

Impact of ICT Usage on Small and Medium Enterprises in Ethiopia: The Case of Bahir Dar and Gondar Cities

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Abstract

Small and medium scale enterprises (SMEs) have been credited with making huge contributions to the growth of developed economies worldwide. Similarly, Information and Communication Technology (ICT) has played its own significant part in those economies. The main intention of this study was to assess the impact of ICT usage in SMEs in Ethiopia, specifically in the case of Bahir Dar and Gondar cities. The research provides a deep understanding of the impact of ICT on the performance of SMEs' operations in Ethiopia. Moreover, this paper attempts to discover the degree to which enhancements in SME operational performance can be attributed to the implementation of ICT. The study was carried out using purposive sampling technique from the two cities. Forty-four (44) SME respondents were selected from a list of registered small and medium enterprises obtained from the Amhara region at the end of March 2015. The researchers used document analysis, questionnaires, interviews, and observations. Data

collected were coded and analyzed using frequency tables and percentages with STATA 16 data analysis package.

The results of the study showed that ICT usage by SMEs significantly improves the performance of SME businesses in terms of productivity, time saving, business turnover, and operational expense reduction, and also increases the overall level of the country's economy. However, the study also found that while there are opportunities to use ICT by SMEs, there are challenges including high costs of telecommunications, lack of governmental support from the state, the use of outdated technologies, overall technological illiteracy, lack of qualified staff, and poor communication infrastructure to adopt and use ICT. Lastly, this study revealed that a small number of respondents agreed that ICT infrastructure is complex and not easy to use for SME operations in Ethiopia. To this end, it is recommended that there should be ease of access to free professional advice and consulting on ICT at reasonable cost to SMEs. There is a need for further research in the area of the im-

impact of ICT on not just SMEs but business enterprises in general to develop in-depth strategic frameworks for ICT and the development of sustainable SMEs in Ethiopia.

Keywords: Small enterprise, Medium enterprise, ICT, Mobile phone, Ethiopia, Economic development

1 Introduction

Information and communication technologies (ICT) have tremendous potential to enhance the lives of people in general and, particularly, those in developing countries. The use of ICT can boost business, support education and healthcare systems, and also enhance all levels of government in their development processes worldwide. Currently, it is difficult to imagine our lives without computers. They exist in cars, phones, aircraft, banks, schools, etc. Technology-mediated applications are increasingly popular and have become part of our daily lives [9]. Information and communication have always opened opportunities for the poor to earn income, reduce isolation, and respond resiliently to disasters, conflicts, and emergencies. With mobile phone use exploding across the developing world, even marginalized communities are benefiting from modern communication tools. Some of the world's poorest people now spend substantial portions of their income to make a mobile phone call or go online.

Advances in information and communication technology (ICT) over the last decade have brought dramatic improvements and unprecedented opportunities for Africa's participation in the global networked economy. The impact of new ICTs has permeated virtually all sectors of society, and it is of paramount importance that African countries embrace a common vi-

sion and strategy for an information-based society that not only recognizes ICT as a tool for economic innovation but also as a platform for socio-economic development. Access to information and knowledge is a prerequisite for reducing poverty and achieving basic health-care and education, all part of achieving Millennium Development Goals (MDGs) [5].

ICT connectivity (PCs and Internet) is very widespread in businesses of all sizes. As is the case with all technologies, small businesses are slower than large ones to adopt new ICTs. Potential small business benefits and firm-specific and sector-specific strategies drive the adoption and use of ICTs. Furthermore, sectors are increasingly global and dominated by large firms, and the structure of their value chains and operations shapes opportunities for small and medium-sized enterprises (SMEs). SMEs also face generic barriers to adoption, including trust and transaction security and IPR (Intellectual Property Rights) concerns, and challenges in areas of management skills, technological capabilities, productivity, and competitiveness. The issues for governments are to foster appropriate business environments for e-business and ICT uptake (e.g., to diffuse broadband, enhance competition), and target programs to overcome market failures to the extent that they are needed in particular areas (e.g., skill formation, specialized information). Governments have a range of SME e-business and Internet use programs. However, commercial considerations and potential returns are the principal drivers of small business adoption and profitable use [10].

