Zimbabwe Journal of Science & Technology pp 148-156

Vol.15 [2020]
e-ISSN 2409-0360
Zimbabwe j.sci.technol

Information and communication technologies: enhancing women entrepreneurship and productivity in the textile cottage industry

Peeps Gonde, Londiwe Nkiwane and Lindani Ncube

Department of Fibre and Polymer Materials Engineering, National University of Science and Technology, P.O. Box AC 939, Ascot, Bulawayo, Zimbabwe

E-mail: peeps.gonde@nust.ac.zw

Abstract

The textile cottage industry is important in employment creation, income and profits generation and foreign currency earning for a country through exports. The pursuit of women entrepreneurship in the textile cottage industries acts as an instrument towards their emancipation, consistent with the MDG # 3: *Promote Gender Equality and Empower Women;* and SDG #5: *Achieve Gender Equality and Empower all Women and Girls.* This paper focuses on how information and communication technology could enhance productivity in the cottage textiles in Zimbabwe. The study was qualitative in nature, employing non-probability sampling techniques. Semi structured interviews were administered to representatives of Ministries of Information and Communications Technology, Small-Medium Enterprises, and Women Affairs, Gender and Community Development to investigate policy issues. Focus group discussions were conducted on 67 participants selected from a total of 370 representatives of women entrepreneurs. The study primarily used thematic analysis tool for data analysis. Findings of the study showed that the textile cottage industry largely operated manual systems, had inconsistent connectivity, inadequate energy power systems, product innovations were inhibited, and disjoint information and communications technologies. To enhancing entrepreneurships and sustainable productivity it was recommended that textile cottage industry adopted robust information and communication technology strategies.

Keywords: Textile cottage industry, information and communication technology, competitiveness, productivity, sustainability.

Received: 06.12.20 **Accepted:** 30.06.21

1. INTRODUCTION

Cottage industries confine their production processes within families and households, rather than in conventional factories, offering viable economic jobs to the underprivileged or the middle-income segment of people (Tasneem and Biswas, 2014). Textile cottage industries make substantial economic growth both globally and in developing countries, including Zimbabwe. They are important drivers for economic growth for developing countries (Ladokun et al., 2013). They employ traditional ways to organise activities such as production and marketing (Kristiansen, 2003). In this study, the administrative centres of textile cottage industries involved were Lupane Women Centre and Masendu Cultural Village. At these centres, the activities primarily involve use of natural resources, namely palms and sisal, to manufacture a variety of artefacts for selling in both the domestic and international markets. Their artefacts are identifiable to the locality and specific family.

Textile cottage industries are possible options towards women emancipation, since women have engaged in these activities, from time immemorial (Richardson et al., 2004). These industries are small business enterprises comprising of 10 or less employees. They are operated and managed by women who practice transactional marketing. Transaction orientation focuses on increasing sales figures. In Zimbabwe, the textile cottage industry is under the Ministry of Small to Medium Enterprise (MSMEs), but individual enterprise relationships are dysfunctional.

The cottage industry lacks funding from the Government despite their potential to grow, create employment and be a prospective contributor to the gross domestic product (GDP). ICTs, though modern and seemingly high-tech have a role in the textile cottage industry. Government, top management and financial support are important determinants of the adoption of ICTs in rural areas (Hoque et al., 2016). As general-purpose technology, ICTs are vital tools which could improve business practices, increase efficiencies and competitiveness in these textile cottage industries. The management in the textile cottage industry is fraught with challenges of lack of finance, use of poor accounting principles, poor production and the distribution of finished products, loss of revenue and low profits (Soundarapandian, 2009, Wolcott et al., 2008). Adoption of ICTs is vital to assist in the management efficiencies, and move women entrepreneurs into higher-value activities in design, logistics, or accessing niche markets (McNamara, 2008). ICTs have played a key role in today's business environments and have a potential similar impact on SMEs especially in rural areas of developing countries (Hoque et al., 2016).

