result in wasting time.*

Another woman, who sold food in the city center, described how the mobile phone has helped her reduce long-distance walking and avoid fatigue. During the focus group discussion, she said

*I always supply food to my potential customers on credit from mid-afternoon to 2:30 p.m., after that I use two hours to relax. Two hours later I start communicating with my customers to know if they are able to pay so that I can start to make follow-ups for my payments physically or wait for mobile payments; actually, I do not feel tired because I have time to relax; similarly, other customers pay me through mobile money services.*

This shows the extent to which mobile phones help reduce the costs related to time, transport, and fatigue.

*Marketing research.* A minimum number of street traders noted that they used mobile services, such as SMS, voice calls, and WhatsApp, to examine the available markets. The objective of conducting marketing research is to understand what the customers want in terms of products, services, or information, where they want the products to be available, and what the means of delivering the products are. During the FGD, street traders had something to say about marketing research, as pointed out by one representative:

*After purchasing grapes from the vineyard, I use my mobile phone to call or text messages my regular customers, informing them the types of grapes I hold to make them choose and press orders of grapes they need; some customers prefer white table grapes, others prefer red table grapes, and others prefer only wine grapes; I do this so as to understand what my customers want and therefore, I differentiate my products accordingly. (Reported by a woman selling fresh grapes in the city center).*

This reveals that mobile phone usage for finding new customers is limited; only the known customers are contacted, while the rest (new customers) are met by coincidence. Similar findings were reported by other interviewed street traders during individual interviews:

*When I get new pairs of shoes, I call or send text messages to my potential customers to know where they are located and if they need shoes; the majority of my customers are government employees, therefore I should know the proper time to go there so that I should not interfere with their work responsibilities; some promise to meet with me after work time.*

This implies that mobile phones are somewhat used for marketing research to identify different aspects of the market, such as the location of a customer, what the customer wants, and at what time to deliver the products.

*Acquiring the customers' mobile contacts.* Half of the street traders explained that during-market search stage, they can acquire their customers' mobile contacts, while half of them disagreed. Those who disagreed described that it is not common to request the mobile contact of a customer after an initial transaction. This is attributed to the deep-rooted customary practices and perceptions of street trading. Many customers are unwilling to give their mobile contacts to street traders because of poor or nonexistent practices about the types of messages that can be communicated and because they are also afraid of interference with their privacy. Half of the street traders explained that, most of the time, it is the customer who initiates the mobile contact exchange. Several respondents explained this during interviews, in a manner similar to the one quoted here:

*It is not our socio-cultural habit to ask for the mobile contacts of customers after the transaction is concluded because many of them start queries; however, there are some customers who are willing to give their mobile contacts when you ask them and others ask in case they want further communication.*

This shows that the potential and opportunities of mobile phone diffusion, which include creating long-term relationships, are only partially utilized.

*Taking orders for future products sales.* The smallest number of street traders noted using mobile phones to take orders and keep records for automatic reminders from the mobile calendar during the during-market search time. A greater number reported using manual records, either using a notebook or simply memory. During the interviews, they explained in the following fashion:

*I do meet some new customers by coincidence, some of them like my products, although they are not ready to pay at that moment; what I do is ask them if they can afford it in the upcoming days; if they accept, I take that order and record it for extra sales, although not all orders mature.*

This reveals that mobile phones are utilized for extra order-taking, although certain other prevailing circumstances might make the promise unfulfilled

## **Disadvantages of Mobile Phone Usage for Market Search**

The findings of this study show that mobile phone use also has negative impacts on the market search process for street trader businesses. These are summarized and elaborated in Table 6.

### **Example Scenarios from Respondents of the Disadvantages of Mobile Phone Usage**

*Misuse of mobile contacts by customers.* Misuse of mobile phone contacts was reported, as some customers sexually harass female traders, especially through voice calls and SMS. Many female respondents described having received calls/SMS from customers requesting them to have a sexual relationship, seeking an appointment to meet, or simply receiving greetings instead of the intended goal. They explained what happens, as one of their representatives noted:

*Some customers may call you and assure you that they will purchase the products, but when you arrive at the agreed meeting point, they change their minds, intention, and behaviors, some start talking of a sexy or intimate relationship and, therefore, you end up wasting time without selling.*

Sub-theme	Explanations
<i>Misuse of mobile contacts by customers</i>	Mobile phone contacts have been misused by some customers to sexually harass female street traders through voice calls and SMS, whereas the male traders claim wasting time on customers who touch products with no intention to buy even after their bargained prices are accepted.
<i>Cost implications</i>	Costs incurred by street traders in fulfilling customer promises include airtime, travel costs, time, and fatigue.
<i>Concentration of similar products in one place</i>	Market information is easy to collect through mobile phones, which leads to an accumulation of street traders in one market niche who are all selling similar products.
<i>Technical problems</i>	Technical problems, such as network problems, lead to calls being dropped and message failures, risking effective communication; whereas mobile battery unsustainability can cause those traders who use smartphones to sometimes be unreachable.

