School of Graduate Studies

The Effect of Innovation on Manufacturing Firms' Performance in Ethiopia: Evidence from Garment Firms' in Addis Ababa

A Thesis Submitted to Addis Ababa University, College of Business and Economics, Graduate Studies in Partial Fulfillment of the Requirements for the Degree of Master of Science in Management Specialization, in Innovation Management and Entrepreneurship

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January, 2020

Addis Ababa, Ethiopia

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Declaration

I, Dawit G. Michael, hereby declare that the Thesis entitled Effect of innovation on Manufacturing Firms' Performance in Ethiopia: Evidence from Garment Firms' in Addis Ababa is my own original work and has not been submitted for any degree in any other University. It is offered for the award of the degree of Master of Science in Management Specialization in Innovation Management and Entrepreneurship from Addis Ababa University.

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Statement of Certification

This is to certify that the thesis prepared by Dawit G. Michael entitled: Effect of innovation on Manufacturing Firms' Performance in Ethiopia: Evidence from Garment Firms' in Addis Ababa and Submitted in partial fulfillment of the requirements for the degree of Master of Science in Management Specialization in Innovation Management and Entrepreneurship compiles with the regulations of the University and meets the accepted standards with respect to originality and quality.

Approved by:

Internal Examiner: _____ Signature _____ Date_____

External Examiner: _____Signature _____Date_____

Advisor: Dr. Ethiopia Legesse Signature _____Date_____

ACKNOWLEDGMENTS

All of the things, I would like to express my gratitude to Almighty God for giving me endurance and strength in accomplishing my thesis work.

My heartfelt thanks and sincere appreciation goes to my instructor and advisor Dr. Ethiopia Legesse for her unreserved support starting from proposal development throughout the thesis work. I would like to forward my honest appreciation to ETIDI and SMEs bureau for their unreserved support in providing detail information on the garment enterprises. Really, I am grateful to the respondents for their kind participation, my brothers and friends for their willingness, and unreserved support in data collection during the survey work.

Finally, I would like to thank and appreciate my family for their endless prayer and support in my life time.

ACRONYMS

BPM - Business Process Management

BSC - Balanced Scorecard

CDM - Crepon Duguest Mairesse

CIS - Community Innovation Survey

ETIDI - Ethiopian Textile Industry Development Institute

EVA - Economic Value Added

GTP - Growth and Transformation Planning

IBP - Internal Business process

L&G - Learning and Growth

LICs - Low Income Countries

MO – Market Orientation

NPC – National Plan Commission

OECD - Organization for Economic Co-operation and Development

OLS - Ordinary Least Square

PASDEP - A Plan for Accelerated and Sustained Development to End Poverty

PCA - Principal Components Analysis

R&D - Research and Development

ROE - Return on Equity

ROI - Return on Investment

SMEs - Small and Medium Enterprises

SPSS - Statistical Package for Social Science

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ABSTRACT

Innovation is a key factor for manufacturing firms' competitive advantage in this competitive global economy with an embedded purpose of performance improvement, which in turn, leads to economic development. The purpose of this study is to investigate the effect of innovation types (product, process, marketing & organizational innovations) on garment firms' performance by using BSC approach in Addis Ababa, Ethiopia. Even though it has not been adequately studied in Ethiopia, previous empirical studies from abroad revealed that proper implementation of innovation activities have a significant positive impact for economic development in general and firms' performance improvement in particular. The study employed quantitative research approach and an explanatory research design. A survey is conducted by using structured close ended questionnaires. Out of 222 garment firms in Addis Ababa, as innovation is more pertinent to medium and large firms, from 69 questionnaires administered to these firms located in Addis Ababa, 60 questionnaires were completely filled and received. The analysis of the data is done with the help of the SPSS v24 and multiple regression models with OLS technique are used to investigate effect of innovation types on the firm's performance. The result of the research revealed that only process & marketing innovation have a significant and positive effect on most of the dimensions of firm performance. Product innovation has no statistically significant effect at 5% significance level. However, organizational innovation has a negative and significant effect in the four dimensions of firm performance. Therefore, the firms should give special emphasis for process and marketing innovations to assure better performance and further researches are needed to be conducted on multi-sectors with large sample size.

Key Words: Innovation, Manufacturing Firms' Performance, BSC Approach

CHAPTER ONE

Introduction

1.1. Background of the Study

Early literatures on the source of performance and productivity improvement revealed that such change was partly emanated from an increase in capital and labor. Later on many scholars were ascribed to technical change and a large literature emerged that attempted to find measures for technical change (improvements in capital and labor quality, R&D activities, and so forth) and use these measures to try to explain the residual improvement in productivity (Hall, 2011).

Growth can be achieved by putting more factors of production to work (increased investment, use of more land, decrease in unemployment and increase in labor force participation) and by achieving higher levels of output with the same amount of resources (total factor productivity - TFP- growth) (Mohnen et al, 2013). In this contemporary world, for resources are limited and higher population growth rate, it will not be possible to meet the growing need of the population through putting more factors of production, innovation activities are needed. Innovation can be divided into technological innovations in the form of new products and services and non-technological innovations in the form of organizational or marketing innovations.

As Grossman and Helpman (1991) stated, in the macro economy, innovation is widely recognized that is a major driver of economic growth. The economic slowdowns, productivity and performance gaps among nations one hand and the increasing interest in studying the unexplained portion the source of performance improvement and productivity growth on other hand made a large body of research works emerged to explain the linkage between innovation and performance, both at macro and micro level to be accumulated and available.

Hence, Atalay et al, (2013); Tuan et al, (2016); Shaukat et al, (2013); Gunday et al, (2011); Krabulut (2015); Camison et al (2014); Rajapathirana et al, (2018) and other scholars studied on this area in different countries and they indicated that innovation has a great positive impact to achieve comparative advantage in manufacturing and other firms' which leads to better performance, growth in productivity and to grasp economic development in general.

In the today's world, it is commonly agreed that innovation is a key factor for economic growth in prosperous countries and source of performance improvement for individual firms. The observed difference in economic development and performance gap among nations across the world as well as between individual firms is due to the difference in the level of employing innovation activities. The macro-level evidence is supported by empirical studies that strongly suggest that innovation contributes significantly to better performance, particularly at the firm and industry level (Kleinknecht & Mohnen, 2002).

In Ethiopia, it is said that textile and garment industry is the key sector for economic development and the government has gave special attention. However, according to a report (NPC, 2016), the textile and garment industries have not been performing as it was intended to gain from it during GTPI period (2010-2015). In addition, their competitiveness is not satisfactory not only in the global market but also in the local market.

For firms that have the capacity invest in R&D growth a learning process, in which they adopt and create technologies and knowledge growth and thereby become more competent. However, LICs face severe constraints firms in these countries faces not only a problem of financial and technological capabilities to invest in R&D, but also in such environments, learning-based innovations - such as adoption or adaptation of both technological and no-technological innovations - are significant factors for the industrial development.

Thus the aim of this study is to examine the effect of innovation activities on manufacturing firms' performance in Ethiopia specifically the garment enterprises in Addis Ababa.

1.2. Statement of the Problem

The economic history of currently developed countries is mainly depend on industrial revolutions were all linked to an application and spread of an innovation activities which led to bring desirable change (Zanello *et al*, 2018).

In a rapidly changing world, the imperative for innovation increases and equally important at macro level as well as firm level. Innovation is common to all organizations' technological and non- technological developments (OCED, 2005).

With increasing and stiff global competition and quickly spreading of knowledge, the survival and competitiveness of businesses firm depends upon their ability to innovate. No doubt that innovation derives firm's performance, productivity and growth both at firm level in particular and nations level in general. If firms are not ready to continuously renew their products, processes, marketing strategy and management system their chances of survival are seriously threatened (Tidd et al., 2005).

The textile and garment industries are among the key strategic sectors that received a special attention by the government of Ethiopia in the successive five years plans of the country, especially in PASDEP of 2005, GTP I and GTP II (Girum, 2012). Their strong linkage with the agriculture sector as well as their labor and material intensive nature, which potentially give the country a comparative advantage and competitive edge in the global market, makes the sector to become the priority area in the government national development planning program. Despite the potential gains of the textile and garment industries, actual benefits accrued in terms of growth of firms; employment generation; and export revenue generation role of the sectors have remain far below the huge potential that the country could gain from.

The study by Kitaw and Matebu (2017) shows that Ethiopian textile and garment firms have not been competitive enough at the global markets caused by low productivity, limited quality awareness, limited capability of own design & development, ineffective and inefficient management structures and so forth. The unsatisfactory productivity level of Ethiopian textile and garment has also seen as the cause of labor and material intensive nature of the sector (Tekleslassie et al, 2018). As Sultan (2017) indicated that garment industry of Ethiopia is reported to show a decline in its export performance. There are also identified quality problems in the garment enterprise like low technological level, poor supplier relationship, poor leadership, weak external customer focus, unavailability of self- evaluation techniques**;** poor quality control, poor quality design, lack of teamwork and so forth (Demissie et al, 2017).

In the current stiffly competitive business world the innovative ability of companies and firms that gives them an important competitive advantage to remain competent and succeed in today's dynamic business environment (Getahun et al, 2018).

Innovation studies in manufacturing firms performance have been conducted for different countries for instance Gunday et al (2011) & Karabulut et al (2015) for Turkey; A. Howell (2018) & Rajapathirana et al (2018) for China ; Tuan et al (2014) for Vietnam and so forth. Most of the studies revealed that a positive and significant association between innovations and manufacturing firms performance. But there are also a negative and insignificant or inconsistency of result among the innovation types and firm's performance measurement dimensions which is described in the research gap of the study. Besides, most of the studies gave emphasis to measure performance from financial aspect, ignoring the non-financial aspect of firms. In case of Ethiopia, Mohamed (2018) studied the nexus between innovation and economic growth at macro level and the result revealed that innovation has a positive impact on economic development. However, the effect of innovation types on the garment manufacturing firms' performance (at micro level) has not been adequately studied in Ethiopia as per the knowledge of the researcher of this study.

Thus, this study aims to investigate the effect of innovation types on the garment firms' performance by using BSC approach.

1.3. Research Questions

In order to achieve the purpose of the study, from the statement of the problem the following research questions are stated:

1. What effect does product innovation has on the four dimensions of firms' performance?
2. What effect does process innovation has on the four dimensions of firms' performance?
3. What effect does marketing innovation has on the four dimensions of firms' performance?
4. What effect does organizational innovation has on the four dimensions of firms' performance?

1.4. Objectives of the Study

The study has the following general and specific objective.

1.4.1. General Objective

In general, the objective of this study is to determine the effect of innovations on manufacturing firms' performance in garment firms' in Addis Ababa, Ethiopia.

1.4.2. Specific Objectives

The specific objectives of the study are:

1. To investigate the effect of product innovation on the four dimensions of firms' performance.
2. To examine the effect of process innovation on the four dimensions of firms' performance.
3. To analysis the effect of marketing innovation on the four dimensions of firms' performance.
4. To examine the effect of organizational innovation on the four dimensions of firms' performance.

1.5. Research Hypotheses

In summary most of the reviewed related literatures have revealed that firms that those innovative firms are highly profitable, well performing, more productive and fast growing than those which are not innovative. Based on the previous empirical findings & theoretical literature the relationship between dependent variable (firms' performance) and independent variable (innovation types) has been examined with in direct analytical frame work innovation – firm performance relationship. Accordingly, the basic hypotheses on the relationship between innovation activities and firms' performance are proposed as follows;

H1a*: There is a positive and significant relationship between product innovation and firm's financial performance in that firms with higher level of product innovation will have higher financial performance.*

H1b*: There is a positive and significant relationship between process innovation and firm's financial performance in that firms with higher level of process innovation will have higher financial performance.*

H1c*: There is a positive and significant relationship between marketing innovation and firm's financial performance in that firms with higher level of marketing innovation will have higher financial performance.*

H1d*: There is a positive and significant relationship between organizational innovation and firm's financial performance in that firms with higher level of product innovation will have higher financial performance.*

***H2a**: There is a positive and significant relationship between product innovation and firm's customer performance in that firms with higher level of product innovation will have higher customer performance.*

***H2b**: There is a positive and significant relationship between process innovation and firm's customer performance in that firms with higher level of process innovation will have higher customer performance.*

***H2c**: There is a positive and significant relationship between marketing innovation and firm's customer performance in that firms with higher level of marketing innovation will have higher customer performance.*

***H2d**: There is a positive and significant relationship between organizational innovation and firm's customer performance in that firms with higher level of organizational innovation will have higher customer performance.*

***H3a**: There is a positive and significant relationship between product innovation and firm's IBP performance in that firms with higher level of product innovation will have higher IBP performance.*

***H3b**: There is a positive and significant relationship between process innovation and firm's IBP performance in that firms with higher level of process innovation will have higher IBP performance.*

***H3c**: There is a positive and significant relationship between marketing innovation and firm's IBP performance in that firms with higher level of marketing innovation will have higher IBP performance.*

***H3d**: There is a positive and significant relationship between organizational innovation and firm's IBP performance in that firms with higher level of organizational innovation will have higher IBP performance.*

***H4a**: There is a positive and significant relationship between product innovation and firm's L&G performance in that firms with higher level of product innovation will have higher L&G performance.*

***H4b**: There is a positive and significant relationship between process innovation and firm's L&G performance in that firms with higher level of process innovation will have higher L&G performance.*

***H4c**: There is a positive and significant relationship between marketing innovation and firm's L&G performance in that firms with higher level of marketing innovation will have higher L&G performance.*

***H4d**: There is a positive and significant relationship between organizational innovation and firm's L&G performance in that firms with higher level of organizational innovation will have higher L&G performance.*

1.6. Significance of the Study

Innovation, being one of the main driving factor for the performance and growth of emerging countries in general and firms performance in particular but yet it hasn't received much focus on country level as well as in firm level in LICs. Hence, a comprehensive study on the state of performance of textile and garment industries and effect of innovation types on the performance of the sector can help to inform policy makers, academics, and the firms themselves to effectively address the challenges that hold the growth of the sector in general and the role of innovation types on firms performance too. Thus, the findings of this study are believed to provide a useful contribution to the empirical basis needed for proper understanding of the contribution of innovation types on the performance of garment firms in Ethiopia.

1.7. Scope and Limitation of the Study

Every study has its own limitation and this study is also not without limitation. The scope and limitations of the study is presented below.

