
**ST.MARY'S UNIVERSITY**

**SCHOOL OF GRADUATE STUDIES**

# FACTORS AFFECTING THE PERFORMANCE OF MANUFACTURING INDUSTRY OPERATION IN THE CASE OF FIRMS OPERATING IN OROMIA SPECIAL ZONE SURROUNDING FINFINE

**By**

**TESFAYE ABEBE GELETU**

**ID.N. SGS/0102/2006**

**JUNE, 2015**

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**A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTERS OF BUSINESS ADMINISTRATION (GENERAL)**

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**APROVED BY BOARD OF EXAMINERS**

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# LIST OF ABBREVATIONS AND ACRONYMS

| | |
|---|---|
| AMT | Advanced Manufacturing Technology |
| BIUDO | Bureau of Industry & Urban development of Oromia |
| FDRE | Federal Democratic Republic of Ethiopia |
| FRMSEDA | Federal and Regional Micro and Small Enterprise Strategy |
| GTP | Growth and Transformation Plan |
| MoTI - | Ministry of Trade and Industry |
| MSE | Micro and Small Enterprise |
| MSEDSE | Micro and Small Enterprise Development Strategy of Ethiopia |
| MUDC | Ministry of Urban Development and Construction. |
| OIC | Oromia Investment Commission |
| OP | Organizational Performance |

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## *Abstract*

*Manufacturing Industries are driving forces for economic growth, job creation and poverty reduction in developed and developing countries. Ethiopia is one of the countries to enhance manufacturing industry operation. But the growth of the manufacturing industry is not as agriculture. This study was conducted in Oromia Especial Zone Surrounding Finfine with the purpose of analyzing the factors that affects the performance of manufacturing industries operation. To achieve the objective of the study 168 questionnaires were distributed and 161 of them were successfully completed and analyzed using descriptive (percentage, mean, standard deviation) statistics of SPSS analysis. The participants were selected using simple random sampling method. In addition, face-to-face interview were conducted with six town administration government officials from each town 2 totally 12 officials were interviewed through semi-structured interview questions and data were analyzed statistically. The study identified environmental dynamism, Manufacturing technology, strategic flexibility and Lean manufacturing practices were the major factors that affects the performance of manufacturing industries' operation, followed by inadequate infrastructure facilities. Hence, the study concludes that Manufacturing industries in the study area were affected by the above identified Factors. Based on the findings obtained from the study recommendation to respective government bodies and manufacturing industries owners/managers are forwarded. In addition further investigation suggested for interested researchers are forwarded. The study helps to create awareness to manufacturing industries owners and managers, and it will give chance for others who are interested to conduct further studies on manufacturing industries performance, and this may add some value to the existing body of knowledge related to the issue of manufacturing industries operation.*



**Keywords**: *Industry, manufacturing, manufacturing industry*

# CHAPTER ONE

# INTRODUCTION

## 1.1. Background of the study

The modern business manager operates in a more dynamic environment. The change in the environment has been rapid and unpredictable. Economic variables have been complex both in form impact on the practice of business. The emergence of modern manufacturing has led to dramatic changes in the structure of the world economy and to sustained increases in the growth of labor productivity and economic welfare (Maddison, 2001, 2007a). This implies Manufacturing firms contribute a large share in any country's economy.

The current business organizations operate in a dynamic environment. Particularly, manufacturing firms face stiff competition both from global and local contexts. Nowadays, there is a great interest among practitioners and academicians to find out the most important factors that determine the successful performance of manufacturing firms (Duncan, 1972 and Grant, 1999).

Organizational performance (OP) has been a source of influence to the actions taking by companies and the degree to which an organization realizes its goals as well as the stated objectives of the organization through the strategies and policies of the organization (Folan & Browne, 2005; Etzioni, 1964). The idea of OP is fallen on the position or premise that it is a combination of productive assets made up of human, physical, and capital resources, for the major reason of fulfilling a dream, vision or accomplishing a shared purpose (Barney, 2002; Carton & Hofer, 2006). OP is also viewed as the measure of how a manager utilizes the resources of the organization efficiently and effectively to accomplish the goals of the organization as well as satisfying all the stakeholders (Jones & George, 2009).

Ethiopia is one of the developing countries which have taken measures to enhance the operation of manufacturing industries performance by considering its contribution to the overall development, employment and poverty alleviation. In this regard, the Federal and Regional Micro and Small Enterprise Development Agencies (FRMSEDA) were established by regulation No.33/1998 to utilize the local raw materials, creation of production, job opportunity and the enhancement of the development of micro to large industries are some of the efforts done by the governments MUDC( 2013). Besides, UNDP (2012) indicated that the development of micro to large industries is the key components of Ethiopia's industrial policy direction that contribute to the industrial development and economic transformation, and the growth and transformation plan (GTP) emphasizes the need of industries to create wealth, jobs and reduce poverty. Based on these efforts the government has tried to promote the development of the sector through workable laws and regulation.

Oromia Special Zone surrounding Finfinne is one of the twelve zones in the region; it has six districts and eight town administration. The total area of a Zone is 6,480.632 $km^2$ and the total population is 996,787 out of this 423,787 (42.52%) are living in rural. The rural economy of the zone is predominantly by agriculture which constitutes more than 70% of the economy. The towns'/ urban economy/ is predominantly based on industrial investment and service giving activities, like manufacturing and construction industry, services like hotel, retailer, transport and petty farming around there garden. The composition of medium and large scale industries sector is limited to private industries and the type is textile, plastic, food processing, agro-industry and manufacturing etc. (Source: Oromia Special Zone Urban and Industry Development Office). Even if governments support manufacturing industries in many ways their performance is still weak. So, this shows there is scant empirical study that assesses factors affecting the performance of manufacturing firms in Ethiopian context.

Thus, this study investigates both internal and external factors that affect the performance of the manufacturing industry operation in Oromia Region at Especial Zone Surrounding Finfinne.

## 1.2. Statement of the Problem

Manufacturing industries play significant role in the creation of employment opportunities and generations of income for quite a large proportion of population. Mead (1998) observes that the health of economy as a whole has strong relationship with the health and nature of industries.

Literature recognizes that internal and external-environmental factors influence the performance of manufacturing firms. Though there are empirical studies that highlight factors affecting the performance of manufacturing firms, there is little work that combines both internal and external environmental factors. In other words, many studies (Hawawini, Subramanian, and Verdin, 2003) argue that external firm factors play a more important role in dictating the influence of firm performance. On the other hand, other studies (Opler and Titman, 1994) suggest that firm specific (internal) factors seem to be the major determinants of the operating performance.

The other gap in the previous studies on the area is related to the unit of analysis. Many studies especially in the study area emphasize only on the determinants of Micro and Small Enterprises' performance and success. But the manufacturing industries, medium and large industries which are the future direction of our countries strategic goal are ignored. This is consistent with (Alkali, 2012) that says, there is little empirical study that emphasizes on large manufacturing firms as unit of analysis. Manufacturing industries have to play an important role in terms of contributing to the reduction of unemployment and to better the standard of living of the people of Ethiopia. This study seeks to find out the factor that affects the performance of manufacturing industries in Oromia Special Zone Surrounding Finfine so as to better understand why and how they can be improved. This will promote adoption of necessary measures and a plan of action to regulate this sector. The significant role of manufacturing industries in the Ethiopian economy suggests that an understanding of their performance is crucial to the stability and health of the economy.

The present study, therefore, fills the aforementioned two gaps by considering both internal and external factors in manufacturing firms regardless of their size.

## 1.3. Research Questions

Accordingly, this study aims to address the following three main research questions.

1. What are the major factors that affect the performance of the manufacturing industry in Oromia Special Zone Surrounding Finfine?
2. Which factor has the greatest influence on manufacturing industries operation in the zone?
3. To what extent infrastructure affects the performance of the manufacturing firms?

## 1.4. Objective of the study

The objective of the research is to identify factors that affects the performance of manufacturing industry operation that are registered as investment projects in Oromia Region Special Zone Surrounding Finfinne , and it will be designed to achieve the following general and specific objective.

### 1.4.1. General objective

To find out the various factors that affects the performance of manufacturing industry operation and to recommend alternative solution.

### 1.4.2. Specific objective

1. To identify the major factors those affect the performance of the manufacturing industry.
2. To find the most influencing factors that affects the performance of the manufacturing industry operation.
3. To recommend solutions that can help to improve the identified factors of manufacturing industries operation..

## 1.5. The significance of the study

For socio-economic development of any country, a strong Industrial base is necessary. The natural resources need to be developed and utilized both as input to industrial production and as direct products for the social well-being of the citizen. To realize this, Government for the past one and half decades, focused in its industrial policy mainly on the promotion and establishment of small and medium industries to achievement import substitution process. Even if in the past in this sector different changes are registered still know in our country manufacturing industries operate under various conditions and constraints, which need a serious attention to perform like the direction, set by the government in its strategy.

So, the finding of this work enables to develop awareness for the regional administration , zonal and town government officials , owners and other stake holders about the factors that hiders the performance of manufacturing industries in Oromia region special zone surrounding Finfine.

As far as the knowledge of researchers concerned, there are no research works done in the zone focusing on the manufacturing industries. Therefore, this may give chance for others who are interested to know factors that affect the performance of manufacturing industries to make farther studies on the subject and this may add something of value to the existing body of knowledge related to the issue of manufacturing industries management.

## 1.6. Delimitation/ scope of the study

The study of factors affecting the performance of manufacturing industries, where it is difficult area to get relevant literature on the subject, can be both expensive and frightening tasks. If the research includes all the industries found in the region it would be more effective and beneficial. But to conduct the research with a broader scope and to make it more manageable is difficult due to some constraints such as shortage of time,

financial constraint, lack of manpower to collect the data and unwillingness of the respondents to respond on time to questionnaires. So defining of the area of study is very important. The study is therefore limited to Manufacturing industries operating in Oromia regional State, operating in special zone surrounding Finfine that are registered as investment projects in the zone. For the purpose of this study, a sample of 168 companies will be surveyed for their business conditions, experience, constraints and expectations. However it is easy to use the result of this research to gain insight into the whole industry.

