

**YANGON UNIVERSITY OF ECONOMICS
DEPARTMENT OF COMMERCE**

**INNOVATION AND FIRM PERFORMANCE OF
MYANMAR TRADITIONAL MEDICINE
MANUFACTURERS**

EI EI ZIN

NOVEMBER, 2018

**INNOVATION AND FIRM PERFORMANCE OF MYANMAR
TRADITIONAL MEDICINE MANUFACTURERS**

This thesis is submitted to the Board of Examiners in partial fulfillment of the requirements for the Degree of Master of Accounting (M.Act)

Supervised by:

Dr. Than Soe Oo
Assistant Lecturer
Department of Commerce
Yangon University of Economics

Submitted by:

Ma Ei Ei Zin
Roll No. 3
Master of Accounting
Yangon University of Economics

ABSTRACT

The objective of this thesis is to explore the effects of the process, product, and marketing innovations on the different aspects of firm performance, including production, financial, market performance. This is the empirical study and randomly selects 109 Myanmar traditional medicine manufacturing firms located in South and North Okkalapa Township. The research design is qualitative and quantitative research method. The collected data are analysis with using SPSS data were analyzed by factor, reliability, descriptive and multiple regression analysis. This study is based on the Economic Context theory. Descriptive type of research, inferential analysis and multiple regression analysis are used to measure innovation are impact and firm performance of Myanmar traditional medicine manufacturers. It is that process, marketing, and product innovation are impact on firm performance. Although process innovation impact on financial, production and market performance, product innovation is only impact on production and market performance. But, the marketing innovation effect on production performance. Stems from innovation which can be upgraded by practicing health care at own clinics and formal education on Myanmar traditional medicine.

ACKNOWLEDGEMENTS

I really wish to express my sincere gratitude and appreciation to the following people for their kind support, enthusiastic guidance and inspiration in the process of studying master course, especially during the process of writing this thesis. Without supporting these people, today I would not be able to accomplish my study and submission of master thesis.

First and foremost, I would like to express my very heartfelt thanks to Prof. Dr. Tin Win, Rector, Yangon University of Economics, for her kind permission to submit this master thesis.

Moreover, I would like to express my sincere gratitude to Prof. Dr. Soe Thu, Programme Director of the master thesis and Head of Department of Commerce, and Prof. Dr. Tin Tin Htwe, Department of Commerce, for their valuable suggestions and comments.

In particular, I would like to give my special thanks to my supervisor, Dr. Than Soe Oo, Assistant Lecturer, Department of Commerce, for all he kind support encouragement, and precious time as well as he remarkable advice and suggestions on every aspect of this thesis.

I also truly express my thanks to my most-respected parents, my brothers and sister, and especially my beloved family for their sustained support and encouragement.

TABLE OF CONTENTS

	Page
Abstract	i
Acknowledgement	ii
Table of Contents	iii
List of Tables	v
List of Figure	vi
List of Abbreviations	vii
Chapter 1 Introduction	1
1.1 Rationale of the Study	2
1.2 Objective of the Study	5
1.3 Scope and Method of the Study	5
1.4 Organization of the Study	5
Chapter 2 Theoretical Background of the Study	7
2.1 Concept of Innovation	7
2.2 Types of Innovation	8
2.3 Firm Performance	13
2.4 Review of Previous Studies	15
2.5 Conceptual Framework of the Study	25
Chapter 3 Innovation of Myanmar Traditional Medicine Industry	27
3.1 Overview of Myanmar Traditional Medicine Industry	27
3.2 History of Innovation in Myanmar Traditional Medicine Industry	29
3.3 Innovations and Contributions of Innovative Myanmar Traditional Medicine Manufacturers	31
3.4 Attitude and Practice of Myanmar People on Traditional Medicine	37
Chapter 4 Research Methodology	40
4.1 Research Design	40
4.2 Demographic Profile of the Respondent	42
4.3 Reliability and Validity Test	46
4.4 Innovation of Myanmar Traditional Medicine Manufacturers	53
4.5 Effect of Innovation and Firm Performance	54

Chapter 5 Conclusion	59
5.1 Findings and Discussion	59
5.2 Suggestions and Recommendations	61
5.3 Needs for Future Research	63

References

Appendices

LIST OF TABLES

Table No.	Title	Page
4.1	Respondents by Gender	43
4.2	Respondents by Year of Establishment	43
4.3	Respondents by Type of Ownership	44
4.4	Respondents by ISO Certificate	44
4.5	Respondents by Age Group	44
4.6	Respondent by Education	45
4.7	Respondents by Get Started Current Business	45
4.8	Respondents by Membership Status of Myanmar Traditional Medicine Practitioner Association	46
4.9	Reliability Test	48
4.10	Marketing Innovations	49
4.11	Process Innovations	50
4.12	Product Innovations	50
4.13	Financial Performances	51
4.14	Production Performances	52
4.15	Marketing Performance	52
4.16	Innovations of Myanmar Traditional Medicine Manufacturers	53
4.17	Firm Performance	55
4.18	Effect of Innovation Practices on Financial Performance	56
4.19	Effects of Innovation Practices on Production Performance	57
4.20	Effects of Innovation Practices on Market Performance	58

LIST OF FIGURE

Figure No.	Title	Page
2.1	Conceptual Framework of the Study	26

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
FDA	Food and Drug Association
GMP	Good Manufacturing Practice
HIV	Human Immunodeficiency Virus
ISO	International Standard Organization
MFDA	Myanmar Food and Drug Administration
OECD	Organization for Economic Co-operation and Development
ROA	Return on Assets
ROI	Return on Investment
SEM	Structural Equation Modeling
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Science
STP	Science and Technology Parks
TM	Traditional Medicine
UBA	United Bank of Africa
WHO	World Health Organization
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

The recent social trend in many societies is the expecting and demanding of innovative activity because consumers are sensitive to innovative offering of business. Innovation is becoming more and more important in modern society. There is a lot of research on different kinds of innovation. These are product innovation, process innovation, marketing innovation and organization innovation. Innovation as a term is not only related to products and processes, but is also related to marketing and organization. Schumpeter (1934) described different types of innovation: new products, new method of production, new sources of supply, the exploitation of new markets, and new ways to organize business. In today rapidly increase competition, to cope with innovation sensitivity of consumers, to consider their offering to be innovative. Today's manufacturers are trying to launch new products, to use new production processes, and to conduct new marketing techniques which are not only new to them but also new to the market, in fact, they are new to the world.

Recently in most developing countries for economic development the major emphasis is one the creativity and innovation in manufacturing industries. The manufacturers' creative ideas and firm's capabilities to make use of ideas into real innovations in manufacturing industries are encouraged and upgraded. That emphasis is also found in the Union of Myanmar, especially in some distinct manufacturing industries such as Myanmar traditional medicine industry and hand-made industries. The importance of innovation in Myanmar traditional medicine industry has been seen obviously in recent years.

Traditional medicine has existed in Myanmar since time immemorial. It has been found inherited from one dynasty to another. Nowadays most of Myanmar people prefer to use traditional medicine because it has fewer side effects than western medicines, lower cost and is readily available to buy.

Since the 1990s, the traditional medicine industry developed rapidly due to the support and promotion of government and people's recognition of effectiveness of traditional medicines. The assistance rendered by Government in innovation of Myanmar traditional medicines has considerably enhanced. Research centers and laboratories are provided for registration of traditional drugs, development of innovative medicinal formulae and development of newly potent traditional

medicines. The systematic procedures for registration of traditional medicine and manufacturing licenses are provided by government to produce more efficacious medicines. Since the year 1999, government has been supporting the holding of traditional medicine practitioners' conferences where research papers on newly development therapies, drugs, and formula have been submitted by Myanmar traditional medicine practitioners.

In 1997, the World health Organization (WHO) drafted the Declaration on Health development in the South-East Asia Region in the 21st Century (the Declaration), in which member states laid out their proposals for health reform. At current situation, to the rising marketing demand on innovative Myanmar traditional medicines, manufacturers and practitioners are to play attention on creative ideas and innovation in their product, production processes, marketing and organization techniques. Thus, the traditional medicine industry is undertaking production of potent medicine drugs to be in line with the standards of GMP (Good Manufacturing Practices) identified by the Department of Traditional Medicine under the Ministry of Health, and to meet with the requirement of ISO (International Standards Association). As the result of international norms being applied in production processes, standard storage-system, and innovative packaging methods for traditional medicine manufacturing; public trust and confidence in Myanmar traditional medicine has been tremendously enhanced. Some private manufacturing firms are now exporting traditional medicines which are well accepted locally as well as abroad. Such market acceptances on traditional medicines stem from the creativity and innovation of Myanmar traditional medicines manufacturers.

Firm performance is a multidimensional concept whose indicators can be departmental, such as pertaining to production, finance or marketing or consequential such as pertaining to growth and profit.

1.1 Rationale of the Study

Innovation has been widely viewed as an important factor in the competitive business environment. Organization with strong innovation can respond and adapt environment changes quicker and perform better than traditional organizations. In developing countries including Myanmar, firm live and die with the creative thinking and innovation activities. The encouragement of people is one of the attractiveness for this business.

The global competition, which became particularly tough after 80's forced the company's focus on their business, especially on innovations (John & Davies, 2000). Innovation is considered as developments and new application, with the purpose of launching newness into the economic area. Innovation has great commercial importance due to its potential for increasing the efficiency and the profitability of companies. The key reason for innovativeness is the desire of firm to obtain increased business performance and increased competitive edge. Therefore innovation plays a significant role in creating the differences of performance and competition among firm, regions and even countries.

Myanmar traditional medicine manufacturing sector has been in the transition from reliance on traditional formulae and traditional beliefs to reliance on scientific and innovative manufacturing and marketing. With the encouragement of government and market attractiveness on traditional medicines, the number of Myanmar traditional medicine manufacturers is rising continuously. Manufacturers are one who are doing business in only producing Myanmar traditional medicines. They do not establish own clinics to give health care services to patients by practicing their medicinal experiences, education, and knowledge.

In Myanmar, the success in traditional medicine manufacturing business is related to the manufacturers' creativity and their firm's capabilities of innovation their innovation is related with their practical experiences and close interaction with patients by practicing health care service at their own clinics. Moreover, their educational background related to traditional medicine does mainly effect their innovation which in turn can also generate firms' success.

Currently in Myanmar, the number of Myanmar traditional medicine manufacturers is considerably and small compared to the existing number of Myanmar traditional medicine practitioners. It is an issue which has to be taken into account to develop Myanmar traditional medicine manufacturing sector. If the successes (performance) of Myanmar traditional medicine manufacturer's stems from manufacturer's innovation, then it can be upgraded by practicing health care at own clinics, it is urgently needed to encourage and support the existing practitioners to conduct the business of Myanmar traditional medicine manufacturing. If so, the stimulating factors innovation of Myanmar traditional medicine manufacturers and relationship between themselves and success of firm will be identified in Myanmar traditional medicine manufacturing sector.

Every nation throughout the world has nation's own traditional medicine. Together with development in modern science and technology, scientific medicine like western medicine has achieved progress but Myanmar traditional medicine has not disappeared from this world and it still in use even in more use. It has gained confidence from the local people as a result of efficacy, safety, accessibility and affordability. Because of efficacy and safety with relatively fewer side effects, the innovative Myanmar traditional medicines are very beneficial to some patients who are afraid of the side effect of western medicines. Moreover, due to their relatively lower costs and easier access, Myanmar people throughout the country especially from rural and remote areas are largely relying on them. Thus the innovation of Myanmar traditional medicine manufacturers are vital important for uplift of health of Myanmar citizens as well as for growth of Myanmar.

The successful manufacturers have the ability to develop new ideas and to discover new ways of looking at problems and opportunities. That sort of ability can be considered as a kind of creativity. In today's dynamic competition in the traditional medicine market, Myanmar traditional medicine manufacturers are only to succeed through two different ways, one by "thinking and doing new things" or other by "doing old things in new ways". The success of Myanmar traditional medicine manufacturers largely depends on manufacturers' great idea and the ability to translate that idea to economic reality.

Myanmar government is now encouraging the use of traditional medicine, and practitioners and manufacturers are accepted as integral components of the health care system. This opportunity attracts many traditional medical practitioners and other medical professionals to invest in traditional medicine manufacturing sector. According to the health report of WHO (2009), at this current situation, acceptance and utilization of traditional medicines by local people could be expressed as a front role, compared to other countries.

Myanmar researchers also have not yet presented the framework showing of innovation, and innovation activities effect on performances in Myanmar traditional medicines manufacturing sector. In that sector, manufacturers' innovation leads to high market acceptance. Manufacturers' innovation relies on various factors. This thesis could fill of innovation Myanmar traditional medicine manufacturers, and the relationships between innovation and performance in their firms.

1.2 Objective of the Study

The main objective of this study is to analyze the effect of innovation on firm performance in Myanmar traditional medicine manufacturing firms. To achieve the main objectives of the study, various specific objectives are defined for the current study. The specific objectives are as follows:

- (1) To identify the product, marketing and process innovation of Myanmar traditional medicine manufacturers,
- (2) To analyze the relationship between innovation activities and firm performance of Myanmar traditional medicine manufacturers.

1.3 Scope and Method of the Study

This study mainly focuses on 109 randomly selected Myanmar traditional medicine manufacturers. All sample firms chosen in the study are registered at the Department of Traditional Medicine, Ministry of Health, and all firms were still operating until 2017. They had traditional medicine manufacturing licenses with at least three years of validity.

Pure practitioners producing traditional medicine only for treatment on their own patients, for marketing or not for marketing, are focused pure practitioners and local Myanmar traditional medicine manufacturers in this study. The attitudes, beliefs and practices of Myanmar people on traditional medicines are not studied in detail as well.

For primary data collection the structured questionnaires are applied. For data analysis, factor, reliability, and multiple regressions are applied. The secondary data are collected from earlier research, texts, internet, and journals.

This study is the first stage paper for studying the innovation, and performance of Myanmar traditional medicine manufacturers by investigating the 109 Myanmar traditional medicine manufacturers.

1.4 Organization of the Study

This study consists of five chapters; Chapter 1 is the introduction, the rationale of the study, objective of the study, scope and method of the study and organization of the study.

Chapter 2 explains theoretical frameworks of innovation, effect of innovation on performance.

Chapter 3 represents the general overview on traditional medicine manufacturing sector in Myanmar. The development of Myanmar traditional medicine manufacturing sector, the assistance of government to Myanmar traditional medicine manufacturing sector, and the contributions of innovative Myanmar traditional medicine manufacturers are presented in this chapter.

Chapter 4 describes the results of analysis conducted on demographic profile, innovation, and the relationship between innovation and the performance of Myanmar traditional medicine manufacturers.

Chapter 5 findings and discussion, conclusions, suggestions and recommendations of Myanmar traditional medicine manufacturers.

CHAPTER 2

THEORETICAL BACKGROUND OF THE STUDY

This chapter presents the theories and concepts that form the theoretical framework of the study. The aim of this chapter is to review theories and concepts of the innovations types and firm performance. The chapter concludes with review of previous studies on innovation type and firm performance. Then, based on these literature reviews, conceptual framework of the study is developed.

2.1 Concept of Innovation

Innovation is the act of creating products or services that deliver value to people and that which they will want to pay for. Innovation is at the heart of business. Every great company was founded, at its heart, with some form of innovative product. Innovation may be defined as exploiting new ideas leading to the creation of the new product, process or service.

The Austrian economist Joseph Schumpeter, (1934), a pioneer of innovation management, described innovation as “creative destruction”- a new association of production factors and production conditions. Schumpeter defined innovation from five aspects: (a) the introduction of new goods – which customers are not familiar yet, or a new quality of goods. (b) The introduction of a new method of production, which not only means new technology, but also means a new way of handling a commodity commercially. (c) The opening of a new market. New market does not just mean the markets which never existed before, it also means the markets which already exists but enterprises have not entered previously. (d) Finding a new source of supply of raw materials or half-manufactured goods. Like new market, new source means both the source which has first to be created and the source which has existed but has not been used before. (e) The carrying out of the new organization of any industry, like create a monopoly position or break up a monopoly position.

Although more than 70 years has past after Schumpeter presented his innovation theory, it can be seen as a basic theory of innovation and has its own rationality to be widely known. Later, people summarized Schumpeter’s innovation definition into five types: product innovation, process innovation, marketing innovation, resource allocation innovation and organization innovation (Xi & Fang, 2005).

Many other definitions about innovation have been presented in recent years. Barringer & Tidd, (2007) define innovation as the process of translation new ideas into useful practice and use them, like new products, processes and services. Barringer & Tidd, (2007) emphasized that only generating new ideas cannot be considered as innovation. The ideas must be put into useful practice. Slightly different from Schumpeter's theory, Barringer & Tidd, (2007) thought there are many forms of innovation, but it can be summarized into four dimensions of change, they call it the 4Ps of innovation: Product innovation – Changes in the things (products/services) which an organization provide; Process innovation – Changes in the ways in which things (products/services) are created and delivered; Position innovation – Changes in the context in which the products/services are introduced; Paradigm innovation – Changes in the underlying mental models which frame what the organization does.

It is not just the invention of a new idea that is important, but it is actually “bringing it to market”, putting into practice and exploiting it in a manner that leads to new products, services or systems that add value or improve quality. It possibly involves technological transformation and management restructuring. Innovation also means exploiting new technology and to bring about significant changes in society.

2.2 Types of Innovation

Innovation has been studied in a variety of contexts, including in relation to technology, commerce, social systems, economic development, and policy construction. There are, therefore, naturally a wide range of approaches to conceptualizing innovation (Fagerberg et al. 2004). In economics context, the word “innovation” has been introduced by Schumpeter, (1934) and explained as capital accumulation that is for economic development. Economic innovation is the introduction of a new good or a new quality of good. Schumpeter proposed that the five types of innovation: the product innovation, the process innovation, the marketing innovation, the supply chain innovation, and the business model innovation.