The textile cottage industry enterprises in Lupane and Masendu display typical value chain systems comprising of core activities and secondary activities (Kotler, 2012). The value chain activities of marketing, production, and accounting among others within the cottage industry are largely manual. Considering the value chain activities, information and communication technology (ICT), has the potential to transmit information, increase productivity and create new products and services (Duncombe and Heeks, 2005). ICTs would enhance the entrepreneurial competitiveness and improve profitability.

According to Stathopoulou et al. (2004), the Lupane Women Centre and Masendu Cultural Village can be described as 'rural' because they are territorially specific with distinct physical, social and economic characteristics. Vibrant and diversified business activities in rural areas are achieved by locality, natural resources, social assets, and ICTs (Skuras et al., 2005) Rurality is regarded as a forceful commercial resource that forms both prospects and restraints highly influenced by specific international characteristics (ibid).

The use of ICTs enable the conception of flexible relationships with trading partners because of faster and more reliable communication channels (Matambalya and Wolf, 2001). Cottage industries are predominantly associated with informal, rudimental technology, with low levels of human resource skills, family and weak management systems and entrepreneurial capabilities, inaccessibility of suitable and opportune information, inadequate use of information technology, low product quality and calibration, and hostile environmental production procedures. The textile cottage industries entrepreneurs engage in business practices for survival as they are local in their nature of operation (Olatunji, 2015). Textile cottage industry creates an appropriate environment for businesspersons and employment prospects (Thurik and Wennekers, 2004). However, they tend to be characterised by low productivity.

These SMEs lack access to financing and long-term capital, the basis on which companies are built. ICT utilization by any SME has many benefits to its business processes. These include an improved collaboration between internal and external business units through the use of extranets and intranets, huge savings in costs especially when moving from hard copies to electronic copies, the ease with which collaboration with partners and clients can be done, improved customer satisfaction, growth in market, improved accountability and enhance strategic planning through the use of Enterprise Resource Software (Makiwa and Steyn, 2016).

(Nagy, 2010) defines supply chain as 'a set of companies which the product and service flows during the production process'. The overall e-business strategies of the Textile cottage industry may co-opt marketing and sales, logistics and delivery, after-sales service, supply chain management and other business functions are integrated. She adds that, "Normally, several independent firms are involved in manufacturing a product and placing it in the hands of the end user in a supply chain", raw material and component producers, product assemblers, wholesalers, retailers and transportation companies, are all members of a supply chain. The textile cottage industries do not have tightly integrated supply chain management. There is need to create linkages commonly found in supply chain management of larger organisations.

The location of this study is among the poorest and most marginalised areas of Zimbabwe (Magadza, 2004; Ncube, 2011). The Department for International Development (DFID) and Kellogg Foundation also identified these areas as impoverished and needed intervention. The DFID instituted a Development Partnership in Higher Education (DelPHE) project in 2006 – 2009 to empower women in the textile cottage industries. Prior in 2003 – 2008, WK Kellogg Foundation embarked on a Community Development Programme project to improve the productivity in the textile cottage in these areas.

The use of appropriate technology results in cheaper artefacts which are affordable especially for low-income groups, thus enhancing the upkeep of the women entrepreneurs and their families. In addition, the usage of ICTs improves accessibility into the international markets (Ongori and Migiro, 2010). The study sought to determine how information and communication technologies can enhance women entrepreneurship in the textile cottage industry for their economic empowerment.

2. MATERIALS AND METHODS

Two areas were selected for this study, namely Lupane and Masendu. These areas exhibit similar supply chain activities. (Nagy, 2010) defines supply chain as 'a set of companies which the product and service flows during the production process'.

The observation method was applied in both cases and involved site visitations to observe the women engaged in their craft production processes to establish where information technologies could be applied. Semi-structured interviews were also used to collect data from ministries' representatives. Furthermore, focus group discussions on women entrepreneurs from both study areas provided additional information.

This being a collective case study, a non-probability purposive sampling approach was adopted. In all cases, the sampling strategy targeted women with Junior and Ordinary Level Certificates since they were considered to possess knowledge of business processes and commercial impediments with their wares. 67 participants were selected from a total of 370 representatives.