## 1.7. Definition of terms and concepts

- **Industry:** means any systematic activity carried on by co-operation between an employer and his workmen (whether such workmen are employed by such employer directly or through any agency, including a contractor) for the production, supply or distribution of goods or services with a view to satisfy human wants or wishes. **Industry** refers to an organized human skills and efforts to produce something more valuable and useful from the gifts of natural resources and primary products. (Source: Manual of BIUD of Oromia, Design & Construction Department Industry Development & Construction Capacity Building Process)

- **Manufacturing:** can be defined as the use of tools and labor to make things for use or sale. The term may refer to a range of human activity, from handicraft to high tech, but is most commonly applied to industrial production in which raw materials are transformed into finished goods on a large scale. Whether it is clothing, metal work, computers or automobiles, food and drink, athletic gear, medicine or cosmetics, virtually everything we use on a daily basis is manufactured. It refers to changing of raw materials into products of more value. Example- changing of wood into pulp. (Source: Manual of BIUD of Oromia,

Design & Construction Department Industry Development & Construction Capacity Building Process)

- **Manufacturing industry** refers to any business that transforms raw materials into finished or semi-finished goods using machines, tools and labor. Manufacturing sectors include production of food, chemicals, textiles, machines and equipment etc. **(Source:** Standard Industrial Classification)

- **Performance** is a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results (Lebans & Euske 2006 after Kaplan & Norton, 1992).

- **Lean manufacturing:** is an integrated approach to manufacturing products/services with the purpose of achieving superior quality, timely delivery and competitive cost for customer satisfaction.

- **Lean production** refers to a business model that emphasizes on meeting customers' expectations by delivering quality products at the least cost when required. The Lean Aerospace Initiative (2002) has defined Lean thinking as the dynamic, knowledge driven and customer focused process through which all people in a defined enterprise continuously eliminate waste with the goal of creating value. According to Bruce and Larco (1999) Lean is both a concept that can be viewed and implemented at a number of level and also a commitment process of relentless improvement that can significantly impact upon an organizations health, wealth and competitiveness.

- **Strategic flexibility** refers to the company's agility, to its capacity to adapt and respond in a timely and appropriate manner to substantial, uncertain, and fast occurring environmental changes that have a meaningful impact on the organization's performance (Roca-Puig et al., 2005; Aaker and Mascarenhas 1984; Golden and Powell, 2000; Upton, 1995). Consequently, strategic flexibility can be conceptualized in two ways. First, with regard to the variation and

diversity of strategies. Second, to the degree at which companies can rapidly shift from one strategy to another (Slack 1983)

- **Environmental dynamism** represents the perceived frequency of change and turnover in the marketing forces of the external/task environment. Aldrich, (1979). Changes in technology, customer preferences and competitive action are some examples of environmental dynamism.

## 1.8. Organization of the study

Some writers may organize the research report somehow differently. As Saunders et al. (2009) most writers agreed that the structure of the final research report includes abstract, introduction, literature review, method, results, discussion, conclusions, references and appendices.

Chapter one is the introductory part which contains back ground of the study, statement of the problem, basic research questions, objectives (general and specific objective) of the study, significance of the study, delimitation and definition of terms. Chapter two focuses on review of related literature of the study with its wider context and to show readers how the study supplements the work that already been done on the topic. (Sanuders et al.2009). The research design, sample and sampling techniques, types and source of data analysis included in chapter three. While data analysis presented in chapter four, finally, findings conclusions and recommendation looked in chapter five.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

To do any research activity it is important to review what has been done on the area of the topic to have more theoretical knowledge and understanding related to the problem. To this effect, major issues related to manufacturing industries raised by different researchers will be review. Thus, this chapter deals with definitions of manufacturing industry, over views in the development of manufacturing industries, contribution and rationale for industries, then the factors that affects the performance of manufacturing industries performance are addressed.

## 2.1. Manufacturing at the Global and Ethiopian Context

### 2.1.1. Manufacturing at the Global

From the available literature, the structural transformation of a traditional economy dominated by primary activities into a modern economy where high-productivity activities in manufacturing assume an important role remains a defining feature of economic development.

Maddison, (2001, 2007a) finds "the emergence of modern manufacturing has led to dramatic changes in the structure of the world economy and to sustained increases in the growth of labor productivity and economic welfare". This shows development came to be associated with industrialization. Industrialization was rightly seen as the main engine of growth and development. Based on the importance of manufacturing industries different scholars defines its classification in different ways in relation to the objective of the business the analyst has in mind and the period in time.

The Research institute for Management Sciences, University of Delft, The Netherlands, has classified manufacturing industries into four groups based on the numbers of employees they can involves in industries. Stanley and Morse (1965) classified industries into eight by size. They adopted the functional approach, and emphasized how small and

medium sized industries differ from larger industries by bringing out clearly the differing characteristics which include little specialization, close personal contact of management with production workers and lack of access to capital.

The Indian official version defines small scale to large manufacturing industry on the base of capitals and employment. Similarly in Nigeria, the Industrial Research Unit of University of Ife defined a small scale industry to large ones on the base of total capitals they invest and on their power of employing labor.

Ogunleye (2004), in another breath, accepted the need for differences in classification and definition of small and medium enterprises. He however pointed out that any differences in definition noticed between industrial sectors are ascribed to differences in capital requirements, while the differences among countries could arise as a result of levels of industrial development. Thus, what may be defined as SME in a developed country may be regarded as large scale enterprises in a developing country considering such parameters as capital investment and employment of labor. It is therefore important to realize that definition of manufacturing industries changes overtime, and even among developing countries.

From these discussion someone can realize that countries whether developed or developing have common understanding and criteria on definitions of industries though they classified based on their economic levels and intentions.

### 2.1.2. Manufacturing Industries in Ethiopian Context

Stephen and Wasiu (2013), finds that in defining micro and small scale enterprise, and industries references are made to qualitative and quantitative measures based on the number of people employed in the enterprise or industries, investment out lay, annual sales turn over or a combination of these measures. In light of this, the definition and classification of industries in our countries context are discussed as follows. This classification of industrial company or enterprise is based on, the new (Micro and Small Enterprise Development Strategy of Ethiopia [MSEDSE], 2011). Principally this Classification of the size of industrial company is based on man power (work force) and

capital (This capital includes machinery cost and working capital and exclude land and building cost of an industrial company). The arrangement/ the definition are as follows: **Micro Enterprise** is an enterprise that consists employees including the owner or family is not greater than 5 and total asset is less than 100,000 ETB for industrial sectors. **Small scale** manufacturing is industrial company that employee 6-30 workers or and its total asset is 100,001 up to 1.5milion (one point five million) ETB, **Medium scale industry** is an industrial company that employee 31-200 workers and its total asset is 1,500,001 up to 30,000,000(thirty million) ETB and **Large scale industry** is an industrial company that employee more than 200 workers and its total asset is more than 30,000,000 (thirty million) ETB.

The government of Ethiopia has designed and implemented long, medium and short term plans to mitigate poverty and ensure rapid and sustainable economic development in multiple sectors. To ensure accelerated and sustainable economic development, the government believes that industrial growth is a fundamental tool. Accordingly, designed Industrial Strategy and five years' Growth and Transformation Plan (GTP), which is expected to accelerate the transformation from agriculture to industry-led economy. Based on GTP of Manufacturing industry sector textile and garment, leather industry, Agro-processing, pharmaceutical, chemical, metal industry and Meat & milk industry were the prioritized sub sectors. So far, different supports and co ordinations the above sub sectors have been made to achieve the GTP goals.

The Government of Ethiopia has given emphasis to ensuring fast and sustained development of industrial sector in its Growth and Transformation Plan (2010/11 - 2014/15). In Ethiopia 2,717 operational manufacturing industries are fond, out of these manufacturing industries 1603(59%) are fond in oromia regional state. The number of operational manufacturing industries in Oromia Special Zone Surrounding Finfine is 525. As development tool, developing industrial zones has been considered to help sustain the development of the economy by targeting local and foreign direct investments, enhancing competitiveness, and facilitating export-led growth. Through the industrial zone development program, the Government of Ethiopia intends to create favorable condition for private sector investment in priority industries. (Source: Federal Investment Agency data base).

## 2.2. Investment Incentive, Guarantees and Protection of Manufacturing Industry in Ethiopia

### 2.2.1. Investment guarantees and protections

The Constitution and other laws of the country protect private property. Investment Proclamation No. 769/2012 Says, the encouragement and expansion of investment especially in the manufacturing industries has become necessary so as to strengthen the domestic production capacity and there by accelerate the economic development of the country and improve the living standards of its people. The proclamation further states by supporting a foreign investor have the right to make the following remittances out of Ethiopia in convertible foreign currency: Profit and dividends, Principals and interest payments on external loans, Payments related to technology transfer agreements, Payments related to collaboration agreements, Proceeds from the sale or liquidation of an enterprise, Compensation paid to an investor and Proceeds from the sale or transfer of shares or partial ownership of an enterprise to domestic investor.

Moreover, to make the growth of industry sustainable and effective in the country Ethiopia became member of the:

- Multilateral investment guarantee agency (MIGA ), a world bank affiliate, which issues guarantee against non-commercial risks in signatory countries
- World intellectual property organization

In addition, the country has signed double taxation avoidance treaties with Algeria, Romania, Czech Republic, Russia, China, Seychelles, Egypt, South Africa, France, Sudan, India, Tunisia, Israel, Turkey, Italy, United Kingdom, Kuwait, Yemen.

### 2.2.2. Investment Incentives

The Council of Ministers Regulations No.270/2012, the amendment investment incentive and investment areas regulation No.312/2014 and Investment Proclamation No.769/2012 specifies the areas of investment eligible for investment incentives,

The areas of investment eligible for investment incentives include: Tax incentives, import duty exemptions, tax holidays, etc. that promote priority sectors, particularly where these sectors face handicaps such as the currently inadequate trade logistics;

#### 2.2.2.1. Fiscal Incentive

Based on above mentioned regulations and proclamation the following incentives are given to investors. To encourage private investment and promote the inflow of foreign capital and technology into Ethiopia the following customs duty exemptions are provided for investors (both domestic and foreign) engaged in eligible new enterprises or expansion projects in manufacturing industries.

