



**THE EFFECT OF SUPPLY CHAIN MANAGEMENT
PRACTICES ON COMPETITIVE ADVANTAGE: IN THE CASE
OF NATIONAL ALCOHOL AND LIQUOR FACTORY,
ETHIOPIA**

BY:

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SUPPLY CHAIN MANAGEMENT

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ADDIS ABABA

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE GRADUATE STUDIES

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DECLARATION

I, **Sentayehu Tesfaye Degusew (ID. No. GSE/0173/08)**, declared that this thesis is my own original work on the topic entitled “The Effect of Supply Chain Management Practices on Competitive Advantage In The Case Of National Alcohol and Liquor Factory, Ethiopia” and that it has not been presented to any other University for similar or any other degree award. To this end, I acknowledged all sources of information that I used to produce the study appropriately and I would say perfectly.

Declared by:

Sentayehu Tesfaye Degusew

Signature_____

Date May, 2018

STATEMENT OF CERTIFICATION

This is to certify that **Sentayehu Tesfaye Degusew** has carried out this research work on the topic entitled “**The Effect of Supply Chain Management Practices on Competitive Advantage In The Case Of National Alcohol and Liquor Factory, Ethiopia**” under my supervision, this is his original work and has not been presented to any other university for similar degree award and it can be submitted for the partial fulfillment of the requirements for the award of Masters of Art degree in Logistics and Supply Chain Management.

Tariku Jebena (PhD)

Signature_____

Date _____

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LIST OF ABBREVIATIONS

CA	Competitive Advantage
CRM	Customer Relation Management
II	Internal Integration
LIS	Level of Information System
NALF	National Alcohol and Liquor Factory
OC	Organizational Competitiveness
PP	Postponement
QIS	Quality of Information Sharing
SC	Supply Chain
SCI	Supply Chain Integration
SCM	Supply Chain Management
SPSS	Statistical Package for Social Sciences
SSP	Strategic Supplier Partnership

ABSTRACT

Effective supply chain management (SCM) has become a potentially valuable way of securing competitive advantage since competition is no longer between organizations, but among supply chains. This study conceptualized and develops six dimensions of SCM practice (strategic supplier partnership, quality of information sharing, level of information sharing, customer relationship, internal integration, and postponement) and tested the relationships between SCM practices and competitive advantage. The purpose of this study is to show the effect of supply chain management practices on competitive advantage. The target population consisted of 273 respondents. The study utilized 61% of the target population which was selected using a stratified random sampling technique giving a sample size of 166 respondents. Questionnaires and semi structured interview were used as the main data collection instrument and a pilot study was subsequently carried out to pretest questionnaires for validity and reliability. The gathered data was analyzed using descriptive studies aided by Statistical Package for Social Sciences version 16 and findings presented on frequency tables, figures and inferences drawn from the data obtained. Correlational analysis and multiple linear regressions were carried out to establish the relationship between the research variables. The main findings of the study revealed that there is a practical implementation of supply chain management practices in National Alcohol and Liquor Factory, Ethiopia and that the four supply chain management practice; strategic supplier partnership, level of information sharing, internal integration, and postponement positively and significantly affect competitive advantage of the organization. Even if the impact of quality of information sharing and customer relation management significant for factory's competitive advantage, due to low application in the factory their effect was found inverse. Hence, the researcher recommended that the management of the case factory should play a significant role to ensure the application of all the supply chain management practices and their significance also reviewed thoroughly.

Keywords: *supply chain management, Supply chain management practice, Competitive advantage*

LIST OF TABLES

Table 3.1	Researcher sample size.....	16
Table 3.2	Reliability test (Cronbach's Alpha).....	17
Table 4.1	Staff respondent's educational level.....	20
Table 4.2	Staff respondent's position in the factory.....	20
Table 4.3	Staff respondent's duration in the factory.....	21
Table 4.4	Distribution agent respondent's demography.....	21
Table 4.5	Strategic supplier partnership.....	22
Table 4.6	Level of information system.....	23
Table 4.7	Quality of information system.....	24
Table 4.8	Internal integration.....	25
Table 4.9	Customer relation management.....	26
Table 4.10	Postponement.....	27
Table 4.11	Price.....	27
Table 4.12	Quality	28
Table 4.13	Delivery dependability.....	29
Table 4.14	Product innovation.....	30
Table 4.15	Time to market.....	30
Table 4.16	Correlation analysis.....	32
Table 4.17	Coefficient.....	324
Table 4.18	ANOVA.....	35
Table 4.19	Model Summary.....	36

