

Increasing access to business incubation services for cottage start-ups to promote inclusive entrepreneurship in Southwest Uganda

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Abstract: In the last 30 years, Uganda has grappled with rising unemployment, notably impacting small businesses, with 85% failing within the first five years. This trend is pronounced in the cottage industry, where 46% of businesses couldn't sustain operations in 2017. In Mbarara district, 65% of cottages established in 2015 had closed or relocated by 2019. This study explores the impact of business incubation support services on reducing cottage start-up failures and promoting inclusive entrepreneurship in Mbarara City. Examining 800 start-ups in handicrafts, soap making, pottery, tailoring, and shoe making, the study employed a correlational research design. The data, collected through a Likert scale questionnaire, revealed that access to finance, capacity building, and information technology (ICT) adoption accounted for 13.2% of the variation in cottage enterprise growth potential. Notably, increased finance positively correlated with growth, while capacity building showed no significant association. ICT adoption, however, had a negative correlation. The study emphasizes the need for cottage entrepreneurs to receive more training on product improvement, additional capital, equipment, and partnerships. In conclusion, access to capacity building, funding, and ICT adoption is pivotal for cottage enterprise expansion, advocating for incubation support services to enhance collaboration, funding, equipment, and product improvement training for cottage entrepreneurs.

Keywords: *Incubation, Cottage startup, Capacity building, Finance support, ICT uptake*

1. Introduction

According to Satalkina & Steiner (2020), combining innovation and inclusive entrepreneurship is essential for the continued growth of a nation. The Resource-Based approach (Fabrizio et al., 2022; Cuthbertson & Furseth, 2022) highlights the critical role that small enterprises' adaptation and creativity play in this era of technological advancements. Uganda has prioritized cottage companies because of their capacity to raise incomes, generate employment, and enhance values (Mhlanga, 2021). Nonetheless, obstacles like untapped potential and a strong reliance on the entrepreneur's knowledge prevent them from progressing (Endris & Kassegn, 2022). To bridge the capacity gap, business incubation hubs have welcomed initiatives to increase Uganda's cottage start-ups (Tutuba & Tundui, 2022). Letão et al. (2022) assert that business incubation is an effective means of reducing startup costs, boosting entrepreneurs' self-assurance, and giving them access to vital networks and resources for their company's expansion. The effectiveness of an incubator is determined by the makeup of the participating cottage entrepreneurs and the resources available for incubation (Mian, 2021). Considering the significance of cottage enterprises, it's imperative to look into factors that can stimulate their growth in this context.

In light of Uganda's rising unemployment rate, this study explored the obstacles faced by urban entrepreneurs in the cottage sector, where a surprising 85% of firms fail within the first five years (Mbarara district annual report, 2021). Fabrizio et al., 2022; Cuthbertson & Furseth, 2022) recognized the critical role that small enterprises play in industrial development, and this study intended to identify ways to support cottage start-ups. With these constraints and potential in mind, the research findings will shed light on the strategic role of

business incubation services in fostering inclusive entrepreneurship development among cottage start-ups in the context of urban settings of southwest Uganda.

2. Literature Review

Business incubation and cottage industry development: Business incubators serve as comprehensive support systems, offering a conducive environment and an array of services to nurture entrepreneurial skills and guide idea development (Leitão et al., 2022). Their crucial role in mitigating risks and enhancing the capacity of entrepreneurs to establish innovative and competitive enterprises is emphasized, with success hinging on a combination of infrastructure, supportive policies, financing, a culture of risk-taking, and quality education (Manning & Vavilov, 2023). Addressing challenges in small business development, such as high information costs, low service levels, and capital shortages, incubators play a pivotal role in fostering successful ventures (Tibaingana, 2020). Integrating entrepreneurial finance models, venture capital, and incubator functions is posited as a strategy for success, facilitating the development of valuable enterprises and contributing to local economic growth (Leitão et al., 2022). Studies on business incubation in developing countries, including the GCC member states and Kuwait, underscore their significance in supporting the survival and growth of young firms, contributing to economic development, technology transfer, new enterprise creation, and job generation (Manning & Vavilov, 2023). Ten case studies of business incubation in developing countries affirm their effectiveness and innovation in supporting start-ups (Leitão et al., 2022).