2.2.1 Product Innovation

Product innovation means introducing the new products/services or bringing significant improvement in the existing products/services (Polder et al. 2010). For product innovation, the product must either be a new product or significantly improved with respect to its features, intended use, software, user-friendly or

components and material. The product innovation is defined as new products or services introduced to meet an external user or market-need (Knight, 1967). Product innovation corresponds to the introduction on the market of a new or improved product (Proprius, 2012).

Product innovations can utilize new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies. The term product covers both good and services. Product innovation is a difficult process driven by advancing technologies, changing customer needs, shortening product life cycles, and increasing global competition. For success, it must involve strong interaction within the firm and further between the firm and its customers and suppliers (Akova et al. 1998). Product innovation involves the introduction of a new good or service that is new or substantially improved (Schumpeter, 1934). The first digital camera and microprocessors are the examples of the product innovation. Change in design that brings significant change in the intended use or characteristics of the product is also considered as product innovation (OECD, 2005). The product innovation has many dimensions. First, from the perspective of the customer, product is new to the customers. Second, from the perspective of the firm, the product is new to the firm. Third, product modification means bringing product variation in the existing products of the firm (Atuahene-Gima, 1996).

Product innovation is bringing efficiency in the business (Polder et al. 2010). In highly competitive environment of today, firms have to develop new products according to customer's needs (Olson et al. 1995). The aim of product innovation is to attract new customers. Firms introduce new products or modify the existing products according to needs of the customers (Adner & Levinthal, 2001). Shorter product life cycle of the products forces the firms to bring innovation in the products (Duranton & Puga, 2001). In the competitive environment firms bring product innovation to compete in the market.

The product innovation face the low competition at the time of introduction and that is why it earns high profit (Roberts, 1999). Ettlíe & Reza, (1992) stated that firms bring product innovation to compete with other firms in the markets. Firms bring product innovation to satisfy their customers. Product innovation is reflected by the functional performance (Olson et al. 1995).

Product innovation is one of the key factors that contribute to success of an organization. New product development and product innovation is an important

strategy for increasing the market share and performance of the business. The studies showed that new product development has positive impact on the performance of the firm (Ettlie & Reza, 1992).

Product innovation is the creation and subsequent introduction of a good or service that is either new, or an improved version of previous goods or services. Product innovation includes new product, enhanced quality and improving its overall performance. Innovation has long been an important part of business. The ability to create new products and services can easily be one of the most valuable assets a company has. The process of developing and bringing new or substantially better products or services to market has been consistently used in the literature to define product innovation (Hauser et al. 2005). For further clarification and distinction, product innovation can be divided into three basic types: (1) product line extensions (familiar to the organization but new to the market), (2) me-too products (familiar to the market but new to the organization), and (3) new to-the-world products (new to both the organization and the market) (Olson et al. 1995). The intention of product innovation is to modify the functionality of the product in some manner to enhance value to the consumer or organization (Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data 2007). Product innovation has been cited by researchers on multiple occasions as a necessary element for long-term firm survival (Hauser et al. 2005). To summarize, most researchers and practitioners indicate that product innovation is market focused and involves substantial change to some tangible feature of the product or service, often referenced as formulation or functionality modifications.

2.2.2 Process Innovation

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products (OECD, 2005). Fagerberg et al. (2004) stressed that while the introduction of new products is commonly assumed to have a clear, positive effect on the growth of income and employment, process innovation, due to its cost-cutting nature, can have a more hazy effect. Minor changes or improvements, an increase in production or service capabilities through the addition of manufacturing or

logistical systems which are very similar to those already in use, ceasing to use a process, simple capital replacement or extension, changes resulting purely from changes in factor prices, customization, regular seasonal and other cyclical changes, trading of new or significantly improved products are not considered innovation. While product innovation focuses more on the market, process innovation is more internally concentrated (Damanpour & Gopalakrishnan, 2001). The Oxford Handbook for Innovation summarizes process innovation as —new or significantly improved methods in the production or manufacturing process. In a similar fashion, Baer & Frese, (2003) define process innovation as deliberate and new organizational attempts to change production and service processes (Baer & Frese, 2003).

According to the internationally recognized Organization for Economic Cooperation and Development (OECD), process innovation is the implementation of new or significantly improved methods for production or delivery, to include significant changes in techniques, equipment, and/or software. As guided by Damanpour & Gopalakrishnan, (2001) as well as other researchers, understand, and therefore define, the-service processes and -delivery to mean internal methods associated with manufacturing or production in keeping with the original intention of this business practice. Process innovation is-the implementation of substantially new, significantly improved, or more efficient methods of producing, manufacturing, and distributing the organization's market offering. With working definitions product and process innovation, marketing innovation is next defined and operationalized and followed with a discussion of the antecedents and consequences for marketing innovation.

Process innovation is finding a novel way of achieving an output which was traditionally done in a different way. In the process innovation, the final product is not touched, but the method of bringing out the product is improved. The improvement could be due to use of new techniques, equipment. Process innovation is the application or introduction of a new technology or method for doing something that helps an organization remain competitive and meet customer demands. Process innovation happen when an organization solves an existing problem or performs an existing business process in a radically different way that generates something highly beneficial to those who rely process or both. Process innovation is defined as new elements introduced into an organization's production or service operations to produce a product or render a service (Knight, 1967). Process innovation relates to the

sequences and nature of the production process (Propriis, 2012). Process innovation can generate value to either internal customers, including employees or the actual organization itself or it can create value to external customers, including business partners, end users or actual customers. Process innovation means improving the production and logistic methods significantly or bringing significant improvements in the supporting activities such as purchasing, accounting, maintenance and computing (Polder et al. 2010). OECD, (2005) defined the process innovation as implementation of the production or delivery method that is new or significantly improved.

Process innovation includes bringing significant improvement in the equipment, technology and software of the production or delivery method. Firms bring novelties in the production and delivery method to bring efficiency in the business. The new method must be at least new to the organization and organization had never implemented it before. The firm can develop new process either by itself or with the help of another firm (Polder et al. 2010). Firms bring process innovation to produce innovative products and amendments are also brought in their processes to produce the new products (Adner & Levinthal, 2001). To decrease the production cost, firms go for bringing process innovation. The process innovation is reflected by the cost of the product (Olson et al. 1995). Firms adopt new process to compete with other firms; they have to bring the process innovation to satisfy their customers. The process innovation, especially in the manufacturing organizations, can have significant impact on the productivity of the firms. The historical case studies showed that bringing automation in the production methods has increased the efficiency and productivity of the organizations (Ettlie & Reza, 1992).

2.2.3 Marketing Innovation

Marketing innovations target at addressing customer needs better, opening up new markets, or newly positioning a firm's product on the market with the intention of increasing firm's sales. Marketing innovations are strongly related to pricing strategies, product package design properties, product placement and promotion activities along the lines of four P's of marketing (Kotler, 1991). Marketing innovation is defined as implementing new marketing method that involve significant changes in the packaging, design, placement and product promotion and pricing strategy. The objective of marketing innovation is to increase the sales and market share and opening new markets. The distinctive feature for the marketing innovation

from the other types of innovation is the implementation of new marketing method that the firm has never been implemented before. Marketing innovation is referred to as—innovation in marketing or—new marketing techniques in the context of strategic organizational behavior and patterns (Robinson & Pearce, 1988).

Marketing Innovation is the development of new marketing method with improvement in product design or packaging, product promotion, or pricing. Supply chain occurs in the sourcing of input products from suppliers and the delivery of output to customers. Business Model Innovation involves changing the way business is done terms of capturing value (Miles, 2000).Market innovation is referred to encompass the mix of targeting markets and how selected markets are best served and seeks to identify and provide new and better markets and better strategies to reach target markets (Johne, 1999).

Marketing innovation is developing new techniques, methods for marketing. Developing new techniques, methods and tools for marketing have significant role in success of the organizations. The example of marketing innovation is ‘changed ways for collecting customer’s information’. Firms now use computer software to collect customer information. The new formats of trading, like online store is also example of marketing innovation (Chen, 2006). Marketing innovation is the capacity to re-conceive the existing industry model in ways that create new value for customers, undermine competitors, and produce new wealth for all stakeholders, according to the organizational knowledge literature (Hanvanach et al. 2003). Marketing innovation is the generation and implementation of new ideas for creating, communicating, and delivering value to customers and managing customer relationships. Marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion, or pricing, according to OECD.

2.3 Firm Performance

Firm performance is the outcomes achieved in meeting internal and external goals of a firm (Lin et al., 2008). Outsiders normally evaluate a firm’s ability based on its performance (Bonn, 2000). This implies why performance is like a mirror to a firm. The level of goal accomplishment generally defines a firm’s performance (Achrol & Etzel, 2003). Firm performance is the outcomes achieved in meeting internal and external goals of a firm (Lin et al. 2008). As a multidimensional

construct, performance has several names, including growth (Wolff & Pett, 2006), survival, success and competitiveness. The concept of firm growth was introduced in the early 1930s known as the “Law of Proportionate Effect” (sometimes called Gibrat's rule of proportionate growth). The Law of Proportionate Effect is frequently used as a benchmark for many studies to determine business growth. Gibrat's, (1931) explains a firm's growth rate does not depend on the size of a firm.

Firm performance is a multidimensional concept (Murphy et al. 1996) whose indicators can be departmental, such as pertaining to production, finance or marketing (Sohn et al. 2007), or consequential such as pertaining to growth and profit (Wolff & Pett, 2006). It can be measured with objective or subjective indicators (Harris, 2001). In this study, subjective measures of performance adapted from Venkatraman, (1989) were adopted because of the difficulty of gathering hard financial data from private companies, in the absence of any publicly available objective data which includes the firms in the sample. The performance indicators suggested by Venkatraman, (1989) measures perceived performance relative to those of the relevant competitors.

Traditionally, a variation in firm performance is associated with industrial structure (Frazier & Howell, 1983). The neo-classical economic theory perceives a firm's growth as a process of attaining the minimum point of average cost. In other words, the process of a firm's growth is similar to the process of profit optimization (Trau, 1996). In 1959, Penrose developed a resource-based-view theory (Garnsey, 1988), where a firm's performance is dependent upon the resources and capabilities it has as a source of sustainable competitive advantages in the market (Marcus, 1988). Garnsey, (1988) argues that firms must access, mobilize and deploy resources before they can grow. Adoption of various strategies by firms also determines firm performance. Different firm uses different strategies of performance (Collins & Porras, 2000); hence, a firm's performance is concentrated in its strategy (Short et al. 2007). Depending on organizational goals, different methods are adopted by different firms to measure their performance. This performance indicator can be measured in financial and non-financial terms (Bakar & Ahmad, 2010). Most firms, however, prefer to adopt financial indicators to measure their performance (Grant et al. 1988). Return on assets (ROA) (Zahra, 2008), average annual occupancy rate, net profit after tax and return on investment (ROI) (Tavitiyaman et al. 2012) are the commonly used financial or accounting indicators by firms. Some other common measures are profitability, productivity, growth, stakeholder satisfaction, market share and

competitive position (Garrigos-Simon & Marques, 2004). However, financial elements are not the only indicator for measuring firm performance. It needs to combine with non-financial measurement in order to adapt to the changes of internal and external environments (Kraeger & Parnell, 1996). Supporting this opinion, Rubio & Aragon, (2009) divided business performance into four dimensions, that is internal process, open system, rational goal and human relations, where each dimension is measured by any changes in its own variables.

2.4 Review of Previous Studies

The global competition, which became particularly tough after 80's, forced the companies focus on their business strategies, especially on innovations (Marcus & Hodgetts, 1988). At the present time, due to the tough global competition, both individuals and companies begin to evaluate and to apply their innovation strategies and entrepreneurial abilities with the purpose of gaining competitive advantage (Drucker, 1985). The importance of innovation is described by Roberts & Amit, (2003) as a means leading to a competitive advantage and superior profitability. As revealed in many studies, innovation and firm performance have a positive relationship (Han et al. 1998). Innovation would appear in product, process, market, factor and organization (Kao, 1989), but the first three dimensions are more familiar in the innovation literature (Otero-Neira et al. 2009). Murphy et al. (1996) claimed that firm performance is a multidimensional concept, and three indicators can be production, finance or marketing (Sohn et al. 2007), or consequences such as growth and profit (Wolff & Pett, 2006). It can be measured with objective or subjective indicators (Harris, 2001). In this study, performance involves 4 indicators: production, market, and financial performance.

Marketing performance is reflected by increase in sales, market share and profitability (Atuahene-Gima, 1996). Production performance is the combination of achievements in all elements of the production performance. The elements of production performance are quality improvement, cost efficiency, speed to production and flexibility in production. Finally, the production performance is the organizational achievement with respect to cost reduction, improving quality, speed to market and production flexibility. The production performance leads the organization directly to profitability (Günday et al. 2011). Actually, the key reason for innovativeness is the desire of firms to obtain increased business performance and increased competitive

edge. Companies procure additional competitive advantage and market share according to the level of importance they give to innovations, which are vital factors for companies to build a reputation in the marketplace and therefore to increase their market share. Metcalfe, (1998) stated that when the flow of newness and innovations desiccates, firms' economic structure settles down in an inactive state with little growth. Therefore, innovation plays a significant role in creating the differences of performance and competition among firms, regions and even countries.

For instance, the study by Fagerberg et al. (2004) revealed that innovative countries had higher productivity and income than the less-innovative ones. OECD reports pointed out that companies that developed innovations in a more decisive way and rapidly, had also more qualified workers, paid higher salaries and provided more conclusive future plans for their employees. In fact, the effects of innovations on firm performance differ in a wide spectrum from sales, market share and profitability to productivity and efficiency (OECD, 2005). McAdam & Keogh, (2004) investigated the relationship between firms' performance and its familiarity with innovation and research. They found out that the firms' inclination to innovations was of vital importance in the competitive environments in order to obtain higher competitive advantage. Geroski, (2005) examined the effects of the major innovations and patents to various corporate performance measures such as accounting profitability, stock market rates of return and corporate growth. The product design, that only changes the appearance of the product and does not change the features and functionality of the product, is also marketing innovation (OECD, 2005). Marketing innovation is non-technological innovation. Firms bring innovation in their marketing methods to bring efficiency in their business (Polder et al. 2010).

The observed direct effects of innovations on firm performance are relatively small, and the benefits from innovations are more likely indirect. However, innovative firms seem to be less susceptible to cyclical sectorial and environmental pressures than non-innovative firms. Innovations can actually enhance the firm performance in several aspects. Particularly, four different performance dimensions are employed in the literature to represent firm performance (Yilmaz et al. 2005). These dimensions are innovative performance, production performance, market performance and financial performance. Innovation has a considerable impact on corporate performance by producing an improved market position that conveys competitive advantage and superior performance (Walker, 2004). A large number of studies

focusing on the innovation-performance relationship provide a positive appraisal of higher innovativeness resulting in increased corporate performance (Wu et al., 2003). But these researches are generally conceptual in nature and/or focus only on a single type of innovation rather than considering all four innovation types already defined, and then explore its impact on performance.

Process and product innovations are the most common innovation types examined. The studies by Baer & Frese, (2003) focus merely on process innovations while studies of Li & Atuagene-Gima, (1996) report on product innovations. Many of these research embrace more or less a positive association between innovations and firm performance, but there are also some studies indicating a negative link or no link at all (Subramanian & Nilakanta, 1996). As Miller, (2001) stated most firms seek technological innovation to gain competitive advantage in their market. Hence, all these efforts made require to be supported by marketing and organizational measures. Generally, researchers neglect organizational and/or marketing innovations, which are equally essential to the growth and effective operation of a firm (Damanpour, 1991).

Relatively few studies on innovation capabilities advocate organizational and marketing innovations. They indicate that more innovative firms place more emphasis on management techniques and reach sustainable levels of higher performance (Hult & Ketchen, 2001). Wolff & Pett, (2004) conducted comparative research for the effects of product and process innovations on firm performance. They indicated that particular product improvements are positively associated with firm growth. Gopalakrishnan, (2000) broadened the topic while emphasizing that innovation speed and innovation magnitude were also relevant innovativeness features both of which had a positive effect on firm performance. Despite the weak link they found, Lin & Chen (2007) associated innovations with increased firm sales; and they argued that organizational innovations rather than technological innovations appeared to be the most vital factor for total sales. On the other hand, Johne & Davies, (2000) ensured that marketing innovations increase sales by increasing product consumption and yield additional profit to firms. Moreover, Oke, (2007) in a recent empirical study on British firms showed that different types of innovations were found to be related to innovative performance. Production performance, as a combination of achievements done in of all its elements cost efficiency, quality, flexibility, speed- is also seen as one of the direct drivers of profitability (Chenhall, 1997), thus effectiveness and efficiency in production would lead to profitability. Further empirical studies confirm

this assertion (Whittington, 1999). For instance, Fullerton & McWatters, (2001) indicated that firms that have invested more in quality practices benefit from significantly higher financial rewards. Similarly, Fullerton & Wempe, (2009) in a recent study, find a positive relationship between non-financial manufacturing performance and financial performance.

In today's customer-driven market, where customer base is a key to achieving better financial results, marketing competence is seen as one of the most important sources of financial performance (Li, 2000) since, market share and sales growth may directly contribute to the financial goals thanks to the increasing amount of price premiums and sales revenues and decreasing amount of marginal unit costs leading to a significant increase in the overall profitability (Buzzel & Gale, 1987). Polder et al. (2010) alludes to product innovation as the introduction of new services/products or the bringing of important improvements in the prevailing services/products. In product innovation, the product should either be a significantly improved feature of a product or new product, its user-friendliness, intended use, material and component. There are several dimensions of product innovation. First, in the perspective of the organization, the product is new to the firm. Second, from customers' perspective, a product is new to customers and third, product changes which refer to bringing product variation in the existing products of the organization (Atuahene-Gima, 1996). The product innovation is introduced to foster efficiency in the business (Polder et al. 2010). In the global competitive era of today more firms have had to develop new products for customers' needs (Olson et al. 1995).