Care was exercised to ensure data collected excluded respondents who participated in the pilot study. The dissection of data into sub-sites established the aspect of concurrent triangulation. Information obtained was both intrinsic and extrinsic convergent and corroborative for all the sites. Quiet places for conducting interviews were determined by leaders of focus groups; presenting good environments for discussions and videotaping. Instruments for focus group discussions were initially tested for validity. Processes that mimic the conduct of typical focus group discussions and interviews were adopted. An assistant helped with the data collection process and videotaping.

Pilot testing procedures used was similar to that subsequently used for primary data collection (Moizer, 2007). The rational for testing was to establish content-related evidence of validity which refers to the content and format of the instruments (Frankel and Wallen, 2009). Pilot testing was found to be an indispensable exercise as flaws of the instruments were discovered and corrected.

2.1 Data analysis

Data collected through focus group discussions, observations, and interviews were aggregated to fulfil the research objective. Framework analysis and computer assisted qualitative data analysis software (CAQDAS) NVivo 10 were used to organise, classify, and sort, the unstructured data. (Lacey, 2007) posits that the general approach in Framework Analysis is inductive and this form of analysis allows for the inclusion of a priori as well as emergent concepts, for example in coding. This paper intends to highlight where there are specific ICTs issues that policy makers, funders or other stakeholders want to be addressed (ibid).

Women entrepreneurs were observed at work during the modelling of their hand crafts. The whole process from acquisition of raw materials, inventorying, production, warehousing, pricing, to sales and marketing signified the lack of information and communication technologies. Observation data consistently showed positive correlation with the data collected through focus group discussions. Ultimately, emergent themes became the matter for data aggregation of observation and focus group discussions.

Next stage of data analysis involved the mapping and interpretation of the thematic chart. This involved searching for patterns, associations, concepts, and explanations in collected data, aided by visual displays and plots. The aim to search for patterns was to define conceptions, chart the range and nature of phenomena, create typologies, find associations within the data, provide explanations or develop strategies (Ritchie, 1994).

Data collected through focus group discussions was transcribed, coded, and presented in thematic chart viewpoint

A thematic chart that captures a cross section of themes from all cases was subsequently derived, see Table 1. The thematic analysis saw further re-arrangement of the study cases. Women entrepreneurs from both textile cottage industries remained as one entity, whereas the three ministries, Ministry of Information and Communications Technology, Ministry of Small-Medium Enterprises, and Ministry of Women Affairs, Gender and Community Development each formed its own case.

Participants in the cross-case thematic chart table were allocated with the following codes, Case 1: L – Lupane, M – Masendu, Case 2: I – Ministry of Information and Communication Technology, Case 3: S - Ministry of Small and Medium Enterprises, Case 4: W - Ministry of Women Affairs, Gender and Community Development, and Case 5: C – Administrator Women Centre.

Table 1: Cross – case thematic chart (S*ource:* Self Creation)

Theme	Case1	Case2	Case3	Case 4	Case 5
Theme: Access to ICTs	Women entrepreneurs need them (L2:13, M3:15) Important for business survival (Ll2:20, M4:10)	Allows for productivity (I4:5-6) Enables women empowerment (I4:10) Collaboration with other stakeholders (I1:7)	Enabler for women entrepreneurs (S1:2) Business tool (S1:9) Basis for women emancipation (S3:9)	Entrepreneurial instrument (W1:10) Empowerment (W3:22) Competitive apparatus (W3:19) Sustainability (W2:21)	Emancipation (C1:8) Source of livelihood (C1:6)
Theme: Connectivity	Enhances communication (L4:10, M5:7) Business processes synergy (L5:13, M6:17) Value addition (L8:12,M9:14)	Links women entrepreneurs (I:19) Source of markets (I3:21) Productivity (I4:19)	Efficient communication (S3:8) Value addition (S5:9)	Centres of excellence (W3:11) Increased throughput (W2:11)	Supporting e-commerce (C4:22)
Theme: Energy Systems	Provides power (L10:3, M11:7)	Sustains ICTs (I4:8)	Source of power (S3:13)	Ensures availability of ICTs (W2:7)	Needed to power systems (C5:17)
Theme: Value Addition	Coordinated production efforts (L12:6, M11:17) Diminishes raw material wastage (L20:15, M19:8) Optimises quality (L21:13, M20:10) Standardise products (L21:16, M20:18)	Quality control (I4:19) Cost saving (I4:19) Enhance revenue(I4:20) Boosts profits (I4:5)	Enhance productivity (S4:18) Mass production (S5-19)	Quality assurance measure(W1:11) Customer satisfaction(W1:13) Sustain textile cottage entrepreneurs (W3:3)	Production efficiencies (C2:22) Profit maximisation (C3:16)
Theme: Empowerment	Independence (L22:14, M20:16) Improved status (L22:18, M21:6) Confidence (L23:8,M22:10)	Family welfare enhancement (I10:17) Economic freedom (I11:12)	Women empowerment (S3:7)	Productive work (W2:4) Emancipation (W3:5)	Rewarding commitments Empowering women (C2:3)