**Table 6. Disadvantages of Mobile Phone Usage for Market Search Activities**

Similarly, some street traders complained that customers have a tendency to call or text, while their intention is only to window shop. In Tanzania, this is known as *Fahari ya macho* (being fond of looking and touching something without buying).

*Cost implications.* The street traders need to buy airtime or data in order to conduct a mobile-based market search. The costs of airtime and internet data in Tanzania are very high, therefore, some street traders with a low income cannot afford it. Many respondents described the increased costs, while exercising recent market search practices using mobile phones. The most commonly reported costs include fiscal costs, such as handset cost, airtime, and bundle purchases. There are also travel fare costs in case a trader is obliged to use public or private transportation to meet customers who need products or to make a follow-up on payments. They explained that some customers make voice calls or text messages, requesting street traders' services, with no intention to buy. Unfulfilled customer promises affect the street traders negatively, because they may spend a lot of time and effort without getting any profit out of it. The current situation regarding the costs incurred was stated by one respondent during an interview session:

*I have a smartphone but very rarely do I switch on the data for social media communication; the main problem is the cost associated with a bundle purchase and the fear of fast mobile phone battery consumption, because I have to pay money to charge my phone while in vending activities in the city center.*

This reveals how the costs associated with mobile phone's crediting, charging, and maintenance can negatively affect the street traders' market search strategies, as they involve money spending.

*Concentration of similar products in one place.* A number of participants explained that there are moments when mobile services, such as voice calls and SMS, are misused by the street traders themselves to spread wrong information or rumors about the markets or local auctions. They provided an example of an existing style in which texted messages might circulate to a large number of street traders to inform them about availability of customers in a certain area or local auction, while they are only anecdotes. Consequently, street traders become tempted and move to those areas said to have new customers, without information about what customers need most. Finally, they end up accumulating in

one place while selling similar products in large quantities. This leads to competition between them or with other micro-entrepreneurs who have the same products.

During both the focus group discussion and individual interviews, a large number of participants stated that:

*Rumors about the availability of new customers spread fast through voice calls or SMS; these speed up a huge number of us to migrate to a single market niche and, consequently, we end up struggling for the same customers while we hold the same products.*

From this point of view, mobile phones are sometimes considered to be the tools that mislead street traders by being used to send wrong information. Mobile phone communication sometimes acts as the source for the cancellation of a journey to initially planned vending routes, a source that brings many street traders into one competitive location, causing conflicts among them and other micro-entrepreneurs.

*Technical problems.* There are numerous technical problems facing street traders during the market search processes. A number of street traders explained encountering technical problems, such as network failure or total absence of a network, short mobile internet bundle validity, and short mobile battery lifetime for those owning smartphones. Network problems lead to calls being dropped and messages failing, which impedes effective communication with new customers. Some of the street traders, who usually call or text message regular customers, explained incurring costs to send SMS to customers without receiving immediate feedback. As a result, they could not proceed with their planned business advertisements, promotions, and price negotiations using mobile phones because customers were inaccessible, while the communication costs were deducted. They explained this as follows:

*The network problem frustrates our business communications, sometimes we fail to call or send a text to our permanent customers due to a network problem; we sometimes miss deals from customers, which leads to failure to accomplish our business targets; this has a negative impact on our business growth.*

Likewise, those who owned smartphones claimed to have limited mobile battery life span, which can lead to them sometimes being unreachable due to the smartphone's self-switching off. Consequently, they explained missing out on some deals from regular customers after being detected to be offline. This is what they stated during the focus group discussion:

*We appreciate the novelty of smartphones because they contain indispensable features for business communication; the main problem is battery duration, which is limited and always leads to forced mobile phone self-switching off, which leads to being unavailable for some time and, therefore, to losing the opportunity to receive some orders from customers.*

They explained that the mobile phone self-switching off, due to power fading, leads customers to stop contacting them for extra orders or to look for other alternatives.