Zhou & Wu, (2010) have stressed that innovation is very critical to enable firms to adapt to turbulent environments and achieve a sustainable competitive advantage. They further noted that whereas firms need a continuous innovation process to respond to the ever-fast changing environmental conditions, the goal of sustainability requires new ways of doing business. According to Zizlavsky, (2011), innovation can be referred as process, product, and firm changes that have not originated from discoveries but arise from a combination of existing applications and technologies in modern contexts. Zemplerova, (2010) also notes that creative research and human capital are considered to be two of the most important determinants of innovation. Kiraka, (2013) opined that product innovation involves idea exploitation. Product innovation is the main sources of gaining competitive advantage for micro and small enterprises. Innovation leads to the enhancement of

product quality which leads to better firm performance and growth (Hoskin, 1990). The potential protection for a firm is provided by product innovation from market threats and its competitors. Most organizations take up product innovation to compete with other organizations in the market or industry (Ettlie & Reza, 1992). Olson et al. (1995) argued that organizations introduce product innovation to meet their customer needs. Thus product innovation is seen as one of the key determinants that lead to the success of a firm. New product innovation and new product development is a significant strategy for enhancing the performance and market share of the business.

Both internal and external factors lead to the development of innovative products designed to special niches and specific needs. The internal factors can relate to monitoring and evaluation of existing products, in-house development of new products and feedbacks from consumers and employees (Roberts, 1999). Studies have shown that product innovation is associated with financial gain (Cozza et al. 2012) and growth in revenue (Dobbs Faria & Mendonça, 2006). There are several meta-analyses that have supported the positive effect of product innovation on firm performance (Bowen et al. 2010). Bayus et al. (2003) showed that product innovation had significant and positive links with firm performance. Hernandez-Espallardo & Ballester, (2009) also revealed a significant positive effect of product innovation (efficiency and efficacy) are positively and strongly associated to organizational performance. Antoncic et al. 2001, conducted a survey of top management of 113 organizations in the turkey automotive industry which showed that product innovation has had positive and significant effect on firm performance.

Rosli & idek, (2013) conducted a study on the impact of innovation on the performance of small and medium manufacturing enterprises in Myanmar. The study found that the dimensions of product innovation (worth and effectiveness) influence and are related to wine firms performance. The aim of product innovation is to appeal to new customers. Organizations modify existing products or introduce new products according to the new customers (Adner & Levinthal, 2001). Due to the short life cycle of product it forces organizations to introduce innovation in the products by enhancing or introducing new products (Duranton & Puga, 2001). Harris (2001) stressed that product innovation is important to remain competitive but is not adequate to create a differentiation in the market. In the competitive environment organizations introduce product innovation to contest in the market. Product innovation in the market faces low competition when introduced and then earns the organizations high

profit (Roberts, 1999). In a comparative study on the effects of process innovation and product innovation, Wolff & Pett, (2004) conducted comparative research for the effects of product and process on firm performance and found that product changes are positively related to firm growth and profitability. Oke et al. (2013) conducted a study of 207 organizations in Australia and had a conclusion that product innovation and product quality performance were positively associated with firm performance. Conversely, Hall, (2009) found a standard positive association between product innovation productivity and activities. Similarly, Akova et al. (1998) used regression analysis and factor analysis techniques to provide insights into the association between firm performance and the different types of innovation and concluded that product innovation was the most important in promoting firm performance than firm wide innovation. Furthermore, Ar & Baki, (2011) used structural equation modeling (SEM) with data from SMEs managers in Turkish Science and Technology Parks (STPs) and revealed that product innovation had a positive and strong relationship with firm performance.

Marquis & Myers, (1969) validate the hypothesis that product innovation influenced firm performance in a major way by adopting a hierarchical regression analysis in the validation. Product innovation is one of the important sources of competitive advantage to the organization (Camison & Lopez, 2010). Through innovation, an organizations competitive advantage can be enhanced through product quality which enhances firm performance and eventually its competitiveness (Garvin, 1987; Forker et al. 1996). Product innovation provides a potential protection to an organization from market competitors and markets (Hult et al., 2001). Bayus et al. (2003) showed that product innovation had a significant and positive link with firm performance. In a survey of 744 Spanish firms, Espallardo & Ballester, (2009) found a positive impact of product innovation on firm performance. Similarly, Akova et al. (1998) found that both efficiency and efficacy as product innovation dimensions are positively and strongly associated to firm performance. The introduction of new products is categorically related to firm performance (Varis & Littunen, 2010). In a longitudinal study of the pharmaceutical industry in the United States, Roberts, (1999) found evidence to support the expected association between product innovation rates and prolonged high profitability. Arz et al. (2010) conducted a study on the effect of patents acquired and product innovations and firm performance in different sectors of

Canada and the United States were investigated and found product innovation had a significant effect on firm performance.

According to Krager & Parnell, (1996) emphasizes the use of raw materials which for green product innovation which results on the low costs for raw materials and thus lead organizations to establish strategies to transform waste into products that can be sold and provide additional revenues. Organizations can increase effectiveness of resources through green innovation to make up with environmental costs (Chen et al. 2006). Research conducted by Carrion-Flores & Innes, (2010) with data from 127 firms among United States manufacturing sector was remarkable about the association between environmental innovation and environmental performance.

Gluch et al. (2009) is conduct a study among Swedish construction firms and revealed that firms can affect their capacity to use green innovations and enhance firm performance. A study conducted by (Proprise, 2012) on environmental new product development projects in United States reported that eco-innovation processes had a positive effect on market performance. Similarly, Ar & Baki, (2011) research found that green product innovation positively affected that firm performance and competitive capacity. The results demonstrated significant and strong influence of green product innovation on firm performance. Bowen et al. (2010) admitted that based on the foregoing arguments that there is a positive effect of product innovation on revenue growth. Moreover, as supported by earlier researches, gathered that product innovation have been shown to generate exceptional profits (Artz et al. 2010). More so, when products are introduced they face little or no direct competition which in the end leads to higher product margins. In their study, Gökkaya & Özbağ, (2015) found that significant impact on firm performance was from innovation. The firm efforts in developing processes and products enhance the performance of the firm including quantitative and qualitative performance. The literature review revealed that there are studies which confirmed that there is a positive association between product innovation and firm performance including market growth and share and sales ratio (Bayus et al. 2003). Gökkaya & Özbağ, (2015) argued that capability of the firm's to introduce some new product, idea or process that stimulated market share as well as the organization capacity to cope with competitive market conditions which led to a conclusion that firm performance is dependent on firm innovativeness.

There are several studies that have been conducted in Kenya to show the relationship between product innovation and firm performance. Lin, (2000) conducted

a study on innovation strategies effect on competitive advantage in United Bank of Africa. The findings suggested that there was adoption of product innovation strategies and enabled UBA to offer a differentiated product. Lin & Chen, (2007) researched on innovativeness in the telecommunication sector and found that product innovation had a positive effect on profitability.

Ngirigacha & Bwisa, (2013) conducted a study on the relevance of entrepreneurial innovation on SMEs' market competitiveness in Thika town. The findings provided evidence that there is a positive and notable relationship between product innovation and firm performance. Soi, (2016) study on effect of innovation strategies on performance of organizations in the telecommunication industry in Kenya discloses that product innovation improved performance of telecommunication businesses in Kenya.

Organizations in obtaining an output they are involved in converting input such as labor and raw material (services or products). This process is defined as a connection of a set of activities tailored to convert input into output which is offered to the consumer (O'Sullivan & Dooley, 2009). Bagoroza & Waal, (2009) define process innovation as a development driven by internal production objectives. Also, process innovation refers to improve the effectiveness and efficiency of the way the firm operates. Therefore, a process innovation can be seen an improvement method or newest internal process to achieve the greatest goals and performance of the firm. Process innovation can be seen as the execution of improved production or new delivery method that includes changes in equipment, techniques and software (Omachonu & Einspruch, 2010).

According to Polder et al. (2010), process innovation refers to bringing together logistically production methods and important improvements in supporting activities such as computing, accounting, purchasing and maintenance. The OECD, (2005) defined process innovation as implementation of the delivery method or production that is significantly improved or is new. The new or improved method must be new to the organization and have never been used before. The organization can develop new processes by itself or with the assistance of another firm (Polder et al. 2010). Organizations normally adopt process innovation in order to produce innovative amendments and products in their processes for them to produce the new products (Adner & Levinthal, 2001).

According to He & Wong, (2004), process innovation refers to improved or new organizations processes which are introduced via new equipment, materials or through the re-engineering of the operational processes. Process innovations target consumers within the organization who are normally involved with new processes and usually have a second-order effect on new product performance when compared to product research and development through which the product can be created at first (Bauer & Leker, 2013). Damanpour, (1990) defined process innovation as the bringing of new methods or changing the arranging processes which directs efforts, procedures or work structures in firms as well as changes in individual and group behavior roles. Process innovation in achieving economies of scale does not present any economic impact as it only brings changes to the whole operations of delivering services, producing products, distribution and manufacturing with efficiency (Collins & Smith, 2006). Process innovation measurement is done through customer satisfaction surveys focusing on such elements like after sales service, delivery time, quality and assistance given to customers (Day, 2014). Operational effectiveness and efficiency are also a result of process innovation. The outcomes of process innovation that enables organizations to launch technical innovative and enhanced products with more value and cost effective for them to meet consumer needs which are less expensive, reliable and quality products are sales growth, market ranking and image improvement (Noorani, 2014).

The product cost is often portrayed in the process innovation (Olson et al. 1995). Organizations adopt new processes to compete with other organizations and also aim to satisfy their consumers. Specifically, process innovation investment share are significantly related to organization size. Large organizations have more incentives to adopt process innovation as it increases cost efficiency. Furthermore, large organizations possess more diversified set of capabilities and skills and have a large range of products. Hence, the introduction of process innovation reduces cost efficiency along the diverse lines of production (Fonseca, 2014). Process innovation is the adoption of significantly improved or new delivery or production method. Process innovation is meant to decrease unit costs of delivery and production, deliver new or to produce new significantly improved product and increase quality (Gundayet al. 2011). Process innovation focusing on improving the efficiencies and effectiveness of production and also improve or change the way firm perform. Azis, (2015) agreed that process innovation is a significantly improved delivery method or adoption of a

new production process Thus also includes a significant change in equipment and software and techniques.

Baer & Frese's, (2003) study proposed that climate for initiation acts as a positive moderator between process innovation and company performance. Not only innovation, but climate for initiation is also necessary to bring a firm to its full potential. Grawe et al. (2009) study focused on the relationship between customer orientation, competitor orientation, service innovation and market performance. Customer orientation and competitor orientation works as a catalyst for service innovation which in turn is positively related to market performance of the firm. Wang et al. (2011) recent study underscores the positive relationship between trust and innovation. Trust brings transparency in manufacturer supplier relationship for collaborative innovation. The researchers suggest the managers who are interested in improving innovation performance and maintaining good supply chain relationship should rely heavily on trust. This relationship is strengthened with high environmental uncertainty.

Lin et al. (2008) recently explored a different aspect of innovation which concludes that green product innovation that reduces the outcomes having negative impact on environment and prevents waste has a substantial positive relation with firm performance. Aragon-Correa et al. (2007) studied the relationship between organizational learning, transformational leadership, firm innovation & performance. The results show direct and strong relationship of organizational learning on firm innovation than of transformational leadership. Firm innovation in turn has a significant influence on firm performance. Camisón & Villar-López, (2010) recently over refined the relationship of two types of innovation (product & process) with firm Hassan et al performance. Researchers concluded positive relation of product innovation capabilities with performance and the relationship of process innovation and firm performance is mediated by the development of product innovation capabilities. He & Wong, (2004) study examines a non-linear relationship of innovation capital and information capital IT with firm performance. Findings reflect the positive effect of innovation capital on firm performance and IT capital has no significant impact on firm performance. But when the interaction between innovation capital and IT capital was considered, they showed positive relation with firm performance. Robinson, (1988) found the positive relationship between innovative performance and marketing performance by inter-relating the product innovation and

market share. Product innovation serves as a driving force for marketing performance. The relationship between marketing performance and financial performance has been studied by Szymanski et al. (1993) and found that market share leads towards better business performance.

Similarly, Bauer & Leker, (2013) explored the relationship among production and financial performance. The researchers found that product delivery speed measuring production performance is positively associated with market share measuring market performance of the firm. Anderson, Fornell & Lehmann, (1994) examined the relationship among the quality of the product being provided and customer satisfaction.

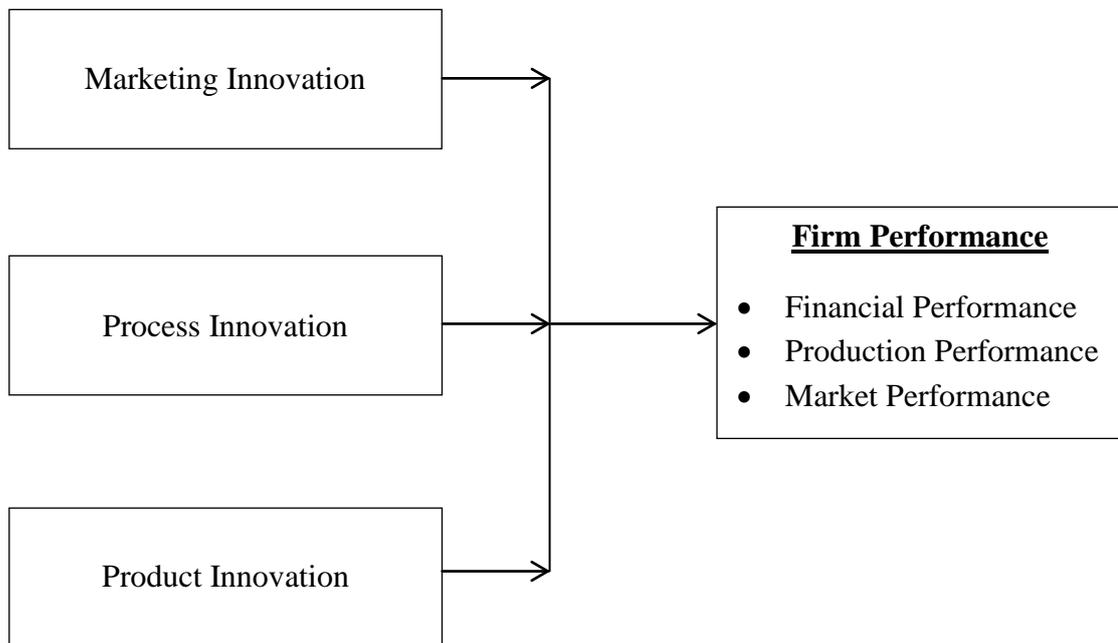
2.5 Conceptual Framework of the Study

Conceptual framework of this study is developed by considering the concepts of innovation and the relationship between innovation and firm performance of Myanmar traditional medicine manufacturers.

For the purpose of the study, capability which can effect on innovation of Myanmar traditional medicine manufacturers was from the list. According to the nature and culture of Myanmar traditional medicine industry, the factor of research and development is considered as capability. The departments of traditional medicine consider the good manufacturing practices of Myanmar traditional medicine manufacturing firm, the research and development capability influence on innovation types and performance of Myanmar traditional medicine manufacturers.

In this study, the most common three types of innovation – product innovation, process innovation, and marketing innovation – are based to measure innovation Myanmar traditional medicine manufacturing firms. To analyze the linear regression of innovation and performance, in this study, three measures of performance are use: production performance, marketing performance, and financial performance.

Figure 2.1 Conceptual Framework of the Study



Source: Own Compilation

In this study, is based on Economic Context theory. In economic context, the world “Innovation” has been introduced by (Schumpeter, 1934) and explained as a capital accumulation that is for economic development. Product innovation of traditional medicine manufacturer is measured with three factors such as new items of medicine drugs, new shape or design of medicine drugs, and new size/weight of medicine drugs. The product innovation is new products or services introduced to meet an external user or market need. Product innovation involves the introduction of a new good or service that is new or substantially improved. The process innovation is defined as new elements introduced into an organization’s production or service operations (input materials, task specifications, work and information flow mechanisms, and equipment) to produce a product or render a service. Process innovation involves the implementation of a new or significantly improved production or delivery method. Marketing innovation is new packaging style, new promotion method, new branding and labeling, and new distribution channel are identified a criteria in this study. Marketing innovation is the development of new marketing methods with improvement in product design or packaging, product promotion, or pricing.

CHAPTER 3

INNOVATION OF MYANMAR TRADITIONAL MEDICINE INDUSTRY

This chapter presents of innovation of Myanmar traditional medicine industry of the study. The aim of this chapter is history innovation of Myanmar traditional medicine manufacturer's, innovations and contributions of innovative Myanmar traditional medicine manufacturers and attitude and practice of Myanmar people on traditional medicine.

3.1 Overview of Myanmar Traditional Medicine Industry

The use of herbs to treat disease is almost universal among non-industrialized societies. A number of traditions have come to dominate the practice of herbal medicine at the end of the twentieth century. The role of traditional medicine has played an important part in Myanmar's history. Although the use of modern medicine has dramatically increased, it is not easily accessible for much of the population due to prohibitively high costs and limited availability, especially in rural areas. Even when it is readily available, many people are reluctant to use it because of cultural differences and concerns of side effects. Traditional medicine have been used for generations and is more affordable and easily obtainable-even in rural areas-therefore it continues to be widely used and plays a significant role in health care in Myanmar.