Theme: Strategy Formulation	Women entrepreneurs need it to guide (L24:7, M23:8) ICT application (L23:16, M21:10)	Coordinate ICT resources (I6:8) Synergises operations (I6:3) Futuristic planning (I6:20)	Provides direction (S5:4) Informs users (S5:10) Sourcing of resources (S6:7) Training Users (S4:21) Empowering rural entrepreneurs (S5:17)	Assist in providing appropriate technology (W3:1) Improved decision making (W4:13) Empowerment (W3:3)	Empowerment platform (C2:3) Synchrony of other empowerment strategies (C3:14-15)
Theme: Employment Growth	Creation of additional jobs (L15:18, M13:14)	Creation of new jobs (I5:15)	Expands textile cottages (S4:5)	Develops new products (W3:7) Employs additional women (W2:6)	Advances women employment (C4:1)
Theme: Cost Reduction	Reduces operational costs (L19:15, M16:9) Magnifies profits (L20:5, M16:18) Increase competitiveness (L21:8, M10:7) Improves wealth (L22:6, M16:11)	Achieves efficiency in commerce (I4:20) More earnings (I3:15) Empowerment mechanism (I4:11)	ICT supporting value chain activities (S3:18) Source of wealth (S5:4) Empowerment (S3:7)	Opens scope for new entrepreneurs (W4:11) Competitiveness (4:9)	Emancipation mechanism (C5:11-12) Improves livelihoods (C4:8)
Theme: Resources	Needed by women entrepreneurs (L3:10, M2:5) Basis for computerised environment	Key to ICT application (I5:7) Sustain operations (I5:10) Augment women entrepreneurial efforts (I5:20)	Inadequate (S2:1) Primary requirements to create enabling environment (S4:1)	Required to empower women (W1:3)	Prerequisite to introducing ICTs (C2:22)
Theme: Training and Skills	ICT awareness Required for competencies (L7:12, M9:10) Empowerment issues (L7:18, M10:18)	Technological skills transfer (I2:3) Increase productivity (I4:2-3) Efficient use of ICT (I4:18)	Basic requirement to manipulate ICTs (S4:4) Improves productivity (S5:8)	Better management of ICTs (W4:5) Source of productivity (W2:8)	Empowerment phenomenon (C3:7)

Theme: Marketing	Uncovers new markets (L26:19, M19:18) Reduces information asymmetry (L27:5, M19:18) Informs customers about products (L7:14, M20:6) Foundation of doing business (L31:7, M22:12)	Creates global markets (I4:21) Increases international recognition and competition (I4:13) Core for commercial activity (I1:2)	Basis to buy raw materials and also selling products (S3:4) Permits visibility (S4:5) Global reach (S3:4) Source of rich information (S4:19)	Instrumental in doing business (W4:11) Should be intensified (W2:16)	Income generator (C3:12) Finding customers (C3:19) Maintaining and keeping clientele (C3:7)
Theme: Electronic – business	Core to all women entrepreneurial scope (L25:16, M23:11) Achieve process automation (L24:3, M23:18) Enhances productivity (L24:16, M23:20)	Supports the access to local and global markets (I5:19) Efficient business communications (I3:7) Required in the women empowerment processes (I7:24)	Bolsters women entrepreneurship economic throughput (S3:5) Increases earnings (S4:16)	Assures women commercial activity (W4:9) Achieves productivity (W2:8) Effectively support cottage industries (W2:1-3) Women empowerment tool (W4:24)	Boosts productivity (C3:18) Women emancipation can be fulfilled (C5:11-12)

