

# Investigating Women Entrepreneurs Usage of Mobile Technology for Accessing Market Information in Iringa, Tanzania

Alsen Florian Kapinga  
College of Business Education (CBE)  
Dar es Salaam, Tanzania  
kamingila@yahoo.com

Calkin Suero Montero  
School of Computing  
University of Eastern Finland  
calkins@uef.fi

Esther Rosina Mbise  
College of Business Education (CBE)  
Dar es Salaam, Tanzania  
embise@yahoo.com

**Abstract**— Women entrepreneurs' usage of mobile technology such a cellphone has been increasing intensely in Sub-Saharan Africa. However there is limited knowledge on the extent and precise usage of mobile phones by women entrepreneurs for accessing market information. Hence to address this gap, the goal of this paper is to investigate the usage of mobile technology for accessing market information by women entrepreneurs in Iringa, Tanzania. The study employs a mixed research approach characterized by quantitative and qualitative methods in order to obtain a holistic view on the issues, shortcomings and advantage that the usage of mobile phone for accessing market information can represent to the women entrepreneurs of the region. Interviews were conducted using semi-structured questionnaires to collect quantitative data, while in-depth interviews were used for qualitative data collection. Convergent parallel mixed method was used as a technique for summarizing objective evaluation and interpretation of findings. Results indicate that, contrary to prior research reports, mobile phones are not used as enablers by the women entrepreneurs of our study in accessing market information that is relevant to their business. Our work puts forward a plausible solution of designing a specialized virtual platform for accessing market information and expand business networks of the target user.

**Keywords**— Women entrepreneurs; mobile phone usage; market information

## I. INTRODUCTION

Mobile phone use has the potential to improve women entrepreneurs business by reducing search cost, increase market efficiency, promptly communicate business information and improves productivity by allowing them to better manage their supply chain [1, 2]. Mobile phone use may also enable women entrepreneurs to access reliable information about the market trend of their business. Women may access information about input and output prices, and potential buyers and sellers [1]. Mobile phone use can also uplift women entrepreneurs through expanding access to local and international market [3]. Moreover, the report of the International Centre for Research on Women (ICRW) stated that mobile phone can catalyze women economic development by promoting entrepreneurial activity, improving business practice and breaking traditional gender barrier at home and in the market place [4]. These current facts and future prospect suggest that mobile phone usage has become one of the most ubiquitous technology devices for accessing market information by women entrepreneurs.

Despite the fact that mobile phone has contributed to women economic development, the precise extent to which mobile phones contribute for accessing market information in developing countries is still controversial. In most developing countries, markets are dispersed, and communications infrastructure is poor [5]. Producers and traders often have only limited information, perhaps knowing only the price in a handful of nearby villages or the nearest town, so the potential for inefficiency in the allocation of goods across markets is great [5]. However, due to the important role that mobile phones can play as entrepreneurial tool, the usage of mobile phone for accessing market information by women entrepreneurs cannot be ignored. Therefore, the goal of the study is to investigate the usage of mobile phone technology for accessing market information by women entrepreneur in Iringa, Tanzania. Iringa region has been chosen as a study area because it is among the leading producers of agricultural products in Tanzania. In particular, the study focuses on answering the following questions:

- Are mobile phones used as real enablers for accessing market information?
- What is the impact of mobile phone usage on women entrepreneurs' business development, if any?
- What are the challenges that women entrepreneurs face when using mobile phone for accessing market information?

Centering on women entrepreneurs, this study contributes to the scanty literature available about the pragmatic role of mobile phone technology usage in accessing market information in emerging economies. This also provides a holistic view for putting forward plausible solutions.