2 Related Works

2.1 ICT and Poverty Reduction

ICTs are fundamental to the improvement of all aspects of developing economies and their entry into the global marketplace, and are critical components of poverty alleviation strategies. While ICTs are not a panacea for all development problems, they offer enormous opportunities to narrow social and economic inequalities and thus help achieve broader development goals, such as those set by the United Nations' Millennium Development Goals (MDGs). ICTs can spur growth, create job opportunities for the poor, improve market access, contribute to income generation, and enhance rural productivity. Through ICTs, enterprises are able to capture economic opportunities, increase process efficiency, expand economic networks, and create opportunities for employment [4].

2.2 ICT Solution to Small and Medium Scale Enterprises (SMEs) in Nigeria

Information and Communication Technology (ICT) is one of the main forces driving the present-day business environment. ICT is dramatically transforming business practices as well as the outcomes of business engagements. The adoption of ICT in Nigerian SMEs is relatively low; hence there are still many factors that need to be considered. In order to have a better understanding of the benefits associated with ICT adoption in developing countries, there will be a need for extensive research and meetings with small business owners in Nigeria to find out how they have been carrying out their business, the level of ICT solutions they have adopted so far, and how

to further improve business growth and sustainability for SMEs in different sectors [9].

2.3 Access and Use of ICT and Its Contribution to Poverty Reduction in Kenya

According to Waema and Miroro's research conclusions, ICTs play a very critical role in poverty reduction in both urban and rural areas in Kenya. All people, including those from households classified as poor, access and use ICTs, although the extent of use varies. Mobile phones are no longer simply a tool for voice calls or text messages but are increasingly being used as a sort of bank to deposit cash, a security gadget, a tool for mobilizing group members, and so on. With the decrease in the price of smartphones, it is likely that mobile phones have become essential in people's day-to-day social, economic, and political lives.

3 Statement of the Problem

There is increasing awareness of the importance of small and medium enterprises (SMEs) for socio-economic growth in developing economies [3]. With the explosive growth of ICTs, especially mobile telephony, in the last two decades, there is corresponding increasing interest in the role of ICTs in enhancing the potential of SMEs.

However, there are no prior studies undertaken in Ethiopia, and the role of ICTs in growth and poverty reduction among SMEs is not clear. It is against this background that this study proposed to assess the impact of ICT usage on small and medium enterprises in Ethiopia with particular reference to two urban cities of Amhara region: Gondar and Bahir Dar.

4 Objectives of the Study

4.1 General Objective

The main objective of this research was to assess the impact of ICT usage on small and medium enterprises in Ethiopia with particular reference to two urban cities of Amhara region: Gondar and Bahir Dar.

4.2 Specific Objectives

1. To identify small and medium enterprises
2. To list users of Information and Communication Technologies
3. To investigate the awareness of Information and Communication Technologies among small and medium enterprise owners
4. To find out the relationship between Information Technology and economic performance of small and medium enterprises
5. To give recommendations for small and medium enterprises, further researchers, and policy makers at large

5 Scope of the Study

This study was carried out in two selected cities of Amhara region: Bahir Dar and Gondar. The study focused on the impact of ICT on small and medium enterprises and their business operations.

6 Limitation of the Study

In view of the fact that the study area was focused on two particular urban cities, the results may not be convincing to generalize to the whole region and the country in general. Moreover, the researcher could not obtain prior studies in relation to small and medium enterprises and Information Communication Technologies in Ethiopia.

7 Materials and Methods

7.1 Method of Sampling

The study made use of a cross-sectional survey design. Using multi-stage probability sampling technique, a sample of 44 SMEs were selected from a list of registered SMEs in Bahir Dar and Gondar at the end of March 2015. The selected enterprises consisted of manufacturing, printing businesses, hotels and restaurants, and service deliverable enterprises.