CONTENTS

DECLARATION	i
STATEMENT OF CERTIFICATION	ii
ACKNOWLEDGMENT	iii
LIST OF ABBREVIATIONS.....	iv
ABSTRACT.....	v
LIST OF TABLES.....	vi
CHAPTER ONE	1
1. INTRODUCTION	1
1.1. Back ground of the study	1
1.2. Back ground of the Factory	1
1.3. Statement of the problem	2
1.4. Research questions.....	3
1.5. Research Objectives.....	3
1.5.1. General objectives.....	3
1.5.2. Specific Objectives	3
1.6. Significance of the study.....	4
1.7. Scope of the Study	4
1.8. Definition of terms and concepts	5
1.9. Organization of the Study	5
CHAPTER TWO	6
2. REVIEW OF RELATED LITERATURE.....	6
2.1. Theoretical review of related literature.....	6
2.1.1. Over view of supply chain and supply chain management	6
2.1.2. Objectives of supply chain management	7
2.1.3. Supply chain management practices.....	7
2.1.4. Strategic supplier partnership	8

2.1.5. Customer relation management	8
2.1.6. Level of information sharing	9
2.1.7. Quality of information sharing	9
2.1.8. Postponement.....	9
2.1.9. Competitive advantage	10
2.1.10. Organizational competitiveness	10
2.2. Empirical review of related literature	11
2.3. Summary of the Literature Review.....	12
2.4. Conceptual Framework.....	12
CHAPTER THREE	14
3. RESEARCH DESIGN AND METHODS	14
3.1. Introduction.....	14
3.2. Research approach	14
3.3. Research design	14
3.4. Unit of analysis	14
3.5. Population of the study	15
3.6. Sampling design.....	15
3.6.1. Sampling method	15
3.6.2. Sample size determination	15
3.7. Data measurement and instrumentation.....	16
3.8. Data collection Procedure	16
3.9. Data validity and reliability	17
3.10. Data analysis method	18
3.11. Ethical Consideration.....	18
CHAPTER FOUR.....	19
4. DATA ANALYSIS INTERPRETATION AND DISCUSSION	19
4.1. Introduction.....	19

4.2.	Response rate	19
4.3.	General information	19
4.4.	Demographic information of the respondents	19
4.4.1.	Staff respondents.....	19
4.4.2.	Distribution agent respondents	21
4.5.	Extent of supply chain management Practices	22
4.6.	Correlation analysis	31
4.7.	Regression Analysis.....	33
4.8.	Analysis of interview questions	37
CHAPTER FIVE		38
5.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	38
5.1.	Introduction.....	38
5.2.	Summary of Findings.....	38
5.3.	Conclusion	38
5.4.	Recommendation	39
5.5.	Limitations of the Study	39
5.6.	Implication for further study	39
APPENDIXES		46

CHAPTER ONE

1. INTRODUCTION

1.1. Back ground of the study

Supply chain management has been emerging as one of the main areas in businesses that can offer sources of competitive advantage and has become one of the most discussed topics in business literature and is by many organizations considered a key strategic element. Many organizations and companies are facing with high competition and volatile environment as a result of technological innovations and the changing needs of customers has intensified. In such an environment, past approaches in the supply chain lost its ability. One way to deal with such challenges is the use of competitive advantage (Azar et al, 2010).The understanding and practicing of supply chain management (SCM) has become an essential prerequisite for staying competitive in the global race and for enhancing profitably. A firm gains competitive advantage by performing strategically important activities more cheaply or better than its competitors (Porter, 1985).

The recent business environment is growing to be more challenging, and so, companies have to increase their business operations to stay competitive.one of the most important factors for improving business operations is implementing of supply chain management practices that will translate into improved competitive advantage.

Hence, this study examined the effect of supply chain management practices on competitive advantage; consequently, indicate to managers on which practices they should focus in their business processes.