## II. THEORETICAL PERSPECTIVES

Over the past decade, mobile phone ownership has grown significantly in Sub-Saharan Africa and now covers 60 percent of the population [1]. The availability of mobile phones at affordable prices and its mobility make it an attractive and powerful tool for empowering entrepreneurs to improve their business communication. For instance, mobile phones are useful for enabling the access to market information regarding products demand. This is of relevance for making sound decisions about where to sell the products [6, 7], the products' price [8], and quality required, the identification of potential customers and the deployment of competitive strategies that

improve business and socio-economic well-being [9]. In particular, women entrepreneurs could highly benefit from mobile phone usage since it can reduce search costs of information about input prices, output prices and potential buyers, as opposed to the traditional search mechanism like personal travel, radio, landlines, letter, newspaper and television which are more expensive [10, 2, 11].

However, in spite of the benefits that mobile phone usage can provide women entrepreneurs seems to lag behind when embracing the use of mobile phone technology for improving their business. Our work is set out to investigate the issues faced when using mobile phones for accessing market information and to identify plausible recommendations to address those issues such that, the women entrepreneurs can take full advantage of the benefits provided by the technology.

### III. RESEARCH APPROACH

A mixed-method design was used to study mobile phone usage for accessing market information. Given the composite nature of the linkage between mobile phones, women entrepreneurs and market information, convergent parallel mixed method approach enabled to inquire in-depth information detailed views of participants qualitatively and score on instruments quantitatively [12]. The population in the study was sampled from women entrepreneurs from Iringa region. Women entrepreneurs are at the core of this study because even though they are key participants in agricultural activities, they seem to lag behind in accessing the market information that would enable them to get reliable business intelligence regarding where to sell their products, for instance.

The sampling design for this population was based on purposive sampling in order to increase validity, reliability and obtain the widest range of variation of responses. Women entrepreneurs with one year or more in business were included in the study. Purposive sampling design was also used to select informative participants from Small Industrial Development Organization (SIDO) and “Muungano wa Ujasiliamali Vijijini” (MUVI)<sup>1</sup>, since these institutions support women entrepreneurs by offering training and loans. Qualitative and quantitative data were collected and analyzed using convergent parallel mixed methods.

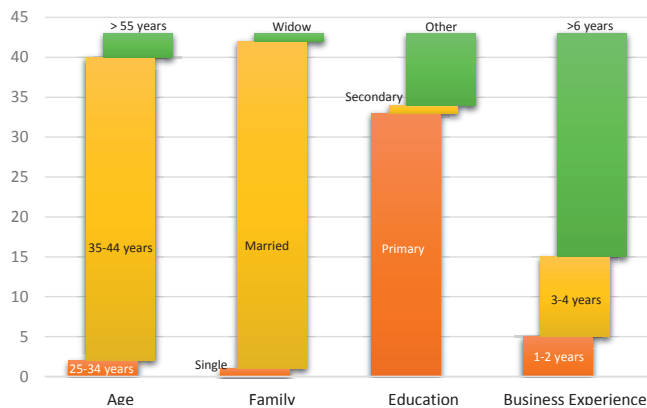


Fig. 1. Participants' demographic information

<sup>1</sup> Union of village Entrepreneurs, in English

### IV. RESULTS

The results of this study were derived from the semi-structured questionnaire and in-depth interviews using mixed methods. A total of forty three respondents volunteered to fill in the questionnaires during data collection process. The majority of the participants were 35-44 years old (38 out of 43), had completed primary education (33 out of 43), and had six or more years business experience (28 out of 43). Fig. 1 provides further details regarding the women entrepreneur participants' demographic background.

#### A. Mobile Phones and Market Information

To answer research question ‘are mobile phones used as real enablers for accessing market information?’ the results indicate that all of the respondents own mobile phone although only 6 (13.9%) of the respondents had smartphones, while 37 (86 %) had simple phones that did not support internet applications. It was revealed that *current mobile phone usage do not enable* the majority of them in accessing market information about the demand of their products, except for those entrepreneurs who had already established links with customers. According to the respondents the main sources of market information were *trade exhibitions* and *verbal communication* among women entrepreneurs themselves, particularly for those who operated their business jointly.

