



## Perception on the contribution of information technology sector to the growth of employment opportunities in Zanzibar

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### Abstract

The main objective of this research was to examine the perception of the peoples on the contribution of information technology sector to employment growth in Zanzibar. A nature of this study is quantitative and a questionnaire was used for data collection from 202 respondents using simple random sampling technique. Descriptive analysis techniques were used to analysis the collected data. The study found that over 60 percent of the total respondents were agreed and strong agree that information technology sector has influenced employment opportunities in Zanzibar. Also, the study revealed that information technology industry has positive influence on employment opportunities in Zanzibar. The study concluded that the employees of the ministry responsible in Zanzibar have agreed that those types of industries provided greater opportunities to Zanzibar if there is proper management of these industries.

**Keywords:** information technology sector, growth of employment, opportunities

### Introduction

Tanzania's manufacturing sector has been transformed over time, reflecting changes in national policies, varying domestic demand and the world market dynamics. Ultimately, Tanzania had 729 large industrial establishments, the majority of which were manufacturing firms according to 2008 annual Survey of Industry Production and Performance (URT 2010). Specifically, the general industrial structure of Tanzania includes processing industries (43 per cent); manufacturing industries (53 per cent) and the remainder as assembling industries (4 per cent). (URT, 2001).

The industrial sector in Zanzibar is considered to the most employment provider but is relatively small and according to national accounts estimates in 2012 represented around 12.0 percent of GDP, whereby 1.0% mining, 3.9% manufacturing, 1.5% electricity and 5.6% construction (Khamis and Yusof, 2021) <sup>[15]</sup>.

**Table 1:** The Growth of Industrial sector in Zanzibar, 2012

S/N	Industrial sector	Growth Percentage
1.	Mining	1.0%
2.	Manufacturing	3.9%
3.	Electricity	1.5%
4.	Construction	5.6%

**Source:** Khamis and Yusof, (2021) <sup>[15]</sup>.

Hence, the importance of the manufacturing sector to the national economy has varied across different periods since independence, however, in the recent years its contribution to the national income and hence its importance has been on the rise (Hafidh and Rashid, 2021) <sup>[10]</sup>. Industrial structure, policy, output composition and magnitude have experienced notable changes over time. Most of the manufacturing establishments are still small and few large size establishments operate mainly in the production of beverages including juice, water, and milk and food processing such as wheat flower (Mussa *et al.*, 2019) <sup>[19]</sup>. However, it is not kept clear on the contribution of industrial sector development on the growing of employment opportunities inn Zanzibar. Therefore, this study intends to keep the information clear by the contribution of the industrial sector Development toward employment growth in Zanzibar.

### Statement of the Problem

Industrial sector in Zanzibar has played a major role on the boosting of the economy and help to improve employment creation all-round people of Zanzibar. Manufacturing industries rate in Zanzibar is account about 5.5 percent (CIP, 2012). The lacks of insufficient economic growth in Zanzibar enable the absorption of net additions to the labor force. The problem of unemployment, especially youth unemployment is a crisis some have come to call it a timed bomb. Youth unemployment rate currently stands at 17.1 per cent, and up to 31.2 per cent in urban areas (2009/10 HBS). Statistics also shows that employment in the formal sector particularly

private, increased extremely due to promotion in private formal investment such as hotels, industries and other service related activities. The number of employees in the formal sector increased from 40,608 in the year 2007/08 to 47,548 for year 2008/09 including central Government and private employers (Singh and Hari, 2011)<sup>[21]</sup>. The presented data justify that employment in private sector increased by 16 per cent compared to 13 per cent observed between the year 2007/08 and 2008/09. However, the public sector constitutes a major formal employer in Zanzibar with 75 per cent employees.

The industrial sector in Zanzibar is relatively small and according to national accounts estimates it represented around 12.0 percent of GDP, whereby 1.0 percent mining, 3.9% manufacturing, 1.5% electricity and 5.6% construction. Most of the manufacturing establishments are still small and few large size establishments operate mainly in the production of soft drink and food processing (OCGS, 2012).

