# A STUDY ON ADVANCEMENT OF ICT IN MANUFACTURING SECTOR AND ITS IMPACT ON EMPOLYEE PRODUCTIVITY

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*Abstract*- **There have been significant advances in the field of business information and communication technology (ICT) in recent decades. ICT plays a major role in innovation, raising productivity and increasing information flow and therefore affects all economic sectors. The purpose of this research was to estimate the impact of information and communication technology on information management and productivity in manufacturing company. To do so, a sample of selected manufacturing companies for which the necessary data was collected. The research results and findings indicate that ICT has both positive and negative impacts on the manufacturing industry, but the positive impacts far much outweigh the negative impacts. In the larger concentration is on the usage aspect of ICT to improve industrial productivity and information management**.

## INTRODUCTION

Information and Communication Technology (ICT) may be defined as computer hardware and software and telecommunications technology. ICT is the World's fastest growing economic activity; the sector has turned the globe into an increasingly interconnected network of individuals, firms, schools and governments communicating and interacting with each other through a variety of channels and providing economic opportunities transcending borders, languages and cultures. ICT has opened new channels for service delivery in areas such as egovernment, education, e-health and information dissemination. Information and communication technologies (ICT), as well, play a vital role in the manufacturing industries' competence, competitiveness, and processes and job the world over. ICT forms the basis for most advances in almost all aspects in modern world including manufacturing technologies; it is considered to be key for an advanced manufacturing strategy. Here in Kenya it has not been fully embraced which we would say can slow the process to achieving Vision 2030. This paper aims at sensitizing Kenyan manufacturers on the use of ICT to increase their productivity which is a key factor in achieving vision 2030. ICT can be used from the stage of acquiring materials to selling the finished products. Through its capacity to integrate and blend a number of knowledge intensive technologies, ICT can enable traditional manufacturing base to be competitive in a global environment. Innovative use of ICT can result in new sales channels, new product capabilities and product differentiation. ICT can also reduce costs, increase productivity and improve the base for strategic decision-making and risk management. These results should be reflected in enhanced business performance. When properly combined, the components of ICT (technologies and applications) can yield synergetic results An organization can have more flexible and integrated operations, be better equipped to manage complex operations, and exercise better controls. The staff from the information systems functions does not work in isolation and therefore needs to integrate engineering, manufacturing, and business databases into a cross functional decision support system. Once accomplished, the flexibility to respond to customer demands with low cost, high quality specialized products becomes a powerful competitive advantage not leaving behind the speed at which all the processes take place. This includes obtaining materials, processing and supplying the products at high speed which is of essence in the modern world. If embraced then achieving the 2030 vision can be done with a lot of ease The rapid change in the technology base of firm activities and the impact it has on employee productivity is an important aspect in the debate on employee productivity. No published firmbased research findings are available on the technology–employee productivity link for the workplace. This study specifically focuses on generating firm-based estimation results of the technology–employee productivity relationship when new machines and equipment tecnologies and employee diversity aggregates, such as age and skill levels, are included in the Estimation.

## LITERATURE REVIEW

Productivity improvement has a crucial role in raising GDP per capita. Firms adapting and using IT can improve the production process and labor productivity. IT is a key driver of productivity and pioneer to accelerate the industry in economic growth. ICT is a general-purpose technology (GPT) that has awide range of effects throughout the entire economy, reshaping the whole systems of production and distribution (the information technology and innovation foundation,2014). IT diffuses throughout the economy; they engender extensive spill overs in the forms of externalizes and technological complementarities, and their evolution and diffusion span for decades (the information technology and innovation foundation, 2014). Moreover, GPTs undergo rapid price declines and performance improvements and become pervasive as an integral part of most industries, products and functions. They enable downstream innovations in products, processes, business models and business organization (Satapathy and Mishra 2013). In individual industries, the productivity can occur through three different ways: all firms innovate or adopt new technologies; less productive firms dying and being replaced by new and more productive firms, or by more productive firms gaining market share from less productive ones (the information technology and innovation foundation, 2014). Firm-level research has shown that there are large and persistent gaps between the productivity of IT-using industries and traditional firms. The use of more and better

‘‘tools’’ by producers is the best way increasing the productivity. In other words, the use of appropriate machinery, equipment and software improves the productivity (Romer1990). For example, Internet is an easy and friendly tool for the users when applying it in production, marketing and sales and after-sales Processes.

Dedrick et al. (2003) have found that ‘‘productivity paradox as first formulated has been effectively refuted’’.In both firm and country level, more investment in IT is associated with greater productivity growth. Most studies, since the mid of 1990s to 2014, have found positive effects of IT on productivity (Cardona et al.2013).

The beneficial effects of IT on productivity have been from firms to industries and then entire economies and in both goods and services producing industries (Carol et al.2008). Hitt and Tambe (2006) have found that the spill overs of IT will nearly make double the impact of IT investments. Perminov and Egorova (2005) have found that the growth rates in ICT-producing and ICT-using industries are much higher than non-ICT industries in Russia, though an essential delay of ICT spreading still takes place in Russia compared with developed countries.Some studies have focused on the intensity of using IT in industries. They believe that the impact of IT is related to its intensity in industries, so that the productivity growth is higher in industries using IT than the other industries. Badescu and Garces-Ayerbe (2009) have studied the impact of IT on Tunisian manufacturing industries using Stochastic Production Frontier. They have emphasized the positive impact of IT on the efficiency and believed that initial preparation for the emergence of IT effects is to invest in human capital and complementary concerns.