In 1997, the World Health Organization (WHO) drafted the Declaration on Health Development in the South-East Asia Region in the 21st Century (the Declaration), in which member states laid out their proposals for health reform. One important topic was that of traditional medicine, and the government of Myanmar has taken measures to increase the role that traditional medicine plays as an internationally accepted and natural alternative to modern medicine. As part of this initiative, the Myanmar Ministry of Industry and the Myanmar Food and Drug Administration (MFDA) actively promote policies that are advantageous to private pharmaceutical companies in the manufacture of high quality traditional medicine.

Traditional medicine continues to be widely practiced by the majority of the population, partly as a supplement and partly as an alternative to modern medicine. Traditional knowledge of indigenous medicine is handed down through generations, and was developed according to personal experiences and traditional beliefs on the action of medicinal plants. The Myanmar government has been actively involved in

preserving traditional knowledge by teaching it through various institutions since 1976. In 2001, it established the University of Traditional Medicine to confer four year academic degrees in traditional medicine. By the mid-2000s, there were over 16,000 traditional medicine practitioners in the country.

In Myanmar, under the 1992 National Drug Law only government owned factories are authorized to produce prescription drugs, which ensures quality and reduces health risks. The company is now the leading manufacturer of traditional medicine in Myanmar and also enjoys a profitable export business. This is one of the special achievements of traditional medicine in Primary Health Care. There are two objectives: one is to make essential traditional medicines easily accessible for rural people especially in hard to reach areas and two is to minimize the cost of treatment for minor illnesses.

The government is giving impetus to develop Traditional Medicine systematically up to international standard and to manufacture potent and efficacious Traditional Medicines based on scientific evidences and practices.

Traditional Medicines have been manufactured by both public and private sectors. The Department of Traditional Medicine is responsible for manufacturing in the public sector and owns two pharmaceutical factories. Medicines are produced according to the national formulary and Good Manufacturing Practice (GMP) standards. These two factories manufacture twenty one kinds of Traditional Medicine powders which are provided free of charge to be dispensed in public Traditional Medicine facilities, and the factories also produce 12 kinds of Traditional Medicine drugs in tablet form for commercial purpose.

The private Traditional Medicine industry is also developing and undertaking mass production of potent and registered medicines according to the GMP standard. Some private industries are now exporting traditional medicines to neighboring countries. Due to the encouragement and assistance of the government and the manufacturing of standardized traditional medicine under GMP, public trust and consumption of TM have greatly been enhanced. There is a progressive increase in demand for traditional medicine in both rural and urban areas.

Manufacturing of traditional medicine drugs must follow the good manufacturing practice. The department also supervises and monitors the advertisement of traditional medicine drugs. Myanmar Traditional Medicine Practitioners Association has been established in 2002 after unification of various TM

groups of different disciplines. The objectives of the association are to: provide consolidated efforts and contribution of TM practitioners in implementation of National Health Plan; provide community health care through TM approaches; do research and strive for the development of TM; conserve the endangered species of medicinal plants and animals while revitalizing the almost extinct TM textbooks and therapies and uplift of the dignity of TM profession and practitioners. The most important missions are to conduct continuing TM education programs, to provide quality services and to encourage the development of evidence based TM through systematic research.

In order to promote the development of Myanmar Traditional Medicine, Myanmar Traditional Medicine Practitioners Conferences has been held annually since the year 2000. Traditional medicine practitioners from various parts of the country gathered and exchanged their knowledge at the conference, new policies and objectives are proposed, discussed and also reiterated the unity of TM healers for perpetuation and propagation of Myanmar Traditional Medicine.

3.2 History of Innovation in Myanmar Traditional Medicine Industry

Myanmar traditional medicine has been established obviously throughout Myanmar cultural historical period in accordance with Myanmar culture, climatically and geographical customs and accepted proudly as own inheritance left by the ancestors. Myanmar traditional medicine practitioners gave their medical care to the people since time immemorial. It was chronicled that Myanmar traditional medicine has been considered to be prestigious in the earliest history of Myanmar periods such as Tagaung, Srikestra, Bagan, Innwa, Amarapura, and Yadanapon.

According to the Hman Nan Yazawin (National History), it was accepted that since the Tagaung Dynasty, the earliest Myanmar era, traditional medicine from India had been practiced successfully. It was recorded that during the Bagan dynasty (10-11 Century), Myanmar Traditional medicine had been well developed. During the Inwa Dynasty (14-16 Century) under the reign of King Narapati, the names the names of some books on traditional medicine were firmly mentioned on “Tet Nware Kyaung” stone inscription. Great Buddhist monks such as Taung Phee Lar Sayar Daw and Shew U Min Saya Dew had written books during Amarapura and Konebaung Dynasty (18-19 Century). During the reign of Mindone of Yadanabon era, (19 Century), Yawatwin Wun U Po Hlaing compiled and wrote “Kara Noppathana Kyan” and “Utu

Bawzana Thingaha Kyan” which were great textbooks of Myanmar traditional medicine. At the same time, a physician named Taungthar Sayargyi Sayar Hmone invented “Taungthar Chauk Lone Kauk Treatment”. During that time, the characteristics of Myanmar Traditional Medicine were defined as follows:

1. It must be a medical science
2. It must be firm and certain
3. It must be innovated by Myanmar people living in their own native land

Before the Second World War, a Buddhist monk named “Thabawa Dhamma Sayar Daw” promoted “Taung Thar Chauk Lone Kauk Treatment” to “Thabawa Dhama Treatment”. During the Second World War, Myanmar citizens had to rely only on Myanmar traditional medicine. During the Japanese occupation, “Thabawa Dhana Treatment” was introduced to Myanmar traditional medicine. After the Second World War, many traditional physicians reorganizing the traditional medicine knowledge, which had dispersed and away during the war time. In 1955, the Act for the Myanmar Indigenous Medicine Practitioners was enacted and formal registration procedures were prescribed. When the Revolutionary Council Government was formed in 1962, aiming to develop traditional medicine systematically, the 1955 act was amended and the organization for traditional medicine practitioners was formed on 11th March 1962. Formally registered traditional medicine practitioners were cancelled on 19th March 1962. Eleven traditional medicine textbooks were prescribed for three Naya and examinations were held for five times. Successful candidates were allowed to register and (7462) traditional practitioners were properly legalized. Free dispensaries for traditional medicine were opened in cities and towns of States and Divisions in Myanmar beginning from September 1963. Manufacturing of traditional medicine was also started by cooperation with Burma Pharmaceutical Industry in 1964.

The Institute of Traditional Medicine was opened in Mandalay on 31st January 1976 and traditional medicine hospital with 25 beds for practical works was opened on 14th October, 1976. To support the institute and hospital, a traditional medicine production department, (now renamed Mandalay Traditional Medicine Factory), a library, a museum of traditional medicine and an herbal garden were also opened. The Myanmar Indigenous Medicine Practitioners Act was enacted in 1953. The same Traditional Medicine Council was formed in accordance with this act in the same year which has been functioning as a leading body for solving the traditional

medicine matters. In 1996, the government promulgated the Traditional Medicine Law in order to control the production and sales of traditional medicine drugs systematically. This was followed by the series of notifications concerning registration and licensing, labeling and advertising.

3.3 Innovations and Contributions of Innovative Myanmar Traditional Medicine Manufacturers

The responses of surveyed manufacturers prove that the most common types of innovation in Myanmar traditional medicine manufacturing firms are the product innovation and the process innovation. Innovative manufacturers emphasize largely on the product and process innovations rather than on marketing innovation.

In Myanmar, there are many innovative manufacturers in traditional medicine manufacturing industry. The innovative Myanmar traditional medicine manufacturers can be grouped into two by the type of their innovation activities. The first group consists of manufacturers who are innovation generating manufacturers. The other group is the group of innovation adopting manufacturers.

The innovation generating manufacturers launch innovative product, apply innovative production-process, and/or practice marketing methods which are new to their market. In other words, they are first movers in their market. Innovation adopting manufacturers produce innovative product, apply innovative production-process, and/or practice marketing methods which are new to their firms, but not to the market. They are followers or creative imitators (Mahembe & Bruijn, 2003).

The interview theme is focused on history of their innovations and steps they passed for their innovations. It is intended to explore the general steps which are conducted by the innovation generating Myanmar traditional medicine manufacturers for their medicinal drugs. The information gathered is concerned with the idea generation process for innovation and the steps they passed to transfer that new idea into economic realities such as new product and new process.

In Myanmar traditional medicine manufacturing sector, the product innovation and process innovation are hand in hand. In some cases, product innovation occurs first and process innovation follows. In other cases, the product innovation and process innovation appears simultaneously. However, according to the information gathered from open discussion with innovation generating manufacturers, it is found

that there is no occasion on which process innovation comes first and the new product is a result of that innovated process.

The marketing innovation has not yet been generated by manufacturers. The marketing methods they apply are adopted from marketing practice of the firm of other industries. Although they practice innovative marketing method, these method have been practice for a long time in the markets in which other product or service are marketed. However, in some cases, some manufacturers improve existing method to penetrate the traditional medicine market.

3.3.1 Product Innovation of Myanmar Traditional Medicine Manufacturers

According to the information gathered from personal interviews with innovation generating manufacturers, the general innovation process for new product innovation of Myanmar traditional medicine manufacturers is explored. The product innovation process can be divided into two parts. The first is idea generation and the second is the part of transferring new idea into new product.

The first part, the idea generation for new product, generally stems from the combination of three elements. These are formal education of manufacturers traditional medicine, manufacturer's practical experience from giving treatment on patients, and manufacturer's creative thinking.

The innovation generating manufacturers usually get ideas for new medicine drugs from traditional medicine knowledge through formal education and from practical experiences by listening to the voices of patients who came to manufacturers own clinic. Although the general starting point for idea generation is traditional medicine related study, the practical experience is a starting point in some cases. However, in all cases the fundamental background is manufacturer's creative thinking.

Innovation generating manufacturers have formal education related with traditional medicine from which they can think of idea to create new medicine drugs. Sometime, if necessary, they refer traditional medical scriptures which are handed down from one generation to another. Those scriptures also can be obtained from manufacture's family as a heritage.

All innovation generating manufacturers not only manufacturing for sale in the market place but also for using in giving treatments to their patients at own clinics. They are manufacturers as well as practitioners. Thus sometime, manufacturers have

developed idea to produce new medicinal drugs from practical experience. According to the records of interview with them, the new idea explored sometimes from thinking process to that patients with efficacious medicinal drugs for some diseases.

The second part of product innovation process is transferring new idea into new medicinal drugs(s). Relatively, more innovative manufacturers usually participate in the activities and ceremonies of practitioner's and manufacturers' associations in some ways. The activities are traditional medicine practitioners' conferences, and seminars or workshops for health care. After getting the new idea for product innovation, they often try to collect opinions and information concerned with that idea from other practitioners and manufacturers at the practitioner's conferences, seminars and workshops. During the participation in those activities, they test the feasibility for their new idea on product innovation. Regarding new idea; they give seminars, submit papers at conferences, and do discussion in workshops.

After the feasibility study, they produce new medicinal drugs and tested the efficacy at their clinics by treating their patients and learn of the responses from patients. Then, they start the test marketing in some market place including their clinics. They also join the medicine exhibitions for listening to the consumers' voices and discussion with consumers, other manufacturers, and the interested groups. If necessary, modifications in size, shape, formula and packaging are made. If the market acceptance is significant, that new product is largely distributed into market.

3.3.2 Process Innovation of Myanmar Traditional Medicine Manufacturers

Regarding the process innovation, the most common starting point is new product idea. To implement new product idea, manufacturers consider process innovation if it is necessary to apply new process to create new medicinal drugs.

The process innovation stems from idea for product innovation. To launch new product, manufacturers need new medicinal formula, new production method, and/or new herbs. To test new formula, innovation generating manufactures usually consider complying with GMP, ISO, FDA standards and now even to the standard of Organic Association. Moreover, they conduct research and development practice with own labs for efficacy, safety, and quality of raw herbs and finished medicinal dug.

Innovative Myanmar traditional medicine manufacturers often need to adopt new production methods because of changing medicinal formula or using new herbs. In that step, manufacturers again must consider the standards of GMP, FDA, ISO, and

Organic Standards. Moreover, changed production methods also must be consistent with new medicinal formula.

In Myanmar, manufacturers often discover the usage and efficacy of new herbs. They usually try to produce new medicinal drugs by using such herbs. For utilization of new herbs, sometimes they investigate the suppliers who sell such herbs. However, in many cases manufacturers cultivate the new herbal plants in their own herbal gardens. They sometimes also rely on government herbal gardens.

Although product innovation needs process innovation in most cases there are exceptional cases in which product innovation can be generated without process innovation.

3.3.3 Marketing Innovation in Myanmar Traditional Medicine Manufacturers

Recently in Myanmar, traditional medicine manufacturers largely consider the innovative marketing to introduce their new medicinal drugs, and to pass information on their new efficacious herbals, and production systems. Although these marketing methods are not originated and generated by traditional medicine manufacturers, it can be termed as innovative methods in traditional medicine industry for first utilization in Myanmar traditional medicine marketing.

In the past, Myanmar traditional medicine manufacturers advertised their medicinal drugs through media. They gave information on the name of drugs, place of distribution, and diseases which can be potentially cured. Even at present, many manufacturers practice such method of advertising. However, the innovative manufacturers advertise their new medicines indirectly by educating to public about the attributes of new medicinal drugs. Moreover, in this popularity of media, innovative manufacturers advertise their firm's practices by showing their production process and newly observed efficacious herbals via media. The latest innovative advertising is manufacturer's own websites by which her public can access to all information of the manufacturing firm and its medicinal drugs such as attributes of raw herbs, firm's production processes, various medicinal drugs innovated by firm, and so on.

Regarding the sales promotion of marketing innovation activities, it is not found the innovative sales promotion methods. The existing manufacturers still practices the traditional sales promotion method of offering samples, gifts, lucky draws, coupons, and discounts.

In the part, many manufacturers rely largely on personal selling for promotion. Manufacturers practiced the personal selling through consignment system, sales commission system and outright sales system with hawkers, retailers and shop keepers. Various traditional medicinal drugs are sold by hawkers on train, buses, and boats and so on, by mean of personal selling. In that type of selling, some medicinal drugs had not been registered at the Department of Traditional Medicine. Thus, to that aspect, some medicine drugs were distributed to the public without passing the systematic quality control process.

That type of selling is rarely seen in the market in Myanmar lately. After the promulgation of Traditional Medicine Drug Law in 1996, all medicinal drugs can be distributed only after getting the licenses for manufacturing and sale. Today, innovative manufacturers do not rely largely on personal selling method for their medicinal drugs promotion. They own distribution centers or they establish relationship with agents and major distributors for distribution of their medicinal drugs.

The public relations in Myanmar have large influence on customer's awareness in Myanmar traditional medicine market recently. In the part, Myanmar traditional medicine manufacturers practiced public relation method by means of donations to public and word-of-mouth or endorsement of former patients who have relieved diseases because of treatment at manufacturer's own clinic. However, the innovative public relations recently popular in Myanmar are participating in traditional medicine exhibitions and traditional medicine practitioners' conferences.

In marketing innovation, the direct marketing has not been applied yet in Myanmar traditional medicine manufacturing sector. Although some manufacturers have own websites, they still have to support the online direct marketing for consumers.

The other form of marketing innovation is found with innovative branding and labeling. Some innovative manufacturers who deal with export markets are partly applying the innovative labeling in their product usage instructions. In the past, the language usage in labeling is only in Myanmar language. Later, Manufacturers also used both Myanmar and English language in labeling. At present, some innovator-exporters are using various languages in their labeling. In these days, some manufacturers are launching their medicinal drugs with various brands under same

firm. As mentioned above, the nature of market of Myanmar traditional medicine is distinguished room of other consumer products.

3.3.4 Contributions of Innovative Myanmar Traditional Medicine Manufacturers

Looking back on the history, it can be seen that there were significant contributions of innovative Myanmar traditional medicine manufacturers to society. Many innovations have been found in product and process innovations such as occurrence of traditional medicinal drugs which are easy to store, carry, and use , and occurrence of efficacious medicinal drugs which are effective not only for common illnesses but also for some challenging disease and risky diseases. Moreover some innovative medicines are naturally safe for no chemical effects when use.

In Myanmar the traditional medicines can be generally categorized into three groups such as oral medicines, medicaments, and inhalants. In each category, many improvements have been innovated by Myanmar traditional medicine manufacturers.

By looking back on the changing trend in oral medicine forms, the latest innovated form is capsules starting with the power form which was re-shaped to pills and tablets. For medicaments, the oldest form is solid form which is also now made to come in power form and then the form was innovated as liquid or balm in glass or PET (plastic) bottles, and the latest innovated form is spray type. The innovation trend in inhalants in Myanmar now reaches to stick form. At first, manufacturers or practitioners produced inhalants in solid form which was then transformed to fatty substance forms. The recent form is in the shape of a stick.

With respect to process innovations generated by Myanmar traditional medicine manufacturers, many significant contributions have been obviously found in the society. The innovative Myanmar traditional medicine manufacturers have contributed the efficacious and safe innovative medicine drugs through the process innovations such as utilization of new production methods, newly observed herbals and newly researched medicinal formula. Their contributions practically effect on Myanmar consumers' education on efficacy and safety of traditional medicines, and preventing and releasing the some challenging diseases.

Some innovative Myanmar traditional medicine manufacturers generated the medicinal drugs which are safe for consumers not only for relieving diseases but also for preventing chemical effects in the long term from utilization of medicinal drugs.