Despite taking measures to improve industrial sector in Tanzania, the numbers of Small medium industries increased well while large industries are not raised dramatically, however, there is the existence of industrial sector in Tanzania, but still there is the problem of unemployment face to the most of people in Zanzibar.

Therefore, the primary aim of this study is to examine the Contribution of information technology sector towards Employment Growth in Zanzibar so as keep out data on how well the industry help in creation of employment opportunities in Zanzibar.

### **The infant industry promotion theory**

Widodo, (2009), developed this theory. The theory of infant industry promotion offers a very different vision of economic development from the one offered by the theory of comparative advantage. In this theory, the poverty of productive capabilities is seen as the main cause of underdevelopment and the development of such capabilities as the essence of economic development. The strength of this theory is that, it emphasizes the government of a backward needs to protect and nurture its 'industries in their infancy through policy measures until they grow up and can compete with superior producers from abroad in the same way they protect and nurture the children before they can grow up and compete with adults in the labor market which can lead to the improving of employment opportunities. The selective industrial policy these days – provision of tariff protection and subsidies for strategic industries. Other policies, such as infrastructural development and the promotion of the patent system (to encourage technological progress), would have been called general industrial policy. This theory, was used in this study because the theory explained the notion of industries as a factor of improving employment opportunity, which is the main element of this study.

### **Empirical Literature Review**

Several literatures have been reviewed in relation to the Contribution of information technology sector towards Employment Growth.

Aldieri and Vinci, (2018)<sup>[1]</sup> on the study of the role of the knowledge diffusion process in employment effects of sustainable development investments for large international industries. The study present an empirical analysis based upon a dataset composed of worldwide Research and Development (R&D) -intensive firms over the period 2002–2010. In order to identify the technological relatedness measure between the firms, the study uses the friendly environmental patents' distribution. The drivers of labor innovation effects are identified as a complex combination of job displacement and compensation forces of innovation.

Chiacchio *et al.*, (2018)<sup>[5]</sup> conducted a study about the impact of industrial revolution on employment and wages in six European Union countries that make up 85.5 percent of the EU industrial robots market. In theory, robots can directly displace workers from performing specific tasks (displacement effect). However, they can also expand labor demand through the efficiencies they bring to industrial production (productivity effect). The study found that one additional robot per thousand workers reduces the employment rate by 0.16-0.20 percentage points. Thus a significant displacement effect dominates. We find that the displacement effect is particularly evident for workers of middle education and for young cohorts. Our estimates, however, do not point to robust and significant results on the impact of robots on wage growth, even after accounting for possible offsetting effects across different populations and sectoral groups.

Behun *et al.*, (2018)<sup>[4]</sup> on the study of manufacturing industry. They said that, manufacturing industry is a key sector in many national economies and is involved in creating sustainable economic growth. The main objective of this contribution was to identify the relationship between manufacturing and GDP, which represents the economic cycle in European Union countries. The time series of selected indicators of the manufacturing industry and GDP from the Eurostat database for Q1 2000-Q4 2016 were used for analysis purposes. An analysis of 296-time series with a quarterly periodicity from 22 EU countries (including the United Kingdom) was performed. The results of analyses indicate that the processing industry is a sector with significant cyclical behavior.

Zhou *et al.*, (2020)<sup>[25, 26]</sup> on the current study which explores the impact of cultural industries on economic and employment growth in China using the data from 2004Q1-2018Q4, taking the quarterly data of National culture and related industries value added, Employment and Gross Domestic Product (GDP) as the main variables. In this study, we choose to work with the production function approach. The simultaneous equations are used to consider the impact of cultural industries on the economy and employment, and the lasso regression is used to screen out the factors that can most affect the economy and employment. The empirical results demonstrate that

there is a positive impact of national culture and related industries value added on the economic growth and employment opportunities.

