

The Benefits of Technological Developments on Businesses: A Survey Conducted among SMEs in Beni, Democratic Republic of Congo

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Abstract

New technologies are considerably influencing companies for information system implementation every year. This trend has led many people, including business managers and researchers, to question the benefits of technology to business. While Small Medium Enterprises (SMEs) in developing countries, particularly those in the Democratic Republic of Congo (DRC), are gradually digitalizing their information systems, To our knowledge, very few studies to analyze the benefits of technologies on DRC SMEs have been conducted. This study, therefore, sought to place itself in the Congolese context to find out about the benefits of digitalized information system. 119 SMEs that have been using information system technologies for at least two years were selected for data collection. Descriptive statistics and Pearson's correlation were used for the data analysis. The findings from the study show that SMEs derive certain benefits from the use of technology and have improved organizational system performance that including an increase in profit, optimized time management, reduced paperwork, improved information quality, and improved financial reporting quality. The results also reveal that the more a company invests in technology, the more benefits it receives.

Keywords: Business, ICT, Impact, Investment, Performance, SME.

Introduction

In recent years, SMEs played a significant role in an economy in opposition to the ideas established in the 19th century [1]. SMEs are becoming increasingly important in developing economies for their ease of adaptation to change, low capital requirements, and low management costs [2].

To play their role properly and thus remain competitive, more and more SMEs use technologies [3]. There are several reasons why SMEs tend to turn to computerized information systems. For [4], the availability of microcomputers is the main reason for reducing the cost of implementing computerized IS and making them accessible even to SMEs with limited resources. In addition, SMEs invest in

technologies because of the multiple advantages they derive from them [5].

Studies have shown that technology provides multiple benefits to Small and Medium Enterprises (SMEs), including improved productivity, improved customer relations, efficient tracking of transactions with suppliers, and standardization of information related to human resources [6]. For [7-9], the practical information system increases the improvement and ability to strengthen customer relations, business efficiency, redesign of business processes, good utilization of human resources, and reduction of labour.

Computerized information systems have attracted several researchers [6], [10-14] who have demonstrated that the measurement of the success of technology is one of the most discussed topics in recent decades.

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Several models have been proposed by [3], [15-19] to test the performance of these systems in large [4], especially for developed countries [20]. While businesses in developing countries are gradually embarking on the computerization of information systems, the Democratic Republic of Congo (DRC), one of these countries, has only seen the digital revolution highlighted and prioritized by the government in 2019 [21]. The researchers observed that there might not be many studies that were based on the assessment of the success of technology of information systems and their impact on Small Medium Enterprises in the Democratic Republic of Congo. Therefore, this research is intended to study the success of technology systems in SMEs in the DRC.

Literature Review

According to [22], ICTs refer to all instruments that carry immaterial messages (images, sounds, character strings). He subdivides ICTs into three categories: audiovisual, computer, and telecommunications. For [23], the term ICT encompasses the many technologies that allow us to receive information and communicate or exchange information with others. [24] described ICTs with three components: computer equipment (computers and related hardware), communication equipment, and software. ICTs are tools for technologies whose primary purpose is to transform and process data to transmit messages (information) from a source to a recipient.

Companies have relied on ICT to automate their information systems in the past few years. According to [25], different firms have different situations and therefore have different strategies for adopting, investing in, deploying, and using IT. To illustrate, these authors argue that some companies may focus on investing in expensive ERP, others in customer relationship management (CRM) software, while others have other priorities.

Regardless of the strategy adopted towards ICT, companies are investing in it to benefit from it from a performance perspective. Indeed, the CEO of Wal-Mart, quoted by [26], stated that technology has become integrated into every aspect of the business.

Companies are therefore increasingly investing in new information technologies. This situation is increasingly attracting authors trying to understand the motivations behind this craze. Some believe that these technologies bring many benefits to companies because of trends. But “despite the substantial investments in IT by companies”, the direct link between technology investment and increased productivity and performance has been extremely elusive [26].