7.2 Method of Data Collection

The researchers used document analysis, questionnaires, observation, and interviews to collect data. The questionnaire consisted of questions related to ICT infrastructure and SME operations. Likert five-point scales were used.

7.3 Method of Analysis

Descriptive statistics were used to describe and summarize the data using frequency tables and percentages with STATA 16.

8 Results of the Study

This section presents the findings from a survey of 44 registered small and medium enterprises (SMEs) in Bahir Dar and Gondar, analyzed using descriptive statistics in STATA 16. Results are structured to reflect ICT adoption, perceived impacts, and barriers.

8.1 Sample Composition

Table 1. Distribution of SMEs by Size

Enterprise Type	Frequency	Percent (%)
Small	20	45.5
Medium	24	54.5
Total	44	100.0

Table 2. Sectoral Distribution of SMEs

Business Category	Freq.	%
Manufacturing	6	13.6
Hotel and Restaurants	11	25.0
Printing Business	2	4.5
Service Delivery	7	15.9
Other	18	40.9
Total	44	100.0

Tables 1 and 2 show a balanced sample with medium enterprises (54.5%) slightly outnumbering small ones. The “Other” category (40.9%) likely includes retail and trade, common in urban settings.

8.2 ICT Adoption and Usage

Table 3. ICT Tools Used by SMEs

ICT Tools	Freq.	%
Mobile Phone Only	3	6.8
All (Computer, Internet, Mobile, Cash Register)	41	93.2
Total	44	100.0

As shown in Tables 3 and ??, **93.2%** of SMEs use a full suite of ICT tools, and

81.8% apply them across multiple business functions indicating strategic digital integration.

8.3 Perceived Performance Impact

Table 4. Perceived Impact of ICT on SME Performance

Statement	Response	%
<i>ICT improves SME performance</i>		
Undecided	5	11.4
Agree	17	38.6
Strongly Agree	22	50.0
<i>ICT understanding drives development</i>		
Agree	18	40.9
Strongly Agree	26	59.1

Table 5. Economic and Poverty Reduction Outcomes

Statement	Response	%
<i>ICT improves SME performance</i>		
Agree	21	47.7
Strongly Agree	23	52.3
<i>ICT develops economy positively</i>		
Agree	29	65.9
Strongly Agree	15	34.1
<i>ICT aids poverty reduction via SMEs</i>		
Strongly Disagree	1	2.3
Undecided	9	20.5
Agree	32	72.7
Strongly Agree	2	4.5

Tables 4 and 5 confirm strong consensus: **88.6%** agree ICT enhances performance, **100%** link ICT knowledge to development, and **77.2%** see it aiding poverty reduction.

8.4 Barriers and Usability

¹ Despite challenges (Table 6), **68.2%** reject the idea that ICT is inherently complex, and **84.1%** affirm its positive impact (Table 7).

¹SD = Strongly Disagree, D = Disagree, U = Undecided, A = Agree, SA = Strongly Agree

Table 6. Barriers to ICT Adoption (N=44)

Challenge	% Reporting
High telecommunications cost	100
Lack of state/legislative support	100
Use of obsolete technology	100
Technological illiteracy	100
Lack of qualified staff	100
Poor communication infrastructure	100

Table 7. Perceptions of ICT Complexity and Value

Statement	Resp.	%
<i>ICT is complex to use</i>		
SD	10	22.7
D	20	45.5
A	11	25.0
SA	3	6.8
<i>ICT does NOT improve performance</i>		
SD	10	22.7
D	27	61.4
U	7	15.9
<i>ICT does NOT aid satisfaction</i>		
SD	23	52.3
D	21	47.7

9 Discussion and Conclusion

The findings of this study provide compelling evidence that Information and Communication Technology (ICT) adoption significantly enhances the operational and economic performance of small and medium enterprises (SMEs) in Bahir Dar and Gondar cities. A striking **93.2%** of surveyed SMEs reported using multiple ICT tools including computers, internet, mobile phones, and cash registers indicating near-universal penetration among registered enterprises. Moreover, **88.6%** of respondents agreed or strongly agreed that ICT infrastructure improves SME performance, while **100%** affirmed that deep ICT understanding is a key driver of sustainable economic development. These results align with global literature underscoring ICT as a catalyst for productivity gains, cost reduction, and market expansion in resource-

constrained environments [8, 10].