## DISCUSSION

The study's discussion aims to answer the two research questions and to connect with the adopted conceptual framework developed by Boateng (2011). The first research question (RQ1) asked how street traders had recently used mobile phones to search for new markets. The results show that street traders use mobile phones for new market/customer search only slightly. This implies that mobile phone usage for customer search is frequently applied to known customers. The most applied mobile services are

those of voice calls and text messages. Voice calls and texting are common mobile services preferred by the majority of street traders because they are supported by the Global System for Mobile Communications (GSM) and the General Packet Radio Service (GPRS) networks, which allow mobile devices to exchange messages with a short amount of text, limited to 160 characters. GSM and GPRS network technologies can store and forward the messages in advance in case the recipient is not available and are more popular in urban and rural areas in comparison to the network technologies such as Long Term Evolution (LTE), which support smartphone operations. Similarly, the popularity of basic phones with street traders is attributed to them being affordable devices sold at low prices—e.g., the good ones starts from 40,000 TZS or US\$17.35 (Roessler, Myamba, Carroll, Jahari, Kilama and Nielson, 2018). These results are aligned with the results obtained by Komunte (2017) in Uganda, which reveal that voice calls and texting are common mobile services used mostly by women entrepreneurs who, specifically, possess ordinary mobile phones. The importance of voice calls and short messages is based on their real-time communication and convenience they provide. These results are in agreement with the results by Boateng (2011), which note that micro-traders will prefer using a mobile phone during the pre-trading, during-trading, and post-trading activities because mobile phones consist of features that offer opportunities for diverse functionalities and applications such as available, personal, immediacy, and instant connectivity.

Regarding social media usage, our study results show that its adoption is still low. Few street traders use social media platforms, such as WhatsApp, Instagram, and Facebook, to search for markets. There are a number of reasons leading to low social media use. These reasons include the absence of supporting devices, especially smartphones, which are viewed to be relatively expensive. Groupe Spécial Mobile Association (GSMA) report of year (2017) reports the cost range for a smartphone to be between 150,000–300,000 TZS or US\$65.67–\$135, and that it is believed that the handset quality is determined by its value. Another report by GSMA (2018) shows that smartphone price in Tanzania fell from US\$245 in the year 2012 to US\$117 in the year 2017. However, the price is still high because many street traders are low-income earners, marginalized, and poor. It is also reported that, at the start of the year 2018, only 36% of connections in Sub-Saharan African (SSA) countries were smartphones—the lowest of any region in the world (GSMA, 2018). Smartphone handsets are reported to be unaffordable for about 57% of Tanzanians due to high rates of poverty and income inequality (Alkire and Robles, 2017). Similarly, Mothobi and Moshi (2017) report show that 62.5% of Tanzanians do not own a smartphone due to financial constraints. Therefore, the rate of social media usage among street traders is negatively affected by the high cost and knowledge necessary to operate these devices.

## **The Advantages of Mobile Phone Usage for Market Search (RQ2)**

The second research question (RQ2) intended to examine the advantages and disadvantages of mobile phone usage. The results show that the use of mobile phones leads to a number of potential benefits that include communication, customer retention, advertisement, and cost reduction.

*Communication.* More than half of respondents accepted that the use of mobile phones has simplified communication in comparison to earlier media, such as radio, fixed line phone, television, magazines, newspapers, and posters. This is because mobile phones are real-time information delivering devices. These results are supported by the study by Boateng et al. (2014), which reveals that the use of mobile phones has changed micro-trading activities of Nigerian market women, showing that the women who innovatively integrated mobile services, such as voice calls and SMS, were able to communicate about agricultural yields in rural areas and to make timely harvests and transport arrangements with customers

in urban areas. The preference for mobile phone use is attributed to the devices being easy to operate, durable, and user-friendly for text messaging. These results correspond to the adopted conceptual framework developed by Boateng (2011), which shows that improved communication facilitated by mobile phones usage can be found among the relational benefits received by micro-traders during trading sessions.