1.2. Back ground of the Factory

The Ethiopian industries are operating today in a business environment characterized by unprecedented global competition and technological change. In order to alleviate the problem of being unable to be competent in market and technology, the concept of supply chain management is important for the firms. Though, this paper focused on studying the effect of supply chain management practices on organizational competitiveness in the case of National Alcohol and Liquor factory (NALF) through the implementation of a set of supply chain practices by the factory.

National Alcohol & Liquor Factory (NALF) is a state owned business organization and pioneer factory in manufacturing and distributing ethanol (C_2H_5OH), denatured alcohol and different brands of liquor in our Country. The factory comprises four branch factories which was established and owned by individuals in different periods. In 1976 G.C the Ethiopian Government nationalized and owned the factories under the name of National Alcohol & Liquor Factory (NALF).

It is one of the oldest factories in the country and is the largest producer and distributor of various liquors such as, Gin, Ouzo, Double Ouzo, Cognac, Brandy, Perno, Orange, Coffee, Fernet, Bitter, Aperitif, Lemon and Pineapple Liquors throughout the country as well as for export (USA, Australia, Israel, and South Sudan(Report, 2017).

1.3. Statement of the problem

Supply chain management and supply chain integration are becoming increasingly critical factors for business success. With the advancement of information and communication technologies, supply chain integration has been considered a strategic tool for firms to improve their competitiveness. In order to fully benefit and implement supply chain management concepts, it is important for the firms to integrate efficiently with their suppliers, customers, warehouses, and other intermediate value-adding partners (Fasika et al. 2014).The internal integration within the business organization is the first step of operational integration as the basis of effective supply chain integration to build core competency throughout the value chain(Harison, 2008).

With regard to Customer relationship, it comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction(Li et al.2004).The customer relation management macro process consists of processes that take place b/n an enterprise and its customers downstream in the supply chain. The goal of customer relation management macro process is to generate customer demand and facilitate transmission and tracking of orders. Weakness in this process results in demand being lost and poor customer experience because orders are not processed and executed effectively(Sunil Chopra & Peter Meindl, 2004).Demand forecasts form the basis of all supply chain planning consider the push/pull view of the supply chain .All push processes in the supply chain are performed in anticipation of customer demand, whereas all pull processes are performed in response to customer demand. In both instances, the first step a manager must take is to forecast what customer demand will be(Sunil Chopra , and Peter Meindl, 2007).

Taking into consideration the above theories and facts from the 2009 annual report of the National alcohol and Liquor Factory (NALF) attached on the appendixes, the researcher perceived that there was lack of internal supply chain integration among the functional departments. The production department planned its production independently based on the production capacity of the organization which was not taking into consideration with the sales department's sales forecast and their stock balance in the warehouse. The sales department should plan their annual sales by incorporating the customer's demand and provide the information to use as an input for other concerned departments but it had not been done.

Thus, the lack of supply chain integration might affect the overall factory's competitive advantage. Sunil Chopra, and Peter Meindl (2007) strengthen such facts through their literature saying that "internal integration will help to improve overall supply chain profits".

Therefore, the basic intention of this research was to analyze the effect of the supply chain practices on competitive advantage in the case factory.

1.4. Research questions

Through study, in order to show the effect the researcher attempted to raise the following basic research questions:

- What are the effects of supply chain Practices on competitive advantage n the case of National Alcohol and Liquor factory, Ethiopia?
- To what extent does customer relation management influence competitive advantage?
- What is the degree of influence of internal integration on competitive advantage?

1.5. Research Objectives

1.5.1. General objectives

The study focused on assessing the effect of supply chain management practices on competitive advantage in the case of National alcohol and Liquor Factory (NALF), Ethiopia.

1.5.2. Specific Objectives

- Investigating the level and quality of information system among functional departments
- Assessing the effects of internal integration on competitive advantage
- Assessing the effects of customer relation management on the competitive advantage

1.6. Significance of the study

The findings of this study will use for the management of the factory as well as for the whole alcohol and liquor manufacturing industries in identifying the effect of supply chain management practices on competitive advantage & indicate the basic remedial solutions to improve efficiency and effectiveness of the supply chain management in the area. In addition, the finding helps others stakeholders and academicians who want to undertake further researches on the same or related topics in future.