Furthermore, women entrepreneurs had no direct access to information from the market about the price, needs and potential customers. The data indicate that 35 (81.3%) participants did not use their mobile phones to know the price of their products. Instead women entrepreneurs set the price of their products after considering the costs incurred during food processing. Nevertheless, 8 (18.6%) respondents were of the opinion that a mobile phone did enable them to know the price of products by communicating with their fellows in other centers.

#### B. Mobile Phones and Women Entrepreneurs' Development

To address the research question ‘what is the impact of mobile phone usage on women entrepreneurs' business development?’ the results demonstrate that few women entrepreneurs used mobile phone for developing their business: only 6 (13.9%) used mobile phones to send pictures of their products to the customers through WhatsApp application. However 37 (86%) respondents possessed mobile phone which do not support internet application. Nevertheless, we speculate that internet connectivity is not a requirement in order to use the phone as a business tool since text messages could also be used for product description and information sharing.

With respect to the traveling costs, 26 (60.4%) respondents conceded that mobile phones played an important role in reducing traveling costs to the market. Furthermore field data indicate that mobile phones enriched the income when the user was connected with a large number of customers. Having many customers implied selling more and improving their revenue. However, 38 (88.3%) respondents who relied on a local market and walked around with their products, found that mobile phones were not enablers for improving their income since they lack such connections with old and new customers.

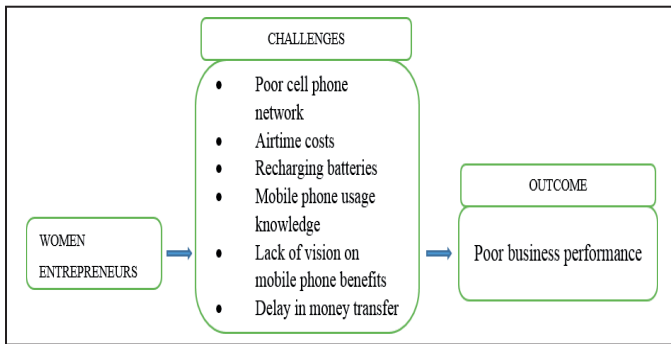


Fig 2. Challenges faced by women entrepreneurs in Iringa

### C. Challenges of Mobile Phone Usage for Women Entrepreneurs

To address the research question ‘*what are the challenges that women entrepreneurs face when using mobile phone for accessing market information?*’, we found that women entrepreneurs face several problems in the usage of mobile phone as summarized in Fig. 2.

Majority of the respondents (39 out of 43) mentioned absence or poor cell phone network as being a big problem they face when using mobile phone, particularly as they move away from the town center outwards. Furthermore, it was asserted by respondents that it is expensive to manage mobile phone in terms of purchasing airtime. The study revealed that women entrepreneurs spent thousands per month on purchases of airtime at the average range of Tanzanian shillings (Tshs) 15,000 (USD \$7) to 65,000 (USD \$30), which represents 13.3% of the average monthly income. Mobile phone were also used for money transactions through M-PESA<sup>2</sup> application. In this context there was a problem of delay in the process of money transfer from the customers to the women entrepreneurs. The participants pointed out that when doing transactions through mobile phones some customers are not trustful and this brings more problems to women entrepreneurs when doing business.

Recharging mobile phone batteries in rural areas was also revealed to be among the challenges that women entrepreneurs face due to lack of electricity and reliable charging facilities. For battery recharging they spend on average of Tshs 300 - 500 per single recharging, which amounts monthly to an average of Tshs 1500 to 2000 depending on the quality of handset battery. Furthermore the data showed that, women entrepreneurs lack knowledge about using mobile phones for business transactions especially for smart phones. During the in-depth interview the regional manager of SIDO stated that “*the sophistication of mobile technology is a big problem to the ordinary women entrepreneurs to use it in business, since most of them lack skills of reading and writing... some of them they have never attended a primary education*”. The usage of smart phone handsets can be difficult to understand for many and this hinders its effective use for business purposes.