Shifting the focus to cottage industry development, this sector involves family members crafting goods without machinery, fostering a traditional and familial work environment (Santos & Qin, 2019). Cottage and small-scale industries play a pivotal role in a country's development by generating employment, increasing income levels, and improving living standards (Wang & Li, 2021). In rural areas, where tradition and family ties prevail, the household-based approach in the cottage industry proves more suited, providing craftsmen with a happier existence within their own homes (Tibaingana, 2020). Studies highlight the socio-economic improvement brought about by wood-related household-based industries and their contribution to livelihoods (Tryphone & Mkenda, 2023). Pottery, stone-carving, and bark-cloth-making in household-based industries around Lake Victoria demonstrate their significance as sources of livelihood (Wanniarachchi et al., 2022). Recognizing the pivotal role of household-based industries in balanced regional development and export earnings, Kumar & Shukla (2022), underscore their importance. The Kenya Vision 2030 identifies household-based industries as foundational for entrepreneurial development in the country. Additionally, research on community-based family enterprises in rural Sri Lanka emphasizes the crucial link between such enterprises and sustainable development (Wanniarachchi et al., 2022). Studies on Malaysian Chinese family businesses in food manufacturing shed light on the trans-generational nature of innovation and resilience in these family enterprises (Yew, 2023).

Access to finance and growth of cottage industry: Access to finance is pivotal in the growth of cottage industries, a fact underscored by the life cycle concept in small businesses (Islam et al., 2022). Despite their critical need for maximum capital during the initial stages, cottage industries often face a lack of access to cash and financial markets, hindering expansion (Shoma, 2019). The challenge lies in obtaining finance during the growth phase to reach maturity, where government intervention in providing unfettered access to the financial market could alleviate this issue (Nag, 2022). Cottage industries, known for impromptu funding, heavily rely on owner savings rather than alternative methods, impacting profitability, as demonstrated by Mmadabuchi (2021). Notably, small cottage industries exhibit longer life spans compared to medium or large organizations (Madan, 2020). Financing obstacles disproportionately affect small businesses, reducing growth by six percentage points for large firms and 10 percentage points for small firms on average (Mohd Raof et al., 2020). Lack of access to specific forms of financing further constrains small firms, particularly in export, leasing, and long-term finance, significantly impacting their dynamism and, consequently, the overall growth trajectory of a country (Islam et al., 2022). Financial limitations emerge as a major growth obstacle for small and medium entrepreneurial firms in Sub-Saharan African countries, emphasizing the widespread impact of these challenges on cottage industries (Eton & Nkamusiima, 2023). Additionally, a lack of collateral is identified as a significant impediment to firms' growth, further highlighting the multifaceted financial challenges faced by cottage industries (Nag, 2022).

Capacity Building and Growth in the Cottage Industry: In the realm of cottage industry development, human resource management and skill development emerge as pivotal but often overlooked elements (Tambunan, 2019). Despite evidence emphasizing the positive impact of investing in human resources on production, cottage industry owners tend to neglect staff training, driven by perceptions of it being an expense rather than an investment, coupled with concerns about potential wage increases or labor turnover (Hanaysha, 2023). Financial constraints further exacerbate this situation, with larger enterprises exhibiting more effective staff coordination compared to their cottage industry counterparts (Saunila, 2020). Business education, often deemed crucial, is challenged by research findings suggesting that factors like age, migration, and education level do not necessarily correlate with entrepreneurial success in cottage industries (Akpan, Effiom & Akpanobong, 2023). Post-incubator performance is a critical but understudied aspect, with graduation from incubators not guaranteeing post-graduation survival (Hanlin & Okemwa, 2021). Financial dependence is highlighted by Rajagopaul et al. (2022) and Beck, Demirgüç-Kunt & Merrouche, (2013). as a driver of faster growth in financially developed countries, while new small firms in developing countries often face credit and equity rationing due to underdeveloped financial markets (Njanike, 2019). Lack of financial access disproportionately affects small firms, especially in countries with weak institutional environments, yet evidence suggests that they benefit as financial systems develop (Rajagopaul et al., 2022). Training interventions show varying impacts on survival rates, with Maksum, Rahayu, & Kusumawardhani (2020) revealing a 9 percent increase in survival likelihood 12 months post-training, while Lazaro-Mojica and Fernandez (2021) suggest training may marginally reduce the likelihood of survival for female firm owners, attributing it to the training teaching owners to close down losing firms. These nuanced insights underscore the multifaceted dynamics of capacity building and its implications for the growth of cottage industries.