1.7. Scope of the Study

This study followed both quantitative and qualitative approaches. In respect to quantitative approach, the generation of data in quantitative form from different literatures, books, journals and the like applied which can be subjected to rigorous quantitative analysis. The qualitative approach concerned with subjective assessment of attitudes, opinions and, discussions with focus group including semi structured interviews were used. It can be easily seen that the factory produces three different major types of products (Pure Alcohol, Denatured Alcohol and, Different types of alcoholic drinks), their customers are also varies based on their types of products.

This study limits itself for gathering information from those customers which have direct relation with the factory and registered as a distribution agent located in Addis Ababa and those staffs which have diploma and above in their academic status. Beside this, the researcher took the factory as a manufacturer and supplier of those products and those distribution agents are their target customers.

Even if there were different supply chain management practices applied in the factory that had an effect on the competitive advantage, the researcher limits the study on the following major supply chain management practices: Strategic supplier partnership, internal integration, quality of information system, level of information system, customer relation management, and postponement.

Due to such reasons, this study limits itself on assessing the effect of the supply chain management practices on competitive advantage for the production and supply of alcoholic drinks (Liquors) in the factory.

1.8. Definition of terms and concepts

A supply chain (SC): consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves(Sunil Chopra , and Peter Meindl , 2007).

Supply Chain Management (SCM): is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders (Lambert et al. 1998).

Organizational Competitiveness (OC): The ability to persuade customers to choose their offerings over alternatives (Rainer Feurer and Kazem Chaharbaghi,1994)

Competitive Advantage (CA): is an advantage over competitors gained by offering consumers greater value, either through lower prices or by providing more benefits that justify higher prices(Kotler & Gary Armstrong, 2005).

Supply Chain Integration (SCI): The close internal and external coordination across the supply chain operations and process under the shared vision and value amongst the participating members(DD, 2011).

Customer Relation Management (CRM): Comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction (Li et al 2004).

1.9. Organization of the Study

The entire paper is divided into five chapters. Chapter one of the study includes back ground of the study, statement of the problem, research Questions , research objectives , significance of the study, scope of the study, limitations of the study, and definition of Terms. Chapter two of the study deals with reviews of related literature. Chapter three deals with, research design and methods: research approach, research design, unit of analysis, population of the study, sampling design, measurement and instrumentation, data collection procedure, data validity and reliability, data analysis method, ethical consideration . Chapter four provide data analysis, interpretation and discussion, finally on Chapter five summary, conclusions and recommendation of the study will be presented.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Theoretical review of related literature

2.1.1. Over view of supply chain and supply chain management

One of the most significant paradigm shifts of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather as supply chains. Different scholars stated supply chain and supply chain management concepts in different ways.

The supply chain is not a chain of businesses with one-to-one, business- to-business relationships, but a network of multiple businesses and relationships (Lambert *et al.*1998).

A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers (Ganeshan et al. 1995).

According to Sunil Chopra & peter Meindl (2007)

Supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and Suppliers, but also transporters, warehouses, retailers and even customers themselves. Within each organization, such as a manufacturer, the supply chain includes all functions involved in receiving and filling a customer request. These functions include, but are not limited to, new product development, marketing, operations, distribution, finance, and customer service” (sunil Chopra & peter Meindl, 2007).

Supply chain management (SCM) is a term that was first introduced by consultants in the early 1980's and has since then frequently gained increased attention by both researchers and organizations (Lambert *et al.*2000).

It is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders (Lambert et al.1998).

The management of upstream and downstream relationships with suppliers and customers in order to deliver superior customer value at less cost to the supply chain as a whole (Christopher, 2011).Supply chain management is the coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served(Hugos 2003).Mentzereet al, 2001, also describes a

Supply chain management as "a set of three or more entities (organizational or individuals) directly involved in the upstream and downstream flow of products, services, finances, and/or information from source to customer"

2.1.2. Objectives of supply chain management

Effective supply chain management (SCM) has become a potentially valuable way of securing competitive advantage and improving organizational performance. Being able to measure supply chain performance is important since it leads to a greater understanding of the supply chain and provides important feedback on the improvement progress. Indeed, Supply chain management practices are expected to increase an organization's market share, return on investment and improve overall competitive positions (Niclas Gamme& Martin Johansson 2015).