### Methodology

A quantitative research design was employed in this study, meanwhile it allows the researcher to explore, explain a phenomenon, and interpret data statistically in a broader and easy ways. The reason behind for choosing this particular research design is because of its suitability for a study also enabled the researcher to solve the issue at hand. The study was conducted in the Urban West Region at the Ministry of Trade and Industrial Development Zanzibar. The reason of selecting this area is because is the borne of the government on the issues employment creation, industrial development and implementation of business policies and strategies. The targeted population of this study was the employees of the Ministry of Trade and Industrial Development Zanzibar from different department which approximately account to 410. A total of 202 respondents were involved using simple random sampling to provide information on the contribution of information technology sector development toward employment growth in Zanzibar. The self-administered questionnaire was used because it enabled the researcher to collect data from relatively large sample, limited the biasness from the interviewer and protects the privacy of respondents. Since the study is quantitative data, therefore, the study uses descriptive statistical techniques.

### Study Findings

#### a. Demographic data of the respondents

This part gives brief account of that was concerned in this study. The part based on the characteristics of the respondents related to their, age, gender, marital status, educational level, occupational status and the discussion of each characteristic follows below.

**Table 2:** Demographic data of the respondents

Variables	Category	Frequency	Percentage
Age	20-29	22	10.9
	30-39	51	25.2
	40-49	93	46.0
	50-59	22	10.9
	60 above	14	6.9
Marital status	Married	137	67.8
	Single	50	24.8
	Widow	9	4.5
	Divorced	6	3.0
Educational level	Primary	18	8.9
	Secondary	21	10.4
	Certificate	60	29.7
	Diploma	90	44.6
	Bachelor degree	9	4.5
	Post graduates	4	2.0
Working experience	One year	13	6.4
	1 – 2 y	19	9.4
	3 – 4 years	97	48.0
	5- 6 years	68	33.7
	7 years above	5	2.5
Gender	Male	119	59.0
	Female	83	41.0

The summarized results from Table 1 indicates that, 22 respondents equal to (10.9%) ranges from 20 – 29, 51 (25.2%) ranges from 30 – 39, 93 (46.0%) ranges from 40 – 49, 22 (10.9%) ranges from 50 – 59 and those who were 60 above were 14 respondents equal to (6.9%). Therefore, the analysis revealed that respondents were dominated by the large number of age groups of 40 to 49. This is a good age of main power in every activity in any country. Also, the table 1 show that, 137 respondents made (67.8%) were married, 50 (24.8%) were single, 9 (4.5%) were widow and those who were divorced were 6 (3.0%). This is indicated that, most of the respondents who were involved in answering questions in this study were married since, covered more than 67.8% of the total respondents. This due to the fact, the culture of Zanzibar allow marriage after reaching 18 years above, thus why most of youth got married age very early. On the side of education, a total of 202 respondents who were involved in this study, 18 respondents equal to (8.9%) were having primary education, 21 (10.4%) were having secondary education, 60 (29.7%) were in a certificate level, 90 (44.6%) were having diploma education, 9 (4.5%) were having bachelor degree and 4 respondents (2.0%) were having post graduate education. Therefore, the results of the study indicated that, most of the respondents involved in this study were having certificate and

diploma levels of education, since, it they cover by more than 60%. This is implying that, in Zanzibar most people have had awareness on the importance of education. This is reasons that most of parents now days insist their children to go to school instead of staying home. Apart from the, the working experience of the respondents showed that, 13 respondents equal to (6.4%) ranges from one year, 19 (9.4%) ranges from 1 – 2 years, 97 (48.0%) ranges from 3 – 4, 68 (33.7%) ranges from 5-6 and those who were 7 years and above were 5 respondent equal to (2.5%). Therefore, the analysis revealed that most of respondents have good experience between 3-4 years since it was dominated by the large number of age groups. This is indicated that, experience is very important and it helps to answer the questions asked by the researcher in a confidence way. Finally, gender of the respondents shows that, total of 202 respondents equal to 100% were asked in this question. 120 respondents equal to (59%) were male and 82 respondents equal to (41%) were female. These results clearly indicated that the most respondents who were participated in this study question were male, since Males is a group which is most participated in tourism activities rather than female.