- 100% exemption from the payment of customs duties and other taxes levied on imports is granted to all capital goods such as plant machinery and equipment and construction materials
- Spare parts worth up to 15% of the total value of the imported investment capital goods provided that the goods are also exempted from the payment of customs duties,
- An investor granted with a custom duty exemption will be allowed to import spare parts duty free within five years from the date of commissioning of a project
- An investor entitled to a duty-free privilege buys capital goods or construction materials from capital goods or construction materials from local manufacturing industries shall be refunded customs duty paid for raw materials or components used as in puts for the production of goods and
- Investment capital goods imported without the payment of custom duties and other taxes levied on imports may be transferred to another investor enjoying similar privileges.

- If an investor engaged in new manufacturing industries shall be entitled to an income tax deduction of 30% for three consecutive years after the expiry of the income tax exemption period.

- An investor to expand or upgrading his existing enterprise increasing in volume at least by 50 percent of attainable production or service rendering line at least by 100 percent of an existing enterprise is entitled to the income tax exemption period.

- An investor who exports 60 percent his products or services or supplies to an exporter shall be exempted for additional 2 years. (Source: Ministry of Industry data base).

#### 2.2.2.2. Non –fiscal Incentive

The non – fiscal incentives given to all exporters who invest to produce export products will be allowed to import machinery and equipment necessary for their investment projects through supplier's credit.(source : Ministry of Industry data base).

## 2.3. Factors of Performance Measurement

Research on performance measurement has gone through many phases in the last 30 years: initially they were focused mostly on financial indicators; with time, the complexity of the performance measurement system increased by using both financial as well as non-financial indicators. Since the late '80s, researchers, consulting firms and practitioners have stressed the need to put an increased emphasis on non-financial indicators in the performance measurement process.

Performance itself is likely to be somewhat firm specific: as the strategic choices a firm makes will dictate which performance measures will reflect the latent performance construct (Steers, 1975). Understanding how different independent variables link to a dependent performance variable is then no longer trivial (March & Sutton, 1997). Assuming away this dimensionality will lead to misdirected or biased measurement. From a measurement perspective, it is unlikely that changing strategies leaves the dimensionality of the performance indicators unchanged. Because different strategies relate to different dimensions of performance, so they also alter the way these performance dimensions load onto the latent construct

The impact of the performance measurement process on the organizational performance was the objective of many studies in the last few years, driven by the desire to identify whether the way in which performance is measured has a significant and positive impact on organizational performance. In this category falls the study conducted by Bourne et al. (2005) in which the performance measurement process was demonstrated to have a positive impact on the business success can be taken as a guide line to measure their effect on firms performance.

From above explanation and related literature a researcher uses three specific areas of firm outcomes: (1) financial performance (profits, return on assets, return on investment, etc.); (2) market performance (sales, market share, etc.); and (3) shareholder return (total shareholder return, economic value added, etc.) to evaluates organizational performance of manufacturing industries, Thus, a research expect that organizations, especially those in manufacturing, to use both financial and non-financial indicators in measuring their performance.

Some researchers suggest that the dynamics of the success of businesses remains a black box. Others argued that the success of enterprises is a function of both external and internal factors. It is widely recognized that successful organizations are those that best adapt to fit the opportunities and constraints inherent in the environment in which they operate.

According to Miller and Dess (1996), the external environment of the enterprise can be classified into two, namely, general and competitive environments. The general environment consists of the political-legal, macroeconomic, socio-cultural, technological, demographic and global factors that might affect the organization's activities. On the other hand, the competitive environment consists of other specific organizations that are likely to influence the profitability of the enterprise such as customers, suppliers and competitors. Several studies in both developed and developing countries have identified a range of external critical success factors that relate the general as well as the competitive environment of the firm.

So, the intention of this study is to assess factors that affect the performance of manufacturing industries internally and externally based on factors of performance; firms characteristics, strategic flexibility, manufacturing technology, lean manufacturing and environmental dynamism.

## 2.4. Conceptual Framework

Past research has examined various determinants of firms' performance, including elements of environments, firm strategy and organizational characteristics. Financial performance variables include widely-used measures, embracing levels, growth and variability in profit, typically related to assets, investment or owner's equity (Capon, Farley and Hoenig, 1990). But this study considers different factors that hinder the performance of businesses firms in details.

Thus, Business success/performance is the dependent variable and independent variables are internal factors (Strategic flexibility, Firms characteristic, lean manufacturing and Manufacturing technology) and external factors (Environmental dynamism). Based on these factors of performance a following conceptual frame developed for the research.

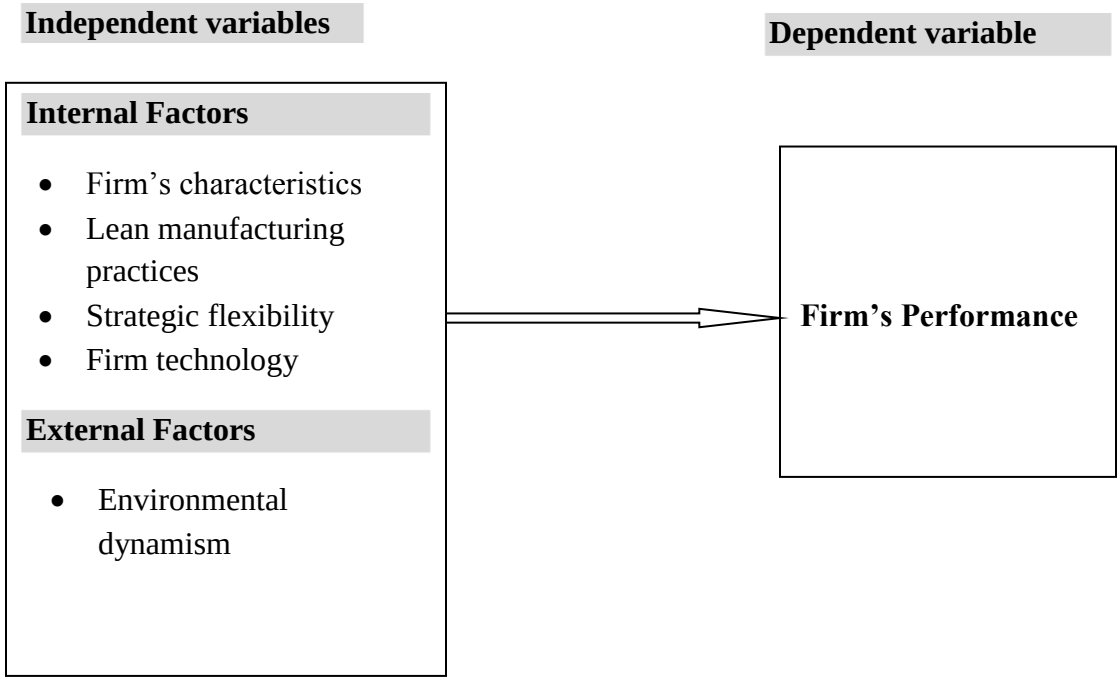



**Figure: 1. Conceptual Model** (Source: Modified from Risyawati, 2014 & European Journal of Marketing, 1996)

### 2.4.1. Firms Characteristics

Earlier research papers such as Sharma and Kesner, (1996) Mitchell, (1994) strongly support the effect of firm size on business survival and variance in operating performance. They argue that firm size is a basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns.

The causal relationships between size and profitability have been widely tested with ambiguous results. Although some studies did not find significant relationship between size (measured as the number of employees) and performance (Capon, Farley and Hoenig, 1990), several studies suggest that a positive relationship exists between company size and profitability (Lee and Giorgis, 2004; Ravenscraft, 1983; Samiee & Peters, 1990; Ural and Acaravcı, 2006). Bigger firms are presumed to be more efficient than smaller ones. The market power and access to capital markets of large firms may give them access to investment opportunities that are not available to smaller ones (Amato and Wilder, 1985). From the above explanations, we expect the following hypothesis:

**H1:** firm's characteristics have a positive relationship with business performance

### 2.4.2. Lean Manufacturing

Lean manufacturing is based on the rationale of removing activities that do not add value to the productive system, especially those associated with elapsed times, methods, processes, places, people and movements (Womack et al., 1992). The elimination of activities that do not add value allows a densification of work and a better match of activities that generate wealth. Accordingly, the increase in profit comes from the reduction of costs, which improves business performance of the company (Shingo, 1996).

In addition, organizations can gain competitive advantage from lean production practices. Such practices enable the organization to get superior performance through reduction of

wastes and other related costs (Ohno, 2008). Lean production can resolve severe organizational problems and be a powerful approach to gather and unite change initiatives that are running currently through a business. Traditionally, companies used broad production systems which made it difficult for them to improve on their productivity thus customer satisfaction (Bicheno, 2007). However for most companies, use of recent technologies for lean production system has become critical and is a standard practice for achieving greater performance gains (Emiliani, 2006). From this,the following hypothesis can be made.

**H2:** Lean manufacturing practices have a positive effect on firm's performance

### 2.4.3. Manufacturing Technology

Over time, with the advent of computers and microprocessors, inflexibility in process technology gave way to flexibility. Over the last decade, flexibility became the mark of new technology called Advanced Manufacturing Technologies (AMT). Several conceptual schemes have been offered to grapple with the flexible nature of AMT. These schemes make valuable contributions to understanding AMTs. A broader conceptualization of AMTs is offered as an alternative by some authors Kaplinsky, 1983; Kotha, 1991.

Manufacturing technologies are viewed as tools that enable firms to increase their information processing capability. Based on this logic, manufacturing technology choice can be determined by the information processing requirements resulting from the pursuit of a selected strategy (e.g., differentiation, cost leadership, etc...). Given this logic, the information processing capabilities of manufacturing technologies deserve emphasis, along with flexibility, because it is this inherent capability that makes them effective strategic ‘‘tools’’ for dealing with uncertainty associated with different strategies. On a more practical level, the potential to improve business performance is among the principal reasons why firms employ manufacturing technologies (Boyer et al., 1996; Dean and Snell, 1996). Numerous scholars have argued that manufacturing technologies

reduces manufacturing costs by automating design, fabrication, assembly, and material handling, among other things (Majchrzak, 1988; Swamidass, 1988; Giffi et al., 1990).