*Customer retention.* Since the introduction of mobile phones buyer-seller interaction has improved. Through mobile phones usage, street traders are able to maintain long term relationship with their customers, make customer follow up to assess the levels of satisfaction and become close to their markets. Mobile phones are also used by the customers to spread word of mouth- including to recommend the products to other people. This show that the continuous relationships between customers and street traders primarily survive if there is a tool that simplifies their connection. Mobile phones are the possible tools which can be used to maintain the long-term relationship between street traders and their regular customers. The study revealed that customer retention is also achieved when the customers believe that the services offered by the sellers are effective, genuine, and have the recommended quality (Oyenyi and Abiodun, 2008). The higher a customer's satisfaction with a seller's services, the greater the chance the seller will retain the customer and vice versa. From this viewpoint, mobile phones are not the only reason behind customer retention, but they are tools for initiating this retention.

These results are similar to those presented by Yadav, Joshi, and Rahman (2015), which reveal that the use of social media platforms (WhatsApp, Facebook, and Instagram) as channels of communication offer proximity to the public and have the ability to expose, communicate, influence, and retain potential and existing customers via the social 2.0 web. There are more opportunities to use mobile phones for customer retention, especially when simple messages are converted into viral marketing promotions by users. These increase the chance of customer product awareness and of branding the individuals who make the promotion. Boateng's (2011) conceptual framework also provides customer retention, loyalty, and extension in reach among the strategic benefits of mobile phone usage for micro-traders.

*Cost reduction.* Mobile phones are acceptable devices for reducing the costs of conducting business, especially when the opportunities offered by MNOs are utilized effectively. Those street traders who manage to use the bulk messages, cheap bundle offers for data connection, and bonus talk time to communicate with customers, reduced the cost of running their businesses to some extent. For example, the Tigo telecommunication company offers a talk time bundle that does not expire -i.e., has no limited time by which it deteriorates (Halichachi).<sup>2</sup> There are several other cheap services offered by MNOs that are useful and cost sensitive and provide communication opportunities to street traders. What they need to bear in mind is only to recharge their mobile phones and subscribe to the right bundle that is worth its monetary value. Another telecommunication company, known as Airtel, offers a money sending service free of charge. Street traders would also benefit from using this free service when they order products and pay through mobile money services. Street traders, in some other networks, enjoy certain bonus and promotional packages offered by operators from time to time for free or discounted calls and SMS. These results are similar to the results obtained by Komunte (2015), which reveal that the increased competition among MNOs in Uganda has resulted in the reduction of communication costs for women entrepreneurs and mobile phone users in that country. Similarly, the adopted conceptual framework developed by Boateng (2011) shows that there are operational benefits micro-traders would receive from

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<sup>2</sup> *Halichachi* is a Swahili word that implies no time limit within which purchased air time deteriorates, a user continues to top-up endlessly.

mobile phones usage - one of these benefits being a reduction in the transaction costs and improved time efficiency for product delivery.

*Marketing research.* When mobile phones are used effectively for marketing research, they can provide crucial information that pertains to the products and transaction procedures for both street traders and customers. The use of mobile services such as SMS and voice calls, similar to the use of mobile applications, such as Instagram, and WhatsApp, enables street traders to examine available markets and to, consequently, make plans about how to tackle those markets. By conducting marketing research, street traders interviewed in this study were able to understand the needs of their clients and how to fulfill them. The results show that street traders use the strategies that are beneficial to them for marketing research purposes. These strategies are advertising, product/service differentiation, and timely delivery. These results correspond with Boateng's (2011) conceptual framework, which shows that micro-traders can benefit from the use of mobile phones if they apply the technology to their pre-trade and post-trade activities in order to gain strategic, relational, and operational benefits.

*Acquiring the customers' mobile contacts.* The results also show that there is an equal chance of obtaining new customers or not obtaining them during market search activities. This is due to the existing poor perceptions of street trading professionals in the local community. In Tanzania, the majority of the population that interacts with street traders are afraid of offering them their mobile contacts, because of security reasons and for maintaining their personal communication privacy. This is attributed to a lack of trust and a lack of business transparency between the two parties, because one side thinks the other side can do something harmful or risky to it. However, there are a number of flexible and confident customers who are willing to offer their mobile contacts to street traders. This implies that street traders need to build trust with their customers by being transparent about the type of communication they want to use with them. The evidence from Misaki, Apiola, Gaiani, and Tedre (2018), shows that building trust and transparency among crop farming stakeholders creates confidence to use available information to support decision-making and that trust and transparency can be improved by formalizing information sources so that, when a problem arises, responsible people can be held accountable for it.