**b. To examine the perception of the people on the contribution of information technology sector to the growth of employment opportunities in Zanzibar**

The contribution of information technological sector to the growth of employment opportunities in Zanzibar were described according to the study results. Several statement were tested by asking to the targeted respondents to respond to these statement whether they agree, strongly agree, disagree, and strongly disagree or neutral. The following are these statement;

**(i) IT develop most innovative products**

In this part, respondents were asked whether to agree, strongly agreed, disagreed strongly disagree or being neutral. The findings of this part of the study were summarized in Table 2

**Table 3: IT Develop most innovative products**

	Level of agreement	Frequency	Percent
Valid	Strongly agree	94	46.5
	Agree	100	49.5
	Neutral	3	1.5
	Disagree	3	1.5
	Strongly disagree	2	1.0
	Total	202	100.0

Source: Field Data, 2022

The summarized results from Table 2 indicated that, out of 202 respondents involved in this study, 94 equal to (46.5%) strongly agreed, 100 (49.5%) agreed, but 3 respondents equal to (1.5%) were neutral, those who disagreed were 3 equal to (1.5%) and those who strongly disagreed were 2 equal to (1.0%). Therefore, the findings are clearly implying that, information technology sector have good contribution to the growth of employment opportunities in Zanzibar since IT Develop most innovative products. This is because more than 45% of the total respondents agreed. According to Mohlal *et al.*, (2012) described technology has long been held to contribute to economic growth through productivity improvement and improve employment opportunities, but early studies of information technology (IT) investments and economic growth found no significant relationship. IT investments, national productivity growth in the United States declined in the 1970s and 1980s, leading some to call the situation a productivity paradox. IT investments had grown to 4-5% of GDP in the U.S. and many developed countries. Recent empirical studies at the company and country levels have shown that information technology is positively related to corporate and national economic performance. IT investment might dramatically speed up employment opportunities; they clearly show that persistent, growing IT investment does pay off for countries.

**(ii) Producing high quality products**

In this part, respondents were asked whether to agree, strongly agreed, disagreed strongly disagree or being neutral. The findings of this part of the study were summarized in Table 3

**Table 4: Producing high quality products**

	Level of agreement	Frequency	Percent
Valid	Strongly agree	82	40.6
	Agree	97	48.0
	Neutral	13	6.4
	Disagree	7	3.5
	Strongly disagree	3	1.5
	Total	202	100.0

Source: Field Data, 2022

The summarized results from Table 3 indicated that, out of 202 respondents involved in this study, 82 equal to (40.6%) strongly agreed, 97 (48.0%) agreed, but 13 respondents equal to (6.4%) were neutral, those who disagreed were 7 equal to (3.5%) and those who strongly disagreed were 3 equal to (1.5%). Therefore, the findings clearly implies that, information technology sector development have good contribution toward the growth of employment opportunities in Zanzibar by producing high quality products. This is because more than 45% of the total respondents agreed.

These results supported by Sweis (2010) explained that the information technology industry is faced with a shrinking pool of skilled employees causing demand to increase for these employees. This places organizations under pressure to devise retention strategies to retain these employees. This study was conducted in the Information Technology Division of a South African Bank. Findings indicate that employee turnover is the main contributor of skills shortages within the studied division. The lack of a retention strategy is making it difficult for leadership to identify crucial skills that must be retained.

### (iii) Establishing best customer's relationship

In this part, respondents were asked whether to agree, strongly agreed, disagreed strongly disagree or being neutral. The findings of this part of the study were summarized in Table 4

**Table 5:** best customer's relationship

Level of agreement		Frequency	Percent
Valid	Strongly agree	50	24.8
	Agree	142	70.3
	Neutral	5	2.5
	Disagree	3	1.5
	Strongly disagree	2	1.0
	Total	202	100.0

**Source:** Field Data, 2022

The summarized results from Table 4 indicated that, out of 202 respondents involved in this study, 50 equal to (24.8%) strongly agreed, 142(70.3%) agreed, but 5 respondents equal to (2.5%) were neutral, those who disagreed were 3 equal to (1.5%) and those who strongly disagreed were 2 equal to (1.0%). Therefore, the findings clearly implies that, information technology sector development have good contribution toward the growth of employment opportunities in Zanzibar by producing high quality products. This is because more than 70% of the total respondents agreed.