The fundamental economic role of computers becomes clearer if one thinks about organizations and markets as information processors (Galbraith, 1977; Simon, 1976; Hayek, 1945). Most of our economic institutions and intuitions emerged in an era of relatively high communications costs, limited computational capability, and related constraints. Information technology (IT), defined as computers as well as related digital communication technology, has the broad power to reduce the costs of coordination, communications, and information processing. Thus a hypothesis is:

**H3:** Manufacturing technology has direct influence on the performance of manufacturing.

### 2.4.4. Environmental Dynamism

A number of researchers in organizational theory have looked at the environment-performance linkage. Their research, which has focused primarily on firm level performance, indicates that the environment can affect performance (Hansen and Wernerfelt, 1989). Some organizational theorists have also considered the effects of specific dimensions of the environment on a firm's performance. For example, Hambrick (1983) found dynamism to be adversely related to three performance measures. Similarly, Keats and Hitt (1988) found dynamism to be negatively related to operating performance.
As Aldrich, (1979). Environmental dynamism represents the perceived frequency of change and turnover in the marketing forces of the external/task environment based on). Changes in technology, customer preferences and competitive action are some examples of environmental dynamism.
In addition, Hitt et al. (1998) argued that in today's competitive landscape, characterized by increasing strategic discontinuities, disequilibrium, hyper competition, innovation, and continuous learning, firms' success depends on their ability to respond quickly to changing competitive conditions. From these findings we can state a following hypothesis:
**H4:** The performance of firms is negatively influenced by environmental dynamism.

### 2.4.5. Strategic Flexibility

Strategic flexibility refers to the company's agility, to its capacity to adapt and respond in a timely and appropriate manner to substantial, uncertain, and fast occurring environmental changes that have a meaningful impact on the organization's performance (Roca-Puig et al., 2005; Aaker and Mascarenhas 1984; Golden and Powell, 2000; Upton, 1995).

The strategy is reflected as a separate variable in many organizational diagnostic models (Waterman et al., 1980; Burke & Litwin, 2001; Kates & Galbraith, 2007). The empirical studies which have examined this dimension can be divided into two categories: studies that look at the impact of strategy on organizational performance and studies that analyze the relationship between strategy and business performance measurement in organizations. The former was analyzed by Prescott (1986) who examined the relationship between an organization's strategy and its performance. This study used a database that included 1,500 firms between the years 1978-1981. According to this study, business strategy significantly influenced performance, external environment having the role to mitigate the effects of strategy on performance. As previously said, the second category of studies concerns the relationship between the organization strategy and the performance measurement process. One of the most significant studies belongs to Porter (1980). In this study the author compared two groups of strategies (strategies aimed at reducing costs and differentiation strategies). The objective of cost strategies is gaining competitive advantage through a reduction in costs below the level of competitors. This assumes the involvement of all departments within the company: production department to identify ways to reduce production costs, research and development department to develop new products that can be less costly, and the marketing department to identify less expensive ways to attract customers (Jones & George, 2006). The objective of differentiation strategies is gaining competitive advantage by concentrating all departments of an organization to differentiate their products from those of competitors on one or more dimensions (quality, after sales service and support) (Jones & George, 2006).

Under the growing pressure of the intensified global competition manufacturing industries faces a number of challenges, which require the understanding of strategies that drive performance of the companies. A number of studies emphasize the relative importance of a distinctive strategy in determining the firm's economic performance in various environments and examine the relationship between industry- and firm-level strategy and firms' performance (Hitt, Hoskisson and Hicheon, 1997; Lee and Giorgis, 2004; Ural and Acaravci, 2006). Various determinants of firms' performance have been identified in several industries, but those factors seem to differ across different countries and industries (Amoako-Gyampah and Acquaah, 2008). From this we can propose a following hypothesis:

**H5:** strategic flexibility has a positive effect on the performance of firms.

# CHAPTER THREE

# RESEARCH DESIGN AND METHODOLOGY

## 3.1. Research Design

According to Saunders, Lewis's and Thornhill (2009), the choice of the research design depends on the objectives of the study; the available data sources, the cost of obtaining the data and the availability of time. The purpose of this study is to assess factors affecting the performance of manufacturing industry in Oromia Special Zone Surrounding Finfine and to show the situation and to have a clear picture on the phenomena by using quantitative and qualitative data. Therefore, the researcher has employed descriptive survey method because it fits to the purpose of the study, allows the collection of large amount of data by using questionnaires in an economical way, and it is comparatively easy to explain and understand, Saunders et al, (2009).

## 3.2. Population and Sampling Techniques

Oromia special zone surrounding finfine as compared to other oromia regional state zone is a populated industrial area**.** In the Oromia region, there are 3,020 manufacturing industries registered as an investment projects out this 1,603 industries are operational. In Oromia Special Zone there are 1,468 manufacturing industry from this industries 525 are operational. (Source: Oromia Investment Commission data base, January 2015). This data shows 32.75 % of manufacturing industries are found in the zone. From these manufacturing industries the samples can be computed by using sample formula of Nasiurma (2000) in Nyabwanga, R., and Ojera, P., (2012)

$$n = \frac{NC}{c^2 + (N-1)e^2}$$

where, n=the sample size ,

N= the population (525),

c= the coefficient of variation (0.5) and

e= level of precision (0.05).

So the sample n= 525*0.5/(0.5^2+(525-1).05^2 =168 manufacturing firms are targeted for the study. To select a particular industry, simple random sampling method was used. Simple random sampling is a type of probability sampling where each member of the population is equally likely to be selected. Accordingly, 168 manufacturing firms were randomly selected using the lottery approach from 525 total manufacturing firms. After targeted industries were identified formatted questionaries' were distributed to management body of the industry by researcher and his 6 selected data collectors.

To get additional information, that may affects the performance of manufacturing industries operations, two officials were interviewed from each of the six targeted towns (totally 12 persons were interviewed).

### 3.3. Types of data and Tools / Instrument of Data Collection

In order to achieve objectives, both primary and secondary data was collected through questionnaires and specifically questionnaires was designed and distributed to manufacturing owners or manager. The questionnaires were used because they are straight forward and less time consuming for both the researcher and the respondents (Owen, 2002). The questionnaire was the main instrument of the study. It contains variables firm's characteristics, lean manufacturing, manufacturing technology, strategic flexibility, environmental dynamism and firm's performance.

In addition, to enhance the willingness of the respondents to provide the information requested a pilot study will be conducted to refine and make clear questionnaire before administering. To get additional information semi-structured interview questions were designed for selected town officials and they were administered.

### 3.4. Procedures of Data Collection

A self-designed questionnaire was used to gather the research data. The questionnaire consists seven parts. The first part comprised of demographic/personal information and the second to six part consists questions that are intended to measure factors of business

success, and the last part was used for measuring performance, using 5-point liker scale anchored by strongly agree to strongly disagree. The factors are Firm's characteristics, Lean manufacturing practices, Strategic flexibility, Manufacturing technology and Environmental dynamism. A total 168 sets of questionnaires were distributed through hard copy for respondent to score the importance of perceived of business success.

In addition to the survey questionnaire, two officials were interviewed from each of the six targeted towns (totally 12 persons were interviewed).

### 3.5. Methods of Data Analysis

The data collected from the survey will be tallied, systematically organized, tabulated and summarized in items based on tables and charts. The study will also employ SPSS and Microsoft-excel to analyze the collected data. In this study, since independent variables are five a researcher uses a multiple regression and descriptive statistics to analyze the data gathered from the respondents. Descriptive statistics such as percentage, mean, standard deviation and correlation coefficient were the tools used to summarize and analyze the data gathered from the respondents. In addition, analysis of variance (ANOVA) was used to test the hypotheses stated because analysis of variance (ANOVA) was used to determine whether there are any significance differences between the means of two or more independent groups. Finally to evaluate the strength of the relationship between dependent and independent variables the rules of thumb were used for interpreting R: and its value was .621 which is Between ±0.60 and ±0.80 = Strong, relationship.

### 3.6. Reliability and Validity of Instrument

As Saunders et.al.(2000) founds, it was not enough to simply collect and analyze data for research to ensure quality. In order to reduce the possibility of getting the wrong answers, the researcher has to aware of two particular emphases on research design namely: reliability and validity.

### 3.6.1. Reliability

Reliability is the extent to which data collection techniques or analysis procedures will yield consistent findings (Saunders, et al. (2009), ensuring reliability of the instrument was possible through testing.

For testing consistency among multiple measurements of a variable, Cronbach's alpha coefficients were calculated. On the basis of the cut-off value of 0.7, environmental hostility was rejected from the variable list. As indicated in Table 4.3, the coefficients for all other variables are greater than or equal to 0.761, which is good for scale reliability.

### 3.6.2. Validity

According to Saunders, et al. (2009), Validity is soundness or rationality; whether the findings are really about what they appear to be or the degree to which results obtained from the analysis of the data actually represents the phenomena under study. The validity of data gathering instrument is confirmed by the ability & willingness of the respondents to provide the information requested.

In order to make the questionnaire valid, relevant & objective to problem, It was properly commented by the advisor, and it also tested on available respondents, and based on the issues which were not properly clear by the respondents were corrected and refined..

# CHAPTER FOUR

# DATA PRESENTATION, ANALYSIS AND DISCUSSION

## 4.1. Introduction

This section discusses the results of the study based on the research tools presented in preceding sections of the report. The purpose of this study is to asses factors that affect the performance of manufacturing industries operation in Oromia Sepecial Zone Surrounding Finfine of Oromia Region. Data were collected from six towns of the zones manufacturing industries owners/managers based on questionnaires. In addition, from six town government officials 12 persons were interviewed and this has helped the researcher to discuss the issues in details. For manufacturing industries owners/ managers 168 questionnaires were distributed across six towns; of which 161 were returned. After editing 161 responses were successfully completed, tailed and analysed.