The objective of every supply chain should be to maximize the overall value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the costs the supply chain incurs in filling the customer's request. For most commercial supply chains, value will be strongly correlated with supply chain profitability also known as supply chain surplus (Sunil Chopra , and Peter Meindl, 2007).

The objective of Supply chain management is to maximize the overall value generated, minimize the cost, and effective and timely distribution of products needed by ultimate customers (Gupta A. K, and Sahay B, 2007).

2.1.3. Supply chain management practices

The practices of Supply chain management are referred to complete set of actions which are done in organizations towards to improve the effectiveness in the internal supply chain(Siddig Balal Ibrahim & Abdelsalam Adam Hamid 2014).Supply chain management practices are expected to increase an organization's market share, return on investment and improve overall competitive positions(Mwale 2012).

Li et al 2004 defines Supply chain management practices as a set of activities undertaken in an organization to promote effective management of its supply chain and sets at five dimensions: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, and postponement (Li *et al.* 2004).

2.1.4. Strategic supplier partnership

Strategic Supplier Partnership is the long term relationship between the organization and its suppliers (Somuyiwa et al 2012). Strategic partnerships with suppliers are organized efforts to create and maintain of a network of qualified suppliers. This effort includes all activities that are needed to improve the current performance of suppliers. Strategic partnership emphasizes direct relationship and long-term and encourages mutual planning and efforts to resolve problem. Supplier organizations can work together more closely and eliminate useless time and effort (Li et al. 2006). As Mwale (2012) cite in the work of Yoshino (1995), a strategic partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts. Such strategic partnerships are entered into to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology, products, and markets (Mwale 2012).

2.1.5. Customer relation management

Customer relation management is a term defined to describe how we interact and proactively manage our customer relationships. It is particularly important to understand that customer relationship management is really a system in the truest sense the system of how we work with our customers, solve problems for them, encourage them to purchase products and services, and deal with the financial transactions. In a nutshell, it includes all aspects of our interactions with clients (Cunningham 2002).

Customer relationship: Comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction. Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers (Li et al. 2004).

The customer relation management macro process consists of processes that take place b/n an enterprise and its customers downstream in the supply chain. The goal of customer relation management macro process is to generate customer demand and facilitate transmission and tracking of orders. Weakness in this process results in demand being lost and poor customer experience b/se orders are not processed and executed effectively (Sunil Chopra & Peter Meindl 2004).

2.1.6. Level of information sharing

Level of information sharing refers to the extent to which critical and proprietary information is communicated to one's supply chain partner (Li et al., 2006). Information sharing refers to ability of enterprises to share knowledge and information with supply chain partners with effective and efficient manner (W.A.D.S. 2016). Information is crucial to making good supply chain decisions at all three levels of decision making (strategy, planning, and operations) and in each of the other supply chain drivers (facilities, inventory, transportation, sourcing, and pricing). Information technology enables not only the gathering of these data to create supply chain visibility, but also the analysis of these data so that the supply chain decisions made will maximize profitability (Sunil Chopra, and Peter Meindl 2007). Leading organizations have long recognized that the key to success in supply chain management is the information system. The way in which entities in a supply chain become connected is through shared information. The information to be shared between supply chain partners includes demand data and forecasts, production schedules, new product launch details and bill of material changes (Christopher, 2011).

Effective supply chain management and supply chain (SC) integration are becoming increasingly critical factors for business success. With the advancement of information and communication technologies, supply chain integration has been considered a strategic tool for firms to improve their competitiveness (Fasika et al. 2014).

2.1.7. Quality of information sharing

It refers to the extent to which critical and proprietary information is communicated to one's supply chain partner refers to the accuracy, timeliness, adequacy, and credibility of information exchanged (Ebrahim Karimi & Mahmoud Rafiee 2014). Quality of information sharing includes such aspects as the accuracy, timeliness, adequacy, and credibility of information exchanged (Li et al. 2006). According to Sunil Chopra, and Peter Meindl (2007), when making supply chain decisions information must be accurate, accessible in a timely manner, & the right kind (Sunil Chopra, and Peter Meindl 2007).