1.7.1. Scope of the Study

The scope of this study was subjected both to the limitation of coverage and method. Regarding its coverage, the study was limited to the effect of innovation types on the performance of large and medium garment firms in Addis Ababa city. Four dimensions for both innovation types and firm performance measures (PI, PROI, MKI, and ORG) and for firm performance (FP, CP, IBPP & LGP) respectively including three control variables are covered. For there is no innovation survey data at country level on different manufacturing industries at firm level the study was

relayed on primary data that were collected by the researcher particularly from purposely selected large and medium garment firms in Addis Ababa city only. Due to this fact the study was not be able to present the effect of innovation types on performance across different manufacturing sectors that would be possible if well documented panel data on innovation activities of manufacturing industry were available. In terms of time, it covers the time period 2016-2018 G.C and cross-sectional data collection method was employed.

1.7.2. Limitation of the Study

Every study conducted may have certain shortcomings. The main libation of this study is that due to different constraints a small sample size used and only one sector has taken to be studied. In addition, due to the absence of secondary innovation survey data and previous related literatures on local context the study was mainly depends on the primary data, which were collected by the researcher, this in turn was imposed a limitation to the researcher not to use more adequate data to further increase the preciseness of the finding and to present a comparison result on the effect of innovation on different manufacturing sectors. Besides, the study has only seen the direct relationship between innovation types and firm performance instead to incorporate moderator or mediator variable.

1.8. Definition of Key Terms

Innovation: according to OECD Manual (2005) the concept or definition of innovation has described as follows:*"An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations."*

Product Innovation: it is the market introduction of a new or significantly improved good or service with respect to its capabilities, user friendliness, components or sub-systems.

Process Innovation: it is the implementation of a new or significantly improved production process, distribution method, or supporting activity.

Marketing Innovation: it is the implementation of a new marketing concept or strategy that differs significantly from the enterprise's existing marketing methods and which has not been used before.

Organizational Innovation: it is a new organizational method in the enterprise's business practices (including knowledge management), workplace organization or external relations that has not been previously used in the enterprise.

Firms Performance: it is a multidimensional concept that can be measured with both financial and non-financial indicators. The non-financial indicators include customer perspective, internal business process perspective, and learning and growth perspective.

BSC: is a strategy and performance measurement tool that enables organizations transform their visions and strategies into a tangible set of organizational measures from four basic perspectives: financial, customer, internal business process, and learning and growth (Kaplan and Norton, 1996)

1.9. Organization of the Thesis

The structure of study is organized as follows:

Chapter one deals with background of the study, statement of the problem, research questions, objectives of the research, significance of the study, scope and limitation of the study, and finally the organization of the thesis. Chapter two reviews relevant literatures and provide definition of most important concepts, such as innovation, types of innovation, innovation measurement, firm performance measurement and theories related to the area of study. In addition, the reviews of the previous empirical studies related to the area are discussed. Chapter three presents the research design and methodology as well as the model specification. Specifically: target population, sampling technique, data collection instruments, data collection process, measurement of variables and method of data analysis. Chapter four includes various analyses & several test results to establish reliability and validity, results of regression analyses to show the causal relationship among variables. It presents detail discussions on the results of the data analyses and interpretation of the data collected. And finally, chapter five summarized the major findings; give conclusions with recommendations and finally insight gaps for future researches.

CHAPTER TWO

Review of Related Literature

In this chapter, both the theoretical and empirical literatures that are relevant and related to this study have been reviewed and a conceptual framework is proposed.

2.1. The Concept and Measurement of Innovation

2.1.1. The Concept and Types of Innovation

Research on innovation as a driver of performance improvement and productivity growth through efficiency gains was initiated by seminal works of (Griliches, 1979 and Pakes & Griliches, 1980). These studies related innovative inputs to knowledge accumulation within the notion of production function. Following these seminal works Kline and Rosenberg (1986) emphasized the need for a better understanding of innovation itself due to its complex and uncertain nature. Innovation can be defined as a result of entrepreneurial orientation for new products, new processes and new organizational structures (Schumpeter, 1934). The effects of innovative activity however are heterogeneous among firms such that while it may offer market power to some firms, it may only provide marginal gains to others.

The 1990 Acs and Audretsch study for the US Small Business Administration (SBA) was based on a survey of over 100 trade journals in 1982 that looked for an announcement of the market introduction of inventions.

Innovation in the SAB has been defined as "A process that begins with an invention, proceeds with the development of the invention and results in introduction of a new product, process or service to the marketplace."

Thanks to the OECD Manual (2005), now we have a definition of innovation done by firms that is fairly standard across a wide range of countries and surveys:

"An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations."

Innovation is widely regarded as the most important competitive advantage that enables a company to thrive in today's dynamic business environment. It is undutiful that innovation derives prosperity for organizations and nations. Nowadays, it is commonly agreed that innovation is the critical path towards growth and prosperity for countries as well as for individual firms. It is the key to technology adoption, creation and explains the vast difference in performance and productivity across and within countries.

For the impact of innovation on firms, differ with the typology of innovation implemented by a firm, my understanding of different modes innovation has developed only recently following the availability of firm level innovation surveys. Such surveys are designed to directly measure different innovation efforts of firms. Innovation can broadly be divided into technological innovations in the form of new products and services and non-technological innovations in the form of organizational or marketing changes (Pierre and Bronwyn, 2013).

It is the OECD's Oslo Manual (2005) that sets the guidelines for the innovation surveys regarding, the data collection process on innovation outputs, inputs and modalities. On the output side it distinguishes four types of innovation: product, process, organizational and marketing innovation. Here product and process innovations fall under technological innovation while organizational and marketing innovation fall under non technological innovation.

According to the OECD's Oslo Manual (2005) the four types of innovations are defined as follows:-

2.1.1.1. Product Innovation

A product innovation is the market introduction of a new or significantly improved good or service with respect to its characteristics, capabilities, user friendliness, components or sub-systems (OECD's Oslo Manual, 2005). This includes significant improvements in technical specific components and materials, incorporated software, user friendliness or other functional characteristics. It could have been originally developed by the given firm or by other enterprises or institutions. Therefore, product innovation can broadly be categorized as the introduction of new or significantly improved or modified existing product.

The introduction of new product by a firm can be seen from the customer perspective and from the firm perspective. From the perspective of the customer, a product is said to be new if it is

new to the customers. Meaning the product was not provided to the customers before even by other firms. From the perspective of the firm, a product is said to be new if it is new to the firm i.e. the product is new to the firm but it might not be new to the market or the customers. The other dimension of product innovation is product modification. It is all about bringing a significant improvement to the existing product in terms of the products characteristics or intended use.

In today's highly competitive business environment, firms have to develop new products or modify the existing products to remain competent through bringing about efficiency in the business and attract new customers and thereby, increase their market share. The aim of product innovation is to attract new customers (Ul Hassan *et al*, 2013). Therefore, the very purpose of product innovation is to meet the need of the customers either by producing new product or significantly improving existing products according to need of their customer.

2.1.1.2. Process Innovation

It is the implementation of a new or significantly improved production process, delivery method or supporting activities. This includes significant changes in techniques, equipment and/or software (OECD's Oslo Manual, 2005). Process innovation includes bringing significant improvement in the equipment, technology and software of the production or delivery method business (Ul Hassan *et al*, 2013). The new method must be at least new to the organization and organization had never implemented it before added the same author. Process innovation covers changes caused by new information and communication technologies to improve productivity and quality of support activities (Keizer et al, 2002) as cited in (Karabulut, 2015). Process innovation is integrated method which covers inter functional innovation besides innovation in a production process (Acuner, 2000) as cited in (Gunay, 2007). Firms adopt a process innovation to bring about production efficiency and thereby decrease production cost in their business. Firms apply new process to compete with other firms; they must bring the process innovation to satisfy their customers (Ul Hassan *et al*, 2013). Therefore, it can be argued that production efficiency, customer satisfaction and cost reduction are the main factors that made firms to invest in process innovation.

2.1.1.3. Marketing Innovation

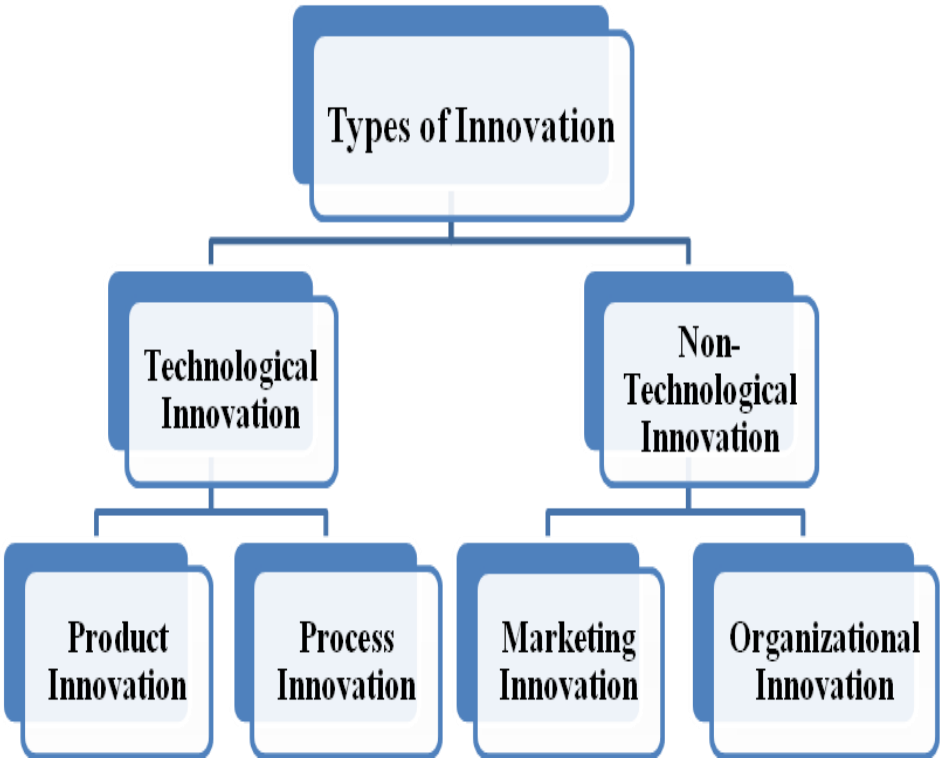
It refers to the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD, 2005). In other ways, it is the implementation of a new marketing concept or method that differs significantly from the enterprise's existing marketing methods and which has not been used before. Its core objective is increasing firm sales through penetrating new market or new positioning and better addressing of customer needs. Gunay (2007) also described that marketing innovation is consists of marketing product performance, production system and services.

2.1.1.4. Organizational Innovation

It refers to the implementation of a new organizational method in the firm's business practices (including knowledge management), workplace organization or external relations that has not been previously used by the firm. It can be intended to increase a firm's performance by reducing administrative cost or transaction costs, improving workplace satisfaction, gaining access to non tradable assets or reducing costs of supplies (e.g. first-time introduction of management systems for general production or supply operations, such as supply chain management, business reengineering, lean production, quality management system). It also must be the result of strategic decisions taken by management (Oslo manual, 2005). As Gunay (2007) expression mergers and acquisitions can cause an organizational innovation which can increase product quality and productivity, information exchange among business functions, improve information and technology usage capacity.

The borderlines of these definitions can be debatable as indicated in the Oslo Manual; the borderlines of these definitions can be debatable. Products are to be understood as goods or services. Design changes which do not affect the functionalities or intended uses of the product do not qualify as new products but do qualify as marketing innovations. A new product may require new production technology. A new product can at the same time be a marketing innovation, when the functionalities or uses of the product change but also its external appearance. A new method of producing a good, i.e. a process innovation, may automatically involve a reorganization of work within the enterprise.

Figure2. 1Summary of Innovation Types based on literature review, (Oslo manual, 2005)



Source: Developed based on literature review, 2020

2.1.2. Measurement of Innovation

In spite of the apparent clarity of the definition of innovation in the Oslo Manual (2005), measuring innovation in a form that is useful for statistical analysis has proved challenging. The central problem is that no two innovations are alike. Some innovations create a whole new market sector whereas others are useful but trivial, and there is a wide range in between. In general, I can say that smaller innovations are more numerous than game changing ones. But, through time companies are becoming more emphasized towards creating and imitating new products rather to improving existing products.

Innovation typically has been measured in two ways in innovation surveys: first, by asking whether the firm introduced an innovation of a certain type (product, process, organizational, marketing etc.) during a preceding period (usually the past three years) and second, by asking what share of the firm's sales is due to products introduced during the same preceding period. The first measure has a number of drawbacks, which have become quite evident as it has been used in many empirical studies (OECD, 2005).

When examined across a range of firm sizes, it produces the misleading results that larger firms are more likely to be innovative, whereas in truth larger firms are involved in a wider range of activities and are therefore more likely to have an innovation in at least one of them. So this variable cannot be used to make the kind of statements that one sometimes hears, such as "large firms are more innovative than small firms" (OECD, 2005).

Another problem is the previously mentioned unequal size of innovations and the failure in some surveys to distinguish between "new to the market" and "new to the firm." Based on the Acs and Audretsch (1990) results, we know that more of the innovative firms will have introduced improvements to existing products rather than entirely new goods and services, but the latter may be more important than the former. This view of the "skewness" of innovation values is supported by a large amount of research on the valuation of patented inventions (Harhoff et al., 1999; Scherer and Harh off, 2000; Hall et al., 2005). Although patented inventions are not precisely the same as innovations, they are similar and share some of their distributional properties, with the majority being worth very little, and a few that are quite valuable to their owners.

Because of the imprecision and noisiness of the innovation dummies, many researchers prefer to use the second measure, the share of sales of innovative products, which does give a good indication of how important the innovation(s) were overall for the firm in question. Unfortunately, this measure is useful only for goods and services and cannot be used to capture process or organizational innovation. Nevertheless, it is the one relied on by more than half of the papers discussed in the following sections, often accompanied by a dummy for process innovation. Only one example exists where firms were asked to quantify the impact of process innovation on cost reduction (Peters 2006, for Germany).

2.2. Theoretical Literature Review

Innovation is a strategic tool for countries to make a difference in their economy growth through being competitive enough in the global market. Not only in the global market but also in the local market it is a pillar tool for booming firms' economy with respect to performance improvement and productivity growth.