*Taking orders for future products sales.* The findings of this study show that the smallest number of street traders use mobile phones to maintain information about orders requested by customers during market search time. This low result is attributed to low knowledge about how to use this mobile application and to the nature of mobile street traders who are mostly in movement and struggling for customers. These results are similar to those of Zakaria and Ibrahim (2018), which show that during trade activities 17% of micro traders in Accra monitor their debts using a mobile phone calendar.

## **The Disadvantages of Mobile Phone Usage for Market Search (RQ2)**

This study identified a number of disadvantages, including the misuse of mobile contacts by customers, costs, concentration of similar products in one place, and technical problems. First, there are customers who misuse mobile contacts to communicate behavior that reduces the meaning of mobile number exchange and creates an untrustworthy environment. In business, trust is the most important aspect because it creates confidence between parties, where each party cannot do something harmful or risky to another. The misuse of mobile contacts by customers is actually a challenge because street traders might be afraid to give their mobile numbers to customers, bearing in mind that customers may interfere, disturb, or violate their privacy.



Second, there are also costs incurred by street traders, such as costs for airtime and bundles, as well as those of time, fatigue, and transactions. These costs obstruct an effective market search because resources are sometimes spent unnecessarily. Third, an increase in the concentration of the same products in one place leads to competition for customers, as there is no product differentiation. Fourth, the technical issues include networks not being available or fluctuating in some areas, which may lead to call drops, signal scrambling, high call setup time, slow connection for internet, or zero mobile service coverage. The study results obtained by Mtaho and Ishengoma (2014) also report that 44.6% of network failure in Dodoma is caused by limited coverage and network node capacity. There is a low number of base transceiver stations (BTS) compared to the increasing population numbers. Taking an example of the University of Dodoma and surrounding areas, with a predicted population of 60,000 inhabitants, having only 10 BTS from different telecommunication companies serving the area. This number of BTS is too small to serve the entire population, because mobile cellular networks were initially designed for voice service but nowadays broadband multimedia services have also been introduced into these mobile wireless networks, leading to increased traffic demand. Additionally, some MNO companies, such as Tigo and Vodacom, are supported by the Global System of Mobile Telecommunications (GSM) infrastructure. As these companies are migrating from 3rd generation -3G and 3.5G- to 4th generation 4G, and 4G-Long-Term Evolution (LTE) wireless technologies, there is a need to install GSM supporting infrastructure to improve the quality of service and network coverage. The existing GSM infrastructure and number of BTS cannot withstand the current demand criteria. These results are similar to the result of Ehiagwina and Fakolujo (2015), which reveal that Nigeria is obliged to increase the number of its BTS from 27,000 by the year 2013 to 60,000 by the year 2018 due to the population increase from 118 million to 197 million inhabitants.

With respect to mobile battery life, there are many factors that lead to a sudden drop of battery power level, such as user failure to switch-off power consuming interfaces like Bluetooth and Wi-Fi, display brightness, mobile users' charging behaviors, battery age, and other usability practices. It is advised that the users should switch-off unnecessary functions that drain the mobile phone battery power quickly.

## RECOMMENDATIONS

As revealed in this research study, street traders possess both ordinary phones and smartphones but do not use them effectively to search for new markets. The challenge is how to encourage them to use this opportunity to improve their new market search strategies and to mitigate the common challenges that impede their market search/development. The current research findings come with some recommendations for improving mobile phone application for market search.

*Education provision.* Emphasis should be placed on the provision of education and on creating awareness about the potentials of mobile phone usage and their integration into one's daily activities. The researchers in Africa, such as Carmody (2013), find that there is a lack of deeper ICT and mobile application utilization in socio-economic development. For example, through the use of mobile phones, street traders do not need to walk long distances on the streets looking for customers; instead, all their marketing activities e.g., selling, promotion, brand, image, and awareness, as well as customer management after a sale can be done online.

*Cost reduction.* Costs of mobile phone use are among the limitations that prevent street traders from adopting and using some mobile applications. The policymakers need to find possible ways of reducing these costs. To reduce the cost of the handset, the policymakers and stakeholders in the mobile and telecommunication industry should encourage investors to invest in mobile phone manufacturing

industries in the country. This could be achieved by providing suitable environments that attract investors as well as support them with necessary resources, enabling mobile manufacturing industries to be affected. This would reduce the price of smartphones because there would not be any import tariffs from central government revenue authorities. The current situation, where mobile phones are imported from foreign countries, allows for a number of import duties and, therefore, consumers are charged high purchase rates to compensate for them. Some street traders have smartphones but use them very rarely for internet connection and other related services due to a fear of incurring connecting costs. The MNOs and telecommunication companies should be encouraged to offer inexpensive communication bundles, packages, and free tariff rates-as they have started doing for university students in the country.