<sup>2</sup> Mobile phone local application for money transfer and payments. *M* indicates *mobile*, and *PESA* indicates *money* in English

The study also showed a lack of vision by women entrepreneurs on the importance of mobile phone as a tool in business, and that they do business based on past experience in order to maintain a status quo is challenge which they face. During the in-depth interview the head of MUVI asserted that “*women entrepreneurs lacked vision of employing mobile phone in accessing market information but a mobile phone is an important tool in a modern business environment if it is effectively utilized*”.

## V. DISCUSSION

The main contribution of this work is unveiling the role of mobile phones for accessing market information by women entrepreneurs. The women entrepreneurs who participated in the study included respondents from all age groups, educational levels, marital status and experience in business. We consider these demographic variable have an implication for women to engage in food processing. Our sample on age cohort of 35-44 and 45-54 dominated the population of study, since at that age women are shouldered with family responsibility and they engage in food processing as a source of income. Of the respondents in our sample 95.3% were married and they have vast experience in food processing as it shows 65.1% were involved in business for more than 6 years.

According to our findings, mobile phone does not help women entrepreneurs to access market information about the market prices, demand of the products and potential customers. Women entrepreneurs have no direct link with the market where they could get such market information except few of them who have established link with individual customers. The findings show that 88.3% of respondents asserted that mobile phone does not enable them to access market information since the price of products is being set by women entrepreneurs themselves after considering the initial costs involved in food processing. Our results are consistent with [13] study in Tanzania where the researcher found that, majority of mobile phone users are not motivated to access market information but to communicate with friends and relatives.

The study has shown that all respondents owned mobile phone and users do use mobile phones for mainly maintaining relationships and not for accessing market information and expand business. This does not mean that mobile phone could not be used for accessing market information as revealed that 11.6% of the respondents use mobile phone to access price information. We have witnessed many ways of using mobile phones for accessing market information on the price dispersion, potential customers, demand of market and compete more effectively against their competitors [14]. Our findings suggest that mobile phones do not, to a great extent contributes in accessing market information by women entrepreneurs as large number access market by physical visiting with their commodity. Our results are consistent with [13] who asserted that majority of mobile phone owners and users do not use for business purposes but mainly to support family and friends relations.

Of the respondents in our sample 64.4% believed that mobile phones would help to reduce traveling costs if there was a good link with the market, where women entrepreneurs could communicate business transactions with the customers through mobile phones. While 39.4% of the respondent argued that mobile phones do not help to reduce cost of travelling to the market, they walk with their commodity around the town seeking for potential buyers. Our work suggest that to a large scale mobile phones usage does not reduce traveling costs since most of women entrepreneurs in Iringa operate their business within their surroundings and they have not extended their business outside their region. In the study by [15] it is stated that less than 5% of mobile phones owners use phones for business purposes. Our findings contradict with the study by [16] which asserted that mobile phone usage reduce traveling costs by making business transactions through mobile phones.

Through in-depth interviews, it was revealed that mobile phones do not help women entrepreneurs to expand business networks, given the fact that, most of women entrepreneurs own mobile phones but do not use for business purpose. Mobile phones do not help to expand business networks since the entrepreneurs are narrowed to operate within the local market due to lack of exposure of external market. Furthermore our results shows that 88.3% of respondents argued that the mobile phones do not helps to expand business networks since they depend on local market to sell their processed food products.

Furthermore, it was confirmed by our field data that mobile phone usage facilitates improvement in income only for those who have been connected with several customers whereby they sell more products and in turn earn more profits. Mobile phone improves income of those women entrepreneurs by reducing traveling costs and expanding market, which in turn makes them sell more products. Although mobile phone was found to improve income for some, the study suggests that at a larger scale mobile phone usage does not help to improve income of women entrepreneurs. The results show 88.3% of respondents do not use mobile phone for business purpose and hence it does not contribute to improve their income. It can be argued that mobile phones are an important tool in business activities, which contributes to improve the income of women entrepreneurs and their wellbeing only if it is effectively utilized.