Until a decade ago, innovation in the private sector in LICs was the focus of only a handful of studies every year (Zanello et al., 2016). Until then, innovation was often associated with patents or ground-breaking discoveries. Those are the results of costly, risky and lengthy processes that require intense knowledge and capital investment to create something "new". The Oslo Manual (2005) has been a standard reference for surveys of innovation in advanced economies and, since its third edition, also in developing countries. Its definition of innovation refers to the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations" (OECD, 2005) highlights two important features. First, innovation can take a multitude of forms (product innovations, process innovations, marketing innovations, and managerial/organizational innovations). Second, innovation can result from an original idea but can also emerge from the diffusion, absorption, or imitation of new methods developed elsewhere. Because of that, an innovation could simply be new to the firm and not necessarily new to the market and yet have an impact on performance, productivity and employment. The recognized growing role of innovation in developing countries has opened a new sub-field of research at the intersection of innovation studies and development studies. The so-called inclusive innovation focuses on the impact of innovation on the people living in the lowest income groups (Chataway et al., 2013). In particular, it refers to the production or delivery of new products and services for and/or by those people that so far were largely excluded from formal markets. At the same time, the constrained ingenuity and resilience of the people living below the poverty line have been recognized as an incubator for local innovation. This focus on 'frugal innovation' Bhatti and Ventresca (2012) introduced further considerations to understand the sources and impact of innovation in LICs. In order to access effectively new markets, companies may need to re-think the production and delivery of goods, often re-engineering products in order to reduce the complexity and cost of production. The innovation process could involve reverse diffusion Govindarajan and Ramamurti (2011) when innovations are adopted first in LICs before spreading to advanced industrial economies; jugaad innovations Gulati (2010), when they are born out of lack of resources by improvisation, or user innovations, when consumers are involved in the design of a product or service (Von Hippel, 1998).

2.3. The Definition, Concept, Importance and Measurement of Firm Performance

2.3.1. The Definition and Concept of Firm Performance

Performance measurement has been widely defined in the various literatures of the subject. Chiesa (2007) defined performance measurement as a system that can be key success factors, measures for detection of deviations, measures to track past achievements, measures to describe the status potential, measures of output, measures of input, etc. further a performance measurement system should also include a component that will continuously check the validity of the cause-and-effect relationships among the measures according to the author.

A BPM system enables an enterprise to plan, measure, and controls its performance and helps ensure that sales and marketing initiatives, operating practices, information technology resources, business decision, and people's activities are aligned with business strategies to achieve desired business results and create shareholder value (Maisel, 2001). Neely et al, (1995) defined performance measurement as the process of measuring the action's efficiency and effectiveness. Performance management is a process wherein the organization manages its performance to match its corporate and functional strategies and objectives (Carrie and McDevitt, 1997).

Firm performance is a multidimensional concept according to (Murphy, Trailer & Hill, 1996). Production, finance or marketing are the three indicators of firm's performance (Sohn, Joo & Han, 2007). In other hand, growth and profit are also can be considered as an alternative performance indictor (Wolff & Pett, 2006). Firm's performance can be measured using objective or subjective indicators (Dawes, 1999 & Harris, 2001). In this study, 4 indicators: financial performance, customer performance, IBP performance and L&G performance are employed as an indicator of firm's performance based on the BSC approach of performance measurement.

Innovative performance is the combination of overall organizational achievements due to the renewal and improvement efforts done considering various aspects of firm innovativeness, for instance, processes, products, marketing, organizational structure, etc (Nham *et al*, 2015). Therefore, innovative performance is a composite construct based on various performance indicators pertaining, such as, to the new patents, new product announcements, new projects, new processes, and new organizational arrangement (Hagedoorn & Cloodt, 2003).

2.3.2. The Importance of Firm Performance Measurement

Effective performance measurement is a key in ensuring that an organization's strategy is successfully implemented (Topic Gateway Series, 2008). It is described as a process of monitoring an organization's effectiveness in terms of fulfilling its own predetermined goals or stakeholders requirement. Therefore, a performance measurement system that enables an organization to meet such demands is essential.

I often say that when you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind (Kaplan & Norton, 1992). Thus, this indicates how much important is the effective performance measurement mechanism for an effective planning and evaluating the implementation of firm's strategy.

It is impossible to think of process improvement or the successful implementation of organizational strategy without measuring the outcomes. Therefore, organizational performance improvement requires measurements to identify the level to which the use of organizational resources impact business performance (Gadenne & Sharma, 2002). Hence, we can learn that to know how our effort towards better performance or high productivity brought successfully achieved, we need to have an effective performance measurement in that we can express it in number. Thus, performance measurement is critical for effective management of any firm (Demirbag *et al*, 2006).

The firm's success can be expressed in there achieved performance that emanates from the effort made by the firm over a certain period of time. Understanding the importance of an appropriate measurement tools in which firms enable to measure the actual performance outcomes or results of an organization against its intended goals and the innovation investment, efforts are continuously made by different researchers in order to determine better measures for the concept of performance yet. Finding a measurement for the performance of the firm enables the comparison of performances over different time periods (Ebrahim *et al*, 2014). However, Snow and Hrebiniak (1980) argued that there is no single or specific measurement with the ability to measure every performance aspect yet.

In the view of a more strategic perspective, performance measurement can be considered as an important way of keeping a company on track in achieving the company's objectives and as a monitoring mechanism employed by the owners of a company where ownership and management are separated according to (Huselid, 1995).

For the reason that there is no a single fit for every firm in the world, firms need to identify the most appropriate measures of performance based on their organizational context and strategic objectives. Performance measures used in one company may not be appropriate for another company facing a different situation or different set of circumstances (Otley, 1980).

In today's stiff business world to remain competent and profitable firms invest huge amount of money in innovation activities. However, such activities alone are not sufficient in realizing the intended improvement unless firms put the most appropriate performance measurement tool in which the outcome or the result of their innovative effort or performance is effectively measured. Therefore, performance measurement has a vital role in the firms' improvement process and the successful achievement of their intended objectives and goals.

2.3.3. Measurement of Firm Performance

Performance measurement is at the core of the performance management process and it is significant to the effective and efficient workings of performance management (Bititci et al, 1997).

Measurement of performance help managers in monitoring of performance, reporting progress, improving motivation and communication and pinpointing problems through offering significant invaluable information according to Waggoner et al, (1999). Through the measurement, it is possible to create simplified numerical concepts from complex reality that in turn help people easily understand facts, communicate each other and take right action (Lebas, 1995).

In the course of time, performance has been either measured through the size of the company or through its productivity and profit (Nicu, 2003). As stated by Sirill (2001) most of the time, these firm-or economic- performance measures include: sales per employee, export per employee, growth rate of sales, total assets, total employment, operational profit ratio and return on investment.

2.3.4. Historical Review of the Balanced Scorecard

Kaplan and Norton (1996) argued that measurement was as fundamental to managers as it was for scientists. If companies were to improve the management of their intangible assets, they had to integrate the measurement of intangible assets into their management systems.

Kaplan and Norton developed the BSC approach from the interest they developed to realize the belief of the prominent British scientist, Lord Kelvin. The BSC retains financial metrics as the ultimate outcome measures for company success, but supplements these with metrics from three additional perspectives – customer, internal process, and learning and growth – that we proposed as the drivers for creating long-term shareholder value (Robert S, 2010).

The BSC approach is one of the widely used approaches in studying firms' performance. It links a firm strategy to firm performance. According to this approach firms performance can be categorizes as financial performance, customer performance, IBP performance and L&G performance. It starts with organizational L&G which improve IBP to provide more value to customers to reach high financial performance.

Through translating the mission and strategy of an organization in to a set of performance measures BSC provides the framework for implementation. The focus of BSC is not solely on achieving short run financial objective. Rather it also incorporates the non-financial objective that an organization must achieve to meet and sustain its financial objectives. The name BSC is given for this tool because it balance the use of financial and non-financial performance measures to evaluate short run and long run performance.

The development of BSC as a tool of performance measurement stretched from the gradual evolution of BSC as a strategic management system Kaplan and Norton (1996) to comprehensive strategy maps Kaplan and Norton (2001 & 2004) and vehicles of corporate-wide strategic alignment (Kaplan and Norton 2006) according to (Modell, 2011). Multiple measures of performance have been development as the new approach following the necessity of the implementation of various indicators both financial and non-financial indicators in measuring firm performance. Although, there are many approaches of multiple measures of performance the

BSC is the most popular and widely used approach which emphasize the need for multiple performance indicators is the according to Kaplan et al., (1992)

The BSC approach measures the performances of any organization or association from four perspectives/dimensions. These four perspectives of BSC have been presented bellow based on the distinction made by (Kaplan & Norton, 1996).

Table2. 1Performance measurement perspectives based on BSC approach

Perspectives	Goals	Objectives	Measurements
Financial	Continuously improve financial performance	Decrease costs	Average unit costs
		Increase sales growth	Growth rate in sales.
		Increase market share	Company's market share.
		Increase return on investment.	Return on investment.
Customer	Continuously improve customer satisfaction	Decrease lead time	Average lead time
		Increase on time delivery	Percentage of deliveries on time.
		Reduce customer complaints	Number of customer complaints
Internal Business	Continuously improve business processes	Decrease cycle time	Average cycle time
		Increase quality	Number of defects and number of items reworked
		Increase productivity	Average output per employee
Innovation & Learning	Continuously develop& deliver new innovative products & services.	Increase sales of new products and services	Percentage of sales obtained from new products & services
		Reduce development time	Average time from initial design to production

Source: Balanced Scorecard (Kaplan &Norton, 1992)

2.3.4.1. Financial Perspective

In financial measurement there are indicators related to the company performance such as personnel expenses balance in the turnover, the productivity rate, the commercial margin balance in the turnover, sale revenues from products, profitability, market share etc. there are also other indicators like ROI, determined as a ratio between result and invested values and ROE, determined as a ratio between net result and company equity; EVA, determined based on the relation to the stock market flow than other financial measures (kablant et al, 1996 & Karabulut et al, 2015). Therefore, under this perspective managers are required to measure firms' financial performance succeed through referring the above mentioned indicators.

2.3.4.2. Customer Perspective

Since the financial indicators cannot reflect the global performance of a company comprehensively, the non-financial indicators necessity is introduced in order to guide and evaluate a company's performance (Kaplan &Norton,1996 ; Poincelot &Wegmann, 2004).

Thus, this perspective refers to creating value and differentiation from the perspective of the customer which includes indicators like number of new customers attracted, sales to customers and customers who left the firm. The managers are obligated to produce measures to evaluate their firm's vision achievement with respect to the customers satisfaction level against the pre determined needs to be met and complaints raised etc (Kaplan &Norton, 1996 ; Karabulut et al, 2015).

2.3.4.3. Internal Business Process Perspective

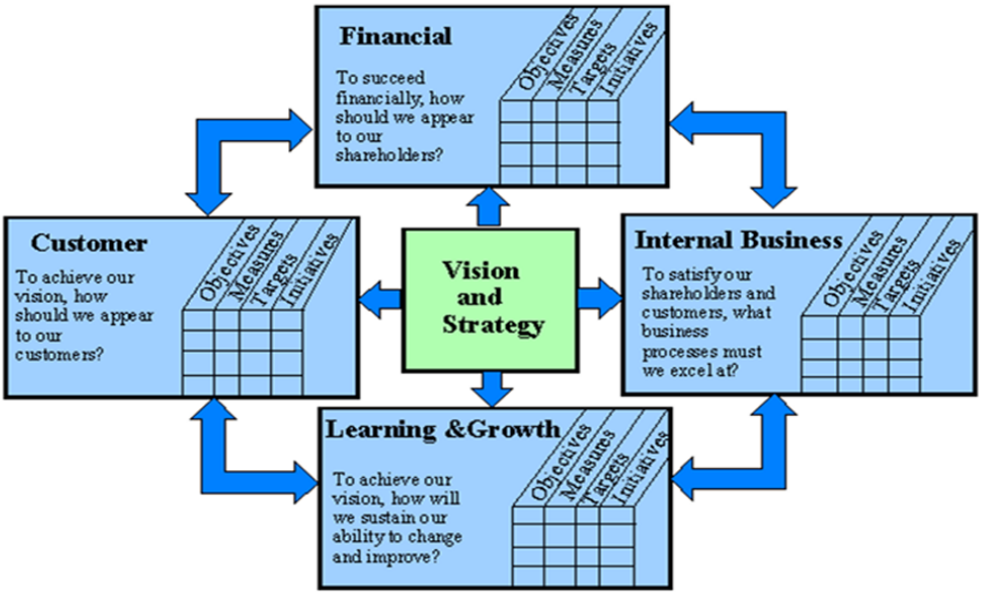
This is a strategy emphasized on producing goods and services in the most efficient and effective methods. It requires technology for new process & product development and the duration of production, customer satisfaction, production cost and product delivery method with time consumption have to be measured. Consequently, managers are expected to measure the internal business processes to satisfy their customers and shareholders. The essential idea of this perspective is the consequences of the internal business processes which lead to financial success and satisfied customers (Kaplan &Norton, 1996 ; Karabulut et al, 2015).

2.3.4.4. Learning and Growth Perspective

This is the third perspective of non-financial performance measurement in which managers must identify measures to evaluate firm's sustainable ability for change and improvement to achieve its intended vision. Actually, this perspective is related to the employees of the organization, and it measures the extent to which the organization exerts efforts to provide its employees with opportunities to grow and learn in their domain. Learning and growth measures could be: employee happiness, employee empowerment, employee motivation, employee capabilities, and information systems capabilities, employee turnover rate and gathering information about customers & products (Kaplan &Norton, 1996; Karabulut et al, 2015).

Mustafa &Atta (2013) as cited in Kebede (2014) advocated categorizing existing performance measures under the BSC framework help in highlighting limitation of existing measures and the need for introducing additional, usually non-financial measures.

Figure2. 2 Four Perspectives of Performance Measurement through BSC approach



Source: Balanced Scorecard (Kaplan &Nerton, 1996)

2.4. Empirical Literature Review

This section review empirical studies of the effect of innovation for firms' performance. The relationship between innovation and firms' performance has been studied in different countries at various sectors and their empirical findings are discussed below.

Rajapathirana et al, (2018) explored the relationship among innovations capability, innovation type and on the different aspect of firm performance including innovation, market and financial performance based on an empirical study covering insurance industry in Sri Lanka. The empirical finding of the study confirmed that innovation capabilities; innovation efforts has a significant and strong positive effect on firm performance. Effective management of innovation capability could lead to deliver more effective innovations outcomes to generate better performance and it would be benefits for management of the insurance companies, stated the researcher. As scholars like (A. Howell, 2018; Karabulut, 2015;C. Camison et al, 2014; Masood et al, 2013; Alam, 2013 ;Rosli and Sidek, 2013; Gunday et al , 2011 ;Wubben. E, et al, 2003) investigated the effects of innovation types or activities on manufacturing firms in different countries and in different aspects of firm performance, the results reveal that there is a positive effect on firms' performance. But in Karabulut (2015) study's result the marketing innovation indicated as negatively associated with L&G performance.