The study has employed SPSS and Microsoft-excels in analysing the collected data. Percentage, mean and standard deviation have been used to analyse the row data. In order to make the analysis visible by the reader, tables are included.

## 4.2. Respondents' Demographic Profiles and Firm's characteristics

### 4.2.1. Respondents' Demographic Profiles

The demographic profiles of the respondents are shown in Table 4.1. The employee respondents consisted of 146 men (90.7%) and 15 women (9.3%). This reveals that in most of the manufacturing industries management activities are carried out by male managers than female mangers. Thus, balancing this gap and improving the participation of women in manufacturing industries requires serious attention since they have indispensable roles in bringing the overall political, social and development of society. The difference between male and female managers may be created by the cultural and social influence of the society.

As King and McGrath, (2002)founds, education is one of the factors that positive on growth of manufacturing industries and business men with larger stocks of human capital, education and vocational training are better placed to adapt their enterprises to constantly changing business environment. From the above data 77% of the respondents had a bachelor's degree and above.

Therefore, this help the manufacturing industries owners to deal with plants that can lead to business growth keeping proper books of records, prepares business plan, taking advocacy issues to support their business & to look for more training program to improve their business. So, most of the respondent can understand the questionnaires to give reliable answer.

In addition, since more than 52 % of the respondents have experience of manufacturing industries operation they have full information to answer the questionnaires developed by the researcher.

**Table 4.1:** Gender, work experiences and educational levels of the respondents

| **Variables** | **Category** | **Frequency** | **Percept** |
|---|---|---|---|
| Gender | Male | 146 | 90.7 |
| | Female | 15 | 9.3 |
| | Total | 161 | 100 |
| Educational level | Technical school (TVET) | 3 | 1.9 |
| | College Diploma | 34 | 21.1 |
| | BA/BSc Degree | 110 | 68.3 |
| | MA and above | 14 | 8.7 |
| | Total | 161 | 100 |
| Years of service | 0-5 | 76 | 47.2 |
| | 6-10 | 66 | 41.0 |
| | 11-15 | 19 | 11.8 |
| | Above 15 | 0 | 0 |
| | Total | 161 | 100 |
| Position in the company | Senior manager | 41 | 25.5 |
| | Middle manager | 92 | 57.1 |
| | Junior manager | 28 | 17.4 |
| | Total | 161 | 100 |

**Source:** *data from the survey*

### 4.2.2. Firm's Characteristics

The firm's characteristics of the respondent are shown in Table 4.2. From the data 92 (57.1%) are locally owned, 48 (29.8%) are joint ventures and 21 (13%) are multinational company. Out of 161 company 88 (54.7%) of industries have 31-200 workers which are medium industries, 44 (27.3%) industries have 6-30 workers which is small industries and 29 (18%) industries have over 200 workers which are large industries in our countries context. (Source: The new micro and small enterprise development strategy of Ethiopia [MSEDSE], 2011).

When we see the average Annual sales income (in birr) for the recent three years of industries; 35 (21.7%) industries have an average annual sales income 100,000 _ 1,500,000.birr, 97(60.7%) of industries have 1,501,000 _30,000,000 birr and 29 (18%) of industries have more than 30,000,000 birr. When we see the types of products produced per industry, out of 161 industries 109(67.1%) industries produce three and above types of products. From the above result whatever the size the profit they earn cannot be influenced by their size.

As (Beard & Dess, 1981) founds firm size is one of the most acknowledged determinants of a firm's profits. The causal relationships between size and profitability have been widely tested with ambiguous results. Several studies suggest that a positive relationship exists between company size and profitability (Lee and Giorgis, 2004; Ural and Acaravcı, 2006). From the table 4.2 we see that firms size was not the main determinant of the firms performance this agrees with the finding of (Capon, Farley and Hoenig, 1990), that says, some studies did not find significant relationship between size and performance.

So, our research hypothesis **(H1:** firm's characteristics have a positive relationship with business performance), is not true and hence, firms characteristics is not significant predictor of firm's performance.

The study reveals that the manufacturing industries performance is not affected by the firm's characteristics. This implies there is another factor which affects the performance of manufacturing industries not to perform effectively. So, the owners as well as the

management body of the company have to identify the problems that hinder their performance not to perform effectively.

**Table 4.2:** Firm's characteristics Result

| **Variables** | **Category** | **Frequency** | **percept** |
|---|---|---|---|
| Type of the company | Multinational | 21 | 13.0 |
| | Joint venture | 48 | 29.8 |
| | Locally owned | 92 | 57.1 |
| | Total | 161 | 100 |
| The main product of the company | Food & food products | 33 | 20.5 |
| | Leather & its product | 9 | 5.6 |
| | Textile & garment | 15 | 9.3 |
| | Plastic & its product | 16 | 9.9 |
| | Construction materials | 43 | 26.7 |
| | Other products | 45 | 28.0 |
| | Total | 161 | 100 |
| Number of product produced in the company | One | 24 | 14.9 |
| | Two | 28 | 17.4 |
| | Three | 109 | 67.7 |
| | Three and more | | |
| | Total | 161 | 100 |
| Numbers of full time employees | 6- 30 workers | 44 | 27.3 |
| | 31– 200 workers | 88 | 54.7 |
| | Over 200 workers | 29 | 18.0 |
| | Total | 161 | 100 |
| Average Annual sales income (in birr) for the recent three years | 100,000 - 1,500,000 | 35 | 21.7 |
| | 1,501,000 – 30,000,000 | 97 | 60.7 |
| | Over 30,000,000 | 29 | 18.0 |
| | Total | 161 | 100 |

**Source:** *data from the survey*

## 4.3. Reliability Test of the Instruments

For testing consistency among multiple measurements of a variable, Cronbach's alpha coefficients were calculated. On the basis of the cut-off value of .7, environmental hostility was rejected from the variable list. As indicated in Table 4.3, the coefficients for all other variables are greater than or equal to 0.761, which is good for scale reliability.

**Table 4.3:** Summary of variables in the study with reliability coefficients

| Name of Variables | | No. of items in the questionnaire | Cronbach's Alpha |
|---|---|---|---|
| Dependent variable | Firm performance | 9 | .880 |
| Independent variables | Lean manufacturing practices | 18 | .901 |
| | Strategic Flexibility (Marketing strategy) | 12 | .824 |
| | Firm's Technology | 15 | .933 |
| | Environmental dynamism | 2 (after three items are deleted based on alpha value) | .761 |

**Source:** *data from the survey*

## 4.4. Respondent Firm's Level of Performance and Factors Affecting It

Table 4.4 presents the descriptive statistics (mean and standard deviation). It is noted that the averages vary between 2.3758 and 4.0109 and standard deviations between .51846 and .86428. Because for a scale of 1 to 5, the median is 3, we can note that the averages are close to the median (central value) while generally being slightly higher.

Moreover, the level of standard deviations shows that there is some variability in the distribution around the average. This means that the different variables have enables to

capture phenomena with a clear central tendency (average, slightly higher than 3) and a real dispersion (standard deviations between .51846 and .86428 points).

**Table: 4.4.** Summary of Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation | Skew ness | | Kurtosis | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Statistic | Std. Error | Statistic | Std. Error |
| Environmental-Dynamism | 161 | 1.00 | 5.00 | 2.3758 | .86428 | .332 | .191 | -.264 | .380 |
| Firm- Technology | 161 | 1.00 | 5.00 | 3.1772 | .79607 | -.243 | .191 | -.176 | .380 |
| Lean Manufacturing | 161 | 1.67 | 4.94 | 3.8784 | .51646 | -1.060 | .191 | 3.825 | .380 |
| Strategy Flexibility | 161 | 2.58 | 5.00 | 4.0109 | .52696 | -.338 | .191 | -.084 | .380 |
| Firms Performance | 161 | 2.00 | 5.00 | 3.5066 | .54218 | .117 | .191 | -.081 | .380 |

**Source:** *data from the survey*

## 4.5. The Effects of Selected Organizational Practices on the Performance of Firms.

This section presents the core organizational practices and other factors as determinants of firm's performance. Based on the discussions in the literature review section, the firm's performance can be mainly influenced by factors such as environmental dynamism, firm's technology, strategic flexibility and lean manufacturing practices. Accordingly, this study focuses on these factors and the results of multiple regressions are presented in the following section.

### Correlation of variables

It is difficult to fairly assess manufacturing performance. Financial measures, such as ROI (Return on investment), profitability *etc.*, are usually plant level measures that are subject to many factors outside the scope of manufacturing operations. An attempt to

isolate the performance of the operations function is to utilize measures where the management of operations plays an integral part, *i.e.* operational performance measures (*e.g.* Boyer and Lewis, 2002; Schroeder *et al.*, 2002; Shah and Ward, 2003; Flynn and Flynn, 2004). Dimensions used conveniently coincide with the common set of competitive priorities, *i.e.* quality, delivery, flexibility and cost performance. Important to acknowledge is that every dimension, to some extent is vital for all operations, which one is the most important is just a matter of competitive positioning (*c.f.*, Porter, 1980; Treacy and Wiersema, 1993).

As for the examination of correlations, since we had many variables in the analysis, the matrix would be appropriately expanded to include all the variables. Each cell in the matrix contains the Pearson correlation coefficient, the 2-tail significance level, which shows all and the number of cases in the analysis.

Notice that the cells in the upper right to lower left diagonal show coefficients of 1.00. This is because they show the relationship of each variable correlated with it. This is consistent with (Tenenhaus et al., 2005) findings that says, the square root of the average variance extracted was higher than the correlation among the constructs, suggesting that the indicators are more intensely related to their respective constructs than any other construct considered in the model.