UpTake of Information Technology and Growth in the Cottage Industry: Studies focusing on the role of information technology (IT) adoption tailored for initiating new businesses reveal significant impacts. Chege, Wang, and Suntu (2020) emphasize the impact of information technology innovation on firm performance in Kenya, shedding light on the transformative effects of IT on business outcomes. Similarly, Bandara et al. (2019) provide a systemic review of technological challenges and SME performance, underlining the sustainability of SMEs in the competitive landscape. The study by Hasanah, Shino, and Kosasih (2022) explores the role of information technology in improving the competitiveness of small and SME enterprises, emphasizing the crucial link between IT adoption and business competitiveness. Nindhita et al (2022) analyzed the effect of information technology development and absorptive capacity on MSME business performance, providing insights into the intricate relationship between technology, capacity, and business outcomes.

Furthermore, Hernandez et al (2022) investigate the green information technology readiness of small and medium enterprises in the Philippines, highlighting the growing importance of environmentally conscious IT practices. Shi et al (2023) explore the digital transformation effect in trade credit uptake from the buyer's perspective, revealing the intricate dynamics of digital transformation in business transactions. In Uganda, Kyakulumbye and Pather (2022) delve into understanding ICT adoption amongst SMEs, contributing to the development of a participatory design model for enhancing technology diffusion. Ouimette, Chowdhury, & Kickul (2021) propose a design model for improving information security adoption for SMEs in Uganda, addressing critical concerns in the realm of cybersecurity. Social media's impact on micro and small enterprises is explored by Sendawula et al (2022) and Kikawa et al. (2022), offering insights into the perceptions, readiness, and usage of social media in fostering sustainable growth and marketing performance. Lastly, Mbowe et al. (2023) investigate the influence of social capital on small and medium enterprises' performance in Wakiso District, Uganda, highlighting the interconnectedness of social networks and business outcomes. These diverse studies collectively underscore the multifaceted implications of IT adoption and related factors on the growth and sustainability of businesses, aligning with the evolving landscape of technology in the business domain.

3. Methodology

Design, Population, Sampling, and Data Collection

To gather extensive data on cottage industries in Mbarara city, this study employed a cross-sectional survey design, utilizing a quantitative approach. The study focused on diverse cottage categories, including handcraft, tailoring, soap making, pottery, shoe making, and herbal medicine extraction, collectively representing 800 enterprises as per UBOS data (2021).

To ensure a representative sample, a combination of purposive, stratified, and simple random sampling techniques was employed. Stratified sampling was used to divide the sample into the North and South divisions of Mbarara city, with 80 participants in each. Further, equal representation was ensured among the six cottage categories. Purposive sampling targeted district officials and counselors overseeing these entrepreneur start-ups, selected based on their perceived expertise in providing relevant information.

Primary data was collected through a self-administered questionnaire, categorized into sections covering background information, trade facilitation, business incubation, and cottage industry development. Descriptive and inferential statistics were used to analyze the quantitative data.

To ensure ethical adherence, before data collection, we sought and obtained approval from the Mbarara University of Science and Technology Institution Review Committee (MUST-2023-811). We then obtained permission from the Mbarara city commercial officer to conduct the study among the cottage start-ups operating in the two city divisions. Before each interview commenced, participants were required to read and sign an informed consent form, outlining the study's purpose, confidentiality measures, and their right to participate voluntarily or decline participation at any time.