For the same authors, “the benefits of technology investments include reduced costs”, improved quality, increased flexibility, improved customer satisfaction, higher productivity and, ultimately, higher financial performance”. Several studies found that there were benefits of information technology beyond those mentioned above.

[6] summarize the benefits of technology as follows: Improved performance, Cost reduction, increased profit, Reduced general administration costs, Optimized time management, reduced paperwork within the company, improving the quality of information, improving the use of human resources, Improving the use of other resources, Facilitate inventory of materials and stocks, Improve the quality of financial information, Improve productivity, Improve customer relations, Track supplier transactions efficiently, Standardized human resources information, Reduce staffing levels, Facilitate marketing, Integrate business activities, Strengthen teamwork, Improving worker morale, Human development, Improving the decision making process, easy adaptation.

Materials and Methods

This study focuses on SMEs in the town of Beni, in the Democratic Republic of Congo. The study used descriptive and analytical approaches to analyze the data on the benefits of the technologies on SMEs. The convenience sampling method was applied to select 119 respondents from several SMEs that include the telecommunications, trade (sales and services), health, finance, transport and hospitality, and education sectors to respond to the survey. The data was collected by KoBoCollect and analyzed with SPSS software.

To identify the benefits of ICT and the barriers to ICT investment, descriptive statistics (percentage, frequency, mean and standard deviation) were used, and data were organized in Excel tables. And Pearson correlation test was used to analyze the relationship between the amount invested and the benefits for SMEs.

Results

Investment in Information Technology

In terms of investment in ICT, the companies surveyed invested in different ways in the technologies: 34.0% of SMEs reported that they had invested between \$1,000 and \$5,000 in the information system of the organization, 27.0% of them had invested less than \$1,000, 23.0% of had invested more than \$10,000, and 17.0% had invested in the range of \$50,000 to \$10,000 in information technologies.

Benefits of Technologies according to SMEs in Beni

The findings in Table 2 indicate the advantages of ICT benefits. The advantaged benefits are performance improvement, increase in profit, reduced paperwork, optimized time management, improved quality of information, and improved financial reporting quality.

Table 1. Investment in ICT over the Last Two Years

Amount of money invested	Numbers (%)
Less than 1000	32(27.0)
Between 1000 and 5000	40(34.0)
Between 5001 and 10000	20(17.0)
Over 10,000	27(23.0)

Table 2. The Benefits of ICT Use by SMEs in Beni

Items	M	SD	VI
Performance improvement	.723	.4495	A
Cost reduction	.487	.5021	NA
Increase in profit	.513	.5019	A
Reduction of general costs	.420	.4957	NA
Optimize time management	.639	.4824	A
Reduce paperwork within the company	.555	.4991	A
Improve the quality of information	.698	.4613	A
Improve the use of human resources	.496	.5021	NA
Improve the use of other resources	.353	.4799	NA
Facilitate the inventory of materials	.487	.5021	NA
Improve the quality of financial information	.529	.5012	A
Improve productivity	.371	.4847	NA
Improve customer relations	.445	.4991	NA
Effectively monitor transactions with suppliers	.361	.4824	NA
Standardize financial information	.336	.4744	NA

Staff reduction	.269	.4453	NA
Facilitate marketing	.445	.4991	NA
An integrate the activities	.336	.4744	NA
strengthen teamwork	.412	.4942	NA
moral improvement	.319	.4682	NA
human development	.311	.4648	NA
improve the production process	.286	.4536	NA
Easy adaptation	.353	.4799	NA
Overall average	.441	.3207	NA

Note: M=mean; SD=standard deviation; VI=verbal interpretation; A=Advantage when $M \geq 0.5$; NA=No advantage when $M < 0.5$

Barriers to Technology Investment in SMEs in the City of Beni

Regarding the barriers in table 3, results show that most of the factors are not indicated as barriers that include fees of IT specialists, quality of software, managerial, intellectual

capacities of employees, and employee reluctance. It appears from the results in table 3 that the computerization of company information systems is held back by the high cost of hardware and software.