**Table 4:5** Correlations Matrix

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Firm's Performance | 1 | | | | |
| 2. Environmental Dynamism | -.355** | 1 | | | |
| 3. Firm's Technology | .463** | -.008 | 1 | | |
| 4. Strategic Flexibility | .398** | -.430** | .399** | 1 | |
| 5. Lean Manufacturing Practices | .523** | -.552** | .361** | .557** | 1 |

**. Correlation is significant at the 0.01 level (2-tailed).
N= 161.

**Source:** *data from the survey*

**Over All Model Fit / Assumption of Regression Model**

Before data analysis was conducted, the researcher examined the major assumptions of linear regression, namely the assumptions of normality, linearity, homoscedasticity, independence of residual and Multicollinearity

**Assumption 1**- Normality of the distribution

This assumption formally applies to the distribution of the errors (or, equivalently, the conditional distribution of the response variable) for any given combination of values on the predictor variables, Matt N, Carlos A, and Deson K (2013). One way of measuring the normality of distribution is through checking the level of skew ness and kurtosis. Usually the value of skew ness and kurtosis for normal distribution is varied from 1 to -1.

From table 4.4 we found that the skew ness and kurtosis of environmental dynamism, strategic flexibility, firms performance and firms technology for the sample is within the range for normality (-1.0 to +1.0). But the skew ness and kurtosis of lean manufacturing is outside the range for normality (-1.0 to +1.0). This condition violates the assumption of normality. On the other hand the central limit theorem (CLT), one of the most important theorems in statistics, implies that under most distributions, normal or non-normal, the sampling distribution of the sample mean will approach normality as the sample size increases (Hays, 1994).
However, since the sample size of or survey is 161 and greater than 30, the sampling distribution of statistics will follow a normal distribution, and the use of the statistical test with this variable is appropriate.

**Assumption 2**- Linear relationship

The model that relates the response *Y* to the predictors *X1, X2, X3... Xn,*is assumed to be linear in the regression parameters (Chatterjee&Hadi, 2012). This means that the response variable is assumed to be a linear function of the parameters *(ß1,ß2,ß3…..ßn*) but not necessarily a linear function of the predictor variables *X1, X2, X3...Xn, a*s cited by, Matt N, Carlos A, and Deson K (2013).

The result of this study also showed that, there is a linear relationship between the independent variables and the performance of firms. This means that, for every increase in the independent variable the dependent variable will increase.

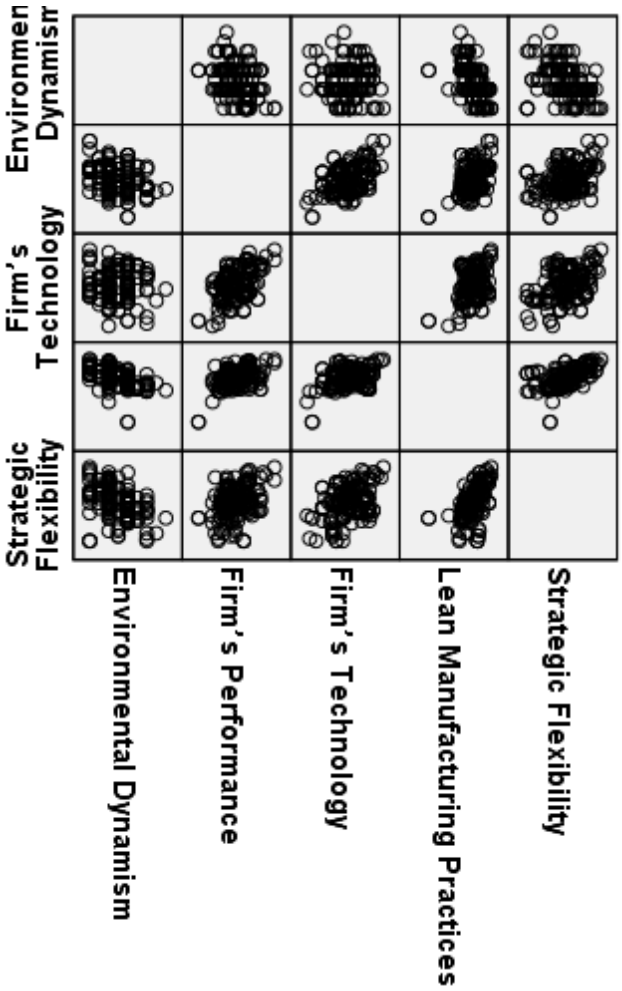
**Assumption 3 -** Homoscedasticity

The model errors are generally assumed to have an unknown but finite variance that is constant across all levels of the predictor variables. This assumption is also known as the homogeneity of variance assumption. (Weisberg, 2005), as cited by, Matt N, Carlos A, and Deson K (2013).

It means simply that, the variance of Y for each value of X is constant in the population. This assumption can be checked by visual examination of a plot of the standardized residuals (the errors) by the regressions standardized predicted value. The following scatter plot was obtained from the average results of the dependent variable firm's performance and the independent variables lean manufacturing, strategic flexibility, environmental dynamism and firm's technology constructs to see weather homoscedasticity is really a pressing problem of this particular study. When we see the scatter graph below the range of variance for the dependent variable is uniform for all values of the independent variables. With such small plots it's hard to assess the homogeneity assumption.

However, inspection of the plots shows good variability in the plots and we will proceed with the analysis assuming homoscedasticity is not a major problem.

**Scatter plot of Relationship**




**Source:** data from survey

**Assumption 4** - Independence of residual

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule, the residuals are independent (not correlated) if the Durbin-Watson statistic is approximately 2, and an acceptable range is 1.50 - 2.50. Babatunde, O.S, Oguntunde P.E, Ogunmola, A. O and Balogun O.S, (2014). In this case, Durbin-Watson is 1.839, close to 2 and within the acceptable range. We can assume independence of residuals.

**Assumption 5** – Multicollinearity

To assess multicollinearity, we examine the correlations among the independent variables. Multicollinearity exists when Tolerance is below .10; and the average VIF is larger than 2.5. According to (Hair et al., 2006) the pair-wise correlation among the independent variable should not exceed 0.80. But in this study the tolerances of independent variables range from .520 to .737 and its VIF ranges 1.356 to 1.923. These shows, none of the coefficients are not greater than the specified ranges. So we assume multicollinearity is not a problem.

**Magnitude of correlation**

The researcher also used the same test to prove or disprove the alternative hypothesis. The fallowing measure of association developed by MacEachron (1982) was used as a reference to check the magnitude of correlation.

| Measure of Association | Descriptive Adjective |
|---|---|
| +> 0.00 to 0.20 ; < -0.00 to –0.20 | Very weak or very low |
| > 0.20 to 0.40; < -0.20 to –0.40 | Weak or low |
| > 0.40 to 0.60; < -0.40 to –0.60 | Moderate |
| > 0.60 to 0.80; < -0.60 to –0.80 | Strong or high |
| > 0.80 to 1.0; < -0.80 to –1.0 | Very high or very strong |

**Source**: This table is from MacEachron, (1982) *Basic Statistics in the Human Services: an Applied Approach*, page 132.

From the model summary table 4: 6 below of SPSS output, the effect of the relationship was identified based on the R statistic, which in a variable regression is the same as the correlation coefficient. In this case the R is .621, indicating strong relationship.

The R square statistic tells us the proportion of variance in the dependent variable that is accounted for by the independent variables. In this case the model accounts for 38.5% of the variance in the dependent variable, firm's performance. The adjusted R square is slightly lower, indicating 36.9% of the variance is accounted for by the model. With respect to the fitness of the model, the coefficient of determination ($R^2$) for firm's

performance was 38.5%. To test its validity, substituting the values of $R^2$ suggested by Cohen (1977) and the commonality established by Fornell and Larcker(1981), one can get the minimum adjustment value of GoF(Good fit) equal to 0.36 (Wetzels, Odekerken-Schröder, & Van Oppen, 2009). In this study, the GoF is equal to 0.385, suggesting that the model showed a good fit compared to the specified minimum. The statistical significance of structural relations of the model and hypothesis testing were validated.

**Table 4:6** Summary of Multiple Regression Results/ Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .621[a] | .385 | .369 | .43056 | 1.839 |

a. Predictors: (Constant), Lean Manufacturing Practices, Firm's Technology, Environmental Dynamism, Strategic Flexibility

**Source:** *data from the survey*

To do regression analysis we should have to determine whether or not there is a relationship between the independent and the dependent variables.

When we are examining the ANOVA of table 4:7 below the F statistics is significant this means that independent variables, taken together, have a relationship with the dependent variable. In this case, the probability of the F statistic for the regression analysis is 0.000, less than the level of significance of 0.05. This shows there is a significant relationship between the independent variables and the dependent variable.

**Table : 4:7** Relationship between Dependent and independent variables/anova

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 18.114 | 4 | 4.529 | 24.429 | .000[b] |
| | Residual | 28.919 | 156 | .185 | | |
| | Total | 47.033 | 160 | | | |

a. Dependent Variable: Firm's Performance

b. Predictors: (Constant), Lean Manufacturing Practices, Firm's Technology, Environmental Dynamism, Strategic Flexibility

**Source:** *data from the survey*

**Table : 4:8** Factor analysis of Performance / Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 1.762 | .439 | | 4.012 | .000 | | |
| | Envt Dynamism | -.118 | .050 | -.188 | -2.344 | .020 | .611 | 1.637 |
| | Firm Technology | .240 | .050 | .353 | 4.826 | .000 | .737 | 1.356 |
| | Lean Manufacture | .295 | .091 | .281 | 3.231 | .002 | .520 | 1.923 |
| | Strategy Flex | .020 | .083 | .019 | .240 | .811 | .602 | 1.660 |

a. Dependent Variable: Firm's Performance

**Source:** *data from the survey*

### 4.5.1. The Effect of Environmental Dynamism on Firm's Performance

From the table 4:8 above, the Sig. level for the variable "environmental dynamism" is .020, which is less than our alpha level of .05. When we are looking at the B coefficient, it is negative; indicating that there is an inverse relationship between environmental dynamism and firm's performance. This implies as environmental dynamism decreases firms' performance increases, and we would expect that for every one unit decrease in environmental dynamism, there would be a .118 unit increase in performance. This supports the finding of Hambrick (1983) dynamism to be adversely related to three performance measures. Similarly, Keats and Hitt (1988) found dynamism to be negatively related to operating performance. So, our research hypothesis **(H4:** The performance of firms is negatively influenced by environmental dynamism), is a significant predictor of firm's performance.