In the past, they concerned the quick response for relieving diseases by applying western technology. At that time, they had also considered to launch Myanmar traditional medicinal drugs which were easy to store, carry, and use. Thus they relied on western technology and they innovated the alternative medicines which are medicines produced with the combination of orient formula with western technology. However at present, since some innovative Myanmar traditional medicine manufacturers have observed the side effects of chemical in raw herbs, they have been trying to launch medicinal drugs which are produced with naturally grown herbal plants. They observed that the organic medicines are free from chemical effects on users and they can give natural efficacy.

Recently, some innovative manufacturers are educating the public in Myanmar about the organic medicines. Some organizations also encourage manufacturers to produce organic medicinal drugs which are reliable for safety of its use.

Although Myanmar people relied on Myanmar traditional medicines for common illnesses in the past, recent innovative medicine drugs can be relied not only for common illnesses but also for some challenging diseases and even for risky diseases.

Recently, Myanmar consumers have been relying on Myanmar traditional medicine drugs not only for common illnesses but also for challenging diseases such as stroke, diabetes, heart diseases, hypertension, malaria, and so on. Moreover, because of the innovative processes (newly observed herbs with innovative formula and scientific production method), Myanmar people are interested in the efficacy of Myanmar traditional medicines for some risky diseases like cancer and HIV/ AIDS.

3.4 Attitude and Practice of Myanmar People on Traditional Medicine

According to Myanmar traditional medical belief there are 96 diseases, which afflict humankind. Using fresh or dried roots, stems, barks, leaves, buds and flowers of medicinal plants, and the hair, fat, bones and organs of certain insects, reptiles and mammals, Myanmar traditional medicine is able to heal and cure all 96 maladies.

Since Myanmar traditional medicine is more widely available and affordable than western medicine, most of the country's population uses traditional medicines, partly to supplement westerns medicine and partly as an alternative. People in rural areas rely more on traditional medicine than in urban areas. According to health report

WTO in 2009, public trust and confidence in traditional medicine drugs has greatly enhanced.

To explore the attitude and practice of Myanmar people on traditional medicine, the Department of Traditional Medicine jointly with WHO conducted a large research in 2007 and 2008. The name of the research is “A Study on Knowledge, Attitude and Practice of Myanmar People on Traditional Medicine”. The research report was published in March, 2008 by Department of Traditional Medicine, Ministry of Health.

The research covered all 14 states and divisions in Union of Myanmar. It encompassed both rural and urban areas of Myanmar. Stratified simple random sampling was done to get the desired respondents out of 14 states and divisions. First, 60 township were selected from 237 townships of Myanmar by lottery method (randomly selected with equal probability). Second, 60 households from each selected townships were again randomly selected, and thus, altogether 3,600 households were included in the sample. Then, the head of household over the age of 20, irrespective of gender was selected as the respondent. Data were collected by using PR structured and, pre-tested questionnaire.

The research firstly presented that vast majority of the respondents used Myanmar traditional medicines and the use of traditional medicines was higher with the advancing age, but average family income did not show much influence on the use of it. Moreover, those who have higher education level also used traditional medicine more.

Myanmar people attitude towards traditional medicine was secondly explored in the research. Myanmar people, especially those living in the rural and remote areas, believe in traditional medicines for various illnesses. Overwhelming majority of the respondents stated that they do trust in traditional medicine. That belief is strong among all layers of people in terms of education, occupation, and family income. With strong trust in Myanmar traditional medicines they believed that traditional medicines would help cure or improve situation if something happened (ill or wounded).

The third point investigated in research is satisfaction on using Myanmar traditional medicines. Almost every people in Myanmar are using traditional medicines one way or the other. Such medicines as balms, herbal, powers, and

digestion salts, are quite common. The majority of respondent did mention that they have been using traditional medicines, most of the people strongly satisfied with it.

The main reasons for using traditional medicine were also analysis in the research. The reasons are varied: trust in traditional medicine, due to traditional belief, because someone advice to use, cheap, other medicines cannot cure that particular disease, and so on. Although there were strong beliefs and trust on traditional medicine, great majority of respondents did not totally rely on traditional medicines. Just one out of twenty stated that traditional medicines could cure every disease. The remaining majority stated such diseases or cases as those needing surgery, with acute severe conditions and cancer cannot be treated by traditional medicines. They had been expecting innovative medicines for such cases. Almost all respondents believed that traditional medicines should be improved and promoted. Moreover, they expected to replace western medicines by traditional ones, and pointed out the need for scientific research on traditional medicines.

The research also explored the reasons for choice on traditional medicines. The choice for traditional medicine or western medicines depends on the type of common illnesses. The study scope mainly focused on nine common illnesses. According to the study, almost all people self-medicated with Myanmar traditional medicine if they suffered from indigestion, cough, constipation, mind fever, aches or diarrhea. Over 50% of respondents selected traditional medicine for seven out of nine common illnesses except “cold” and “headache”, for which they slightly favored western medicines.

The researchers group concluded that wide spread use of traditional medicines may due to three main factors: persistent belief of traditional medicines have fewer or on side-effect, wider availability of traditional medicines up to small villages, and lower costs. On the other hand, people choose western medicines for headache or cold due to slow response of traditional medicines compared to western medicines.

CHAPTER 4

RESEARCH METHODOLOGY

The aim of this study is to analyze the effect of innovative and firm performance of Myanmar Traditional Medicine Manufacturers. Accordingly, the 109 firms from selected Myanmar Traditional Medicine Manufacturers are selected for the study. In order to last conceptual framework, the primary data are collected using the questionnaire set for this study. Those the primary data are analyzed with the aids of statistical methods. Descriptive analysis is performed in order to show the quality of the data and multiple regression analysis which is main analytical method of the study is carried out to find out which factors have the effect on firm performance.

4.1 Research Design

The research approach chosen for the present study quantitative research and qualitative research method is applied in this study by conducting Myanmar Traditional Medicine Manufacturers. Qualitative research is the measure of the respondent's perceptions. This qualitative information is measure by using five-point Likert scale. Type of research is survey research because this research is deductive structure. The approach of this research is deductive research. The research analysis methods are factors analysis and multiple regression analysis.

In line with this approach, descriptive research and inferential analysis is carried out to measure innovation and firm performance among Myanmar traditional medicine manufacturers firms. Questions are designed to answer the level of innovation on variables regarding innovation and firm performance. In order to minimize the biasness, questions are developed in a simple and understandable manner for the ease of respondents and the researchers. The three dimensions innovation which include marketing innovation, process innovation, and product innovation are to be rated with five-point of Likert-scale.

This study uses both descriptive and analytical methods to arrive at conclusion and recommendation. Secondary data is obtained from literature reviews of previous study in this field, periodic reports and articles, statistical data issued by government agencies and private organizations, and the Internet. Primary data are collected from selected Myanmar traditional medicine manufacturers, by personal interview, and telephone interview through questionnaires.

Random 109 firms (25%) were taken from the total number of 430 firms in South and North Okkalapa Township, Yangon Region. Simple random sampling method is used in this study. This study is survey type of research because this research is deductive. This study is carried out with an intention to understand the nature of the relationship between innovation and firm performance among traditional firm at Myanmar traditional medicine manufacturers. There are 1687 traditional medicine manufacturers firms in Myanmar. The populations have 783 traditional medicine manufacturing firms in Yangon Region. The current study focuses only on South and North Okkalapa Township have 430 traditional medicine manufacturing firms. Simple random sampling method is used in this study. This study is survey type of research because this research is deductive. The data was collected from manufacturers on August 2018. Data was planned to analyze by using descriptive, factor analysis and linear regression statistics. The raw data collected in SPSS Software version 25 and analyzed and interpreted using descriptive. Descriptive statistics is percentage, mean and standard deviation. Linear regression statistics is used to identify the relationship between independent and dependent variables. For all analysis, a probability level of <0.06 was considered significant.

4.1.1 Questionnaire Design

Data collection methods are an integral part of the research design in which data can be collected from diverse sources in different approaches with different setting. Numerous methods can be used for data collecting purposes and the most commonly used are primary data and secondary data. Primary data is where the individual provide information when interviewed, administered questionnaires, or observed while secondary data is collected by someone who tends to use in the primary study. Secondary data can be any data from anywhere from of source such as from the organization itself, from the library, through Internet search, journals, reports, books, articles, and other.

In order to complete the study, quantitative research is also used by distributing questionnaires to large group of manufacturers to collect the primary data and they are also searched and looked for secondary data by reading journal, articles, books, and others that are useful to the study topic.

Questionnaire is a written set of questions to which respondents to record their answers and it is an efficient data collection method to know exactly what is required

and how to measure the variables of interest. The questionnaire used is to focus mainly on innovation and firm performance. The core advantage of using questionnaires is that it is able to collect back a completed response within a short period and it is convenient for the respondents to answer the questions as well. This is the most efficient data collection method from target populations. Furthermore, questionnaire can help to reach a large number of respondents in order to make statistical analysis for the results.

This study uses the structured questionnaires to collect the primary data. In the questionnaire the specific questions or items to measure each variable were adapted from previous literature. The questionnaire preparation process was done in two stages. First, the questionnaires were prepared in English version. Second, the questionnaires were distributed to firm in Myanmar traditional medicine firms located in Myanmar traditional medicine manufacturers. The questionnaire is designed with four pages of the questions and this would not take much of time for the respondents to answer the questions. Therefore, they would be willing to provide their response.

The questionnaire is divided into three parts such as sections A, B, C and D. Section-A are about the respondents' profile which are number of employees, year of establishment, type of ownership and have you got ISO certificate. Section-B is about the manufacture's profiles which are gender, age, and position at work, and education. Questions included in Section-C is divided into three groups of innovation of the Myanmar traditional medicine manufacturers which include the questions about marketing innovation, process innovation and product innovation. There are total of 15 questions under this section. Questions included in Section-D are divided into three groups of firm performance of the Myanmar traditional medicine manufacturers which include the questions about financial performance, production performance and marketing performance. There are total of 12 questions under this section.

4.2 Demographic Profile of the Respondent

Descriptive analysis is the elementary transformation of data in a way that describing the basic characteristics and summarize the data in a straightforward and understanding manner. Thus, one of the most common ways to summarize a set of data is to construct a frequency distribution which is a set of data organized by summarizing the number of times a particular value of a variable occurs (Zikmund et

al. 2010). Besides that's, it is use to describe demographic characteristic of the respondents such as gender and education background.

Myanmar Traditional Medicine Manufacturers are the sample of the study. The number of respondents from each firm. According to data, 109 respondents (100 percent of the sample respondents) are selected from Myanmar traditional medicine manufacturers 430 (25%) firms have South and North Okkalapa Township.

The demographic profile of the respondents is presented in the following table. Table 4.1 displays respondents by gender.

Table 4.1 Respondents by Gender

Gender	No. of Respondent	Percent
Male	81	74
Female	28	26
Total	109	100

Source: Survey Data (2018)

According to Table 4.1, the total respondents comprised of 109 firms from the Myanmar traditional medicine manufacturers. Of these, male respondents constituted 74 percent and female respondents constituted 26 percent. Because of the job nature in Myanmar Traditional Medicine Manufacturers, male are more successful than the female.

Table 4.2 shows respondents by year of establishment.

Table 4.2 Respondents by Year of Establishment

Year of Establishment	No. of Respondent	Percent
Under 30	77	71
31 - 40	12	11
41 - 50	11	10
Over 50	9	8
Total	109	100

Source: Survey Data (2018)

According to Table 4.2, it can be seen that out of 109 respondents, 71 percent are under 30 years, 11 percent are 31 - 40 years, 10 percent are 41 - 50 years and 8 percent are over 50 years. This study shows the total respondents are more under 30 years firm establishment.

Table 4.3 shows respondents by type of ownership.

Table 4.3 Respondents by Type of Ownership

Type	No. of Respondent	Percent
Sole Proprietorship	105	96
Partnership	3	3
Company	1	1
Total	109	100

Source: Survey Data (2018)

According to Table 4.3, the total respondents comprise of 109 firms from the Myanmar Traditional Medicine Manufacturers. Of these, sole proprietorship constituted 96 percent, partnership constituted 3 percent and company constituted 1 percent. This study shows the total respondents are more sole proprietorship.

Table 4.4 shows the respondents by ISO certificate.

Table 4.4 Respondents by ISO Certificate

Status	No. of Respondent	Percent
Yes	7	6
No	102	94
Total	109	100

Source: Survey Data (2018)

According to Table 4.4, the total respondents are 109 firms, 6 percent of respondents have ISO Certificate, 94 percent have no ISO Certificate. It shows that the total respondents 109 firms have no ISO Certificate more than have ISO Certificate. Table 4.5 shows respondents by age group.

Table 4.5 Respondents by Age Group

Age Group (Years)	No. of Respondent	Percent
Under 31	4	4
31 - 40	12	11
41 - 50	23	21
Above 50	70	64
Total	109	100

Source: Survey Data (2018)

According to Table 4.5, the total respondents 109 firms. 4 percent of respondents are Under 31 years, 11 percent of respondents are 31 - 40 years, 21 percent of respondents are 41 – 50 and 64 percent of respondents above 50 years. This study shows the total respondents 109 firms are more Above 50 years by 64 percent. Since, old peoples more than young peoples are successful in Myanmar traditional medicine manufacturers.

Table 4.6 shows respondent by education.

Table 4.6 Respondent by Education

Education	No. of Respondent	Percent
Ta Sa Certificate	104	95
Degree	5	5
Total	109	100

Source: Survey Data (2018)

According to Table 4.6, the total respondents 109 firms 95 percent of respondents are Ta Sa Certificate, 5 percent of respondents are Degree. This study shows the total respondents 109 firms have Ta Sa Certificate more than Degree in Myanmar traditional medicine manufacturers.

Table 4.7 shows respondents by get started current business.

Table 4.7 Respondents by Get Started Current Business

Categories	No. of Respondent	Percent
Start from scratch	51	47
Inherited	55	50
Partnership	2	2
Purchasing Existing	1	1
Total	109	100

Source: Survey Data (2018)

According to Table 4.7, the total respondents 109 firms from 47 percent of respondents are get started current business, 50 percent of respondents are inherited, 2 percent of respondents are partnership, and 1 percent of respondent is purchasing existing. This study shows the total respondents 109 firms are inherited firms more than other types of firms in Myanmar traditional medicine manufacturers.

Table 4.8 shows respondents by membership status of Myanmar traditional medicine practitioner association.

Table 4.8 Respondents by Membership Status of Myanmar Traditional Medicine Practitioner Association

Membership	No. of Respondent	Percent
Yes	98	90
No	11	10
Total	109	100

Source: Survey Data (2018)

According to Table 4.8, the total respondents 109 firms, 90 percent of respondents are membership of Myanmar traditional medicine practitioner association and 10 percent of respondents are not membership of Myanmar traditional medicine practitioner association. This study shows are membership more than non-membership at Myanmar traditional medicine practitioner association.

4.3 Reliability and Validity Test

Reliability is an indicator of the measure's internal consistency. Internal consistency represents a measure's homogeneity or the extent to which each indicator of a concept converges on some common meaning and it is measured by correlating scores on subsets of the items which makes up a scale (Zikmund et al. 2010). It is used to ensure the degrees to which measures are free from random error and therefore yield consistent results. The reliability of the data in the present study is assessed by Cronbach's Alpha. According to Sekaran & Bougie, (2010) defined Cronbach's Alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. It is computed in terms of the average inter-correlations among the items measuring the concept. In addition, Cronbach's Alpha is range in value from 0, meaning no consistency, to 1, meaning complete consistency. Normally, the scales with a coefficient alpha between 0.80 and 0.90 are considered to have excellent reliability. The scales with a coefficient alpha between 0.70 to below 0.80 is considered as good reliability, while an alpha value between 0.60 to below 0.70 indicates acceptable reliability. The coefficient alpha is between 0.50 to below 0.60 indicates poor reliability, while an alpha value is below 0.50 is considered as unacceptable reliability (Manerikar & Manerikar, 2012).

Validity is a measurement concept that is concerned with the degree to which a measuring instrument actually measures what it purports to measure and it is justified by the evidence (Bull, 2005). Validity refers to the question of whether or not one's measurement of a phenomenon is (Tashakkori & Teddlie, 2003). The major importance in the use of assessment instruments is the extent to which their factorial structures are valid (Byrne, 2001). For the purpose of this study, the validity of the measuring instrument was assessed by means of construct validity.

1. Construct Validity

Construct validity relates to research on various concepts whose constructs have been detailed and how representative the questions in a measuring instrument are of the same characteristics making up the construct (Black, 1999). According to Welman et al. (2009) the construct validity of a questionnaire refers to the degree to which it measures the intended construct rather than irrelevant constructs.

2. Factor Analysis

The purpose of factor analysis is to achieve data reduction or retain the nature and character of the original items, and to delete those items which had lower factor loadings and cross loading. This study follows Hair et al. (2006) factor analysis guidelines as below.

1. KMO measure of sampling adequacy (MSA) with minimum value of .60
2. Bartlett's test of sphericity was used to test the significance of correlations among all factors with .60 cut off point was employed in determining the significance level.
3. Anti-image correlation of items with minimum value of .50
4. Communalities table will be used to find out the proportion of the variance explained by individual variable. Thus, value below .50 qualifies the items to dropped
5. Factor with eigenvalues above 1 will be retaining.

Factor analysis was performed for each study variable (i.e. innovation and firm performance). Based on the guidelines by Hair et al. (2006), the conceptualization of the variable will be taken into consideration. Therefore, even the loading value is important issues; the way the factors were conceptualized is also very important. Reliability test were subsequently carried out after factor analysis.

Reliability analysis is conducted by computing the Cronbach's alpha. The result of the study is presented in table 4.9.