Other study which conducted on innovation and performance of manufacturing firms in Ruwanda found that innovation or R&D has a positive effect to boost manufacturing firms' financial performance (Ndemezo & Kayitana, 2017). In addition, Yavarzadeh *et al*, (2015) also examined the effect of organizational innovation on the performance of tax affair general administration of Iran. The empirical finding of the study revealed that product, process, administrative/organizational innovation have positive and significant effect on organizational performance in terms of financial, growth, customer and internal process.

Faziloglu et al. (2016) explored the effects of firms' innovation activities on their productivity changes systematically for Turkish manufacturing firms differentiating between different typologies of innovation. To do so, the authors utilized a comprehensive firm level CIS over the period 2003-2014. Endogenous switching methodology was employed for controlling endogeneity and selection bias issues as well as analyzing counterfactual scenarios. The result of the study indicated that all types of innovation activity have positive effects on the performance & productivity of firms with respect to non-innovating firms. Further, the finding of the study revealed that there exist differential impacts of innovation on firm productivity across different innovation types. In addition, Mohnen et al. (2018) also examined the nexus between innovation

and firm productivity in Ghana. A revised CDM structural model was utilized to analyze data from a unique innovation survey of 501 manufacturing firms in Ghana. The result of the study stated that innovation positively impacts the labor productivity of firms, technological innovations more than managerial innovations. Besides, formal firms do not tend to be more productive than informal firms, but the role of innovation on productivity tends to be greater for formal firms accordingly.

Furthermore, Tuan et al. (2016) investigated the effects of innovation on firm performance using a data collected from 150 firms in Vietnam. Its empirical evidence suggested that for practitioners marketing, organizational, and process innovations are more important factors affecting innovative performance and firm performance than product innovation. The relationship between the investment in innovation activities, innovation outputs (technological and non-technological innovation), and productivity in services and manufacturing has explored by using CIS data from Uruguay. The results indicated that both technological and non-technological innovations are positively associated to productivity gains in services, but non technological innovations have a more important role. Further, the reverse happened for manufacturing; technological innovations are the relevant ones for productivity (Aboal et al., 2012).

Bartz et al. (2016) studied the effects of management practices and innovation on productivity, using data from a unique firm-level survey covering 30 mostly developing countries in Eastern Europe and Central Asia in the period 2011-14. They employed the well-established three-stage model by linking productivity to innovation activities and management practices. Their finding suggested that both returns to innovation and returns to management practices are important drivers of productivity in developing economies. However, productivity in lower-income economies is affected to a larger extent by management practices than by innovation while the opposite holds in higher-income economies. These results imply that firms operating in less favorable business environments can reap large productivity gains by improving the quality of management practices, before engaging in innovation by imitating and adapting foreign technologies. Segarra-Blasco (2016) examined the determinants of R&D and the role of innovation on labor productivity in Catalan firms. The empirical analysis found that R&D

expenditures, output innovation, investment in physical capital, market share and export have positive effects on labor productivity in both the manufacturing and service sectors.

The impact of innovation capabilities on export performance of firms' has investigated in export oriented firms in Iran. And the result shows that operational innovation capabilities on export performance have a positive effect and strong relationship (Dalvand et al, 2015).

Loof (2004) investigated whether there is any evidence for the notion that service industries have a lower propensity to be innovative or whether they are less efficient in deriving benefits from innovations using firm level data from Sweden CIS 1999 and data collected from statistics Sweden. A version of the CDM model is fitted for two samples of knowledge intensive firms are used: 607 knowledge-manufacturing firms (with high degree of R&D intensity), and 538 business service firms. The labor productivity is measured as value added per employee (labor productivity) and the ratio of innovation sales to total sales was used as a proxy for innovation. The empirical finding revealed that there exist a consistent positive relationship between R&D, innovation and productivity for both samples of firms. The nexus between market orientation, innovation capability and business performance has studied in both manufacturing and service sectors in Finland. The result shows they have a positive effect on firms' business performance (Huhtala et al., 2014).

Mairesse and Robin (2010) examined the link between innovation and productivity using CIS data for French manufacturing and services. The study evolved in testing the evolution of the innovation – productivity relationship in the French manufacturing industry over two periods of time (1998-2000 and 2002-2004) and compares this relationship in the manufacturing and services industries in the period 2002-2004. The service sample comprises 3599 firms were sampled from the service firms with at least 20 employees and a sample of 3524 firms from CIS3 and a sample of 4955 firms from CIS4 were sampled from the manufacturing firms. The CDM model was employed to analyze the data. The empirical finding indicates that product innovation has a significant positive effect on productivity and process innovation has insignificant effect on productivity.

Stelios and Aristotelis (2008) investigated the relationship between innovation output (sales from innovations per employee) and productivity (sales per employee) in the service sector in

Greece using a survey data from the CIS 2 (1994–1997); that have 301 observations. There finding revealed that innovation output have a significant positive effect on productivity. The relationship between the market orientation, service innovation, and innovation performance of high tech industry has examined in Taiwan. The empirical findings of this study revealed that innovation as fully mediating effect of innovation performance. Furthermore, technology-based product quality facilitates firms to generate superior innovation performance as suggested by the same study (Wang and Hsu, 2014).

Moreover, (M. Atalay et al, 2013; Masso and Vahter, 2012; Veugelers et al, 2008) investigated the relationship between innovation and performance & productivity of firms in Turkey, Estonia, and Brazil respectively at different sectors. The result shows that technological innovation has signficant and positive impact on firm performance. However, regarding the non technological innovation there is no significant evidence which shows its significant and positive effect on firms' performance.

Mabrouk and Mamoghli (2010) investigated the effect of innovation on the performance of the banking sector. It is indicated that product innovation has a positive and significant effect on profitability while process innovation has a positive and significant effect on both the profitability and efficiency of the banking sector.

Most of the reviewed previous studies confirmed that there exist a positive relationship between innovation and firm performance while some few studies indicated that there is no significant evidence that shows the positive relationship, and also others show that a negative relationship between some dimensions of innovation and firm performance.

Thus, the aim of this study is to explore the effect of the four innovation types (product innovation, process innovation, marketing innovation and organizational innovation) on each dimensions of firms' performance (financial performance, customer performance, IBP performance and L&G performance) of garment firms in Ethiopia**.** The questions of the innovation type's measure were adopted from the typology of Oslo Manual (OECD, 2005).
The researcher also determined the questions of the firm performance measure based on the BSC approach.

Table2. 2 Summary of Empirical studies of Innovation & Firms' Performance/Productivity

S/n	Author	Industry	Title	Findings
1	Mohnen et al. (2018)	Manufacturing in Ghana	Innovation and productivity in formal and informal firms	The result revealed that innovation positively impacts the labor productivity of firms, technological innovations more than managerial innovations.
2	Karabulut (2015)	Manufacturing in Turkey	Effect of innovation types on performance of manufacturing firms	The result shows innovation leads firms to improve their customer performance, IBP performance and L&G performance, but marketing innovation negatively affect L&G performance.
3	N.Tuan et al (2016)	Manufacturing in Vietnam	Effects of innovation on firm performance	The result revealed that there are positive effects of process, marketing, and organizational innovations than product innovation on firm performance in supporting firms.
4	Ndemezo et al (2017)	Manufacturing in Rwanda	Innovation & firm performance	The result shows that innovation (R&D) has a positive effect to boost manufacturing firms' financial performance.
5	A. Howell (2018)	Firms in China	Innovation and firm performance	The result revealed that innovation positively impact firms' innovation output as well as their performance.
6	Camison et al (2014)	Industrial firms in Spain	Organizational innovation and firm performance	The results confirm that organizational innovation positively and significantly associated with firm performance.
7	Veugelers et al (2008)	Manufacturing in Brazil	Innovation strategies, product and process innovation and growth	The result revealed that technological innovations have appositive &significant impact on firm's performance. Yet there is no significant evidence found for a positive& significant association b/n non-technological innovation & firm performance
8	Rajapathirana et al (2018)	Insurance firms in China	R/ship between innovation and	The result revealed that r/ship between innovation capability,

			firm performance	innovation efforts, and firm performance is significant and strong.
9	M. Atalay et al (2013)	Automotive supplier industry in Turkey	The relationship b/n innovation and firms performance	Result revealed that technological innovation positively impact firm performance, but no evidence was found for the r/ship b/n non-technological innovation & firm performance.
10	Wang & Hsu (2014)	High Tech industry in Taiwan.	Does service innovation matter in high-tech industry?	The result revealed that innovation as fully mediating effect of innovation performance facilitates firms to generate superior innovation performance.
11	Gunday et al (2011)	Manufacturing inTurkey	Innovation types & firm performance	The results show that there is a positive effects of innovations on firm performance in manufacturing industries
12	Masood et al (2013)	Manufacturing in Pakistan	Innovation types & firm performance	The results reveal the positive effects of innovation types on firm performance.
13	Faziloglu et al (2016)	Manufacturing in Turkey	Innovation types & firm performance	The result shows that all types of innovation activity have positive effects on productivity of firms.
14	Aboal et al (2012)	Manufacturing & service in Uruguay	Technological & non-technological innovation & productivity	The results indicate that both technological & non-technological innovations are positively associated to productivity growth.
15	Bartz et al (2016)	European Bank	Innovation and management practices in firm productivity	These results revealed that innovation including better management practices positively affect firm productivity gains.
16	Segarra-Blasco (2016)	Manufacturing & service in Catalonia	Innovation and productivity	Result revealed that R&D, output innovation, investment in physical capital, market share and export have positive effects on labor productivity in both the manufacturing and service sectors.
17	Dalvand et al, (2015)	Export in Iran	Innovation & firms' export	Result revealed that innovation capabilities have a positive effect

			performance	on firms' export performance.
18	Yavarzadeh e*t al,*(2015)	Tax affair in Iran	Innovation and its effect on organization's Performance	The finding revealed that innovation activities have a positive & significant effect on organizational performance in terms of financial, growth, customer and internal process.
19	Alam (2013)	Manufacturing in Malaysia	Innovation capabilities & performance	Result revealed that firm's innovation capabilities have greater impact on the overall performance.
20	Mairesse and Robin (2010)	Manufacturing & Service in French	Innovation and Productivity	The empirical finding indicates that product innovation has a significant positive effect on productivity and process innovation has insignificant effect on productivity.
21	Wubben, E et al, (2003)	SMEs in Netherland	Innovation and firm performance	The result revealed that innovation has a significant and positive effect on firms' performance regardless of their size.
22	Huhtala et al., 2014	Manufacturing & service in Finland	Market orientation, innovation and business performance	Result revealed that innovation mediates the performance effect of MO, while innovation capability mediates the relationship between customer orientation and business performance.
23	Mabrouk& Mamoghli (2010)	Bank industry in Kenya	Financial innovation & Bank performance	The result indicated that product innovation has a positive and significant effect on profitability while process innovation has a positive and significant effect on both the profitability and efficiency of the banking sector.
24	Rosli and Sidek (2013)	Manufacturing in Malaysia	Innovation & manufacturing firm	The result revealed that product innovation has more significant impact than process innovation on firm performance.
25	Masso & Vahter (2012)	Services sector in Estonia.	Innovation and firm performance	The result revealed that innovation has positively associated to productivity growth & technological innovation is better

				than non-technological one.
26	Lopes &Godinho (2005)	Services firms in Portugal	Innovation and economic performance	The finding confirmed that a positive effect of innovation output on productivity, but a negative effect of innovation intensity.
27	Loof (2004)	Manufacturing & Service in Sweden	Innovation and productivity	The finding revealed that there is a consistent positive relationship between R&D, innovation and productivity in both sectors.
28	Stelios & Aristotelis (2008)	Service sector in Greece	Innovation output & productivity	The result revealed that innovation output has a significant positive effect on productivity.

Source: Self extracted, 2020

2.5. Research Gap

Based on the previous review of literature and empirical review, at international level researchers have investigated in several studies the effect of innovation in economic development, productivity growth and performance improvement. These studies have revealed that innovation is a key factor for macroeconomic development as well as for the micro economic development including the firms' performance improvement. However, there are studies which revealed that some dimensions of the innovation types negatively associated to some dimensions of firm's performance and productivity. For instance, karabulut (2015) study shows that marketing innovation has negatively associated to L&G performance. There are also studies that revealed that non- technological innovations (marketing and organizational innovations) have no clear result for their positive and significant effect association. For instance, Veugelers et al (2008) and Atalay et al (2013) studies on the effect of innovation on firms performance revealed that technological innovation has significant and positive impact on firm performance. However, there is no significance evidence found for significant and positive relationship between non-technological innovation and firms' performance.

In Ethiopia as per the researcher knowledge the relationship between innovation and manufacturing industry has not been studied as well. Few studies like, O. Mohamed (2018) studied the nexus between innovation and economic growth at national level with secondary

source of data which its result shows that innovation has positively and significantly associated to economic growth at macro level. Kitaw and Matebu (2017) and Tekleslassie et al, (2018) have conducted research on Ethiopian textile and garment industry competitiveness & productivity. The result revealed that in both competitiveness and productivity has not been satisfactory. Sultan (2017) studied the Ethiopian garment firms export performance and indicated that garment industry show a decline in its export performance. Similarly, Demissie et al, (2017) assessed the quality of Ethiopian garment industry and indicated that there is poor quality in the garment firms.

Thus, none of the above studies have addressed the effect of innovation on manufacturing firm's performance at micro level in Ethiopia.