The study shows that the performance of manufacturing industry is mainly affected by the environmental dynamism of manufacturing industries. So the management and the owner of the company as well as supportive institution have to develop some mechanisms that may minimize this negative effect of the environment. Such mechanisms may include providing training to cope with different situations, improving the communication flow, or even changing the organization's decision-making structure.

### 4.5.2. The Effect of Manufacturing Technology on Firm's Performance

Over time, with the advent of computers and microprocessors, inflexibility in process technology gave way to flexibility. Over the last decade, flexibility became the mark of new technology called Advanced Manufacturing Technologies (AMT). Several conceptual schemes have been offered to grapple with the flexible nature of AMT. These schemes make valuable contributions to understanding AMTs. A broader conceptualization of AMTs is offered as an alternative by some authors Kaplinsky, 1983; Kotha, 1991.

To know the effects of manufacturing technology on firm's performance the researcher use the classification of AMTs of Kotha, (1991). He groups the various manufacturing

technologies into four groups on the basis of the imbedded information processing capabilities. Such as Product design technologies, Process technologies, Logistics planning technologies and Information exchange technologies.

As the table 4:8 above shows the value of manufacturing technology is .240 and the Sig. level for the variable "manufacturing Technology" is .000, which is less than our alpha level of .05. In addition, when we are looking at the B coefficient, we see that it is positive; this shows there is a direct relationship between the two, indicating that as manufacturing technology increases firms' performance also increases. We would expect that for every one unit increase in Firm's Technology, there would be a .240 unit increase in performance. This supports our research hypothesis (**H3:** Manufacturing technology has direct influence on the performance of manufacturing). Therefore, Manufacturing Technology is a significant predictor of manufacturing performance.

As the result shows the performance of manufacturing industries are directly affected by the practice of technology they employed in their industries. To solve and to improve the manufacturing practices in their industries the owners with supportive institution have to search different technology that may help to increase their production capacity.

### 4.5.3. The Effect of Strategic Flexibility on Firm's Performance

To know the effect of strategic flexibility on the firm's performance a researcher includes the firm's ability to react to customer's demand, new market development, response to change in price of competitors, trends in changing in production variety in the questionnaires.

As it is show in table 4:8 the value of strategic flexibility is 0.020 and the Sig. level for the variable "**Strategic Flexibility**" is .811, which is greater than our alpha level of .05.

This finding does not support research hypothesis (**H5:** strategic flexibility has a positive effect on the performance of firms). So, Strategic Flexibility is predictor but it is not a significant predictor of firm's performance. But as (Nerkar & Roberts, 2004) suggests stability may lock company resources into outdated products and processes, adversely

affecting performance. Also Hitt et al. (1998)argued that in today's competitive landscape, characterized by increasing strategic discontinuities, disequilibrium, hyper competition, innovation, and continuous learning, firms' success depends on their ability to respond quickly to changing competitive conditions (strategic flexibility).
From this finding we conclude that, the managers of manufacturing industries have to both understand the business and manufacturing objectives and to identify means to build and develop manufacturing capabilities that increases their performance.

### 4.5.4. The Effect of Lean Manufacturing Practices on Firm's Performance

Lean manufacturing is based on the rationale of removing activities that do not add value to the productive system, especially those associated with elapsed times, methods, processes, places, people and movements (Womack et al., 1992). Based on this idea a researcher uses the questionnaires developed by scholar that can able to evaluate the effect of lean manufacturing practice of study area.

From the survey data results we found the value of lean manufacturing practice is .295 and the Sig. level for the variable "Lean Manufacturing Practices" is .002, which is less than our alpha level of .05. In addition, the coefficient of B is positive; therefor, there is a direct relationship between Lean Manufacturing Practices and firm's performance. We would expect that for every one unit increase in lean manufacturing practice, there would be a .295 unit increase in performance. This supports our research hypothesis (**H2:** lean manufacturing practice have a positive effect on firm's performance) and (Shingo, 1996), the elimination of activities that do not add value allows a densification of work and a better match of activities that generate wealth. Accordingly, the increase in profit comes from the reduction of costs, which improves business performance of the company. So, this implies that lean manufacturing practice is a significant predictor of firm's performance.
As the study shows the performance of manufacturing industry is affected by the lean manufacturing practice of the firms. Since lean manufacturing is not capital incentive technology to use and practice in the company, it only needs the owner and his

management commitment and willingness to implement this modern idea of business in to their manufacturing industries.

In addition to this, the response from interview of government officials shows that even if the Oromia Special Zone Surrounding Finfine is close to Addis Ababa, manufacturing industries in the area have problems with insufficient infrastructures like: continuous power interruption, inadequate water supply, lack of sewerage system, access to internet and poor transportation facility near the working site are the major problems. To find the mean and standard deviation of the interview respondents a researcher tailed the ranks of each infrastructure problems, tabulating the results, and finally by using SPSS the out of was found.

As it can be observed in the table 4: 9, problems related to interruption of electric power which have mean value of 2.58, inadequate water supply its mean 2, poor transportation facilities that have mean 1.58 and lack of access to internets mean 1.5 all have means that close to their average are the most influencing problems of manufacturing industries performances in the areas.

According to MoIT (Ministry of Trade and Industry), (1997), the government of FDRE with its respective support institutions has role in promoting manufacturing industries by facilitating infrastructure , marketing, financing, establishing monitoring and feedback systems, etc. to realize the contribution of the sector. This implies supportive institutions and government officials those found at all levels have to solve in sufficient infrastructure problems with the owners of industries.

**Table 4: 9** Report of interview

| | Elect. | Road | Sewerage | Telecom. | Water |
|---|---|---|---|---|---|
| Mean | 2.5833 | 1.5833 | 1.4167 | 1.5000 | 2.0000 |
| N | 12 | 12 | 12 | 12 | 12 |
| Std. Deviation | .51493 | .51493 | .66856 | .67420 | .73855 |

**Source:** *data from interview*

# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSSION AND RECOMMENDATIONS

In this chapter summary of findings, conclusion and recommendations are presented. Based on the purpose of the study and findings conclusion and recommendations are made. The recommendations are mainly related with government bodies and manufacturing industry owners.

## 5.1. Summary of the Finding

The main objective of the study was to analyse the factors that affects the performance of manufacturing industries operations. In line with this, the study has identified the following findings.

- As environmental dynamism decreases in one unit, firm's performance would increase by 0.118 units. This shows environmental dynamism and firm's performance have an adverse relationship.
- For every one unit increase in manufacturing technology there would be a 0.240 unit increase in firm's performance. This implies manufacturing technology directly influence manufacturing performance.
- Since the value of significance level of strategic flexibility (.811) greater than our alpha level .05, strategic flexibility have no significance relationship with firms performance.
- For every one unit increase of lean manufacturing practice, there would be 0.295 unit increase in manufacturing performance. This shows lean manufacturing has a positive effect on manufacturing performance.
- In addition, infrastructures like; interruption of electric power which have mean value of 2.58, inadequate water supply its mean 2, poor transportation facilities that have mean 1.58 and lack of access to internets its mean equal to 1.5 are the influencing problems of manufacturing industries performance.

## 5.2. Conclusions

This study was carried in Oromia region of Oromia Special Zone Surrounding Finfine with the purpose of assessing the factors that affect the performance of manufacturing industry operation. The study has tried to see the demographic of the respondents such as gender, education level, work experience and factors that affects the manufacturing industries performance that are firm's characteristics, strategic flexibility, manufacturing technology, environmental dynamism and lean manufacturing.

As the sample reveals that the involvement of male managers in manufacturing industries activities is more than female managers, and balancing this gap and improving the participants of women would have indispensable roles in benefiting women, bringing political, social and economic development of the society. Most of the managers in the study area have degree and above educational levels which enables manufacturing industries in keeping proper books of records, business plan, taking advocacy issues and to look for more training program.

A mong the deterring factors: lean manufacturing, environmental dynamism, manufacturing technology and strategic flexibility are the major and first ranked impeding factors that affects not to fully performing manufacturing industries.

In addition, poor infrastructure facilities such as continuous power interruption, inadequate water supply, and poor transportation facility near the working site are the problems.

Finally, the study has identified the extent of the influence of variables which highly affects the manufacturing industries performance. Factors related to lean manufacturing practice, manufacturing technology and environmental dynamism were found to the most impeding factors that affects the manufacturing industries performance.

## 5.3. Limitation of the study

This research has encountered certain limitation during the course of conducting this study. One of the difficulties encountered was some respondents were unwilling to spare their time to fill the necessary data, and due to disclosing information may lead to negative effect on their business. This limitation was, however, resolved in dealing with and developing friendly relationship with and gaining trust from respondents. It must be noted that the research only has covered the six selected town of the zone namely Burayu, Lege tafo lege dadi, Gelan, Dukem and Sebeta. Hence, care should be taken to generalize the findings of this study to manufacturing industries in other towns, zones and elsewhere.

## 5.4. Recommendations

Taking measure to alleviate the challenges faced manufacturing industries performance is crucial. Thus in line with finding and conclusions of the study obtained from the samples, the recommendations are forwarded as follows.

- Factor variable such as: lean manufacturing, manufacturing technology and environmental dynamisms are critical factors that affect the performance of manufacturing industries operation. Hence, this requires the full scale attention of the owner of manufacturing industries. This should be done with strong commitment and accountability of the owner and its management to transform the industries in to the right track of performance.
- To solve low institutional capacity there is a need to strength and organize domestic training programs and seeking external co-operation for staff training, and also the industry extension service training must also put strong emphasis to capacitate the industry sector entrepreneur.
- Problems related to infrastructures facilities should be done by the full involvement of higher town administration officials and owner of the company with collaboration with the town Electric Power office, Municipality, water and sewerage office.

- Since manufacturing industries are the corner stone of growth of any country the government officials from higher level to lower level, and supporting institutions have to work with commitment in collaboration with manufacturing industries owners to strength and broaden the performance of manufacturing industries operation based on continuous follow up and adjustment.