*Communication regulating.* Policymakers should introduce communication ethics and regulations in order to create user awareness so that they abide by the stipulated ethics and regulations in their communications as well as understand the meaning of mobile contact exchange between buyers and sellers.

*Solving technical problems.* Technical problems, such as mobile network failures or network fluctuations, should be resolved by the MNOs using approaches such as installing new network supporting infrastructures or upgrading older ones to accommodate the increasing population. The street traders who complained about limited smartphone battery life should be educated on how to save mobile battery power. This should be done by emphasizing the importance of switching application interfaces, such as Bluetooth and Wi-Fi, display brightness, and others, off to prevent fast draining of the mobile battery. Similarly, street traders should be educated on how to charge their mobile phones, replace batteries, and other usability practices.

*Design context.* Stakeholders in the mobile communication industry should be able to design and develop mobile artifacts contextualized to the street trader's ecology. Street traders are survivalist entrepreneurs that lack education and work in a challenging environment. Therefore, any technological innovation aimed at improving their working environment should consider their common spoken language, user-friendliness, affordability, and socio-cultural ethics.

## LIMITATIONS AND FUTURE RESEARCH

This qualitative study concentrated on exploring how street traders, especially those who walk, use mobile phones for market search purposes in urban parts of Dodoma city. Only 37 street traders were involved in obtaining preliminary information. Obviously, the findings of this study cannot be the same when compared to the results obtained in other cities, where similar entrepreneurial activities are carried out by street traders. Every geographical region of the country has unique socio-cultural and economic determinants for entrepreneurship engagement. The purpose of this qualitative study was to provide insights into issues that have not previously been extensively researched. In order to gain a broad comprehensive representation of the issues raised in the current study, quantitative research studies, involving large numbers of respondents, can follow this one, as suggested by Creswell (2014).

The study was restricted to understanding how street traders use mobile phones for new market search only. The study results show that there is a low use of mobile phones for new market search during pre-market search activities, during-market search activities, and post-market search activities. However, these results might differ from how street traders use mobile phones for services such as: mobile money, mobile education, social application, and business networking. In some parts of the country, research projects are already being conducted using mobile technologies to empower informal workers. In these

projects, there is a number of mobile apps being designed, developed, tested, and implemented to support the informal workers' activities. Good examples are Mobile marketing application for entrepreneurship development, *Bookkeeping for street traders*, *Farmers market information system (FMIS)*, and *Sauti ya wakulima* (Voices of rural farmers) (Kapinga, Montero and Mbise, 2019; Mramba, et al., 2016; Tende, Tachibana, Okazaki, Yamaba, Takatsuka and Kubota, 2016; Tisselli, Hilbeck and Schlaepfer-Miller, 2013). These are some examples of ICT-based solutions that are designed and contextualized to operate in local community environments for which the stakeholders' requirements were much valued. Some of them adopted the design science (DSR) approach, while others adopted other approaches to software development.

The future direction of this study focuses on an innovative technological solution that aims to improve the street traders' current new market search activities by designing and developing an artefact. The design and development of an artefact has a connection to software development or software engineering. Software development is guided by different approaches, but we seek to adopt a design science research (DSR) approach to define the artefact requirements, followed by the design and development of the actual artefact (Johannesson and Perjons, 2014). Existing smartphones offer a suitable platform for the design and deployment of various mobile applications that solve challenges within the intended socio-cultural context.

## CONCLUSION

Street traders are survivalist entrepreneurs, consisting of millions of youth, women, poor, and less educated people in Tanzania. This study aimed at exploring how street traders use mobile phones for new market development, the challenges they face in that process, and what should be done to improve their existing mobile use patterns. Qualitative data were collected and analyzed accordingly. The results showed that few street traders have benefited through the use of mobile phone technology during pre-market search, during-market search, and post-market search, improving their communication, advertisement, promotion, marketing research, order taking, and customer mobile contact taking and reducing unnecessary costs. However, the study also detected that mobile phone use for market search is constrained by the high costs incurred, misuse of mobile contacts by customers, the concentration of the same products in one place generating high competition, and technical problems. The study results suggested a number of approaches that would strengthen future mobile phone usage, as well as ways in which to minimize the challenges encountered, in order to make street trader businesses a decent avenue of work that could grow faster than it currently is.

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