Table 3. Barriers to Technology Investment in SMEs in the City of Beni

Items	M	AND	IV
High cost of software	.605	.4909	B
High cost of materials	.504	.5021	B
Fees of IT specialists	.235	.4259	NB
Quality of software	.361	.4824	NB
Managerial unwillingness	.261	.4407	NB
Intellectual capacities of employees	.269	.4452	NB
Employee reluctance	.244	.4311	NB
Overall average	.354	.2616	NB

Note: M=mean; SD= standard deviation; VI= Verbal Interpretation; B=Barrier $M \geq 0.5$; NB= Not Barrier $M < 0.5$

Relationship between the Amounts Invested in ICT and the Benefits

The aim was to study the relationship between ICT investment and the benefits. Results in Table 4 reveal that there is a

significant relationship between ICT investment and the derived benefits. The positive r coefficient implies that the more the firm invests in ICT, the more it will benefit from its services.

Table 4. Relationship between the Amount Invested in ICT and the Benefits

Variable	r	p	VI
Advantage	0.239	0.009	ST
Amount invested			

Note: r=Pearson correlation coefficient; p=significance level; VI=verbal interpretation; ST=significant test when $p < 0.05$, NST=non-significant test when $p > 0.0$

Relationship between the Industry and the Benefits of ICTs

The results in Table 5 shows that there is no significant relationship between the business

sector and the benefits of the technologies. Thus, regardless of the sector of activity, the benefits mentioned are the same for the SMEs in Beni.

Table 5. Relationship between the Industry and the Benefits of ICTs

Variable	r	p	IV
Advantage	0.021	0.824	NTS
Industry			

Note: r=Pearson correlation coefficient; p=significance level; VI=verbal interpretation; ST=significant test when $p < 0.05$, NST=non-significant test when $p > 0.0$

Discussion

ICT has become an indispensable part of everyday business operations for information analysis. The companies in Beni identified six main advantages of ICTs as follows; improved performance, increased profit, optimized time management, reduced paperwork, improved information quality, and enhanced financial quality. The results of this study are supported by [6] and MEBARKI (2013) who reported ICTs to have significant benefits when applied in organizations. On the other hand, the companies in Beni have not recognized the other benefits mentioned. This can be justified by the low investment in ICT by the interviewed SMEs.

The results indicate that there is a positive relationship between investment in ICT and the benefits of ICT. This implies that the more a firm invests in technology, the more benefits it can derive. The results are related to Weill's (2003) findings which indicated that consistent investment in information technology was associated with better performance of the investing firm. This relationship can be explained by the more a firm invests in technology, the better technology it will have. A company that spends a small portion of its budget on technology will necessarily have access to worse technologies than those available to companies that are willing to sacrifice a large budget.

Businesses in all industries can benefit from the advantages of ICTs. Although, in Beni town, investment in new technology has not yet taken off to the extent that it should. Regarding barriers to investment in new technologies, the companies surveyed pointed to the high cost of computer hardware and software. French firms [27] identified these factors as barriers to technology investment.

Conclusion

The study aimed to identify the benefits of ICTs for enterprises. The results show a low level of investment in technology by the businesses in the area under investigation. The benefits identified for ICTs in Beni include improved performance, increased profit, optimized time management, reduced paperwork, improved information quality, and enhanced financial quality. In terms of disincentives to investment in technology, the results of our investigations identified two. These are the cost of hardware and the cost of the software. The correlation test revealed a positive correlation regarding the relationship between ICT investment and ICT benefits.

Future research may look at the impact of technology on the performance of SMEs in Beni. It is also possible to extend the analysis to other towns in the provinces and the country to reach general conclusions. Researchers could propose a model for technology adoption by SMEs in developing countries such as the DRC.

Conflict of Interest

There is no conflict of interest.

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