Table 4.9 Reliability Test

Variables	No. of Items	Items Retained	Cronbach's Alpha
Marketing innovation	5	4	0.707
Process innovation	5	5	0.618
Product innovation	5	5	0.625
Financial Performance	4	4	0.904
Production performance	5	4	0.818
Market performance	3	3	0.761

Source: Survey Data (2018)

According to Table 4.9, marketing innovation with work is measured with four items but to strengthen the reliability of the factor in the study one item were deleted and has got Cronbach's alpha value of 0.707. Process innovation is measured with five items but to strengthen the reliability of the factor in the study and has got Cronbach's alpha value of 0.618. Product innovation is measured with five items but to strengthen the reliability of the factor in the study and has got Cronbach's alpha value of 0.625. Financial performance is measured with four items but to strengthen the reliability of the factor in the study and has got Cronbach's alpha value of 0.904. Production performance is measured with five items but to strengthen the reliability of the factor in the study and has got Cronbach's alpha of 0.818. Market performance is measured with three items but to strengthen the reliability of the factor in the study and has got Cronbach's alpha value of 0.761.

Factor analysis was done on the three dimensions of innovation. Principle components analysis with varimax rotation was used to assess the dimensionality and uniqueness of the variables. The data was appropriate for factor analysis since the KMO's value was 0.676 for marketing innovation, 0.704 for process innovation and 0.731 for product innovation. The overall significant of correlation among all items was also sufficient with Bartlett's test of sphericity achieving a p-value of less than 0.01. The Eigenvalues greater than 1.0 were maintained.

In this study, confirmatory factor analysis with varimax rotation was performed. For each measure variable, the value of factor loading of each variable above 0.50.

Thus, all factors are retained to do the final analysis. Then factors analysis was done on the three components of firm performance. Principle components analysis with varimax rotation was used to assess the dimensionality and uniqueness of the variables. The data was appropriate for factor analysis since the KMO's value was 0.834 for financial performance, 0.774 for production performance and 0.645 for marketing performance. The overall significant of correlation among all items was also sufficient with Bartlett's test of sphericity achieving a p-value of less than 0.01.

4.3.1 Marketing Innovation

The results of factor analysis for marketing innovation variable are shown in Table 4.10. It includes five items and the results reveal that four items are organized into one factor and one item deleted because of the low loading values. The deleted item is "Renewing the general marketing management activities".

Table 4.10 Marketing Innovations

Factors and items loaded in each factor	Factor 1
Renewing of the design of the current and new products through change	0.647
Renewing the distribution channels	0.825
Renewing the promotion techniques	0.825
Renewing the pricing techniques	0.585
Eigenvalues	2.363
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.676
Cronbach's Alpha	0.707

Source: Survey Data (2018)

Based on the results of Table 4.10, the eigenvalue is more than 1, factor loading of all items are greater than 0.6 and also Cronbach's alpha is more than 0.6. Therefore, it is inferred that all items included marketing innovation are found to have significant loadings. Among them, providing supports depending on requirements (0.825) is highest in factor 1.

4.3.2 Process Innovation

The results of factor analysis for process innovation variable are shown in Table 4.11. It includes five items and the results reveal that five items are organized into two factors are not deleted because of the more loading values.

Table 4.11 Process Innovations

Factors and items loaded in each factor	Factor 2
Determining and eliminating non value adding activities in production processes	0.696
Decreasing variable cost components	0.632
Increasing output quality	0.632
Determining and eliminating non value adding activities	0.620
Decreasing variable cost and increasing delivery speed	0.623
Eigenvalues	2.056
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.704
Cronbach's Alpha	0.618

Source: Survey Data (2018)

In addition, the results in Table 4.11 describe that eigenvalue is greater than 1, factor loading of all items are greater than 0.6 and also Cronbach's alpha is more than 0.6. Therefore, it is inferred that all items included in process innovation are found to have significant loadings. Among them, providing supports depending on requirements (0.696) is highest in factor 2.

4.3.3 Product Innovation

The results of factor analysis for product innovation variable are shown in Table 4.12. It includes five items and the results reveal that five items are organized into three factors and are not deleted because of the more loading values.

Table 4.12 Product Innovations

Factors and items loaded in each factor	Factor 3
Improving quality in components and materials of current products	0.621
Decreasing manufacturing cost	0.710
Adding new feature to current products leading to improved ease of use for customers and to improve customers satisfaction	0.618
Developing new products using different technical specifications	0.629
Developing new products with different components and materials used in current ones	0.605
Eigenvalues	2.032
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.731
Cronbach's Alpha	0.625

Source: Survey Data (2018)

Based on the results of Table 4.12, the eigenvalue is more than 1, factor loading of all items are greater than 0.6 and also Cronbach's alpha is more than 0.6. Therefore, it is inferred that all items included in work enhancement by personal life with work are found to have significant loadings. Among them, providing supports depending on requirements (0.710) is highest in factor 3.

4.3.4 Financial Performance

Total number of items under the firm performance variable is financial performance thirteen items. Factor analysis filtered the unrelated items and remaining four items summarized as a factor four. The results of factor analysis pointed out that were relevant under these factor four items. The result of factor analysis for financial performance is shown in Table 4.13.

Table 4.13 Financial Performances

Factors and items loaded in each factor	Factor 1
Return on sales (profit/total sales)	0.906
Return on assets (profit/ total assets)	0.916
General profitability of the firm	0.886
Cash flow excluding investments	0.818
Eigenvalues	3.114
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.834
Cronbach's Alpha	0.904

Source: Survey Data (2018)

As shown in Table 4.13, the eigenvalue is more than 1, and Cronbach's alpha is more than 0.6. Therefore, this result can be supported to significant level of items under firm performance variable especially the factor regarding "loyalty is important and feeling a sense of moral obligation to remain" (0.916).

4.3.5 Production Performance

Total number of items under the firm performance variable is production performance thirteen items. Factor analysis filtered the unrelated items and remaining four items summarized as a factor five. The results of factor analysis pointed out that were not relevant under these factor five items. Therefore, this one item was deleted

from these factors five. The deleted item is “production and delivery speed”. The result of factor analysis production performance is shown in Table 4.14.

Table 4.14 Production Performances

Factors and items loaded in each factor	Factor 2
Performance quality.	0.860
Conformance quality.	0.887
Production cost.	0.873
Production (volume) Flexibility.	0.710
Eigenvalues	3.017
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.774
Cronbach’s Alpha	0.818

Source: Survey Data (2018)

As shown in Table 4.14, the eigenvalue is more than 1, and Cronbach’s alpha is more than 0.6. Therefore, this result can be supported to significant level of items under firm performance variable especially the factor regarding “loyalty is important and feeling a sense of moral obligation to remain” (0.887).

4.3.6 Marketing Performance

Total number of items under the firm performance variable is marketing performance thirteen items. Factor analysis filtered the unrelated items and remaining four items summarized as a factor three. The results of factor analysis pointed out that were relevant under this factor three. The result of factor analysis production performance is shown in Table 4.15.

Table 4.15 Marketing Performances

Factors and items loaded in each factor	Factor 3
Market share	0.888
Customer satisfaction	0.778
Sales volume	0.808
Eigenvalues	2.047
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.645
Cronbach’s Alpha	0.761

Source: Survey Data (2018)

As shown in Table 4.15, the eigenvalue is more than 1, and Cronbach’s alpha is more than 0.6. Therefore, this result can be supported to significant level of items under firm performance variable especially the factor regarding “loyalty is important and feeling a sense of moral obligation to remain” (0.888).

4.4 Innovation of Myanmar Traditional Medicine Manufacturers

In this section, innovations on three dimensions of Myanmar traditional medicine manufacturers are analyzed. These three dimensions are marketing innovation, process innovation, and product innovation. Regarding these dimension, respondents asked to rate their level of agreement on each statement, and then mean value for the dimension is calculated. For this purpose, four to five statements are used in the study and five-point Likert scales are applied.

Taking into consideration that the scale used for innovation dimensions is 1 to 5 where 3 is the middle point; the high averaging scores might suggest that the manufacturers innovation on these dimensions. It mean manufacturers believe that their Myanmar traditional medicine manufacturers the innovation aspects for them. The higher the score, the greater the level of innovation on the Myanmar traditional medicine manufacturers practices of the firm to them. The analysis is presented in Table 4.16.

Table 4.16 Innovations of Myanmar Traditional Medicine Manufacturers

Variables	Mean	Standard Deviation	Level of Perception
Marketing innovation	3.675	0.694	High
Process innovation	3.732	0.660	High
Product innovation	3.767	0.663	High
Total innovations	3.725	0.672	High

Source: Survey Data (2018)

In this study, five-point Likert scale is used to indicate the level of respondent to all items (1 = Not implemented, 2 = Imitated from national markets, 3 = Imitated form international markets, 4 = Current products were improved, and 5 = Original products innovations were implemented). Thus, the mean values of all variables were further categorized into three levels of innovation on Myanmar traditional medicine

manufacturers. Mean value of less than 2.00 was categorized as low level of innovation; mean value between 2.00 and less than 3.50 was moderate level of innovation, and mean values of 3.50 or higher was categorized as high level of innovation. This categorization is based on Soi, (2016). According to descriptive statistic, most of the respondents agree upon the fact that their firms use the product innovation as highest Myanmar traditional medicine manufacturing, representing 3.767 overall score. Thus, it can be concluded that the Myanmar traditional medicine manufacturing focuses the most on product innovation, followed by, process innovation. Other Myanmar traditional medicine manufacturers practices such as marketing innovation, process innovation, and product innovation are perceived as high offered. On average, from the employee point of view the Myanmar traditional medicine manufacturers adopt innovations to a high level.

4.5 Effect of Innovation and Firm Performance

Multiple regression analysis is an extension of sample regression analysis which allowing a metric dependent variables to be predicted by independent variables. Multiple regression analysis is used to analyze the relationship between a single dependent variable and several independent variables. In addition, multiple regression analysis is the most commonly used tool to reveal possible interactions among the independent and dependent variables. To ensure that regression analysis is valid, this study uses the three known assumptions multiple namely; linearity, normality, multicollinearity, and outliers. Generally, multiple regressions are used to test the relationship between dependent and independent variables.

Thus in this study, the dependent variables (financial performance, production performance, and market performance) are explained three independent variables (marketing innovation, process innovation, and product innovation). This method is used to predict the change in dependent variables in response to changes in the independent variable. Firm performance was expressed as a function of Myanmar Traditional Medicine Manufacturers practices specified in the following regression equation:

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \varepsilon$$

Where,

Y = Firm Performance

β_0 = Constant

- β_i = Regression Coefficients for Independent Variables X_i
- X_{1i} = Marketing Innovation
- X_{2i} = Process Innovation
- X_{3i} = Product Innovation
- ε = Standard Error Term

Table 4.17 show mean and standard deviations for the three components of firm performance; financial performance, production performance, and market performance. Firm performance is measured by five-point likert scale. The mean values of all variables were further categorized into three levels of performance. Mean value of less than 2.00 was categorized as low level of performance; mean value between 2.00 and less than 3.50 was moderate level of performance, and mean values of 3.50 or higher was categorized as high level of performance.

Table 4.17 Firm Performance

Variables	Mean	Standard Deviation	Level of Performance
Financial Performance	3.420	0.536	Moderate
Production Performance	3.650	0.468	High
Market Performance	3.791	0.442	High
Total Performance	3.620	0.482	High

Source: Survey Data (2018)

According to Table 4.17, respondents from Myanmar traditional medicine manufacturers have the highest on market performance, followed by production performance, and then financial performance. On the whole, the manufacturers from the Myanmar traditional medicine manufacturing have high level of performance.

Multiple regression analysis is the most commonly used technique to assess the relationship between one dependent variable and several independent variables. The specific various dimensions of Myanmar traditional medicine manufacturers practices are the independent variables for this study. Dependent variables in this study are financial performance, production performance, and market performance. The whole fitness of the regression model is shown by its adjusted R square which gives more accurate information about the share of variation in the dependent variable explained by the variation in the dependent variables. In this study, the adjusted R

squared, F-value and t-value from SPSS output have been used to interpret the result of multiple regression analysis.

Multiple regression analysis was conducted to test the effect of innovation on firm performance in Myanmar traditional medicine manufacturers. In the regression analysis, three components of firm performance were regarded as the dependent variables and three dimensions of innovations practices as independent variables.

Table 4.18 Effect of Innovation Practices on Financial Performance

Variable	Unstandardized Coefficient		T	Sig
	B	Std. Error		
(Constant)	1.265	0.270	4.690	0.000
Marketing innovation	0.116	0.067	1.736	0.086
Process innovation	0.318***	0.078	4.106	0.000
Product innovation	0.135	0.075	1.786	0.077
R square	0.389			
Adjusted R square	0.371			
F-value	22.237***			
Sin.	0.000			

Source: Survey Data (2018)

Note: *** indicates that significant at 1 percent level and ** indicates that significant at 5 percent level.

Regression analysis was conducted with financial performance as the dependent variable and three innovation practice as the independent variables: marketing innovation, process innovation, and product innovation in Myanmar traditional medicine manufacturers. Result of regression analysis indicate that much of the variation in the dependent variable is explained with adjusted R square of 0.389 and F-value 22.237 ($p < 0.01$) with three independent variable. Adjusted R square of 0.371 reveals that 37 percent of total variance of financial performance is explained by innovation practices.

According to Table 4.18, process innovation emerged as the most significant variables in explaining the variable in financial performance. It is of services that only dimension of innovation emerged as significant predictors of financial performance in the case of Myanmar traditional medicine manufacturers. In addition, multiple

regression results indicated the ranking of the sources to understand the important and greater impact of sources on financial performance. The more the standardized coefficient beta brings the strongest the effect and contribution on financial performance with standardized coefficient beta of 0.318.

Then, the second multiple regression analysis is performed to examine the effect on production performance. The relationship between are marketing innovation, process innovation, and product innovation effect on production performance. The results are presented in Table 4.19.

Table 4.19 Effects of Innovation Practices on Production Performance

Variable	Unstandardized Coefficient		T	Sig
	B	Std. Error		
(Constant)	1.525	0.231	6.607	0.000
Marketing innovation	0.150***	0.057	2.610	0.010
Process innovation	0.178	0.066	2.686	0.080
Product innovation	0.241***	0.065	3.740	0.000
R square	0.453			
Adjusted R square	0.438			
F-value	29.003***			
Sig.	0.000			

Source: Survey Data (2018)

Note: *** indicates that significant at 1 percent level and ** indicates that significant at 5 percent level.

Result of regression analysis indicate that much of the variation in the dependent variable is explained with adjusted R square of 0.453 and F-value 29.003 ($p < 0.01$) with three independent variable. Adjusted R square of 0.438 reveals that 44 percent of total variance of production performance is explained by innovation practices.

According to Table 4.19, process innovation and product innovation emerged as the most significant variables in explaining the variable in production performance. It is of services that only two dimension of innovation emerged as significant predictors of production performance in the case of Myanmar traditional medicine manufacturers. There are marketing innovation and product innovation. In addition, multiple regression results indicated the ranking of the sources to understand the important and greater impact of sources on production performance.

Then, the final multiple regression analysis is performed to examine the effect on market performance. In this test, independent variables are marketing innovation, process innovation, and product innovation effect on market performance. The results are presented in Table 4.20.

Table 4.20 Effects of Innovation Practices on Market Performance

Variable	Unstandardized Coefficient		T	Sig
	B	Std. Error		
(Constant)	1.998	0.234	8.539	0.000
Marketing innovation	0.083	0.058	1.436	0.154
Process innovation	0.203***	0.067	3.015	0.003
Product innovation	0.194***	0.065	2.962	0.004
R square	0.370			
Adjusted R square	0.352			
F-value	20.558***			
Sig.	0.000			

Source: Survey Data (2018)

Note: *** indicates that significant at 1 percent level and ** indicates that significant at 5 percent level.

Result of regression analysis indicate that much of the variation in the dependent variable is explained with adjusted R square of 0.370 and F-value 20.558 ($p < 0.01$) with three independent variable. Adjusted R square of 0.352 reveals that 35 percent of total variance of market performance is explained by innovation practices.

According to Table 4.20, process innovation and product innovation emerged as the most significant variables in explaining the variable in market performance. It is of services that only two dimension of innovation emerged as significant predictors of market performance in the case of Myanmar traditional medicine manufacturers. There are process innovation and product innovation. In addition, multiple regression results indicated the ranking of the sources to understand the important and greater impact of sources on market performance.

CHAPTER 5

CONCLUSION

This chapter summarizes the findings from the study on 109 Myanmar traditional medicine manufacturers who have manufacturing licenses which are of the age of 3 years and over. Those findings are from thorough analysis using the conceptual framework mentioned in chapter 2 and the analytical tools developed for on innovation on their firms and innovation and firm performance of Myanmar traditional medicine manufacturers. The suggestions and comments for the development of the performance of Myanmar traditional medicine manufacturing firms, recommendations on growth of innovation in Myanmar traditional medicine manufacturing firms are also stated. For the broad picture to be explored the needs for future research based on this study are also pointed out.

5.1 Findings and Discussion

This paper reports on innovativeness in the Myanmar traditional medicine manufacturers industry, drawing on a sample of 109 manufacturing firms. A theoretical framework has been empirically tested identifying the effect of innovation and firm performance. Our study not only discloses how three innovation types affect diverse firm performance aspects, but it also points out that between innovation types and firm performance aspects.

In this study, the number of traditional medicine manufacturer sorted out by the type of innovation is analysis while considering the three common types of innovation such as product, process, and marketing innovations. The results from analyses show that the all manufacturers are conducting all three types of innovation. Data for the study was collected through questionnaires which include both open and close-ended. Among 430 firms of all the total population of the selected Myanmar traditional manufacturing firms, the survey questionnaires are distributed to 109 firms currently in selected traditional medicine firms. The target population for the study consists of employees working in the Myanmar traditional medicine manufacturers in South and North Okkalapa Township.