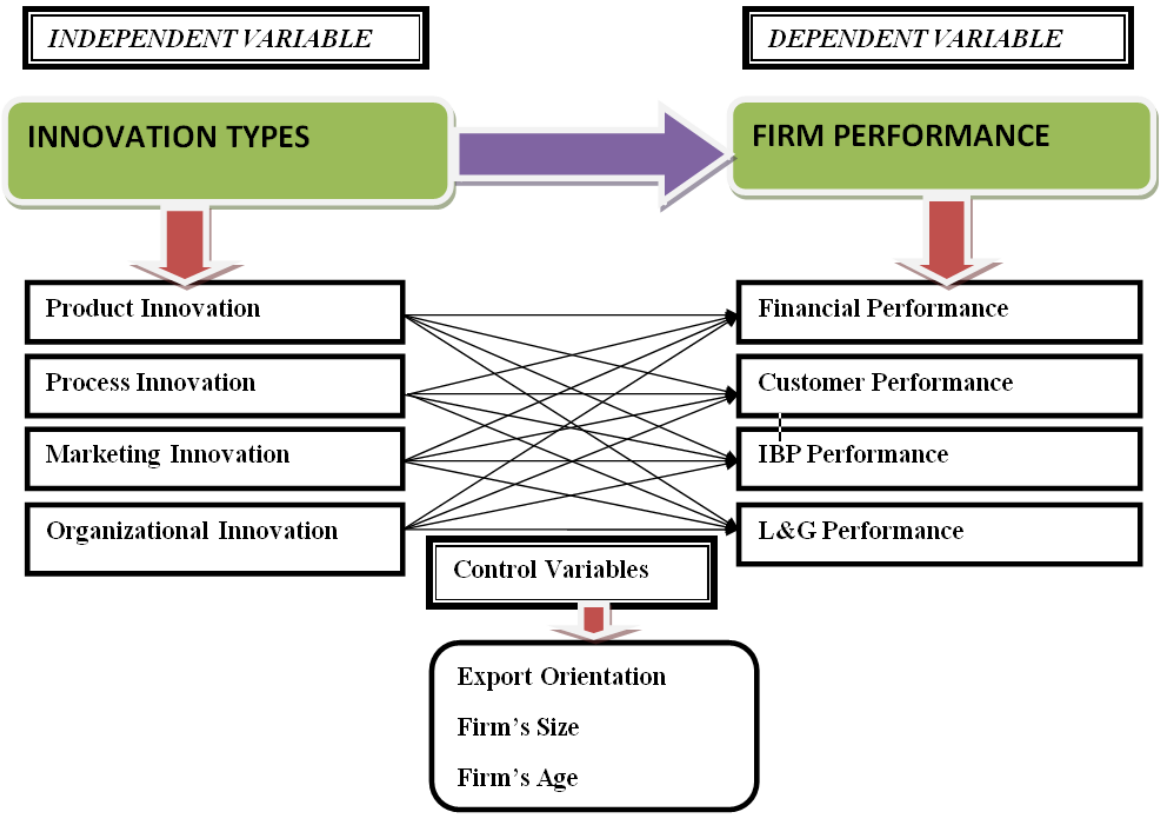
This study, therefore, attempts to fill this research gap by investigating the effect of four of innovation types on firm's performance by Ethiopian large and medium garment firms.

2.6. The Conceptual Framework of the Study

From the theoretical and empirical literature reviews, it is hypothesized that innovation has a positive significant impact on firms' performance. In that, firms with higher level of innovation activities would have better performance improvement. Due to the fact that firms' performance can't only be affected by a single factor or variable, it is necessitate controlling other variables that potential affect the primary interest dependent other than primary interest independent based on theories and the evidence from pervious literatures. Hence, this proposed model has adopted from kabulut (2015) which conducted in Turkey to explore the effect of innovation activities on manufacturing firms.

The conceptual framework for the effect of innovation types on firm performance is presented as follow in figure 1 below.

Figure2. 3. Conceptual Framework



Source: Developed based on literature review, 2020

Dependent variables: are the firm's performance measurements; financial performance, customer performance, internal business processes performance and learning and growth performance thereby firm's performance was analyzed in chapter four.

Independent variables: dependent variables were analyzed their effect on firms' performance towards all dimensions and the results have discussed in chapter four.

Control variables: control variables were incorporated to ensure proper model specification, to prevent skewnes problem and to take into account possible alternative explanations for performance variations. Firm size, measured as the number of employees; firm age, measured as the number of years the firm had been in business operation and export orientation measures as where the geographical market for the firm.

CHAPTER THREE

Research Methodology

In chapter three, research approach, research design, data collection methods, population & sampling design, model specification, variable measurement, techniques of data analysis, and validity and reliability are discussed. All the elements in this chapter are constructed based upon the purpose of the research which is assessing the effect of innovation types on garment enterprise's performance in Addis Ababa, Ethiopia. Primary data was used for this research. The data is gathered directly from selected sample garment enterprises using structured questioner appropriate for innovation survey. Here detail information on innovation activities undertaken by the selected firms during the time period of 2016-2018 were collected by the researcher and other data collectors.

3.1. Research Approach

The selection of an appropriate research approach is to be determined based on the research purpose, the nature of the research, the problem area, and research questions according to Alhamadni et al, (2006). As stated by Creswell (2003) there are including quantitative, qualitative, and mixed approach are the three basic types of research approaches.

Quantitative research approach enables exploring and examining the meaning individuals or groups ascribe to a social or human problem (Creswell, 2003). This method is particularly useful and appropriate for data analysis that is inductive in nature i.e. which arrives at a conclusion from specific themes. For the study in hand requires analyzing relationship between variables based on theories and hypothesis testing using statistical procedures, based on the nature of this study, quantitative research approach is found to be appropriate.

3.2. Research Design

The main objective of this study is to investigate the effect of innovation types on the firms' performance using cross- sectional research design; data collected on the innovation types of garment enterprises in Addis Ababa, Ethiopia for the period of year 2016 to year 2018.

Since the study requires examining the effect of the explanatory variables on the dependent variables, explanatory research design was employed. The primary purpose of explanatory research design is to determine how events occur and which ones may influence particular outcomes (Hancock & Algozzine, 2006). Explanatory studies are characterized by research hypotheses that specify the nature and direction of the relationships between or among variables being studied. Unlike descriptive studies, explanatory studies go beyond observing and describing the condition and tries to explain the reasons of the phenomenon (Cooper & Schindler, 2003). Such research is devoted to finding causal relationships among dependent and independent variables. Therefore, this method of study helps the researcher to explain the reasons behind the phenomenon of the relationship between innovation and firm performance. Besides, since it goes beyond the description of variables that are found in major accepted economic theory the method has allowed the researcher to apply theory-based expectations on how and why variables should be related.

3.3. Source of Data and Instruments of Data Collection

In the research world data plays an important role, because it provides the most essential information that is needed for a proposed study. Moreover, the accuracy and reliability of research findings depends on the quality, reliability and precision of the data used in the regression analysis. Basically, data can be obtained from two sources, primary and secondary sources thus can also be classified accordingly as primary data and secondary data.

The primary refers to the fresh and first hand data collected by a researcher for the purpose of a given research or analysis. Such data is original in character and can be collected through observation, interview method, through questionnaires (Kothari, 2004). In other hand, secondary data refer to the published data or unpublished data which have already been collected and analyzed by someone else (Kothari, 2004). The decision to select the appropriate data type depends on the nature, scope and objective of the study, the availability of time and fund and precision required for the study, each data type has their own, each method of data collection has its uses and none is superior in all situations otherwise according to (Kothari, 2004).

The main purpose of this study is to investigate the effect of innovation on firms' performance. For there is no an innovation survey data in Ethiopia this study mainly depends on primary data. A structured questionnaire was used as an instrument to collect the primary data from large and

medium garment firms in Addis Ababa. The data collected include four innovation types and four perspectives of firm performance measurement based on BSC approach. The collected primary data through questioner from the factories have been organized, analyzed and presented.

3.4. Population and Sampling Design

3.4.1. Population

Population is defined as the total collection of elements under study whereby references must be made according to Cooper and Schindler (2008).The total population of this study is the garment firms in Addis Ababa City. Based on the information obtained from ETIDI & ministry of industry the garment factories categorized in to three levels; large, medium and small scales. The factory with 1.5milion capital, more than 100 workers and used power driven machineries is consider as large scale garment factory. The factory in between 1-1.5million capital, 50-100 workers and used power driven machineries is considered as medium scale garment factory and the factory below 1millon capital and below 50 workers considered as small scale garment factory.

Accordingly the total population of garments in Addis Ababa is 222. From this total garments in the city, only 69 large & medium scale garments were selected to be studied. As this thesis is aimed to examine the effect of innovation on the firms' performance, firms need huge investment, time, experience and the forth for R&D, and to introduce innovation activities, and implement innovation activities. Since the small scale garment firms are not capacitated enough with capital and experience, it is expected that they could not to invest more for innovation adoption and implementation as needed. For this rationality, the small scale garment enterprises were purposely excluded from this research as they are not well established to provide reliable information on the research topic.

3.4.2. Sampling Design

In research, sampling procedure may be defined as a systematic process of individuals for a study to represent the larger group from which they are selected (Cooper and Schindler, 2008). In general sample can be defined as the method of selecting a portion of the population for conducting a study in order to represent the population adequately since it is impossible to take the entire population because of time, financial factors and errors which can discourage the

researcher and lead him to surrender the study. This study was utilized purposive sampling design.

3.4.3. Sampling Frame

Sampling frame is an objective list of the population from which the researcher can select according to, Cox and Hassard (2005). The sampling frame of the study was taken all the garment enterprises which located in Addis Ababa, Ethiopia.

3.4.4. Sampling Technique

The sampling method used in drawing samples from a population was driven by the objectives of the research activity. The sampling process was to be guided by the parameters in the population in line with specific objectives of the study (Cooper and Schindler, 2011). The study adopted purposive sampling technique to ensure that large and medium garment enterprises could figure out the expected result. Structured questionnaires were used to obtain the necessary data.

3.5. Specifications of the Research Model

To examine the effect of innovation types on garment firms' performance and the effect of interactions between innovation types and control variables on the same relationship, multiple regressions were applied with the following model.

$$\mathbf{Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots\ldots + \beta_n X_{ni} + \varepsilon_i}$$

Where: Y_i is dependent variable for i^{th} observation;

X_i is independent variable for i^{th} observation;

B_0 is the intercept;

β_n are regression coefficients;

ε_i is the error term for i^{th} observation

This basic regression model is rewritten in terms of the variables used in this research to show the relationship among them based on the research conceptual frame work.

$$\mathbf{FirmP = \beta_0 + \beta_1 PI + \beta_2 PROI + \beta_3 MKI + \beta_4 ORG + \beta_5 Ex + \beta_6 Sz + \beta_7 Ag + \varepsilon_i}$$

$$FP = \beta_0 + \beta_1 PI + \beta_2 PROI + \beta_3 MKI + \beta_4 ORG + \beta_5 Ex + \beta_6 Sz + \beta_7 Ag + \varepsilon_i$$

$$CP = \beta_0 + \beta_1 PI + \beta_2 PROI + \beta_3 MKI + \beta_4 ORG + \beta_5 Ex + \beta_6 Sz + \beta_7 Ag + \varepsilon_i$$

$$IBPP = \beta_0 + \beta_1 PI + \beta_2 PROI + \beta_3 MKI + \beta_4 ORG + \beta_5 Ex + \beta_6 Sz + \beta_7 Ag + \varepsilon_i$$

$$LGP = \beta_0 + \beta_1 PI + \beta_2 PROI + \beta_3 MKI + \beta_4 ORG + \beta_5 Ex + \beta_6 Sz + \beta_7 Ag + \varepsilon_i$$

Where:

FirmP = Firm Performance (Dependent variable)

FP = Financial Performance (Dependent variable)

CP = Customer performance (Dependent variable)

IBPP = Internal Business Process Performance (Dependent variable)

LGP = Learning & Growth Performance (Dependent variable)

PI= Product Innovation (Independent variable)

ProcI = Process Innovation (Independent variable)

MKI = Marketing Innovation (Independent variable)

ORG = Organizational Innovation (Independent variable)

Ex = Export Orientation (Control variable)

Sz = Size of the firm (Control variable)

Ag = Age of the firm (Control variable)

3.6. Techniques of Data Analysis

The quantitative data collected using structured questionnaire was filled by edited, coded and entered in to SPSS v24. The cronbach's alpha values of the dimensions of the both measures were calculated for the reliability of the scales. The data were analyzed through factor analysis. Factor analyses were conducted to figure out factor loadings of each dimension. Following the factor analysis a multiple regressions were performed in order to analyze the deterministic effect of the explanatory variables on the dependent variables by employing OLS.

3.7. Measurement of Variables

This study uses the questionnaire developed by Gunay (2007) from the typology of Oslo Manual (OECD, 2005) for the four types of innovation measure to exploring the relationship between

innovation types and innovation barriers in Turkish SMEs. Karabulut (2015) also adopted the same questionnaire from this author while studying the effect of the four innovation types on the four firm performance dimensions. Therefore, the researcher preferred to use this questionnaire in this study as the questions of the measure of the four innovation types based on their appropriateness. The questionnaire regarding the firm performance measure is determined based on the BSC approach in study. In this study, the five point Likert scale was used to measures both innovation and firm performance. Innovation types' concept is composed of product, process, marketing and organizational innovations. While the concept of firm performance composed of four perspectives namely the financial, customer, IBP and L&G perspectives. There are seven questions to determine product innovation, four questions to determine process innovation, five questions to determine marketing innovation and four questions to determine organizational innovation. There are seven questions determining financial performance, four questions determining customer performance, nine questions determining internal business processes performance and six questions determining learning and growth performance.

For each question regarding the four innovation types and the four firm performance perspectives, the five-point Likert scale were represented by the number 1 to 5. Thus, the respondent's degree of agreement was represented with the five options rating scales given for both categories.

The questions about firm performance are asked employing a 5-point Likert scale, in which 1= extremely unsuccessful, 2= unsuccessful, 3=similar, 4=successful and 5=extremely successful. Similarly, for innovation measures, the respondents are asked to indicate on a 5-point Likert scale to what extent the related applications and practices were implemented in their organizations.