2.1.8. Postponement

As (Li et al 2006) defined Postponement that it is the practice of moving forward one or more operations or activities (making, sourcing and delivering) to a much later point in the supply chain. Postponement needs to match the type of products, market demands of a company, and structure or constraints within the manufacturing and logistics system (Mwale 2012).

Postponement also allows an organization to be flexible in developing different versions of the product in order to meet changing customer needs, and to differentiate a product or to modify a demand function(Waller et al. 2000).

2.1.9. Competitive advantage

Competitive advantage is an advantage over competitors gained by offering consumers greater value, either through lower prices or by providing more benefits that justify higher prices(Kotler & Gary Armstrong 2005).

A competitive advantage is the firm's ability to achieve market superiority over its competitors by offering better customer value. Competitive Priorities might be low cost, high quality, exceptional service, or fast market response and should reflect customer needs and expectations (Raturi et al. 2005).Li et al. (2006) identifies competitive advantage as a one factor that an organization is able to create a state of defense against competitors and includes a feature that allows an organization to distinguish itself from its competitors.

Somuyiwa et al (2012) mentions competitive advantages at five dimensions: Price/Cost, Quality, Delivery dependability, Product Innovation, and time to market(Somuyiwa et al. 2012). As firms strive to increase their competitiveness via product customization, high quality, cost reductions, and speed to market they place added emphasis on the supply chain. The key to effective supply chain management is to make the suppliers "partners" in the firm's strategy to satisfy an ever changing market place (Jay Heizer& Barry Render 2006).

2.1.10. Organizational competitiveness

Business strategies are formulated to determine the way in which organizations can move from their current competitive position to a new stronger one. This can only be achieved by improving an organization's competitiveness. Meaning that, the ability to persuade customers to choose their offerings over alternatives (Rainer Feurer and Kazem Chaharbaghi,1994).

Competitive priorities for the efficient supply chain are low cost, Consistent Quality, and on time delivery. These are operations principles that must support the firm's competitive advantage to accomplish low cost leadership and differentiation. On the other hand, the primary motivation for the responsive supply chains is to enable the firm to improve such capabilities as development speed, fast delivery times, customization, volume flexibility, high performance design quality, and learning /integrating ability (Kim 2005).

2.2. Empirical review of related literature

Supply Chain Management is regarded as one of the most influential development in business management and it has gained significance for improving organizational performance (Lambert *et al.* 2000).

The literature also depicts supply chain management practices from different perspectives with goal of improving competitive advantage of firm. Supply chain management practices as a multi-dimensional construct that encompasses upstream and downstream sides of supply chain (Li *et al.* 2006). The key aspect of supply chain management practices according to Tan *et al.* (2002) were supply chain integration, information sharing, customer service management, geographic proximity, and JIT capabilities. Lee (2004) focused on five practices at supply chain level that are a key to create supply chain responsiveness. They include outsourcing, strategic supplier partnerships, customer relationship, information sharing, and product modularity.

Ashish(2007) have developed a valid and reliable instrument to measure supply chain management practices. The similar instrument also adopted in this research. By improving competitive advantage of the firm, organization could improve its performance. Three dimensions of supply chain management practices lead to supply chain responsiveness. These are strategic supplier partnership, customer relationship, and information sharing also identified.

Academicians and practitioners agree that supply chain management practices can have a great positive impact on the firm's performance. Supply chain management practices are a set of activities undertaken by organizations to ensure effective management performance of its supply chain. Ayman *et al.* 2014 describes supply chain management practices which include; supplier integration, internal integration, customer integration, information sharing, and postponement.

R.Prabusankar (2017) describes the components of supply chain practices from the following five aspects: Strategic supplier partnership, customer relationship, information sharing, information quality, and internal lean practice Tan *et al.* 1998 identified six aspects of supply chain management practices through factor analysis; SC integration, information sharing, customer focus and use of Just in Time (JIT) capabilities.

Thus the above literature portrays supply chain management practices from different perspectives with a common goal of improving organizational performances or competitive advantage.

Practices of SCM will not only make an impact on the overall performance of the organization, but also on the competitive advantage of the organization. These practices are supposed to

improve the organization's competitive advantage using the price/cost, the quality, the delivery dependability, the time to market, and product(Liet *al.* 2006).innovation.