According to Adisa *et al.*, (2017) explain that the investment in Information Technology (IT) provides improvements in productivity and business efficiency hence improve employment opportunity. Several studies both at the industry-level and at the firm level have contributed differing understandings of this phenomenon. Of late, however, firm-level studies, primarily in the manufacturing sector, have shown that there are significant positive contributions from IT investments toward productivity.

### (iv) Simplification of marketing activities

In this part, respondents were asked whether to agree, strongly agreed, disagreed strongly disagree or being neutral. The findings of this part of the study were summarized in Table 5

**Table 6:** Simplification of marketing activities

Level of agreement		Frequency	Percent
Valid	Strongly agree	81	40.1
	Agree	110	54.5
	Neutral	5	2.5
	Disagree	5	2.5
	Strongly disagree	1	0.5
	Total	202	100.0

**Source:** Field Data, 2022

The summarized results from Table 5 indicated that, out of 202 respondents involved in this study, 81 equal to (40.1%) strongly agreed, 110 (54.5%) agreed, but 5 respondents equal to (2.5%) were neutral, those who disagreed were 5 equal to (2.5%), and those who strongly disagreed were 1 equal to (0.5%). Therefore, the findings clearly implies that, information technology sector development have good contribution toward the growth of employment opportunities in Zanzibar by simplification of marketing activities. This is because more than 70% of the total respondents agreed. The results also supported by Handel, (2003) on the extensive review of the research literature on the effects of information technology (IT) on employment levels, job skill requirements, and wages. The first sections provide historical background on earlier waves of concern regarding

automation and contemporary public opinion, then examine trends in overall employment and demand for IT workers. The second half of the paper is a detailed review of the econometric research and debate over skill-biased technological change and competing explanations of the growth of earnings inequality.

#### (v) Increase in sales volume

In this part, respondents were asked whether to agree, strongly agreed, disagreed strongly disagree or being neutral. The findings of this part of the study were summarized in Table 6

**Table 7:** Increase in sales volume

	Level of agreement	Frequency	Percent
Valid	Strongly agree	64	31.7
	Agree	131	64.9
	Neutral	4	2.0
	Disagree	2	1.0
	Strongly disagree	1	0.5
	Total	202	100.0

**Source:** Field Data, 2022

The summarized results from Table 6 indicated that, out of 202 respondents involved in this study, 64 equal to (31.7%) strongly agreed, 131 (64.9%) agreed, but 4 respondents equal to (2.0%) were neutral, those who disagreed were 2 equal to (1.0%), and those who strongly disagreed were 1 equal to (0.5%). Therefore, the findings clearly implies that, information technology sector development have good contribution toward the growth of employment opportunities in Zanzibar by simplification of marketing activities. This is because more than 60% of the total respondents agreed. This results supported by Autor and Salomons, (2017) explained that technology has always fueled economic growth, employment opportunities and improved standards of living, and opened up avenues to new and better kinds of work. Recent advances in artificial intelligence and machine learning, which brought us Watson and self-driving cars, mark the beginning of a seismic shift in the world, as we know it. To navigate the unstable labor market and seize the plentiful opportunities offered by new technologies, we must find a way to more quickly adapt.

#### Conclusion and Recommendation

The study examines the contribution of information technology sector towards Employment Growth in Zanzibar. It is concluded that information technology sector development has good contribution to the growth of employment opportunities in Zanzibar since IT develop most innovative products. This is because more than 45% of the total respondents agreed. Also, information technology sector development has good contribution to the growth of employment opportunities in Zanzibar by producing high quality products. From that conclusion, the study recommended that the managers of industries should be current and active in employing new tactics of production with innovation and advancement in technology, investing in reliable human and materials resources that will help to increase and improve the quality and quantity of products and cope up with the local and global industrial competition.

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