Table3. 1 Summary on Measurement of Variables

No.	Variables		Items	Scale	Sources
1	Independent Variables	Product Innovation	-Increasing manufacturing quality in components and materials of current products -Decreasing manufacturing cost in components and materials of current products -Developing newness for current products leading to improved ease of use for customers and to improved customer satisfaction -Developing new products with technical specifications and functionalities totally differing from the current ones -Developing new products with components and materials totally differing from the current ones	Five points Likertscale with1- not implemented to 5- original /new products were produced/implemented	(Gunay, 2007 ; Gunday,2011 &Karabulut, 2015)
2		Process Innovation	-Determining and eliminating non-value adding activities in production processes -Decreasing variable cost components in manufacturing processes, techniques, machinery and software -Increasing output quality in manufacturing processes, techniques, machinery and software -Determining and eliminating non-value adding activities in delivery related processes -Decreasing variable cost and/or increasing delivery speed in delivery related logistics processes	Five point Likert scale with1- not implemented to 5- new production process were implemented	(Gunay, 2007 ; Gunday,2011 &Karabulut, 2015)
3		Marketing Innovation	-Renewing the design of the current and/or new products through changes such as in appearance, packaging, shape and volume without changing their basic technical and functional features -Renewing the distribution channels without changing the logistics processes related to the delivery of the product -Renewing the product promotion techniques employed for the promotion of the current and/or new products -Renewing the product pricing techniques employed for the pricing of the current and/ or new products -Renewing general marketing management activities	Five point Likert scale with1- not implemented to 5- new Marketing methods/innovations implemented	(Gunay, 2007 ; Gunday,2011 &Karabulut, 2015)

4		Organizational Innovation	-Renewing the routines, procedures and processes employed to execute firm activities in innovative manner -Renewing the supply chain management system -Renewing the production and quality management systems - Renewing the human resources management system -Renewing the in-firm management information system and information sharing practice -Renewing the organization structure to facilitate teamwork -Renewing the organization structure to facilitate coordination between different functions such as marketing and manufacturing -Renewing the organization structure to facilitate project type organization -Renewing the organizational structure to facilitate strategic partnerships and long term business collaborations	Five point Likert scale with1- not implemented to 5- original /new organizational innovations implemented	(Gunay, 2007 ; Gunday,2011 & Karabulut, 2015)
5	**Control Variable**	Export Orientation	Geographical Market of the firm: - Local market - International market	Dummy: 0 for local market & 1 for international market	
6		Firm's size	The firm's total number of employees	-	
7		Firm's age	The time when the firm has established and has been in garment operation	-	
8	**Dependent Variables**	Financial Performance	-Market share -Sales revenues of new products -Profitability -Productivity -Sales revenues of all products -ROI(Return on investment) -Inventory turnover	Five point Likert scale with1-very unsuccessful to 5- very successful	Kaplan and Norton (1996).
9		Customer Performance	-Number of new customers -Sales to new customers -Sales to current customers -Number of customers who left the firm	Five point Likert scale with- very unsuccessful to 5- very successful	Kaplan and Norton (1996).

10		IBP Performance	-Technology for new processes -Ratio of number of new products to total -Technology for new product development -Production costs -Duration of production -Duration to launch a new product -Customer satisfaction -Ratio of on time delivery of products	Five point Likert scale with1 – very unsuccessful to 5- very successful	Kaplan and Norton (1996).
11		L&G Performance	-Employee happiness -Gathering information about new products -Gathering information about customers -Employee turnover rate -Number of employee suggestions -Number of implemented employee suggestions	Five point Likert scale with1 – very unsuccessful to 5- very successful	Kaplan and Norton (1996).

Source: Self extracted, 2020

3.9. Ethical Considerations

The research study focused on the ethical and moral considerations of research in particular the study obtained the necessary approval from the Addis Ababa University to collect information. The respondents participated in the study with and without any form of force or excessive pressure. The researcher maintained high levels of privacy and confidentiality; this are ensure by requiring the informants do not write their names rather pseudo name on the questionnaires, thus remaining anonymous.

CHAPTER FOUR

Results and Discussions

The study has analyzed the effect of the four innovation activities (product innovation, process innovation, marketing innovation and organizational innovation) on the four dimensions of firm performance by applying OLS multiple regression technique. Accordingly the chapter presented the findings of validity, reliability and diagnosis tests as well as the findings and discussion of the result of the multiple regressions in detail.

4.1. Test of Sound Measurement

As per Kothari (2004) sound measurement must meet the tests of validity and reliability. These are the major considerations one should use in evaluating a measurement tool.

4.1.1. Validity

Validity refers to the extent to which a test measures what we actually wish to measure. Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure (Kothari, 2004). Validity is more critical than reliability because if an instrument does not accurately measure what it is supposed to, there is no reason to use it even if it measures consistently. Kothari (2004) suggests that reliable measuring instrument does contribute to validity, but a reliable instrument need not be a valid instrument.

In order to insure instrumental quality of the data the factor analysis is conducted on the 24 items in the 4 dimensions of innovation(product innovation, process innovation, marketing innovation and organizational innovation) and on 25 items in the four dimensions of firm performance (financial performance, customer performance, internal business process performance and learning and growth performance). In order to measure the underlying dimensions associated with 49 items the PCA was conducted employing SPSS v24. Bartlett's test of Sphericity and Kaiser–Mayer–Olkin (KMO) measure of the sampling adequacy of individual variables was used in measuring the constructs validity.

4.1.1.1. Factor Analysis Results of Independent Variables

Regarding the 24 items independent variables in the four dimensions of innovation the result of factor analysis presented in table 1 below indicates that the cumulative variance explained is

69.45%, which is above the acceptable limit of 60% and good for validation. The KMO measure of sampling adequacy is registered to be 0.89 which is an acceptable value and close to 1. It indicates that the data is adequate and appropriate for further investigating. The value of Bartlett test of sphericity is 1060.632 and significant with (p = 0.000). This confirms that there exists sufficient and significant correlation between the variables. It also shows that the variables are suitable for conducting factor analysis (Karabulut, 2015). In addition the factor loadings for the items ranges from 0.50 - 0.81 which is acceptable and confirms a good variance explained by the variables on each factors (Hui & Rajapathirana, 2018). Therefore, the analysis done on the data of independent variables demonstrated that the measurement possessed an acceptable convergent and content validity.

Table4. 1 Factor Analysis Results of Independent Variables

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.888
Bartlett's Test of Sphericity	Approx. Chi-Square	1060.632
	Df	276
	Sig.	.000

Sr. no	Items for Independent Variables Measures	Factors Loading	%Variance Explained
Product innovation measures			49.389
1	Increasing manufacturing quality in components and materials of current products	.743	
2	Decreasing manufacturing cost in components and materials of current products	.709	
3	Developing newness for current products leading to improved ease of use for customers and to improved customer satisfaction	.792	
4	Developing new products with technical specifications and functionalities totally differing from the current ones	.681	

5	Developing new products with components and materials totally differing from the current ones	.700	
Process innovation measures			10.124
1	Determining and eliminating non-value adding activities in production processes	.628	
2	Decreasing variable cost components in manufacturing processes, techniques, machinery and software	.583	
3	Increasing output quality in manufacturing processes, techniques, machinery and software	.580	
4	Determining and eliminating non-value adding activities in delivery related processes	.714	
5	Decreasing variable cost and/or increasing delivery speed in delivery related logistics processes	.802	
Marketing innovation measures			5.540
1	Renewing the design of the current and/or new products through changes such as in appearance, packaging, shape and volume without changing their basic technical and functional features	.616	
2	Renewing the distribution channels without changing the logistics processes related to the delivery of the product	.794	
3	Renewing the product promotion techniques employed for the promotion of the current and/or new products	.720	
4	Renewing the product pricing techniques employed for the pricing of the current and/ or new products	.783	
5	Renewing general marketing management activities	.813	
Organizational innovation measures			4.398
1	Renewing the routines, procedures and processes	.745	

	employed to execute firm activities in innovative manner		
2	Renewing the supply chain management system	.589	
3	Renewing the production and quality management systems	.651	
4	Renewing the human resources management system	.700	
5	Renewing the in-firm management information system and information sharing practice	.721	
6	Renewing the organization structure to facilitate teamwork	.656	
7	Renewing the organization structure to facilitate coordination between different functions such as marketing and manufacturing	.693	
8	Renewing the organization structure to facilitate project type organization	.696	
9	Renewing the organizational structure to facilitate strategic partnerships and long term business collaborations	.753	
Total Variance Explained (%):			69.451

Source: Own Survey, SPSS v24 output, 2020

4.1.1.2. Factor Analysis Results of Dependent Variables

Similarly regarding the 25 items dependent variables in the four dimensions of performance the result of factor analysis revealed that the value of cumulative variance explained exceeds the acceptable limit of 60%, it is registered to be 68.456% confirming that it is fit further validation. The value of the KMO measure is 0.88, which is acceptable since it is over the threshold level of 0.6; it also a confirmation of the adequacy of sampling. The value of Bartlett test of sphericity confirms that there exists sufficient and significant correlation among variables, it's value is 1144.079 at 1% significant level (P=0.000). Furthermore, the factor loadings for the items range from 0.551 to 0.870, confirming the factors are well explained by the variables incorporated. Therefore, the analysis done on the data of dependent variables demonstrated that the measurement possessed an acceptable convergent and content validity.

Table4. 2 Factor Analysis Results of Dependent Variables

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.879
Bartlett's Test of Sphericity	Approx. Chi-Square	1144.079
	Df	300
	Sig.	.000

Sr. no	Items for Dependent Variables Measures	Factors Loading	%Variance Explained
Financial Performance			49.058
1	Market share	.748	
2	Sales revenues of new products	.700	
3	Profitability	.630	
4	Productivity	.769	
5	Sales revenues of all products	.758	
6	ROI (Return on investment)	.870	
7	Inventory turnover	.713	
Customer Performance			7.401
1	Number of new customers	.717	
2	Sales to new customers	.823	
3	Sales to current customers	.753	
4	Number of customers who left the firm	.683	
Internal Business Processes Performance			6.321
1	Technology for new processes	.664	
2	Ratio of number of new products to total	.577	
3	Technology for new product development	.624	
4	Production costs	.593	
5	Duration of production	.763	

6	Duration to launch a new product	.737	
7	Customer satisfaction	.551	
8	Ratio of on time delivery of products	.583	
Learning and Growth Performance			5.685
1	Employee happiness	.745	
2	Gathering information about new products	.683	
3	Gathering information about customers	.742	
4	Employee turnover rate	.641	
5	Number of employee suggestions	.783	
6	Number of implemented employee suggestions	.766	
Total Variance Explained (%):			68.465

Source: Own Survey, SPSS v24 output, 2020

4.1.2. Reliability

The test of reliability is another important test of sound measurement. A measuring instrument is reliable if it provides consistent results (Kothari, 2004). Reliability estimates the consistency of the measurement or more simply, the degree to which an instrument measures the way each times it is used under the same conditions which the same subjects.

To measure the reliability of the constructs the researcher conducts internal consistency reliability using cronbach's alpha. As per (Cramer,D.and Howitt D.,2004) internal consistency reliability is a measure of consistency between different items of the same construct. Cranach's coefficient is the most widely used test for internal consistency of an item making up a scale. Cronbach's alpha coefficients should fall within a range of 0.70 to 1.00 (Sun, Chou, Stacy, Unger and Gallaher, 2007). The Cronbach's alpha for this study is ranges from .826 to .948, which is above the minimum requirement indicating the reliability of the data set. The summary of the scales determining objective areas covering questionnaire are shown in Table 4.3 below:

Table4. 3 Results of the Reliability Statistics

Factors	Cronbach's Alpha	No of Items
Product innovation	.839	5
Process innovation	.846	5
Marketing innovation	.856	5

Organizational innovation	.847	9
Financial performance	.826	7
Customer Performance	.839	4
Internal business process performance	.948	8
Learning and growth performance	.826	6

Source: Own Survey, SPSS v24 output, 2020

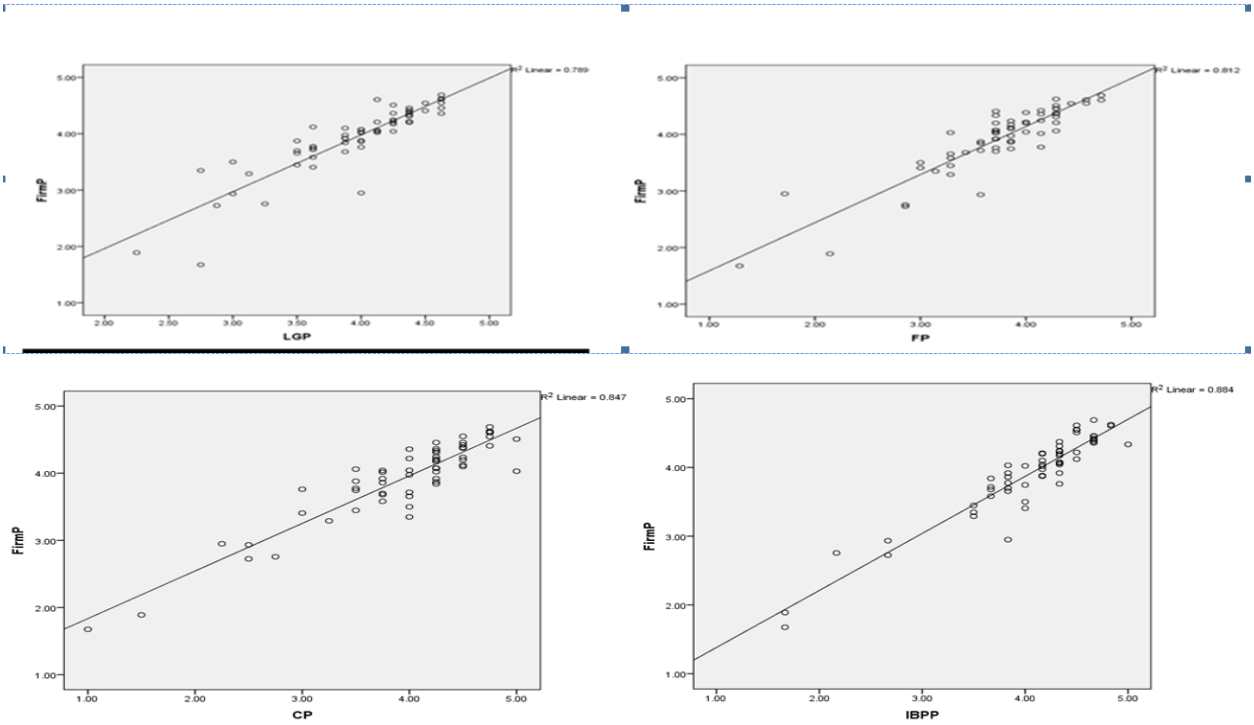
4.2. Diagnosis Test Result

Diagnosis tests are performed aiming to avoid invalid results. The diagnosis tests result revealed that the model has passed all the tests i.e. have no serial correlation, heteroscedasticity, multi-colinarity and non- linearity. It has also fulfilled the assumption of normality.

4.2.1. Linearity

In order to apply a multiple regression with ordinary least square (OLS) the relationship that exists between the dependent variable and the independent variable need to be linear. In this study among the various methods of testing linearity scatter plot diagram with line of fit applied to see whether the relationship is linear.

Figure4. 1 Scatter Plot with fit Line



Source: Own Survey, SPSS v24 output, 2020

The result of scatter plot diagram with line of fit confirmed that a linear relationship existed between the dependent variable and those independent variables.

4.2.2. Normality

One of the assumptions in multiple regression analysis with ordinary least square (OLS) method is that the sample data is obtained from normally distributed population. This implies that errors are normally distributed, and that a plot of the values of the residuals will approximate a normal curve (Keith, 2006). Although there are various methods of testing for normality of data like PP plot and histogram of the standardized residuals etc., Kolmogorov-Smirnov and Shapiro-Wilktest of normality is more appropriate for it gives the null and alternative hypothesis. The null hypothesis is stated as the sample date is not obtained from not normally distributed population while the alternative hypothesis is the null hypothesis is false. One fails to reject the null hypothesis if the level of significant is above 5%. The result of the normality test of Kolmogorov-Smirnov and Shapiro-Wilkrevealed the p-value for all variables is above 5% confirming the data is obtained from normally distributed population.