Prior studies had identified that some of the components of SCM practices for example, strategic partnerships are entered into to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology, products, and markets (Mbuthia, M. G &Rotich, G. (2014). Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information (Mentzer, 2000).

2.3. Summary of the Literature Review

From the literature review it can be depicted that scholars have different views on supply chain management practices that have an impact on competitive advantage. However, most of scholars seem to agree on the main practices including; strategic supplier relationship, customer relationship management, level of information sharing, quality of information sharing, internal integration and postponement. It is an indication that different organizations rank these practices differently whereby one supply chain management practice can be widely adopted by an organization but minimally adopted or even not at all used by another organization. Supply chain management capability is important to a company's overall strategy as overall product strategy. Supply chain management encourages management of processes across departments. By linking supply chain management objectives to company strategy, decisions can be made between competing demands on the supply chain. Hence, Supply chain management practices have the potential to improve a firm's competitive advantage.

2.4. Conceptual Framework

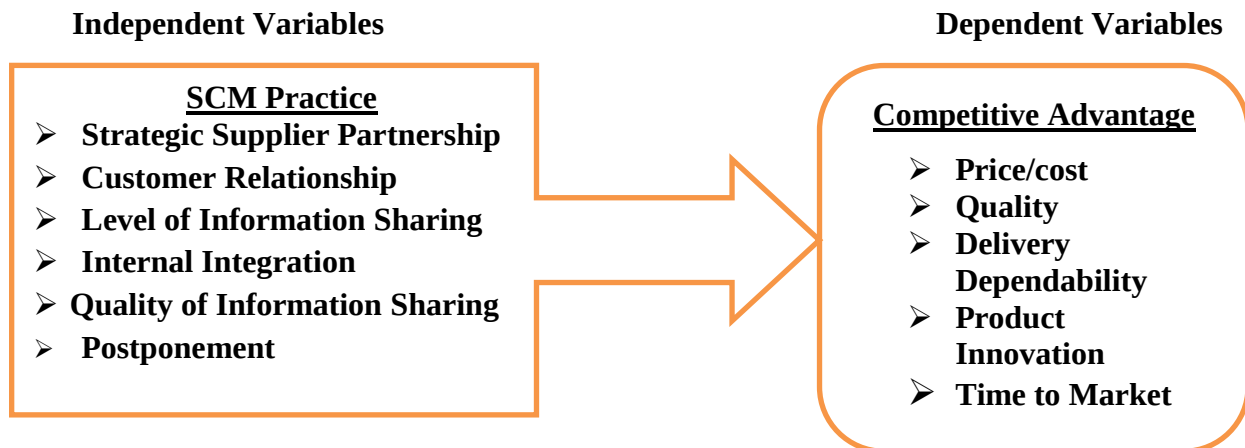
Effective supply chain management has become a potentially valuable way of securing competitive advantage and improving organizational performance since competition is no longer between organizations, but among supply chains(Li *et al.*2004).Supply chain management (SCM) has been a major component of competitive strategy to enhance organizational productivity and profitability(Gunasekaran *et al.* 2004).

SCM practices is expected to increase an organization's market share, return on investment and improve overall competitive positions. For instance, Tan *et al.* (1998) asserted that customer relations and purchasing practices impact the effectiveness of SCM strategy and lead to financial and market performance. Froehlich and Westbrook (2001) on the other hand suggested that

companies with broader supply chain integrations with suppliers and customers showed the largest performance improvement in business achievements. SCM practices impact not only overall organizational performance, but also competitive advantage of an organization. They are expected to improve an organization's competitive advantage through price/cost, quality, delivery dependability, time to market, and product innovation (power, 2001).

The framework proposed that supply chain management practices will have an effect on the competitive advantage both directly and indirectly. There are different type of variable depends on the type of research and data analysis. For this study purpose, researcher designed dependent and independent variable. According to Neuman (2007), the variable that is the effect or is the result or outcome of another variable is the dependent variable. The independent variable is the causes of result, whereas the dependent variable “depends on” the cause. For this research, supply chain practices are independent variables and competitive advantages are dependent variables. Studies show a significant positive relationship between supply chain management and competitive advantage and improve the performance of organization and the dimensions of competitive advantages include price / cost, quality, reliability of delivery, product innovation and time of delivery to market (Li *et al.*, 2006). Supply chain management practice is conceptualized at a six-dimensional construct. The six dimensions are strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, internal integration, and postponement.