## OBJECTIVES

- ➢ To study about the ICT Technologies in manufacturing sector
- ➢ To study about the employee productivity
- ➢ To analyze about the advancement of ICT technologies in manufacturing sector and its impact on employee productivity.

## RESEARCH HYPOTHESES

The research hypothesis of this study is:

Ho: there is no relationship between ICT technology and employee productivity in the organization.

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## SCOPE OF THE STUDY

ICT has replaced the traditional modes of businesses with innovative technologies. This has boosted the performance of business enormously and saw the emergence of new business innovation in many areas. The use of ICT applications like a spreadsheet, database software, word processor, accounting software, statistical analysis software, and CAD enable businesses to carry out their functions more effectively in the place of work. The use of email messaging service and instant messaging (IM) and electronic conferencing has enhanced uninterrupted business interaction and communications for businesses with multiple offices. A major advantage of information technology to business is E-commerce. This helps in boosting the economy. It makes buying and selling activities easier, more efficient, and fast.

## LIMITATIONS OF THE STUDY

The input-output transaction table is an important tool to analyse the economic impact. However,there are underlying limitations to its effectiveness as it is characterized by several assumptions .For instance, supply-side factors are severely constrained by the availability of appropriate resources, that is, labour, capital and other inputs. Other limitations are changes in relative prices,changes in production technology and inputs in production, which play no role in the allocation of resources and assessment. Also, no allowance is taken into account for changes in household income and relative prices. Therefore, any future policy action has to keep these limitations in consideration.

## RESEARCH DESIGN:

The “research design is the plan , structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance . Research design in the blue print for collection measurement and analysis of data”. The main characteristics are that the researcher has no control over variable. So, in this project I decide to choose random sampling technique.

**Population:**

A population is a group of individuals objects or items from which samples are taken for measurement. Here, it is the total number of employees which we have taken the population in the company is 150.

**Sampling Technique:**

The sampling technique used in this is convenience sampling method. This method is also called as the method of chance selection. Each and every item of population has equal chance to be included in the sample.

**Sample Size:**

The data sample is a set of data collected or selected from a statistical population. Sample size means the number of elements to being included in the sample space. Sample size depends on the study that is being conducted. The sample size is 100.

**Source of Data Collection:**

**Primary Data:**

The basic form of obtaining this data is by observation and with structured questionnaire. Primary data for the study is collected through questionnaire and through discussions with the officials of the firm.

**Secondary Data:**

Secondary data refers to those which have been collected and analyzed by someone else.
Secondary data consists of information from several books, journals, internet and company Records.

**FINDINGS**

1. From the above table it is inferred that 34% of the respondents are 25-35 years , 25% of the respondents are 35 – 45 years , 22% of Below 25 years and 19% are above 45 .
2. From the above table it is inferred that 93% of the respondents are male and 7% of the respondents are female.
3. From the above table it is inferred that 62% of the respondents period of service is 6-10 years, 20% are below 5 years, 15% are 11-15 years and 3% are16-20 years.
4. From the above table it is inferred that 64% of the respondents output level in unit is moderate in level , 28% are highly , 8% are in low and 0% in very low level
5. From the above table it is inferred that 72% of the respondents Yes and 28 % of the respondents are No.
6. From the above table it is inferred that 40 % of the respondents strongly agree, 28% of the respondents agree, 21% of the respondents are neutral, 4% of the respondents disagree and 7 % of the respondents are strongly disagree.

**SUGGESTIONS AND RECOMMENDATIONS:**

It is now clear that ICT has got some impact in the manufacturing industry . It is also clear that the productivity and information management of the companies heavily dependent on ICT these days. This is a good sign on the right path to becoming an ICT-driven country. While Government and its cooperating partners must be commended for their efforts, government can speed up this ICT through the enforcement of the ICT policy introduced in2006.In addition, in order for these manufacturing companies to gain more positive results from ICT, senior management within the company's has to realize that ICT in itself will not be more productive. Therefore the benefits of ICT will be greater if it (ICT) is used together with the adequate organizational resources and capabilities, specifically workers' qualifications, proactive direction and innovative culture within the industry.

**CONCLUSION:**

ICT is very important in almost all aspects of our lives from the time it was embraced so many things have changed as far as human nature is concerned. In the manufacturing industry there has been increase production volume and speed. The future of manufacturing is expected to be fully automated such that all the processes can be controlled from one place. This can be achieved if there will be advancement in the individual manufacturing sectors in term of ICT. The advancement is evident in the field of artificial intelligence where most of the operations are done by use of robots.Information and Communication Technology (ICT) is an enabler, not a goal. It simply makes desirable ends like sustainability, higher quality, faster construction, lower cost and competitiveness more attainable. Nowadays, the application of ICT in design and manufacturing has been significant.