Table4. 4 Taste of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Year of Establishment	.189	60	.761	.755	60	.876
Number of Employee	.194	60	.564	.760	60	.512
Geographical Market of the Firm	.382	60	.914	.626	60	.765
PI	.206	60	.710	.862	60	.809
PROI	.259	60	.643	.854	60	.677
MKI	.207	60	.512	.815	60	.567
ORG	.260	60	.911	.747	60	.871
FP	.187	60	.654	.873	60	.541
CP	.184	60	.618	.854	60	.597
LGP	.155	60	.761	.915	60	.731
IBPP	.182	60	.587	.809	60	.683

a. Lilliefors Significance Correction

Source: Own Survey, SPSS v24 output, 2020

4.2.3. Multicollinearity

The problem of Multicollinearty occurs when two or more variables giving rise of the same piece of information are included in the regression model. In other word, Multicollinearty is the result of unnecessary inclusion of related variables. A collinearity diagnostic test was conducted using the regression analysis. Variance inflation factor (VIF) is commonly used to detect multicollinearity. In general, a VIF greater than 10 indicates a multicollinearity problem. An examination of VIF for variables in our model showed that multicollinearity was not a potential problem.

Table4. 5 Variance Inflation Factor Test

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.575	.373		4.222	.000		
PI	.237	.133	.287	1.790	.079	.213	4.705
PROI	.408	.088	.493	4.661	.000	.489	2.044
MKI	.579	.161	.645	3.591	.001	.170	5.899
ORG	-.632	.179	-.578	-3.534	.001	.205	4.889
Year of Establishment	.001	.004	.027	.330	.743	.841	1.190
Number of Employee	.000	.000	.034	.418	.677	.804	1.243
Geographical Market of the Firm	-.061	.104	-.053	-.590	.557	.668	1.497

a. Dependent Variable: FirmP

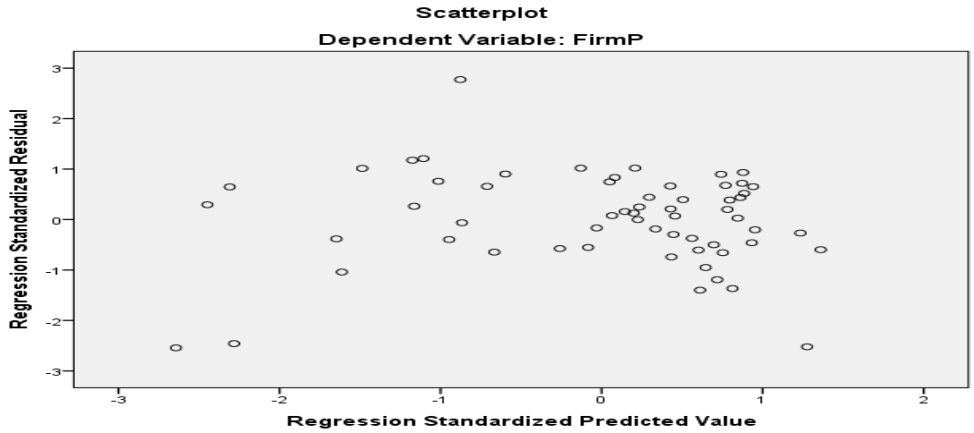
Source: Own Survey, SPSS v24 output, 2020

4.2.4. Homoscedasticity

This assumption tells us that every disturbance has the same variance σ^2whose value is unknown, that is regardless of their size, the dispersion of the error term (disturbance) is the

same. Whenever this assumption is violated we will have the case of hetroscedasticity. Hetroscedasticity often occurs in cross sectional data.

Figure4. 2. Scatter plot of Standardized Residuals



Source: Own Survey, SPSS v24 output, 2020

As it can be seen in the Figure 4.3above the standardized residuals are evenly confirming that the data has no heteroscedasticity problem.

4.2.5. Autocorrelation

This assumption tells us that the error term at time t is not correlated with the error at any other point of time. This implies that when observations are made over time, the effect of the disturbance occurring at one period dose not carry-over in to another period. The assumption of non autocorrelation is plausible in the case of cross-sectional data. Violation of this assumption frequently occurred in the case of time series data. Durbin-Watson statistic is applied to test the assumption that our residuals are uncorrelated. The value of this statistic can fall in between 0 to 4. For this assumption to be met, the DW value needs to be close to 2. Values below 1 and above 3 are problematic and causes for concern. Therefore the data in this research is free from the problem of autocorrelation since the Durbin-Watson statistic is closer to 2.

Table4. 6 Durbin-Watson Statistics

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.846[a]	.716	.677	.34552	2.148

a. Predictors: (Constant), Year of Establishment, Number of Employee, Geographical Market of the Firm, PROI, PI, MKI, ORG

b. Dependent Variable: FirmP

Source: Own Survey SPSS v24 output, 2020

4.3. Regression Analysis

In this study, multiple linear regressions with ordinary least square (OLS) method is employed to find out the effect of the explanatory variables on the dependent variables. The analytical framework of the study consists of four models. For the first model (model 1), the four dimensions of innovation types (product innovation, process innovation, organizational innovation, and marketing innovation) are considered as independent variables while financial performances is a dependent variable. Similarly, customer performance, internal business process performance, learning and growth performance are considered as dependent variables in model 2, model 3 and model 4 respectively while the four dimension of innovation types (product innovation, process innovation, organizational innovation, and marketing innovation) are considered as independent variables. In addition to the four dimension of innovation which are incorporated in the four regression models firm size measured by the total number of employees, firm age which is measured as the number of years since it's establishment and geographical market, where the firm sale its product measured by dummy 0 for local market and 1 for international market are incorporated as control variables. However, as discussed below in (Table 4.7, 4.8, 4.9, & 4.10) for the four models the effect of all the three control variables on garment firm performance is revealed statistically not significant at 5% significance level.

Table4. 7 Regression Analysis Results for Model 1

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.978	.444		2.203	.032
	Year of Establishment	.005	.005	.091	1.006	.319
	Number of Employee	.000	.000	.054	.585	.561
	Geographical Market of the Firm	-.012	.124	-.010	-.096	.924
	PI	.170	.158	.194	1.077	.287
	PROI	.463*	.104	.527	4.443	.000
	MKI	.322	.192	.339	1.681	.099
	ORG	-.294	.213	-.253	-1.382	.173

Dependent Variable: FP

Adjusted R-squared	0.594
Prob(F statistic)	0.000

*Note: *and ** implies rejection of the null hypotheses @1% and @5% critical values respectively.*

Source: Own Survey, SPSS v24 output, 2020

After the regression analysis on model 1, the adjusted R-squared value is revealed to be 0.594 indicating that about 59 percent of the change in the financial performance is explained by changes in the explanatory variables. The regression model is also a good fit to the data as judged by the F test (p-value= 0.000<1 percent). According to the finding of the regression analysis (β = 0.53, p<0.001), only process innovation has strongly positive and statistically significant effect on financial performance at 1 percent significant level. This result supports the working hypothesis ($H1_{b)}$ and it is in line with other findings in literatures (Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016; Ndemezo et al, 2017; Gunday et al, 2011; Massod et al, 2013; Wubben, E et al, 2003 and Mabrouk & Mamoghli et al, 2010). However, the reaming dimensions of innovation types have no significant effect on financial performance at 5 percent

significance level and this result is inconsistent to the previous empirical review findings. Furthermore, the result also indicated that the three control variable (firm age, firm size and geographical market) have no significant effect on financial performance. The organizational innovation has negatively associated to financial performance which was not expected and it is not supports the working hypothesis, it diverges from the previous empirical evidences (Bartz et al, 2016; Camison et al, 2014; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017) and so forth.

Table4. 8 Regression Analysis Results for Model 2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.211	.546		2.219	.031
	Year of Establishment	-.001	.006	-.019	-.211	.833
	Number of Employee	6.207E-005	.000	.013	.143	.887
	Geographical Market of the Firm	-.136	.152	-.091	-.896	.374
	PI	.287	.194	.267	1.479	.145
	PROI	.586*	.128	.544	4.570	.000
	MKI	.705*	.236	.604	2.989	.004
	ORG	-.862*	.262	-.606	-3.294	.002

a. Dependent Variable: CP

Adjusted R-squared0.591

Prob(F-statistic) 0.000

*Note: *and ** implies rejection of the null hypotheses @1%, and @5 critical values respectively.*

Source: Own Survey, SPSS v24 output, 2020

In the regression analysis result of model 2, the variation in the dependent variable is explained 59 percent by the variation in the explanatory variables as indicated by the adjusted R-squared value of 0.591. The result of the F- test (p-value = 0.000<1 percent) confirms that the regression model is a good fit to the data. According to the finding of the regression analysis only process innovation and marketing innovation (β = 0.53 & 0.34 p<0.001) have strongly positive and statistically significant effect on customer performance at 1 percent significant level respectively.

This result supports the working hypothesis (H2b & H2c) and it is consistent with other findings in literatures (Gunday et al, 2011; Massod et al, 2013; Wubben, E et al, 2003; Mabrouk & Mamoghli et al, 2010; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017). However, the product innovation including the control variables prove no significant effect on customer satisfaction or performance at 5 percent significance level. Regarding the unexpected result of organizational innovation as shows in model 2, it has negative effect and statistically significant at 1 percent of significant level and it diverges from the previous empirical evidences (Bartz et al, 2016; Camison et al, 2014; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017) and so forth.

Table4. 9 Regression Analysis Results for Model 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.874	.495		3.784	.000
	Year of Establishment	.001	.005	.020	.211	.834
	Number of Employee	3.419E-006	.000	.001	.009	.993
	Geographical Market f the Firm	-.166	.138	-.127	-1.201	.235
	PI	.350	.176	.374	1.988	.052
	PROI	.408*	.116	.435	3.508	.001
	MKI	.656*	.214	.646	3.068	.003
	ORG	-.833*	.237	-.672	-3.509	.001

a. Dependent Variable: IBPP

Adjusted R-squared0.557
Prob(F-statistic) 0.000

*Note: *and ** implies rejection of the null hypotheses @1%, and @5 critical values respectively.*

Source: Own Survey, SPSS v24 output, 2020

As depicted in the table 4.9 above, the value of the adjusted R-squared 0.557 shows that the explanatory variables have explained about 56 percent of the variance in the internal business process performance. The result of the F-test with (P-value=0.00) indicates that the model is a

good fit to the data. According to the regression analysis result from model 3, process innovation and marketing innovation (β = 0.44 & 0.65 p<0.001) have been proven to have strongly positive and statistically significant effect on internal business process performance both at 1 percent significant level respectively. This result supports the working hypothesis ($H3_b$ & H3c) and it is consistent with previous empirical findings (Gunday et al, 2011; Massod et al, 2013; Wubben, E et al, 2003; Mabrouk & Mamoghli et al, 2010; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017). However, the unexpected result of organizational innovation as shows in model 3, it has negative effect and statistically significant at 1 percent of significant level. This result diverges from the previous empirical findings (Bartz et al, 2016; Camison et al, 2014; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017) and so forth.

In the other hand product innovation and the three controlled variables have been proven for not having statistically significant effect on the internal business process performance at 5 percent significance level.

Table4. 10 Regression Analysis Results for Model 4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.237	.403		5.546	.000
	Year of Establishment	.001	.004	.014	.141	.888
	Number of Employee	.000	.000	.071	.700	.487
	Geographical Market f the Firm	.068	.112	.068	.610	.544
	PI	.143	.143	.196	.995	.324
	PROI	.176	.095	.242	1.863	.068
	MKI	.632*	.174	.799	3.626	.001
	ORG	-.539*	.193	-.560	-2.790	.007

a. Dependent Variable: LGP

Adjusted R-squared0.514
Prob(F-statistic) 0.000

*Note: *and ** implies rejection of the null hypotheses @1%, and @5 critical values respectively.*

Source: Own Survey, SPSS v24 output, 2020

After the regression analysis of model 4, the value of the adjusted R-squared 0.514 and F-statistics=0.00 shows that 51 percent of the variation in the learning and growth performance is explained by the variation in the explanatory variables and the model is a good fit to the data respectively. Similarly the findings of the regression analysis revealed that only marketing innovation ($\beta = 0.80$ $p<0.001$) has strongly positive and statistically significant effect on learning and growth performance at 1 percent significant level. This result supports the working hypothesis (H4c) and it is consistent with previous empirical findings (Gunday et al, 201; Massod et al, 2013; Wubben, E et al, 2003; Mabrouk & Mamoghli et al, 2010; Atalay et al, 2013; Tuan et al, 2016 and Ndemezo et al, 2017). However, this result diverges from the previous result Karabulut et al, (2015) revealed that marketing innovation negatively associated with learning and growth performance. The unexpected result of organizational innovation inverse relationship also resulted with learning and growth performance as shows in model 4, but statistically significant at 1 percent of significant level. This result diverges from the previous empirical findings (Bartz et al, 2016; Camison et al, 2014; Atalay et al, 2013; Tuan et al, 2016 and Ndemezo et al, 2017) and so forth.

In the other hand product innovation, process innovation and the three controlled variables have been proven for not having statistically significant effect on the learning and growth performance at 5 percent significance level.