3. RESULTS AND DISCUSSIONS

Qualitative data obtained through focus group discussions and semi-structured interviews were analysed. The thirteen themes or findings that emerged showed a strong desire by women entrepreneurs in the textile cottage industry, to embrace ICTs, but the environment has not been conducive.

Women entrepreneurs had limited access to ICT, save for their personal mobile phones. Resultantly, prospects of empowering drive for women entrepreneurs was subdued.

Connectivity was inconsistent due to inaccessibility of ICTs, restricting value addition despite the potential.

There were inadequate energy power systems. Electricity power was only available at administrative centres whilst outlying areas used generators, solar, and car batteries, and these were found to be inefficient power system modes.

Women entrepreneurs displayed ignorance on the presence of information and communication strategy formulation processes.

Repressed productivity suppressed employment growth to women entrepreneurs.

The cost reduction benefits were not fully realised.

ICT resources, coupled by the lack of complementary assets negated the implementation of ‘computerised systems.’

The women entrepreneurs derived excitement on acquiring information and communication skills even if insignificant training was delivered.

There were partial benefits realised from electronic marketing and this broadened the women entrepreneur customers’ base to include international markets.

Product innovations were inhibited by the absence of computer aided design due to lack of resources, and design software.

Ministries of ICTs, SMEs, and Women Affairs, Gender and Community had unsynchronized ICT strategies for rural textile cottage industry. There existed disjoint and uncoordinated efforts.

4. CONCLUSION

Textile cottage industries possess inferior ICTs rendering these systems incompatible compared with bigger organisations. Incompatibility results in connectivity deficiencies, making the women entrepreneurs inaccessible. The women textile cottage industries are income revenue streams for family upkeep and sustenance. Given inefficiencies of the largely manual operated textile cottage industries, the need for textile cottage industries to adopt ICTs for enhancing entrepreneurships and productivity is imperative

The status quo of ICTs in the textile cottage industries is appalling. These industries have greater potential towards employment creation, improving their communities’ upkeep as well as contributing to the GDP. Modern information and communication technologies for the sustenance of business processes and marketing should be regarded as highest priority. Lack of coordinated strategic posturing is the greatest pitfall for these textile industries, and this calls for cohesion at the highest levels of planning.

6. RECOMMENDATIONS

Recommendations of this study were derived from themes and findings, and challenges that are faced by women entrepreneurs in the textile cottage industries. Unfortunately, the findings and

challenges appear to be beyond the scope of the two communities, per se; hence this calls for intervention by donor community and the Government of Zimbabwe. The five recommendations highlighted below, encapsulate all themes and findings arising from this research.

a. Information and Communication Technology Strategy

There was apparent absence of information and communication technology strategy for women entrepreneurs in those rural areas. A sincere bottom-up ICTs strategic planning process should be pursued intended for the beneficiaries. Audit teams are necessary for monitoring the implementation of policies.

b. Access to Information and Communication Technology

Identification of suitable appropriate technologies such as computer systems, mobile cellular phones, printers, scanners, among other components of technology should be made to support women entrepreneurs

c. Assimilating Information and Communication Technology

Women entrepreneurs should be assisted in adopting improved information and communication technology in order to realise the associated benefits such as enhanced communications, automated business processes, reduced costs, product research and improvements, electronic marketing which leads to higher productivity and profit margins.

d. Sources of Energy

Robust sources of power should be provided to women entrepreneurs for sustenance of their business activities.

e. Training and Skills

Training and skills transfer should be imparted to women entrepreneurs in order to enhance their technology proficiencies.