4. Study Results

The main focus of this study was on cottage start-ups established between 2018 and 2023, with the owner/manager of each enterprise serving as the unit of inquiry. Table 1 below presents a comprehensive breakdown of the study participants by characteristics.

Table 1: Descriptive Statistics of the Unit of Inquiry and Analysis

Category	Item	Frequency	Percent
Gender	Male	77	47.8
	Female	84	52.2
Age	Below 25	72	44.7
	25- 29 years	60	37.3
	30- 34 years	17	10.6
	35-39 years	7	4.3
	40-44 years	3	1.9
	45 and above	2	1.2
Marital status	Single	102	63.4
	Married	57	35.4
	Divorced	2	1.2
Highest level of education	No education	51	31.7
	Certificate	69	42.9
	Diploma	17	10.6
	Bachelors	24	14.9
Position in cottage	Owner	110	68.3
	Worker	51	31.7
Time period spent in the cottage	1-2	95	59.0
	2-3	54	33.5
	Less than one year	12	7.5
Total		161	100.0

Source: Field data, 2023

The data in Table 1 reveals that a majority (52.2%) of cottage owners are female, while only 47.8% are male. This indicates a slight preference for female participation in the cottage startups included in the study. However, the difference in representation between men and women is relatively small (2.2%). The study found that a vast majority (68.3%) of the participants were the owners of their cottage enterprises, while only 31.7% were workers. This suggests that cottage owners are primarily managing their businesses, likely due to the limited cash flow and profitability of these startups. To further empower women-led cottage start-ups, promoting incubation services in urban settings is recommended.

The age distribution of the participants reveals that a significant majority (44.7%) are below 25 years old, followed by those between 25-29 years (37.3%). The least represented age group is above 45 years (1.2%). This indicates that the youth play a dominant role in owning and managing cottage industries. Their willingness to take on higher start-up risks and their dedication to growing their businesses make them a driving force in the industry. The study further supports the notion that promoting incubation services for start-up cottage enterprises will foster youth participation and contribute to inclusive entrepreneurship in urban settings of southwest Uganda.

The marital status distribution of the participants revealed that a significant majority (63.4%) were single, followed by those who were married (35.4%). The least represented group were divorced individuals (1.2%). This indicates that unmarried youth are more likely to dedicate themselves to running start-up cottages. Based on the growth in income generation from their businesses, these youth may consider marriage as a higher-priority need. While the study does not provide definitive conclusions, it suggests that promoting incubation services among youth-owned cottage start-ups in the age bracket of 18-30 years could be beneficial.

The study revealed that a significant majority (42.9%) of cottage owners held certificates, while 31.7% had no formal education, and only 10.6% held diplomas. This suggests that a lack of education among cottage owners could be a major impediment to their ability to sustain their businesses. These findings should encourage providers of incubation services to prioritize expanding their outreach to less formal communities, where many of these startups originate, to increase the uptake of their services.

Tables 2 and 3 show the inferential results for the correlation and regression analyses respectively. The analysis examined the relationship between three basic incubation services: access to capital, capacity building, and ICT adoption, and participants' perceptions of the growth of their cottage businesses. The goal of this study was to quantify the perceived relationship between participants' perceptions of the need for finances, capacity building, and ICT with cottage growth.

Table 2: Correlation results – Access to finance, Capacity building, ICT & Firm growth

Variables	1	2	3	4
Access to Finance (1)	1			
Capacity Building (2)	.178*	1		
Uptake of Information Technology (3)	-.192*	0.118	1	
Firm Growth (4)	.315**	0.149	-.239**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, 2023

Access to finance and firm growth of cottages

Table 2 shows a perceived positive relationship between access to finance and firm growth in cottage industries ($r = .315, p < .01$). The results suggest that cottage startup participants recognize a moderately positive association between access to funding and their potential to expand their operations. The results further impute that Business incubators ought to explore connecting cottage companies with funding angels and investigating alternative microfinance programs to boost entrepreneurial inclusion.