Table 4.11 Summary of Hypothesis Testing

	Hypotheses	***Result***
H1a	*There is a positive and significant relationship between product innovation and firm's financial performance in that firms with higher level of product innovation will have higher financial performance.*	Rejected
H1b	*There is a positive and significant relationship between process innovation and firm's financial performance in that firms with higher level of process*	Accepted

	innovation will have higher financial performance.	
H1c	*There is a positive and significant relationship between marketing innovation and firm's financial performance in that firms with higher level of marketing innovation will have higher financial performance.*	Rejected
H1d	*There is a positive and significant relationship between organizational innovation and firm's financial performance in that firms with higher level of product innovation will have higher financial performance.*	Rejected
H2a	*There is a positive and significant relationship between product innovation and firm's customer performance in that firms with higher level of product innovation will have higher customer performance.*	Rejected
H2b	*There is a positive and significant relationship between process innovation and firm's customer performance in that firms with higher level of process innovation will have higher customer performance.*	Accepted
H2c	*There is a positive and significant relationship between marketing innovation and firm's customer performance in that firms with higher level of marketing innovation will have higher customer performance.*	Accepted
H2d	*There is a positive and significant relationship between organizational innovation and firm's customer performance in that firms with higher level of organizational innovation will have higher customer performance.*	Rejected
H3a	*There is a positive and significant relationship between product innovation and firm's IBP performance in that firms with higher level of product innovation will have higher IBP performance.*	Rejected
H3b	*There is a positive and significant relationship between process innovation and firm's IBP performance in that firms with higher level of process innovation will have higher IBP performance.*	Accepted
H3c	*There is a positive and significant relationship between marketing innovation and firm's IBP performance in that firms with higher level of marketing innovation will have higher IBP performance.*	Accepted

H3d	*There is a positive and significant relationship between organizational innovation and firm's IBP performance in that firms with higher level of organizational innovation will have higher IBP performance.*	Rejected
H4a	*There is a positive and significant relationship between product innovation and firm's L&G performance in that firms with higher level of product innovation will have higher L&G performance.*	Rejected
H4b	*There is a positive and significant relationship between process innovation and firm's L&G performance in that firms with higher level of process innovation will have higher L&G performance.*	Rejected
H4c	*There is a positive and significant relationship between marketing innovation and firm's L&G performance in that firms with higher level of marketing innovation will have higher L&G performance.*	Accepted
H4d	*There is a positive and significant relationship between organizational innovation and firm's L&G performance in that firms with higher level of organizational innovation will have higher L&G performance.*	Rejected

Source: Compiled from findings, 2020

CHAPTER FIVE

Conclusion and Recommendation

In this research the relationship between innovation types and garment firms performance has been investigated as direct cause-effect interaction with consisting three control variables. The reliability and validity of items in each variable were tested. And to test the research hypotheses linear multiple regression analysis has been applied. In this section summary of findings, conclusions, recommendations based on the research findings and the limitation of the study and some suggestions for further investigations are presented as follows:

5.1. Summary of the Findings

As discussed above, this study has conducted to examine the effect of innovation types on purposely selected large and medium garment firms in Addis Ababa. Before regressions analyses were conducted, factor analysis and diagnosis tests had tested and the result indicated to proceed for regressions analysis. The regression analyses were conducted with four linear regression models. The effect of the control variables - firm age, firm size and export orientation on firm performance were examined in each model and were not statistically significant. Basically, the effect of the four types of innovation has analyzed for each of the four dimensions of firm performance measurement and resulted as follows: Process innovation has positive and statistically significant effect ($\beta = 0.53$, $p<0.001$, $R^2 = 0.594$; $\beta = 0.54$, $p<0.001$, $R^2 = 0.591$; $\beta = 0.44$, $p<0.001$, $R^2 = 0.557$) on financial performance, customer performance & internal business process performance respectively and marketing innovation has also positive and statistically significant effect ($\beta = 0.60$, $p<0.001$, $R^2 = 0.591$; $\beta = 0.65$, $p<0.001$, $R^2 = 0.557$; $\beta = 0.80$, $p<0.001$, $R^2 = 0.514$) on customer performance, internal business process performance & learning and growth performance respectively. This result supports the working hypothesis and it converges to other findings in literatures (Gunday et al, 2011; Massod et al, 2013; Wubben, E et al, 2003; Mabrouk & Mamoghli et al, 2010; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017). Yet, the effect of product innovation has not been statistically significant on all the dimensions of firm performance measurement at 5 percent significance

level. Even though the nature of the business which undertaken in the sector matters, this result not supports the working hypothesis and diverges from the previous empirical review results (Gunday et al, 2011; Massod et al, 2013; Wubben, E et al, 2003; Mabrouk & Mamoghli et al, 2010; Atalay et al, 2013; Karabulut et al, 2015; Tuan et al, 2016 and Ndemezo et al, 2017). Similarly, the effect of organizational innovation is not consistent to thus previous empirical findings which has resulted a negative effect in all the four dimensions of firm performance measurement and statistically significant at 5 percent significance level.

Therefore, findings from those regression analyses depict that garment firms focus more on process and marketing innovation than product innovation. This might be from the fact that garment firms are not capital intensive and tend more of to process and marketing innovation rather than new product development. The reason why the effect of product innovation reflected statistically not significant in all the four dimensions of firm performance measurement is may be due to nature of the business sector. The unexpected result emerged from this study is the negative and significant effect of organizational innovation in all the four dimensions of firm performance measurement. This result might be emanated from the smallness of the sample size and may change if the sample size became bigger.

Moreover, in terms of level of effect of the four innovation activities marketing innovation has higher level effect on customer performance, internal business process performance and learning and growth performance, while process innovation has higher level effect on financial performance, customer performance and internal business performance in a sequence. These findings reflect a fact that firms in the garment sector concentrate their innovative effort on marketing and process innovation than on product innovation.

5.2. Conclusions

This study focuses on the effect of the four innovation activities on the four dimensions of firm performance of 60 garment firms in Addis Ababa city. After data analyses through quantitative methodologies of reliability, validity, diagnosis test, factor analysis and regression analysis, the result of this study illustrates that:

The process innovation has positive and significant effect on financial performance, customer performance and internal business processes performance and marketing innovation has positive and significant effect on customer performance, internal business process performance and learning and growth performance. However, product innovation has no statistically significant effect in all the dimensions of firm performance measurement. On the other hand organizational innovation has negative effect on all the four dimensions of firm performance. This result is inconsistent with the theory, the relationship of innovation and firm performance which is also unexpected. This may resulted from the smallness of the sample size and may improve as the sample size increases. Besides, studies revealed that the sector has ineffective & inefficient management system, weak team spirit, poor quality awareness, and poor relationship with suppliers.

As process innovation and marketing innovation found to have positive and statistically significant effect on most of the dimensions of firm performance and it can be concluded that higher level of process innovation and marketing innovation lead to higher level of firm performance.

On the other hand the main reason for product innovation has no significant effect on all dimensions of firm performance may be due to the characteristics of the garment firms. Garment firms are not usually capital intensive and tend focus more on process innovation and marketing innovation. The sectors have been producing their products based on orders from their customers and stated specifications for the products rather to develop new products and provide to the market.

Finally, the effect of process and marketing innovations are observed to be high on most the dimensions of firm performance, and therefore it can be concluded that these two innovation types are important in terms of bringing better performance for garment firms.

5.3. Recommendations

Based on the study finding and conclusion driven the following main recommendations are forwarded:

- The findings of this study revealed that most of the dimensions of firm performance are strongly impacted from process innovation. Next to process innovation, marketing innovation has strong positive and significant contribution on the three innovation dimensions (CP, IBPP and LGP), meaning these two innovation types are more important for garment firms. Therefore, garment firms should give special emphasis for process and marketing innovations in order to assure better performance.
- The effect of each innovation types on the four dimensions of firm performance may vary with the nature and types of firms accordingly firms should to identify the appropriate innovation types and apply them with due emphasis for achieving higher performance.
- Innovation activities are proven to have a significant role in enhancing firm performance in this study. Therefore, firms have to invest on innovation as well as create an environment that encourages innovative thoughts among managers and employees.
- In Ethiopia context, the labor forces needed for garment firms are not well educated and in return they gain very low fee which makes them demoted and not grateful to accept and perform the new innovative activities and reforms introduced by the firm appropriately. Hence, the government and other concerned parties should provide adequate regulation on employee recruitment and treatment on this sector.
- These garment sectors in local context are highly focused on producing based on order and specifications from their actual customers rather to produce new fashion products which lead it to be competent in the today's competitive global market. For that matter the government should provide a plate form and support for the sector to conduct R&D and develop new products and promote it as well.
- The sector also should give special attention for its management system or organizational structure since studies revealed that weak leadership, ineffective & inefficient management structure, lack of teamwork, poor quality awareness, and poor relationship with suppliers are identified.

5.4. Suggestions for Future Research

This study has provided an empirical evidence of the relationship between innovation and the four dimensions of firm performance by taking the case of garment firms. However, this study is not without limitation, the sample size for this study is not large enough due to time &financial constraints.

Therefore, researchers are expected to examine the relationship between innovation types and firm performance by taking larger sample size. Researches in this area is very limited in Ethiopia and as the effect of innovation activities on firm performance vary through firm nature and firm type, other researchers are expected to conduct more study broadly on different manufacturing firms through covering different geographical areas or at national context.

Further, researches are needed for interlinking of innovation types with several mediator and moderator variables and assess its impact on manufacturing sectors performance. In addition researches are expected to be conducted through employing mixed research approach and longitudinal or time series data to see the actual cause – effect relationship between innovation types and firms performance in Ethiopia context.

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ANNEX I: QUESTIONNAIRE

Addis Ababa University

College of Business and Economics

Department of Management

Questionnaire for General Managers/Owners in the Enterprise

Dear respondent, I am conducting a survey study to get information on **"The effect of Innovation activities on Manufacturing Firms' Performance in Ethiopia: Evidence from Garment Enterprises in Addis Ababa. "**This questionnaire is aimed for academic purpose only. No need of writing your name. I would like to assure that this privacy should strictly be maintained throughout .I would like to appreciate for the willingness and cooperation in undertaking this valuable research, completing the questionnaire and returning it.

Thank you for your cooperation in advance!

Note; Under each measurement variables there are at least five questions and respondents are expected to put "√" sign on one answer inside the box based on the above five Likert scales.

1. Organizational Information

1.1. For how long the company has been in garment factory operation? _____

1.2. Total number of employees: _____ Male _____ Female _____

1.3. Geographical Market of the firm?

Local market □ International market□ Both Local & International market □

2. This survey collects information on your enterprise's innovation activities and its impact on your firm's performance during the last three years (2016 to 2018).

An innovation is the introduction of a new or significantly improved product, process, organizational method, or marketing method over what was previously used or sold by your enterprise.

The following set of statements describes your general feelings towards Innovation types' introduction/implementation to what extent were the innovations activates implemented in your organization in the last three years (2016-2018) related to the following kinds of activities? (Five-point scales ranging from 1='not implemented', 2='imitated from national markets',

3='imitated from international markets', 4='current (products, processes, marketing practices& organizational practices) were improved', 5='original (product, process, marketing & organizational) innovations were implemented'.

2.1. Product innovation measures:

(1) Not implemented	(2) Imitated from national markets	(3) Imitated from international markets	(4) Current products were improved	(5) Original product innovations were implemented				
Q #	Variables on product innovation measures			Measurement scale				
				1	2	3	4	5
1	Increasing manufacturing quality in components and materials of current products							
2	Decreasing manufacturing cost in components and materials of current products							
3	Developing newness for current products leading to improved ease of use for customers and to improved customer satisfaction							
4	Developing new products with technical specifications and functionalities totally differing from the current ones							
5	Developing new products with components and materials totally differing from the current ones							

2.2 Process innovation measures:

(1) Not implemented	(2) Imitated from national markets	(3) Imitated from international markets	(4) Current processes were improved	(5) Original process innovations were implemented				
Q #	Variables on process innovation measures			Measurement scale				
				1	2	3	4	5
1	Determining and eliminating non-value adding activities in production processes							
2	Decreasing variable cost components in manufacturing processes, techniques, machinery and software							
3	Increasing output quality in manufacturing processes, techniques, machinery and software							

4	Determining and eliminating non-value adding activities in delivery related processes					
5	Decreasing variable cost and/or increasing delivery speed in delivery related logistics processes					

2.3 Marketing innovation measures:

(1) Not implemented	(2) Imitated from national markets	(3) Imitated from international markets	(4) Current marketing practices were improved	(5) Original Marketing innovations were implemented

Q #	Variables on Marketing innovation measures	Measurement scale				
		1	2	3	4	5
1	Renewing the design of the current and/or new products through changes such as in appearance, packaging, shape and volume without changing their basic technical and functional features					
2	Renewing the distribution channels without changing the logistics processes related to the delivery of the product					
3	Renewing the product promotion techniques employed for the promotion of the current and/or new products					
4	Renewing the product pricing techniques employed for the pricing of the current and/ or new products					
5	Renewing general marketing management activities					

2.4 Organizational innovation measures:

(1) Not implemented	(2) Imitated from national markets	(3) Imitated from international markets	(4) Current organizational practices were improved	(5) Original organizational innovations were implemented

Q #	Variables on Organizational innovation measures	Measurement scale				
		1	2	3	4	5
1	Renewing the routines, procedures and processes employed to execute firm activities in innovative manner					
2	Renewing the supply chain management system					

3	Renewing the production and quality management systems					
4	Renewing the human resources management system					
5	Renewing the in-firm management information system and information sharing practice					
6	Renewing the organization structure to facilitate teamwork					
7	Renewing the organization structure to facilitate coordination between different functions such as marketing and manufacturing					
8	Renewing the organization structure to facilitate project type organization					
9	Renewing the organizational structure to facilitate strategic partnerships and long term business collaborations					

- Under this section respondents are asked to rate the level of achievement of each firm performance kinds in their organizations follows in the last three years compared to the previous years;

2.5 Financial Performance

(1) Very Unsuccessful	(2) Unsuccessful	(3) Similar	(4) Successful	(5) Very successful				
Q #	Variables on firm's financial performance measures			Measurement scale				
				1	2	3	4	5
1	Market share							
2	Sales revenues of new products							
3	Profitability							
4	Productivity							
5	Sales revenues of all products							
6	RO I(Return on investment)							
7	Inventory turnover							

2.6 Customer Performance

(1) Very Unsuccessful	(2) Unsuccessful	(3) Similar	(4) Successful	(5) Very Successful			
Q #	variables on firm's customer performance measures		Measurement scale				
			1	2	3	4	5
1	Number of new customers						
2	Sales to new customers						
3	Sales to current customers						
4	Number of customers who left the firm						

2.7 Internal Business Processes Performance

(1) Very Unsuccessful	(2) Unsuccessful	(3) Similar	(4) Successful	(5) Very Successful			
Q #	Variables on firm's internal business process performance measures		Measurement scale				
			1	2	3	4	5
1	Technology for new processes						
2	Ratio of number of new products to total						
3	Technology for new product development						
4	Production costs						
5	Duration of production						
6	Duration to launch a new product						
7	Customer satisfaction						
8	Ratio of on time delivery of products						

2.8 Learning and Growth Performance

(1) Very Unsuccessful	(2) Unsuccessful	(3) Similar	(4) Successful	(5) Very Successful

Q #	Variables on firm's learning and growth performance measures	Measurement scale				
		1	2	3	4	5
1	Employee happiness					
2	Gathering information about new products					
3	Gathering information about customers					
4	Employee turnover rate					
5	Number of employee suggestions					
6	Number of implemented employee suggestions					

Thank you! For your cooperation!