Our respondents' opinion on the challenges of mobile phone usage were unambiguous, showing that mobile phones usage brings operational problem. The study revealed that expenditure on airtime is high, around Tshs 15,000 to 60,000 and above on monthly basis. Mpogole, Usanga, & Tedre [15] asserted in their study that the pricing of a mobile call is more expensive compared to the benefits of using mobile phone, which seems to be the case for the participants of our study. The results of our work also concurs with findings of [15] which showed that the price of mobile phone use in Tanzania is more expensive than other East African countries. Even though telecommunication has bloomed in Tanzania with several mobile phone service providers available, there is still absence of well established procedures for filling complaints to the government and mobile phone subscribers on the high charges of airtime and other problems related to the mobile phone usage.

Furthermore, mobile phone usage faces the challenge of poor cell network which is not stable especially as the user moves away from town center. The failure of network restricts the effective communication between women entrepreneurs and customers. During the in-depth interviews several respondents mentioned that *"network failure is a problem which affect effective communication especially in remote areas"*. The study by [13] amplified that mobile phones customers complain on slow and low-quality network. Our work suggests that slow and low quality network affect the usefulness of mobile phone as a business and communication tool. Presence of reliable and effective network is considered to be of paramount importance to the mobile phone users in order to support business activities.

According to our findings, the usage of mobile phone in business comes also with a lot of dishonesty between women entrepreneurs and customers. Transaction of business through mobile phone devices is plagued by delays that affect the payment through M-PESA when the business transaction is agreed. Also mobile phone is used to disseminate false information in order to defeat competitors in the market. One of the respondents lamented that *"mobile phone is not good in business because your competitors display the image of your products to customers by telling them the product has low quality and not approved by government for the public use"*. However, our findings suggest that mobile phone is effective in supporting business transaction in placing order, payments and display the product to the customers if it is appropriately utilized.

## VI. RECOMMENDATIONS

Base on the results of our field study the following recommendations are put forward:

- Awareness and training programs are required to educate women entrepreneurs on how to make use of mobile phone for accessing market information in simple ways such as text messages. Creation of awareness to women on the usage of mobile phone in business is important for them to expand business.
- Establishing and promoting women entrepreneurs clubs in order to create networks and discuss challenges they face about accessing market information.
- Governmental support is needed to foster skills of entrepreneurship and regulate the costs of mobile phone operators in order to reduce prices of airtime and make more bandwidth available for broadband usage. Also, the support and maintenance of reliable physical infrastructure (for instance, mobile phone recharging stations) is desirable.

## VII. CONCLUSIONS

Preceding research has to a certain degree maintained the argument that mobile phone usage helps to access market information, improves economic efficiency and reduce transaction costs [16, 17]. However, the findings in this study have shown that mobile phone usage does not automatically assist women entrepreneurs to obtain market information. Instead, they operate in small scale and because of the traditional nature of their business, women entrepreneurs set the price of their products after considering the costs incurred in processing

without knowledge of the market. Yet, women entrepreneurs depend on the local market which is not reliable to absorb all processed food products. Furthermore, there is no reliable platform from where to get direct access to market information, hence the traditional walk, search and find style for selling products prevails in the Iringa region.

Although all women entrepreneurs included in the study owned a mobile phone device, they used it for family matters and not for business purpose, despite the benefits that such use could bring forward. Mobile phone usage could help women entrepreneurs to get timely market information on prices; opportunities; potential customers and demands of the market. However, mobile phone usage was constrained with airtime costs which are high and prohibitive. Furthermore women entrepreneurs face challenges regarding poor cellular network accessibility and lack of knowledge on how to use their phones: some of the participants only knew how to receive and make a phone call.

Our study focused on the role of mobile phone for accessing market information and understanding the challenges that plague such a usage in the agricultural Iringa region of Tanzania. Based on the knowledge acquire here, further studies are undergoing on the design and implementation of a user-friendly mobile phone application for accessing market information adapted to the local users devices and needs, with the aim of improving the socio-economic well-being of the women entrepreneurs of the region.

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