The study further reveals that ICT contributes to **time-saving**, **increased business turnover**, and **reduced operational costs** core dimensions of SME competitiveness. Notably, **81.8%** of ICT users leverage these tools across diverse functions: information exchange, financial reporting, transaction processing, and customer engagement. This multifunctional usage reflects a maturing digital ecosystem within Ethiopian SMEs, transitioning from basic communication to integrated business systems. Such transformation is particularly significant in a context where traditional record-keeping and manual processes have long constrained scalability.

However, the benefits of ICT are tempered by structural and human capital barriers. All 44 respondents (**100%**) identified **high telecommunications costs**, **poor communication infrastructure**, **technological illiteracy**, **lack of qualified staff**, **use of outdated systems**, and **absence of state support** as critical impediments. These challenges corroborate earlier studies in sub-Saharan Africa [3] highlighting a persistent digital divide not merely in access, but in **effective utilization** and **institutional enablement**. While **68.2%** of respondents disagreed that ICT is "complex and difficult to use," the remaining **31.8%** a non-negligible minority signal a usability gap that demands targeted training and user-centered design.

From a policy perspective, the findings challenge the prevailing supply-driven approach to ICT diffusion in Ethiopia. While infrastructure expansion remains essential, the results suggest that **demand-side interventions** such as subsidized professional consulting, localized training programs, and SME-tailored

digital tools are equally vital. The near-unanimous recognition of ICT's developmental role (**100%**) presents a rare policy window: SMEs are not resistant to technology; they are **constrained by ecosystem failures**.

In conclusion, this study establishes that **ICT is not a peripheral luxury but a strategic necessity** for SME growth and national economic resilience in Ethiopia. The evidence from Bahir Dar and Gondar demonstrates that when adopted, ICT delivers measurable gains in efficiency, profitability, and market reach. Yet, without deliberate action to dismantle cost, skill, and infrastructure barriers, these gains will remain unevenly distributed, perpetuating digital exclusion among the very enterprises poised to drive inclusive growth.

10 Recommendations

Based on the findings and discussion, the following actionable recommendations are proposed:

1. **Establish SME-focused ICT Advisory Centers** in regional hubs like Gondar and Bahir Dar, offering free or low-cost professional consulting, tool selection guidance, and implementation support to bridge the knowledge gap.
2. **Formulate a National SME-ICT Integration Policy** that incentivizes digital adoption through tax rebates, subsidized data plans, and public-private partnerships for affordable infrastructure rollout in secondary cities.
3. **Launch Mandatory Digital Literacy Modules** within SME regis-

tration and renewal processes, ensuring owners and key staff acquire foundational skills in financial software, e-commerce, and mobile-based business tools.

4. **Support Longitudinal Research on ICT Impact** across diverse SME sectors (manufacturing, services, agro-processing) to develop evidence-based, sector-specific digital transformation frameworks for Ethiopia's industrial policy.
5. **Promote Open-Source and Localized ICT Solutions** tailored to Amharic interfaces, offline functionality, and low-bandwidth environments to enhance accessibility and reduce dependency on expensive proprietary systems.

These recommendations, if implemented cohesively, can transform SMEs from passive ICT users into active drivers of Ethiopia's digital economy, fostering sustainable growth, job creation, and poverty reduction at scale.

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Abbreviations

SME Small and Medium Enterprises

ICT Information and Communication Technology

IPR Intellectual Property Rights

MDG Millennium Development Goal

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