REFERENCES

Duncombe, R. & Heeks, R. 2005. *Information & Communication Technologies (ICTs), Poverty Reduction and Micro, Small & Medium-scale Enterprises (MSMEs). A framework for understanding ICT applications for MSMEs in developing countries*. Manchester: University of Manchester.

Frankel, J. & Wallen, N. 2009. *Single-subject research. How to design and evaluate research in education*. (7th ed.). New York, NY: McGraw-Hill.

Hoque, M. R., Saif, A. N. M., Albar, A. M. & Bao, Y. 2016. Adoption of information and communication technology for development: A case study of small and medium enterprises in Bangladesh. *Information Development*, 32, 986-1000.

Kotler, P. 2012. *Kotler on marketing: how to create, win, and dominate markets*. London: Simon and Schuster.

Kristiansen, S. 2003. Small-scale Business in Rural Java: Involution or Innovation. *The Journal of Entrepreneurship*, 12, 21-41.

Ladokun, I., Osunwole, O. & Olaoye, B. 2013. Information and communication technology in small and medium enterprises: factors affecting the adoption and use of ICT in Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 2, 74.

Makiwa, P. J. & Steyn, R. 2016. ICT adoption and use in Zimbabwean SMEs. IST-Africa Week Conference, 2016. *IEEE*, 1-8.

Matambalya, F. & Wolf, S. 2001. The role of ICT for the performance of SMEs in East Africa: empirical evidence from Kenya and Tanzania. *ZEF Discussion Papers on Development Policy*.

Mcnamara, K. 2008. *The Global Textile and Garments Industry: The Role of ICT in Exploiting the Value Chain*. Washington, DC: World Bank.

Moizer, P. 2007. Business Research Methods. New York: McGraw-Hill.

Nagy, J. 2010. *Types of Supply Chains and tools for management*. Doctoral dissertation, Corvinus University of Budapest.

Olatunji, O. S. 2015. The impact of information communication technology on small and medium scale enterprises productivity in Nigeria. Vassa: Vaasa University of Applied Science

Ongori, H. & Migiro, S. O. 2010. Information and communication technologies adoption in SMEs: literature review. *Journal of Chinese Entrepreneurship*, 2 (1), pp. 93-104. https://doi.org/10.1108/17561391011019041

Richardson, P., Howarth, R. & Finnegan, G. 2004. The challenges of growing small businesses: Insights from women entrepreneurs in Africa. *SEED Working Paper No. 4*. Geneva: International Labour Office.

Saunders, M. N. 2011. *Research methods for business students.* (5e). Essex: Pearson Education.

Skuras, D., Meccheri, N., Moreira, M. B., Rosell, J. & Stathopoulou, S. 2005. Entrepreneurial human capital accumulation and the growth of rural businesses: a four-country survey in mountainous and lagging areas of the European union. *Journal of Rural Studies*, 21, 67-79.

Soundarapandian, M. 2009. *Economic Reforms and Small Scale Industries*. New Delhi: Concept Publishing Company.

Stathopoulou, S., Psaltopoulos, D. & Skuras, D. 2004. Rural Entrepreneurship in Europe: a Research Framework and Agenda. *International Journal of Entrepreneurial Behavior & Research*. 10 (6), 404-425.

Tasneem, S. & Biswas, R. 2014. Role of Cottage Industry in the Economic Development of Bangladesh: An Empirical Study. *IOSR Journal of Business and Management*, 16, 10-18.

Thurik, R. & Wennekers, S. 2004. Entrepreneurship, small business and economic growth. *Journal of small business and enterprise development*. 10 (6), 404-425.

Wolcott, P., Kamal, M. & Qureshi, S. 2008. Meeting the challenges of ICT adoption by micro-enterprises. *Journal of Enterprise Information Management*. 21 (6), 616-632.

Yin, R. K. 2003. Case study research design and methods third edition. Thousand Oaks: SAGE Publications.