Frequencies, mean, percentage, and standard deviation were employed to present the responses obtained from the respondents. The research show that there are more male than female, that is, 81 out of the total population surveyed represent male

while another, 28 respondent female. This is because the nature of Myanmar traditional medicine firm in Myanmar traditional medicine manufacturing industry successful more male manufactures than female. Besides that, out the total respondent 109 firms, 7 respondents have ISO certificate with 102 respondents have not ISO certificate. This may be because of most of the respondents are still in adult establishment 77 respondents are under 30 years, 12 firms are 31 - 40 years, 11 firms are 41 - 50 years, and 9 firms are over 50 years. The research show that there are more membership of Myanmar traditional medicine practitioner association than non-membership, that is, 98 respondents out of the total population surveyed represent memberships while another, 11 respondents respondent non-memberships. Regarding education, most of the manufacturers are graduated or Ta Sa certificate. There are 104 respondents who hold Ta Sa certificate and high basic education level, 5 respondents who hold bachelor degree level. This is because Myanmar traditional medicine manufacturers industry started current firm 51 firms are start from scratch, 55 firms are inherited, 2 firms are partnership, and 1 firm is purchasing existing.

In addition to exploring characteristics of sample with descriptive information, multiple regression analysis was used in order to ascertain the effect and relationship between and among variables. For this purpose, statistical Package for Social Science (SPSS) version 25.0 was employed. Regarding the validity, all the independent items in the study have factor loading value of 0.6 and above. Thus, all the items are retained in the final analysis. The collected data were checked for reliability and validity and multiple regressions. It shows that all variables include process innovation, product innovation, and marketing innovation have effect on firm performance (financial, production, and market).

Then, the study explores innovation practices in the Myanmar traditional medicine manufacturers in South and North Okkalapa Township. In the current study, three main dimension namely; process innovation, product innovation and marketing innovation. These practices are measured from firm performance point of view in the study. Thus, focus of the study the effect of innovation and firm performance of Myanmar traditional medicine manufacturers. These practices are measured by using five-point Likert scale item (1 = not implemented, 2 = imitated from national markets, 3 = imitated from international markets, 4 = current products were improved and 5 = original product innovations were implemented). The higher mean value upon each item suggests that the manufacturers have high performance on innovation.

According to the data, the manufacturers from traditional manufacturing firm that their firm are conducting high level of marketing innovation, high level of process innovation and high level of product innovation. Thus, the manufacturers of traditional medicine manufacturing firm have high level of innovation.

After that the study measures the performance level of manufacturers on Myanmar traditional medicine manufacturing firm. Here, the firm performances are divided into three components; namely financial performance, production performance and market performance. To measure the performance level, the study use the Likert scale assessing the agreement degree on the given statement (1 = no effect to 4 = high). Thus, the study suggests that the higher mean value, the higher performance of the manufacturers in traditional medicine manufacturing firm. In comparison of the three components, it is found that production performance and market performance are the highest among the manufacturers form traditional medicine manufacturing firm, followed by financial performance. When converting the numerical mean value to performance, two components of performance are high level and one component of performance is moderate level in Myanmar traditional medicine manufacturers in South and North Okkalapa Township.

The study also analyses the relationship between innovation and firm performance. The study suggests that all the three dimensions of innovation have significant relationship with firm performance. The process innovations have significant relationship with financial performance. Marketing innovation and product innovation have significant relationship with production performance. Process innovation and product innovation have significant relationship with market performance.

The study therefore concludes that there is significant effect of product innovation on production and market performance of Myanmar traditional medicine manufacturers. The study confirmed that there is significant effect of process innovation on financial, production, and market performance of Myanmar traditional medicine manufacturers.

5.2 Suggestions and Recommendation

It is concluded from the study results that innovation, process innovation, product innovation and marketing innovation by work have significant impact on firm performance of Myanmar traditional medicine manufacturers. And then, process

innovation the variables have relationship on financial performance of manufacturers. Marketing innovation has not relationship with market performance. At the end of discussion, it is concluded from the research that manufacturers' innovation affects firm performance. Those firm manufacturers having innovation are more performance with their firm. So it is proved that relationship exist in innovation and firm performance. Investigating the relationship between innovation and has a relationship with firm performance.

The results of the study contributed to the recommendation for the improvement of the literature on innovation and firm performance, especially in Myanmar traditional medicine manufacturing firm. These proposed factors are required to consider by the firm and also the future study should test these factor to create a more complete model of innovation and firm performance. In the current study, firm performance is divided into three components.

Myanmar to provide cheap and reliable Myanmar traditional medicines which can provide consumers free from side effect of western medicines. The attitudes and mindsets of ancient traditional manufacturers still have impact on the behaviors of contemporary manufacturers. This issue must be considered for development of Myanmar traditional medicine manufacturing sector.

The success (performance) of Myanmar traditional medicine manufacturers stems from manufacturers innovation, and that innovation can be upgraded by practicing health care at own clinics and manufacturers formal education on Myanmar traditional medicine. Those points prove that it is urgently needed to encourage and support existing manufacturers and each manufacturers (university and institute of traditional medicine) to conduct the business of Myanmar traditional medicine manufacturing.

Myanmar traditional medicine manufacturers are facing with many barriers such as what innovation really means, fuzzy responsibility assignment, confusing innovation with creativity, lack of framework, lack of control, lack of coordination, and lack of customer focus. Therefore, Myanmar Traditional Medicine Practitioners association should educate and inform the effective and efficient ways to overcome these barriers. Myanmar traditional medicine manufacturers should consider the potential in future and then they should match their competencies and market opportunities which are currently occurred.

Nowadays, public relations in Myanmar largely influence on customer's awareness in Myanmar traditional medicine market. In the past, Myanmar traditional medicine manufacturers' practices public relations through the ways of donations made to public and word-of-mouth of former patients who are relieved from diseases and their endorsements due to treatment of manufacturers.

In University and Institute of Myanmar Traditional Medicine, if the current syllabuses are upgraded by adding the courses of entrepreneurship and small business, business ethics, and innovation: the entrepreneurial spirits and business mindsets will be instilled in the minds of students in graduated classes. For innovation generation in Myanmar traditional medicine manufacturing sector, existing manufacturers must have formal education on traditional medicine as a base.

On the other hand, in the Myanmar traditional medicine manufacturers, some are very innovation and their medicine drugs are efficacious for certain challenging and fatal diseases. However, the attributes of their medicine drugs are known by only small group of patients at a particular region. They can be seen as fruit hidden by leaves. As such, the government and respective associations should have plans to reveal their innovativeness.

5.3 Needs for Future Research

This section will attempt to explain the requirements of the further studies and the limitations of the current study.

Firstly, this study only focuses on innovation and firm performance of Myanmar traditional medicine manufacturing firm. This would lead some suggestions for further study. Thus, effect innovation and firm performance of Myanmar traditional medicine manufacturers should be explored as further studies in order to compare.

Furthermore, the relationship between innovation and firm performance of manufacturing firms, and innovation and customer satisfaction should be study in the future. And then, Myanmar traditional medicine manufacturing firm of different geographic locations also should be conducted to know innovation and firm performance of different areas. Therefore, if the future study can be conducted on the whole Myanmar traditional medicine manufacturers, better and more complete picture of the whole traditional medicine manufacturers can be achieved Innovation and firm performance in other relevant industries (e.g., architecture industry, fashion design industry, and so on) should also be explored in the future.

REFERENCES

- Achrol, R. S. & Etzel, M. J. (2003). "The Structure of Reseller Goals and Performance in Marketing Channels". *Journal of the Academy of Marketing Science*, 31(2).
- Adner, R., & Levinthal, D. (2001). *Demand heterogeneity and technology evolution: Implications for product and process innovation*. *Management Science*, 47(5).
- Akova, B., Ulusoy, G., Payzin, E., Kaylan, A. R. (1998). *New product development capabilities of the Turkish electronics industry*.
- Antoncic, B., & Hisrich, R. D. (2001). "Intrapreneurship: Construct refinement and cross-cultural validation". *Journal of Business Venturing*, 16.
- Ar, I. M., & Baki, B. (2011). "Antecedents and performance impacts of product versus process innovation: Empirical evidence from SMEs located in Turkish science and technology parks". *European Journal of Innovation Management*, 14(2).
- Aragon-Correa, J. A., Garcia-Morales, V. J., & Cordon-Pozo, E. (2007). *Leadership and organizational learning's role on innovation and performance: Lessons from Spain*. *Industrial Marketing Management*, 36(3).
- Artz, K. W., et al. (2010). "A Longitudinal Study of the Impact of R&D, Patents, and Product Innovation on Firm Performance". *Journal of Product Innovation Management*, 27.
- Atuahene-Gima, K. (1996). "Market orientation and innovation". *Journal of Business Research*, 35.
- Baer, M. & Frese, M. (2003). "Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance". *Journal of Organisational Behavior*, 24.
- Bagorogoza, J. & Waal, A. D. (2010). "The Role of Knowledge Management in Creating and Sustaining High Performance Organisations the Case of Financial Institutions in Uganda". *World Journal of Entrepreneurship Management and Sustainable Development*, 6 (4).
- Bakar, L. J. A. & Ahmad, H. (2010). "Assessing the Relationship between Firm Resources and Product Innovation Performance". *Business Process Management Journal*, 16(3).

- Barringer, B. R., Bluedorn, A. C. (2000). "The relationship between corporate entrepreneurship and strategic management". *Strategic Management Journal*, 20.
- Bauer, M., & Leker, J. (2013). *Exploration and exploitation in product and process innovation in the chemical industry*. *R&D Management*, 43 (3).
- Bayus, B. L., Erickson, G. & Jacobson, R. (2003). *The Financial Rewards of New Product Introductions*. *Management Science*, 49 (2).
- Black, R. (1999). *Doing quantities research in social sciences: an integrated approach to research design, measurement and statistics*. London: Sage.
- Bonn, I. (2000). "Staying on Top: Characteristics of Long-Term Survival". *Journal of Organizational Change Management*, 13(1).
- Bowen, F. E., Rostami, M., & Steel, P. (2010). "Timing is everything: A meta-analysis of the relationships between organizational performance and innovation". *Journal of Business Research*, 63(11).
- Bull, I. H. F (2005). *The relationship between job satisfaction and organizational commitment amongst high school teachers in disadvantaged areas in the Western Cape*. MA. Dissertation. Western Cape: University of Western Cape.
- Buzzell, R. D, Gale, B. T. (1987). *The PIMS Principles: Linking Strategy to Performance*. Free Press, New York, NY.
- Byrne, B. M. (2001). "Structural equation modeling with AMOS, EQS and LISREL: comparative approaches to the factorial validity of a measuring instrument". *International Journal of Testing*, (1).
- Camison, C. & Lopez, A. V. (2010). "An Examination of the Relationship between Manufacturing Flexibility and Firm Performance: The Mediating Role of Innovation". *International Journal of Operations & Production Management*, 30(8).
- Carrion-Flores, C. E., & Innes, R. (2010). "Environmental innovation and environmental performance". *Journal of Environmental Economics and Management*, 59.
- Chen, Y. (2006). "Marketing innovation". *Journal of Economics & Management Strategy*, 15(1).
- Chenhall, R. H. (1997). *Reliance on manufacturing performance measures, Total Quality Management and organizational performance*. *Management Accounting Research* 8 (2).

- Collins, C. J. & Smith, K. G. (2006). "Knowledge exchange and combination: The role of human resource practices in the performance of high technology firms". *Academy of Management Journal*, 49.
- Collins, J. C. & Porras, J. I. (2000). *Built to Last – Successful Habits of Visionary Companies*. London: Random House. [Online], [Retrieved September 15, 2011], <http://dowlingconsulting.ca/Builtto.pdf>.
- Cozza, C., Malerba, F., Mancusi, M. L., Perani, G. & Vezzulli, A. (2012). *Innovation, profitability and growth in medium and high-tech manufacturing industries: Evidence from Italy*. *Applied Economics*, 44 (15).
- Damanpour, F. (1990). *Innovation effectiveness, adoption and organizational performance*. West, M.A., Farr, J.L. (Eds), *Innovation and Creativity at Work*, John Wiley and Sons.
- Damanpour, F. (1991). "Organizational innovation: a meta-analysis of effects of determinants and moderators". *Academy of Management Journal*, 34 (3).
- Damanpour, F., & Gopalakrishnan, S. (2001). "The dynamics of the adoption of product and process innovations in organizations". *Journal of Management Studies*, 38(1).
- Darroch, J. (2001). "Knowledge Management, Innovation and Firm Performance". *Journal of Knowledge and Management*, 9(3).
- Day, G. S. (2014). "The Capabilities of Market-Driven Organizations". *Journal of Marketing*, 58 (4).
- Dobbs, M. & Mendonca, R. T. (2006). "Small Business Growth: Recent Evidence and New Directions". *International Journal of Entrepreneurial Behaviour and Research*, 13 (5).
- Drucker, P.F. (1985). *Innovation and Entrepreneurship*. Butterworth-Heinemann, Oxford. 2001.
- Duranton, G., & Puga, D. (2001). "Nursery cities: Urban diversity, process innovation, and the life cycle of products". *American Economic Review*, 91(5).
- Espallardo, M. H. & Ballester, E. D. (2009). "Product Innovation in Small Manufacturers, Market Orientation and the Industry's Five Competitive Forces: Empirical Evidence from Spain". *European Journal of Innovation Management*, 12 (4).
- Ettlie, J. E., & Reza, E. M. (1992). "Organizational integration and process innovation". *Academy of Management Journal*, 35(4).

- Fagerberg, J. Mowery, D. C., & Nelson, R. (2004). *The Oxford Handbook of Innovation*. Oxford: Oxford University Press.
- Fonseca, T. (2014). *Combining Product and Process Innovation: Is Organizational Innovation the crucial complement?* Paper presented at the DRUID Academy conference in Rebild, Aalborg, Denmark on January.
- Forker, L. B., Vickery, S. K. & Droge, C. L. M. (1996). "The Contribution of Quality to Business Performance". *International Journal of Operations and Production Management*, 16 (8).
- Frazier, G. L. & Howell, R. D. (1983). "Business Definition and Performance". *Journal of Marketing*, 47.
- Fullerton, R. R. & Wempe, W. F. (2009). "Lean manufacturing, non-financial performance measures and financial performance". *International Journal of Operations and Production Management*, 29 (34).
- Fullerton, R.R. & McWatters, C.S. (1994). "The production performance benefits from JIT implementation". *Journal of Operations Management*, 19 (1).
- Garnsey, E. (1988). *A Theory of the Early Growth of the Firm*. *Industrial and Corporate Change*, 7 (3).
- Garrigos-Simon, F. J., & Marques, D. P. (2004). "Competitive Strategies and Firm Performance: A Study in the Spanish Hospitality Sector". *Management Research*, 2 (3).
- Garvin, D. A. (1987). "Competing on the Eight Dimensions of Quality". *Harvard Business Review*, 65 (6).
- Geroski, P. (2005). *Innovation and competitive advantage*. Working Paper No. 159, OECD, Paris.
- Gibrat, R. (1931). *Les Inégalités Économiques*. Paris, France.
- Gluch, P., Gustafsson, M., & Thuvander, L. (2009). *An absorptive capacity model for green innovation and performance in the construction industry*. *Construction Management and Economics*, 27.
- Gökkaya, O. & Özbağ, G. K. (2015). "Linking Core Competence, Innovation and Firm Performance". *Journal of Business research Turk*, 7 (1).
- Gopalakrishnan, S. (2000). "Unraveling the links between dimensions of innovation and organizational performance". *The Journal of High Technology Management Research*, 11(1).

- Grant, R. M., Jammine, A. P. & Thomas, H. (1988). "Diversity, Diversification, and Profitability among British Manufacturing Companies". *Academy of Management Journal*, 31.
- Günday, G., Ulusoy, G., Kılıç, K., & Alphan, L. (2011). "Effects of innovation types on firm performance". *International Journal of Production Economics*, 133(2).
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. 6th ed. Upper Saddle River, NJ: Pearson Prentice Hall.
- Hall, B. H., J. Mairesse & P. Mohnen (2009). "Measuring the Returns to R&D", *National Bureau of Economic Research*, NBER Working Paper 15622, Cambridge, MA.
- Han, J. K., Kim, N., & Srivastava, R. K. (1998). "Market orientation and organisational performance: is innovation the missing link?" *Journal of Marketing* 62 (4).
- Hanvanach, Sangphet, Cornelia Droge, & Roger Calatone (2013). "Reconceptualizing the meaning and domain of marketing knowledge". *Journal of Knowledge Management*, 7 (4).
- Harris, L.C. (2001). "Market orientation and performance: Objective and subjective empirical evidence from UK companies". *Journal of Management Studies*, 38(1).
- Hauser, J., G. J. Tellis, & A. Griffin (2005). *Research on innovation: A review and agenda for Marketing Science*. *Marketing Science*, 25.
- He, Z. L., & Wong, P. K. (2004). *Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis*. *Organization science*, 15 (4).
- Hernandez-Espallardo, M. & Delgado-Ballester, E. (2009). "Product innovation in small manufacturers, market orientation and the industry's five competitive forces: Empirical evidence from Spain". *European Journal of Innovation Management*, 12 (4).
- Hoskin, K. (1990). *Using History to Understand Theory: A Re-considerations of the Historical Generrri of 'Strategy'*. Paper prepared for the E1ASM Workshop on Strategy, accounting and control, Venice, Italy.
- Hult, G. T. & Ketchen Jr., D. J. (2001). "Does market orientation matter? A test of the relationship between positional advantage and performance". *Strategic Management Journal*, 22.