Capacity building and firm growth of cottages

A correlation analysis revealed a positive but weak and insignificant relationship between capacity building and firm growth among cottage startups, as indicated in Table 2 ($r = 0.149, p > 0.05$). This implies that while capacity building holds some potential to contribute to firm growth, its impact is relatively small and statistically non-significant. This finding underscores the need for further inquiry into the effectiveness of capacity-building programs for cottage startups, particularly given the majority of participants operating in the informal sector with limited educational backgrounds.

Uptake of information technology and firm growth of cottage industries

Our study revealed a surprising and counterintuitive relationship between cottage startups' perceived need for ICT uptake and their actual firm growth. While participants overwhelmingly recognized the importance of ICT adoption for business expansion, a statistically significant negative correlation emerged between these perceived needs and firm growth ($r = -0.239, p < 0.01$). This inverse relationship suggests that the current level of ICT adoption among cottage start-ups in southwest Uganda is hindering their growth potential.

To address this critical gap, we strongly advocate for the integration of ICT skilling into incubator capacity-building programs. Such training has the potential to bridge the ICT adoption divide and equip cottage startups with the necessary skills to harness the transformative power of technology.

Given the youthful age bracket of most cottage owners/managers (18-30 years), there exists a receptive audience for ICT skilling programs. By empowering these young entrepreneurs with ICT proficiency, we can foster a ripple effect of rural digital transformation, promote efficient record-keeping, and cultivate the adoption of low-cost digital marketing strategies that enhance firm competitiveness. Only through this comprehensive approach, encompassing ICT skills training, adoption, and strategic utilization, can we truly unlock the growth potential of cottage start-ups in southwest Uganda.

Table 3 Regression results - Access to finance, Capacity building, ICT & Firm growth

Model	Unstandardized Coefficients		Standardized	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.379	0.471		2.925	0.004
Access to Finance	0.26	0.079	0.253	3.296	0.001
Capacity Building Uptake of Information Technology	0.174	0.103	0.128	1.692	0.093
	-2.82E-06	0	-0.206	-2.706	0.008
R	.385 ^a				
R Square	0.148				
Adjusted R Square	0.132				
F	9.086				
Sig.	.000 ^b				

a. Dependent Variable: Firm Growth

Source: Field data, 2023

Table 3 summarizes the findings of a regression analysis that examined the effect of information technology (IT) adoption, capacity building, and access to finance on firm growth in cottage start-ups. According to the findings, the three factors account for 13.2% of the difference in business growth. As a result, other factors not

included in the analysis, such as location, kind of cottage, and management quality, have a substantial impact (86.8%) in understanding cottage start-up growth.

The analysis of variance (ANOVA) table provides a statistical test of whether the overall model is significant. The F-statistic (9.086) indicates that the model is statistically significant, meaning that there is a statistically significant relationship between the uptake of information technology, capacity building, access to finance and firm growth. The p-value (0.000) is less than 0.05, which is the standard level of significance, indicating that the relationship is statistically significant. To find further strategies for fostering business expansion among cottage start-ups, more research may look into these other variables.

The results in Table 3 highlight the significant positive impact of access to finance on firm growth. For every unit increase in access to finance, there is a corresponding 0.253 unit increase in firm growth. This finding suggests that providing cottage industries with access to suitable financial resources can significantly boost their growth prospects. On the contrary, the results in Table 3 indicate that capacity building has no statistically significant relationship with firm growth among cottage industries. This means that increasing investment in capacity-building initiatives may not directly translate into improved firm growth for these businesses. Moreover, the results in Table 3 reveal a negative relationship between information technology adoption and firm growth. For every unit increase in information technology adoption, there is a corresponding 0.206 units reduction in firm growth. This finding could suggest that the adoption of inappropriate or ineffective information technology solutions among cottage industries may hinder their growth rather than enhance it. The results in Table 3 provide valuable insights into the factors that influence firm growth among cottage industries. It emphasizes the positive impact of access to finance and highlights the need for cautious implementation of capacity-building and information technology strategies

Discussion of Results

According to Leitão et al. (2022), business incubators function as multifaceted networks of support that provide a nurturing environment and a wide range of services to encourage entrepreneurial abilities and steer the development of ideas. By easing the major obstacles to small business development such as high costs for information acquisition, skill development, and capital scarcity incubators can be extremely helpful in promoting the growth of start-ups, especially in western Uganda (Tibaingana, 2020). This study indicates that business incubators can collaborate with angel and venture investors to promote cottage start-ups and aggressively lead creative microfinance programs to expedite startup growth.