- Making intensive research work based on whole area coverage of the zone and region is crucial to obtain the right information and identifying the factors which affects the manufacturing industries operation, and which enables to give broaden recommendations. The focus area for this study was on some selected town of the zone. Hence, it is the researcher's view that future research would focus on the other zones helps to come up with specific findings which will contribute a lot in manufacturing industries over all development in general and alleviating immediate problems in particular.

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# APPENDIX A

## Questionnaire for companies/ Industries

### Dear respondent,

The aim of this questionnaire is to collect information on factors affecting the performance of manufacturing industries that are registered as an investment project in Oromia special zone surrounding Finfinne.

Your participation in this survey and your willingness to complete this questionnaire are very much appreciated. Completing this questionnaire will take approximately 15 minutes and can be done at your convenience.

Individual responses will be held in the strictest confidence and information provided by you remains confidential and will be used only for the research purpose.

**General Instructions**:

Depending on the nature of the question:

- Make '√' or 'X' mark in appropriate box or,
- Encircle the best option or,
- Fill in the space provided.

**Thank you for your co-operation and for taking your time to respond to this questionnaire**.

**Part – 1: Personal Information**

**1.** Your sex 1. Male 2. Female

**2.** What is your educational back ground?

1. TVET 2. Diploma 3. BA/ BSc 4. MA and above

3. What is your position in the company?

1. Senior manager 2.Middle manager 3. Junior manager

4. How long have you been in the company?

1.1- 5 years 2. 6- 10years 3. 11- 15 4. More than 15years

**Part – 2 : Firm's Characteristics**

1. What is the main product produced by this company/Industry?

1. Food & food products. 2. Leather & its product. 3. Textile & garment.

4. Plastic & its product. 5. Construction materials. 6. Other (please specify):

_____

2. Types of your company

1. Multinational 2. Joint venture 3. locally owned

3. Number of product produced in the company. 1. One 2. Two 3.Three & more
4. Numbers of full time employees in this company?

1. 6- 30 workers 2. 31– 200 workers 3. Over 200 workers

5. Average Annual sales income (in birr) for the recent three years

1. 100,000 - 1,500,000 2. 1,501,000 – 30,000,000 3. Over 30,000,000

## Part 3: Environmental factors

The following questions are designed to assess environmental factors that surround your firms operation. Please encircle the appropriate answer that best describes your firm's operating environment.

### Environmental dynamism

| | | strongly disagree | Disagree | Neural | agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1. | Our firm rarely changes its marketing practices to keep up with competitors | 1 | 2 | 3 | 4 | 5 |
| 2. | There is a high obsolescence rate for our products | 1 | 2 | 3 | 4 | 5 |
| 3 | Our competitors action are easily predicted | 1 | 2 | 3 | 4 | 5 |
| 4 | Our customers demand are easily forecast | 1 | 2 | 3 | 4 | 5 |
| 5 | The rate of process technology innovation in our industry is high | 1 | 2 | 3 | 4 | 5 |

## **Part 4:** Manufacturing Technology

These questions are designed to gauge of manufacturing technology in your firm. Please circle the answer that indicates the level of implementation for the following technology in your plant.

| | | strongly disagree | Disagree | Neural | agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | We use local area network for factory in our firm | 1 | 2 | 3 | 4 | 5 |
| 2 | We use computers for control on factory floor in our firm | 1 | 2 | 3 | 4 | 5 |
| 3 | We use local area network for technical data in our firm | 1 | 2 | 3 | 4 | 5 |
| 4 | We use computers for production scheduling in our firm | 1 | 2 | 3 | 4 | 5 |
| 5 | We use electronic data interchange in our | 1 | 2 | 3 | 4 | 5 |
| 6 | We use material requirement planning (MRP) & manufacturing resource planning | 1 | 2 | 3 | 4 | 5 |
| 7 | We use intercompany networks in our firm | 1 | 2 | 3 | 4 | 5 |
| 8 | We use automated drafting technologies in our firm | 1 | 2 | 3 | 4 | 5 |
| 9 | We use computer aided design (CAD) in our firm | 1 | 2 | 3 | 4 | 5 |
| 10 | We use computer aided quality control performed on final products in our firm | 1 | 2 | 3 | 4 | 5 |
| 11 | We use computer aided inspection performed on in-coming or in process | 1 | 2 | 3 | 4 | 5 |
| 12 | We use manufacturing automation protocol in our firm | 1 | 2 | 3 | 4 | 5 |
| 13 | We use pick and place robots | 1 | 2 | 3 | 4 | 5 |
| 14 | We use numerical control/ computerized numerical control machine in our firm | 1 | 2 | 3 | 4 | 5 |
| 15 | We use flexible manufacturing system (FMs) in our firm | 1 | 2 | 3 | 4 | 5 |

## Part 5: Strategic Flexibility

These questions are designed to measure the level of strategic flexibility in your firm. Please circle the answer that indicates the level of flexibility for the items in your plant

| | | strongly disagree | Disagree | Neural | agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Our firm can quickly & easily respond to changes in customer demand | 1 | 2 | 3 | 4 | 5 |
| 2 | Our firm can quickly & easily expand into new regional or international market | 1 | 2 | 3 | 4 | 5 |
| 3 | Our firm can quickly & easily introduce new pricing schedules in response to changes in competitors prices | 1 | 2 | 3 | 4 | 5 |
| 4 | Our firm can quickly & easily react to new product launches by competitors | 1 | 2 | 3 | 4 | 5 |
| 5 | Our firm can quickly & easily adopt to new technologies to produce better products | 1 | 2 | 3 | 4 | 5 |
| 6 | Our firm can quickly & easily adopt new technologies to produce faster process | 1 | 2 | 3 | 4 | 5 |
| 7 | Our firm can quickly & easily adopt new technologies to produce cheaper products | 1 | 2 | 3 | 4 | 5 |
| 8 | Our firm can quickly & easily switch to new supplies to avail of lower costs better quality or improved delivery time | 1 | 2 | 3 | 4 | 5 |
| 9 | Our major suppliers can quickly & easily respond to changing production variety | 1 | 2 | 3 | 4 | 5 |
| 10 | Our firm can quickly and easily introduce new products to customer | 1 | 2 | 3 | 4 | 5 |
| 11 | Our firm can quickly and easily reduce the variety of products available for sale | 1 | 2 | 3 | 4 | 5 |
| | Our firm can quickly and easily add the variety of products available for sale | 1 | 2 | 3 | 4 | 5 |

## **Part 6: Lean manufacturing**

The following questions are designed to measure lean manufacturing in your plant. Please circle the answer that indicates the implementation of lean in the following practices in your plant.

| | | Strongly disagree | Disagree | Neural | agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | We are in frequent contact with our suppliers | 1 | 2 | 3 | 4 | 5 |
| 2 | We often receive visits from our suppliers | 1 | 2 | 3 | 4 | 5 |
| 3 | We give our suppliers feedback on quality & delivery performance | 1 | 2 | 3 | 4 | 5 |
| 4 | We strive to establish a long-term relationship with our suppliers | 1 | 2 | 3 | 4 | 5 |
| 5 | Suppliers directly involved in the new product development process | 1 | 2 | 3 | 4 | 5 |
| 6 | Our key suppliers deliver to plan on just in time basis | 1 | 2 | 3 | 4 | 5 |
| 7 | We take active steps to reduce the number of suppliers in each category | 1 | 2 | 3 | 4 | 5 |
| 8 | We evaluate suppliers on the basis of total cost of bulk | 1 | 2 | 3 | 4 | 5 |
| 9 | We are in close contact with our customers | 1 | 2 | 3 | 4 | 5 |
| 10 | Our customers gives us feedback on quality & delivery performance | 1 | 2 | 3 | 4 | 5 |
| 11 | Our customers frequently share current and future demand information with marketing department | 1 | 2 | 3 | 4 | 5 |
| 12 | We regularly conduct customer satisfaction surveys | 1 | 2 | 3 | 4 | 5 |
| 13 | We use pull production system/ *creating demand for the brand* | 1 | 2 | 3 | 4 | 5 |
| 14 | Products are classified into groups with similar processing requirement | 1 | 2 | 3 | 4 | 5 |
| 15 | Pace of production is directly linked to the rate of customer demand | 1 | 2 | 3 | 4 | 5 |
| 16 | We are working to lower setup times in our factory | 1 | 2 | 3 | 4 | 5 |
| 17 | We conduct process capacity studies before product launch | 1 | 2 | 3 | 4 | 5 |
| 18 | We maintain all our equipment's regularly | 1 | 2 | 3 | 4 | 5 |

## **Part 7:** Manufacturing Performance

The following questions are meant to measure your firm's performance. Please circle the answer that indicates your plant performance compared to your competitors in your industry on local or global basis.

| | | Very low | low | Medium | High | Very high |
|---|---|---|---|---|---|---|
| 1 | Profit | 1 | 2 | 3 | 4 | 5 |
| 2 | Return on assets | 1 | 2 | 3 | 4 | 5 |
| 3 | Sales revenues | 1 | 2 | 3 | 4 | 5 |
| 4 | Net Cash flow | 1 | 2 | 3 | 4 | 5 |
| 5 | Operating income | 1 | 2 | 3 | 4 | 5 |
| 6 | Market share | 1 | 2 | 3 | 4 | 5 |
| 7 | Number of new product launched | 1 | 2 | 3 | 4 | 5 |
| 8 | Time –to- market launches | 1 | 2 | 3 | 4 | 5 |
| 9 | Quality of product performance | 1 | 2 | 3 | 4 | 5 |

# APPENDIX B

## Interview questions for Government officers

1. What is the name of your office?
2. What is your position in the organization?
3. What types of incentives are given by government for manufacturing industries?
4. What are the most problems raised from the manufacturer in performing their business activities?
5. Based on your comment, please rank problems that you mentioned above in terms their level of importance in manufacturing operation?
6. What possible solutions would you recommend to solve the problems?

# DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Tariku Jebena (PhD). All source of materials used for thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in the part or in full to any other higher learning institution for the purpose of earning any degree.

_____ _____

Name Signature & Date

**St. Mary's University, Addis Ababa** **June, 2015**

## ENDOSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

_____ _____

Advisor Signature & Date

**St. Mary's University, Addis Ababa** **June, 2015**