- Johne, A. & Davies, R. (2000). "Innovation in medium-sized insurance companies: how marketing adds value". *International Journal of Bank Market*, Vol. 18.
- Johne, A. (1999). "Successful Market Innovation". *European Journal of Innovation Management*, Vol. 2.
- Kao, J. J. (1989). *Entrepreneurship, Creativity and Organization: Text, Cases and Readings*. Prentice Hall, New Jersey.
- Kiraka, M. K. (2013). *Micro, small and Medium enterprise Growth and Innovation in Kenya*. Nairobi: Longhorn Publishers.
- Knight, K E. (1967). "A Descriptive Model of the Intra-firm Innovation Process". *Journal of Business*, 40.
- Kotler, P. (1991). *Principles of Marketing*. Prentice Hall, NJ.
- Krager, J. & Parnell, J. A. (1996). "Strategic Planning Emphasis and Planning Satisfaction in Small Firms: An Empirical Investigation". *Journal of Business Strategies*, 120.
- Li, H., Atuagene-Gima, K. (2001). "Product innovation strategy and the performance of new technology ventures in China". *Academy of Management Journal*, 44(6).
- Li, L. (2000). "An analysis of sources of competitiveness and performance of Chinese manufacturers". *International Journal of Operations and Production Management*, 20 (3-4).
- Lin, C. H., Peng, C. H., & Kao, D. T. (2008). "The Innovativeness Effect of Market Orientation and Learning Orientation on Business Performance". *International Journal of Manpower*, 29 (8).
- Lin, C. Y., & Chen, M. Y. (2007). "Does innovation lead to performance? An empirical study of SMEs in Taiwan". *Management Research News*, 30 (2).
- Mahemba, C. M. & Bruijn, E. J. De (2003). *Innovation Activities by Small and Medium-sized Manufacturing Enterprises in Tanzania, Creativity and Innovation Management*. 12(3).
- Manerikar, V., & Manerikar, S. (2012). "Cronbach's alpha". *A Peer Reviewed Research Journal*, 19(1).
- Marcus, A. A. (1988). "Responses to externally induced innovation: Their effects on organisational performance". *Strategic Management Journal*, 9.
- Marquis, D. G. & Myers, S. (1969). *Successful Industrial Innovations*. National Science Foundation, Washington, DC.

- McAdam, R., & Keogh, K. (2004). *Transitioning towards creativity and innovation measurement in SMEs*. *Creativity and Innovation Management*, 13 (2).
- Metcalfe, J. S. (1998). *Evolutionary Economics and Creative Destruction*. Routledge, London.
- Miles, I. (2000). "Services Innovation: Coming of Age in the Knowledge Based Economy". *International Journal of Innovation Management*, 14(4).
- Murphy, G. B., Trailer, J. W., & Hill, R. C. (1996). "Measuring performance in entrepreneurship research". *Journal of Business Venturing*, 36(1).
- Myint Myint Kyi. (2010). "Creativity, Innovation, and Performance of Myanmar Traditional Medicine Manufacturers". PhD Thesis, Yangon University of Economics.
- Ngirigacha, S. M., & Bwisa, H. (2013). *Importance of Entrepreneurial Innovations on SMEs' Market Competitiveness in Thika Town*. Proceedings of 1st JKUATSHRD Research Conference.
- Noorani, I. (2014). "Service Innovation and Competitive Advantage". *European Journal of Business and Innovation Research*, 2 (1).
- O'Sullivan, D. & Dooley, L. (2009). *Applying Innovation*. London. UK: Sage Publication,
- OECD (2005). *Oslo Manual: Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*. Paris.
- Oke, A., Burke, G. & Myers, A. (2007). "Innovation Types and Performance in Growing UK SMEs". *International Journal of Operations and Production Management*, 27 (7).
- Oke, A., Burke, G. & Myers, A. (2013). "Innovation Types and Performance in Growing UK SMEs". *International Journal of Operations and Production Management*, 27 (7).
- Olson, E., O. Walker, & R. Ruekert. (1995). "Organizing for Effective New Product Development: The Moderating Role of Product Innovativeness". *Journal of Marketing*.
- Omachonu, V. K. & Einspruch, N. G. (2010). "Innovation in healthcare delivery systems: a conceptual framework". *The Innovation Journal: The Public Sector Innovation Journal*, 15 (1).

- Otero-Neira, C., Lindman, M. T. & Fernández, M. J. (2009). *Innovation and Performance in SME Furniture Industries: An International Comparative Case Study*. *Marketing Intelligence & Planning*, 27 (2).
- Polder, M., Leeuwen, G. V., Mohnen, P., & Raymond, W. (2010). *Product, process and organizational innovation: drivers*. Complementarity and productivity effects. MPRA Paper.
- Proprius, L. De (2012). "Type of Innovation and Inter-firm Co-operation". *Journal of Entrepreneurship and Regional Development*, 14.
- Roberts, P. W. (1999). "Product innovation, product-market competition and persistent profitability in the US pharmaceutical industry". *Strategic Management Journal*, 20(7).
- Roberts, P. W., & Amit, R. (2003). *The dynamics of innovative activity and competitive advantage: The case of Australian retail banking, 1981 to 1995*. *Organization Science*, 14(2).
- Robinson, Richard B., & John A. Pearce (1988). "Planned Patterns of Strategic Behavior and their Relationship to Business-Unit Performance." *Strategic Management Journal*, 9.
- Rosli, M. M. & Sidek, S. (2013). "The Impact of Innovation on the Performance of Small and Medium Manufacturing Enterprises: Evidence from Malaysia". *Journal of Innovation Management in Small & Medium Enterprise*, 1 (1).
- Rubio, A. & Aragon, A. (2009). "SMEs Competitive Behavior: Strategic Resources and Strategies". *Management Research*, 7(3).
- Schumpeter, J. A. (1934). *The Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Harvard University Press, Cambridge.
- Sekaran, U., & Bougie, R. (2010). *Research method for business: a skill building approach*. 5th ed. John Wiley & Sons, Inc.
- Short, J. C., Ketchen, D. J., Palmer, T. B. & Hult, G. T. (2007). "Firm, Strategic Group, and Industry Influences on Performance". *Strategic Management Journal*, 28 (2).
- Sohn, S. Y., Joo, Y. G., & Han, H.K. (2007). *Structural equation model for the evaluation of national funding on R&D project of SMEs in consideration with MBNQA criteria*. *Evaluation and Program Planning*, 30(1).

- Soi, C. C. (2016). "Effect of Innovation Strategies on the Performance of Firms in the Telecommunication Industry in Kenya". *Research Project*. United States International University
- Subramanian A., & Nilakanta, S. (1996). *Organisational innovativeness: Exploring the relationship between organisational determinants of innovation, types of innovations, and measures of organisational performance*. *Omega*, 24 (6).
- Szymanski, D. M., Bharadwaj, S. G., & Varadarajan, P. R. (1993). "An analysis of the market share-profitability relationship". *The Journal of Marketing*, 57(3).
- Tashakkori, A., & Teddlie, C. (2003). *Handbook of mixed methods in social and behavioural research*. New Delhi: Sage Publications.
- Tavitiyaman, P., Zhang, H. Q., & Qu, H. (2012). "The Effect of Competitive Strategies and Organizational Structure on Hotel Performance". *International Journal of Contemporary Hospitality Management*, 24 (1).
- Trau, F. (1996). *Why Do Firms Grow?* Working Paper, 26, Roma, Italy.
- Varis, M. & Littunen, H. (2010). "Types of Innovation, Sources of Information and Performance in Entrepreneurial SMEs". *European Journal of Innovation Management*, 13 (2).
- Venkatraman, N., Prescott, J. E. (1989). "Environment-structure co-alignment: An empirical test of its performance implications". *Strategic Management Journal*, 11.
- Walker, R. M. (2004). "Innovation and Organizational Performance: Evidence and a Research Agenda", *Advanced Institute of Management Research*, Working Paper No: 002-June.
- Welman, J. C., Kruger, S. J., & Mitchell. (2009). "*Research methodology*". 3rd ed. Cape Town: Oxford.
- Whittington, R., Pettigrew, A., Peck, S., Fenton, E., & Conyon, M. (1999). *Change and complementarities in the new competitive landscape: A European panel study, 1992-1996*. *Organisation Science* 10.
- Wolff, J. A. & Pett, T. L. (2004). "Small-firm performance: modeling the role of product and process improvements". *Journal of Small Business Management*, 44 (2).
- Wolff, J. A. & Pett, T. L. (2006). "Small-firm Performance: Modeling the Role of Product and Process Improvements". *Journal of Small Business Management*, 44 (2).

- Wu, F., Mahajan, V., Balasujbramanian, S. (2003). "An analysis of e-business adoption and its impact on business performance". *Journal of the Academy of Marketing Sciences*, 31.
- Xi, F. & Fang, L. (2005). *Commentary of Schumpete's Innovation Theory*. China Economist, Vol. 19.
- Yilmaz, C., Alpkın, L., & Ergun, E. (2005). "Cultural determinants of customer- and learning-oriented value systems and their joint effects on firm performance". *Journal of Business Research*, 58.
- Zahra, S. A., & Sidhartha, R. D. (1993). *Innovation strategy and financial performance in manufacturing companies: An empirical analysis*. *Production and Operations Management*, 2 (1).
- Zemplinerova, A. (2010). *Innovation Activity of Firms and Competition*. *Politická ekonomie*. (6).
- Zhou, K. Z., & Wu, F. (2010). "Technological capability, strategic flexibility, and product innovation". *Strategic Management Journal*, 31 (5).
- Zikmund, W., Babin, B., Carr, J., & Griffin, M. (2010). *Business research methods*. 8th ed. South-Western Cengage Learning.
- Žižlavský, O. (2011). "Involving customers in the innovation process as a means leading to increasing business performance". *Journal of Competitiveness*, 3 (1).

APPENDIX - B

Reliability Tests

Reliability Statistics

Innovation and firm performance

Cronbach's Alpha	No. of Items
0.618	5

Cronbach's Alpha	No. of Items
0.625	5

Cronbach's Alpha	No. of Items
0.707	4

Cronbach's Alpha	No. of Items
0.904	4

Cronbach's Alpha	No. of Items
0.818	4

Cronbach's Alpha	No. of Items
0.761	3

Frequency Table

No. of Firm by Year of Establishment

Year	No. of Firm	Percent
Under 30	77	70.6
31 – 40	12	11.0
41 – 50	11	10.1
Over 50	9	8.3
Total	109	100.0

No. of Firm by Type of Ownership

Type	No. of Firm	Percent
Sole Proprietorship	105	96.3
Partnership	3	2.8
Company	1	0.9
Total	109	100.0

No. of Firm by having ISO Certificate

Status	No. of Firm	Percent
Yes	7	6.4
No	102	93.6
Total	109	100.0

No. of Respondents by Gender

Gender	No. of Respondent	Percent
Male	81	74.3
Female	28	25.7
Total	109	100.0

No. of Respondents by Age Group

Age Group (Years)	No. of Respondent	Percent
Under 31	4	3.7
31 – 40	12	11.0
41 – 50	23	21.1
Over 50	70	64.2
Total	109	100.0

No. of Respondents by Education

Education	No. of Respondent	Percent
Ta Sa Certificate	104	95.4
Degree	5	4.6
Total	109	100.0

Which may did you use to get started current business?

Categories	No. of Respondent	Percent
Start from scratch	51	46.8
Inherited	55	50.5
Partnership	2	1.8
Purchasing Existing	1	0.9
Total	109	100.0

Membership status of Myanmar Traditional Medicine Practitioner Association

Status	No. of Respondent	Percent
Yes	98	89.9
No	11	10.1
Total	109	100.0

Regression

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.623 ^a	.389	.371	.40964	1.466

a. Predictors: (Constant), Product Innovation, Marketing Innovation, Process Innovation

b. Dependent Variable: financial performance

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	11.195	3	3.732	22.237	.000 ^b
Residual	17.620	105	.168		
Total	28.814	108			

a. Dependent Variable: financial performance

b. Predictors: (Constant), Product Innovation, Marketing Innovation, Process Innovation

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.265	.270		4.690	.000		
Marketing Innovation	.116	.067	.156	1.736	.086	.720	1.389
Process Innovation	.318	.078	.407	4.106	.000	.593	1.687
Product Innovation	.135	.075	.173	1.786	.077	.623	1.605

a. Dependent Variable: financial performance

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.673 ^a	.453	.438	.35068	1.963

a. Predictors: (Constant), Product Innovation, Marketing Innovation, Process Innovation

b. Dependent Variable: Production Performance

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	10.700	3	3.567	29.003	.000 ^b
Residual	12.912	105	.123		
Total	23.612	108			

a. Dependent Variable: Production Performance

b. Predictors: (Constant), Product Innovation, Marketing Innovation, Process Innovation

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.525	.231		6.607	.000		
Marketing Innovation	.150	.057	.222	2.610	.010	.720	1.389
Process Innovation	.178	.066	.252	2.686	.008	.593	1.687
Product Innovation	.241	.065	.342	3.740	.000	.623	1.605

a. Dependent Variable: Production Performance

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.608 ^a	.370	.352	.35550	1.767

a. Predictors: (Constant), Product Innovation, Marketing Innovation, Process Innovation

b. Dependent Variable: Marketing Performance

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	7.794	3	2.598	20.558	.000 ^b
Residual	13.270	105	.126		
Total	21.064	108			

a. Dependent Variable: Marketing Performance

b. Predictors: (Constant), Product Innovation, Marketing Innovation, Process Innovation

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.998	.234		8.539	.000		
Marketing Innovation	.083	.058	.131	1.436	.154	.720	1.389
Process Innovation	.203	.067	.303	3.015	.003	.593	1.687
Product Innovation	.194	.065	.291	2.962	.004	.623	1.605

a. Dependent Variable: Marketing Performance

**Final Questionnaire for Innovation and Firm Performance of
Myanmar Traditional Medicine Manufacturers**

Dear Sir/Madam,

I am M.Act candidate of Yangon University of Economics. I am conducting the thesis “**Innovation and Firm Performance of Myanmar Traditional Medicine Manufacturers**” as a partial fulfillment of the requirement for the Degree of Master of Accounting at Yangon University of Economics.

The purpose of this research is to analyze the effect of innovation on firm performance in Myanmar traditional medicine manufacturing firms. I am highly appreciated your precious energy and time spent on completing this survey questionnaires. Your time, answers and experiences are greatly valuable contribution to the outcomes of the research. All information provided will be treated as confidential. The findings would be useful for all the stakeholders of the program.

Thank you very much for your attention and help!

Ei Ei Zin

**Master of Accounting Candidate
Yangon University of Economics**

.....

Section A: General Information

Respondent's Name:

Firm's Address:

.....

Phone Number:

Number of Employees

Year of Establishment

Type of Ownership Sole Proprietorship () Partnership () Company ()

Have you got ISO certificate? Yes () No ()

Section B: Manufacturer's Profile

1. Name

2. Position at work

3. Age : () Year

4. Sex : Male () Female ()

5. Education

a) Do you have any degree/certificate from university/institute/ association?

Yes () No ()

If yes, please specify:

Degree/Certificate	Organization	Year
.....
.....
.....

i) Which way did you use to get started current business?

Start from scratch ()

Inherited ()

Partnership ()

Purchasing Existing Firm ()

ii) Are you member of Myanmar Traditional Medicine Practitioner Association?

Yes () No ()

Section C: Innovation Types

To what extent were the following kinds of innovations types implemented in your organization in the last three years related to the following kinds of activities?

Please write (✓) at the cell which you would prefer in the table and answer
 Please indicate the extent to which you agree or disagree with the statements in the table.
Where 1 = Not implemented, 2 = Imitated from national markets, 3 = Imitated from international markets, 4 = Current products were improved, 5 = Original product innovations were implemented

Sr.	Statement on Marketing Innovation Measures	1	2	3	4	5
1	Renewing of the design of the current and/or new products through changes such as in appearance, packaging, shape and volume without changing their basic technical and functional features.					
2	Renewing the distribution channels without changing the logistics processes related to the delivery of the product.					
3	Renewing the promotion techniques employed for the promotion of the current and /or new products.					
4	Renewing the pricing techniques employed for the pricing of the current and/ or new products.					

Sr.	Statement on Process Innovation Measures	1	2	3	4	5
1	Determining and eliminating non value adding activities in production processes.					
2	Decreasing variable cost components in manufacturing processes, techniques, machinery and software.					
3	Increasing output quality in manufacturing processes, techniques, machinery and software.					
4	Determining and eliminating non value adding activities in delivery related processes.					
5	Decreasing variable cost and/or increasing delivery speed in delivery related logistics processes.					

Sr.	Statement on Product Innovation Measures	1	2	3	4	5
1	Improving quality in components and materials of current products					
2	Decreasing manufacturing cost in components and materials of current products					
3	Adding new feature to current products leading to improved ease of use for customers and to improved customer satisfaction.					
4	Developing new products using different technical specifications and functionalities from the current ones.					
5	Developing new products with different components and materials used in current ones.					

Section D: Firm Performance

How would you rate the level of achievement of the following performance items in your organization in the last three years compared to the previous years? (2014 to 2017)

Please write (✓) at the cell which you would prefer in the table and answer
Please indicate the extent to which you agree or disagree with the statements in the table.
Where 1 = No Effect, 2 = Low,
3 = Medium, 4 = High,

Sr.	Financial Performance Measures	1	2	3	4
1	Return on sales (profit/total sales).				
2	Return on assets (profit/ total assets).				
3	General profitability of the firm.				
4	Cash flow excluding investments.				

Sr.	Statement on Production Performance Measures	1	2	3	4
1	Performance quality.				
2	Conformance quality.				
3	Production cost.				
4	Production (volume) flexibility.				

Sr.	Statement on Market Performance Measures	1	2	3	4
1	Market share.				
2	Customer satisfaction.				
3	Sales volume.				