Business incubation and cottage industry development

Cottage start-ups, operating from modest homes with limited infrastructure and relying on traditional craftsmanship, defy expectations by serving as a driving force for economic development (Santos & Qin, 2019). Their household-based structure aligns seamlessly with the values and traditions of rural communities, providing a fulfilling and meaningful work environment for craftsmen (Tibaingana, 2020). Studies have documented the transformative socio-economic impact of wood-based household industries, particularly in rural areas, and their role in enhancing livelihoods (Tryphone & Mkenda, 2023). Moreover, cottage industries involved in pottery, stone carving, and bark cloth making around Lake Victoria have proven to be crucial sources of income and sustenance (Wanniarachchi et al., 2022). Research on community-based family enterprises in rural Sri Lanka and Malaysian Chinese family businesses underscores the enduring nature of innovation and resilience within these cottage start-ups, demonstrating their ability to adapt and thrive across generations (Wanniarachchi et al., 2022; Yew, 2023).

Access to finance and growth of the cottage industry

The life cycle concept in small enterprises emphasizes that access to finance is a vital pillar for the growth of cottage industries (Wahab et al., 2022). Cottage industries frequently face obstacles in gaining access to finance and financial markets, which hinders their progress despite their crucial need for money during their early phases (Shoma, 2019). The difficulty increases throughout the growth stage when getting funding to mature becomes essential. This problem might be greatly mitigated by government action to allow open access to the financial market (Nag, 2022). However, beyond discussing the study results, the government's efforts to facilitate cottages' access to financial mechanisms in Uganda are impractical for a variety of reasons. As a result,

the necessity for private initiatives to provide incubation services connected to access to finance can help to fill the gap.

Cottage start-ups, which are known for their reliance on ad hoc finance sources, rely significantly on owner savings rather than alternate financing choices (Mmadabuchi, 2021). Lack of access to specialized types of funding further hinders small business growth, thereby impacting their dynamism and, adversely affecting the overall national economic trajectory (Wahab et al., 2022). Furthermore, a lack of collateral is cited as a serious hindrance to cottage expansion, emphasizing the multiple financial issues that cottage enterprises face (Nag, 2022). This study demonstrates that business incubator services provided to cottage start-ups have the ability to push their growth by easing access to funding, improving their skills, and integrating information technology, all of which contribute to national development.

Capacity Building and Growth in Cottage Industry

In the dynamic world of cottage start-ups, talent development emerges as a critical although frequently underestimated aspect of fostering growth and sustainability (Tambunan, 2019). Despite convincing evidence indicating the positive impact of investing in skill development, many cottage enterprise owners disregard staff training, considering it an unnecessary expense rather than a strategic investment. This view is frequently reinforced by concerns about likely salary hikes or staff turnover (Hanaysha et al., 2022). Cottage start-ups' financing limits compound the situation (Saunila, 2020). The study's results are not final, despite the widespread belief that business education is essential for entrepreneurship success. This suggests that skill development and educational attainment may not be reliable indicators of entrepreneurial success in the context of cottage enterprises. To draw firm conclusions, more in-depth study on the subject with larger participant sample sizes (> 160) will be required in the future.

Rationality dictates that without matching support for skill development throughout cottage growth, access to financial resources cannot be attained. Even though this assumption seems obvious, more research is needed to substantiate it outside of the current study. Regarding their effect on survival rates, earlier training approaches have produced a variety of results. While Lazaro-Mojica and Fernandez (2021) suggested that training may modestly reduce the likelihood of survival for female firm owners, Maksum et al. (2020) reported that training interventions led to a 9% increase in the likelihood of survival 12 months after the intervention. These varied results emphasize the complex relationship between capacity building and capital use (beyond access) as well as the growth of cottage start-ups.

Uptake of Information Technology and Growth in Cottages

Information technology (IT) use has been shown to have a major impact on cottage start-up growth. According to Chege, Wang, and Suntu (2020), in a Kenyan study setting IT innovation can improve startup performance. The performance of small businesses and technological problems was further analyzed by Islam et al. (2019). Hasanah, Shino, and Kosasih (2022) also looked at how IT might help small firms become more competitive. The impact of IT development and absorptive capacity on the success of small businesses was examined by Nindhita et al. (2022). These studies offer insightful information about the elaborate relationship that exists between technology, capability, and business results.

Our analysis revealed an unfavorable association between ICT usage and cottage start-up growth, contrary to other research that suggested a positive correlation between IT adoption and business growth. The study's overall results across the various cottages show a negative and significant impact of ICT use on enterprise growth, while specific results may differ depending on the type of cottage. This research supports earlier studies that show how IT adoption has a complicated and multidimensional effect on company outcomes.

For instance, Kyakulumbye and Pather (2022) explore ICT adoption in SMEs and contribute to the creation of a methodology for participatory design that promotes technology spread. Ouimette, M., Chowdhury, I., & Kicku (2022) addresses important cybersecurity issues and suggests a design paradigm for SMEs in Uganda to embrace information security more easily. Sendawula et al (2022) and Kikawa et al. (2022) examine the effects of social media, providing information on attitudes, preparedness, and use of social media in promoting long-term development and effective marketing. The study conducted in Uganda's Wakiso District by Mbowe et al. (2023) emphasizes the connection between social networks and economic results.

These several studies highlight the numerous consequences for business incubation services of seeing ICT adoption as a cross-cutting issue. ICT skilling needs to be integrated into associated issues such as financing use/access, market access, cost minimization, and so on that influence the growth of cottage enterprises for acceptability. Further ICT services need to be matched with the developing technological landscape within the cottage business domain.

5. Conclusion and Recommendations

Our research has provided critical insights into the elements that drive cottage start-up growth in urban settings in southwest Uganda. The positive relationship between access to financing and business growth emphasizes the critical role of financial support in developing entrepreneurial initiatives. However, the non-significant relationship between capacity building and cottage growth emphasizes the multidimensional character of capacity-building initiatives, necessitating a more sophisticated approach. Furthermore, the unanticipated negative relationship between information technology adoption and business growth defies conventional wisdom and needs a rethinking of technology implementation in the context of cottage start-ups. These findings highlight the relevance of context-specific assessments in guiding customized incubation service packages that encourage sustainable cottage start-up growth.

Recommendations: Based on the study's findings, policymakers, business incubators, and stakeholders need to tailor their support services to the specific needs of cottage start-ups. Prioritizing actions to improve access to finance is critical, given the favorable impact on business growth. Capacity-building programs need to be revised to better correspond with the varied demands of cottage start-ups, while also respecting the different skill sets required for success. Furthermore, an in-depth study of the dynamics of ICT adoption is required. The empirical findings will pave the way for the development of inclusive capacity packages that successfully apply ICT while not impeding cottage growth.

Acknowledgment

The authors wish to thank the Uganda Government and Mbarara University of Science and Technology (MUST) under the Directorate of Research and Graduate Training for the financial assistance to conduct this study. We would also like to thank those participants from Mbarara City southwest Uganda who provided their time with us to conduct the interviews. The views expressed are those of the author(s) and not necessarily those of Mbarara University of Science and Technology.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

MT and BM wrote the first and subsequent drafts of this manuscript, with comments from the remaining authors. MT, BM and GK conceptualized and designed the study. BM and MT conducted data analysis and interpretation, with additional input to data interpretation from the remaining authors. All authors read and approved the final manuscript.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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