Standing from the above theories, if supply chain management (SCM) practices effectively performed (accomplished), the factory's competitive advantages will be increased to a better position. So, this study takes the six SCM practices as an independent variables and the competitive advantage as a dependent variable. It is presented in the following diagram.



Source: Li *et al.* 2004

CHAPTER THREE

3. RESEARCH DESIGN AND METHODS

3.1. Introduction

As such the study focused on the effect of supply chain management practices on competitiveness in the National Alcohol and liquor factory (NALF), Ethiopia; the methodology emphasized on the descriptive type that aims in finding a solution faced in the organization.

3.2. Research approach

The research approaches that were commonly implemented in a research are quantitative and qualitative. Where one of them is not better than the other, it depends on how the researcher wants to do a research of study (Creswell, 2005).

This study followed both quantitative and qualitative approaches. In respect to quantitative approach, the generation of data in quantitative form applied which can be subjected to rigorous quantitative analysis. The qualitative approach concerned with subjective assessment of attitudes, opinions and behavior, the techniques of focus group with semi structured interviews were used.

3.3. Research design

Research design refers to a set of methods and procedures that describes research variables. Research can be classified as descriptive, explanatory and predictive research (Saunders, Lewis and Thornhill, 2007).

Descriptive research used for this study because it is useful for describing the data that were collected in research studies and to accurately characterize the variables under observation within a specific sample. Beside this, it attempts to assess and describe the effects of the supply chain management practices on competitive advantage in the case factory.

3.4. Unit of analysis

Unit of analysis describes the level at which the research is performed and which objects are researched (William, 2008). In this respect, people or individuals are common units of analysis. Other units of analysis are: organizations, divisions, departments, etc. The units of analysis have an impact on sample selection, data collection, and type of conclusion that can be drawn from the research. Design consistency is achieved by matching the sample and data collection strategies to the unit of analysis (William, 2008). Thus, this study conducted on the staff of National alcohol

and Liquor Factory who have college diploma and above and their registered 11 distribution agents as a unit of analysis.

3.5. Population of the study

The population of this study includes the two groups. The population under the first group was that employees who work in National Alcohol and Liquor factory and who have college diploma and above. The reason for selecting them as a respondent was that they can easily understand the issues rose in the questionnaire and respond genuinely. The case factory had 693 employees Out of this 431 were not target population due to education level and out of concerned departments the remaining 262 were target population.

The second group, i.e. the factory's Addis Ababa city distribution agents, there were 11 (eleven) registered distribution agents and all of them were taken as a target population. The researcher believed for the reasons behind selecting the distribution agents as part of the population was that they have direct relation with the case factory and had a better understanding about the factory's day to day performance.

3.6. Sampling design

3.6.1. Sampling method

The study used the stratified random sampling design having two strata: First, employees of the National Alcohol and Liquor Factory who were part of the population of the study. Second, the factory's Addis Ababa city distribution agents. The main reasons for selecting those groups as a strata is that those respondents are believed to have more impact for the factory's supply chain practices and their competitiveness and they are genuine to respond.

3.6.2. Sample size determination

Determining sample size is a very important issue "because of sample that are too large may waste a lot of time, money and other resources; while sample that are too small may lead to inaccurate result" (Kothari, 2004).

The ever increasing need for a representative statistical sample in empirical research has created the demand for an effective method of determining sample size. To address the existing gap, Krejcie & Morgan (1970) came up with a table for determining sample size for a given population & based on the formula the researcher arrived the appropriate sample size presented below.

Table 3.1 Researcher sample size

Strata(St.)	N	Total Sample(s)
1 st	262	155
2 nd	11	11
Total		166

Where, N= no. of population S= sample size

Source: Researcher (2018)

3.7. Data measurement and instrumentation

The primary data for this study were collected through a questionnaire and semi structured interview. The questionnaires were developed by the researcher with the help of related literature, it was comprised three parts. The first part incorporates basic personal information of the respondents. The second part includes questions about rationale for supply chain practices and the third part incorporate certain issues related with competitive advantages. Items of the questionnaire were set in likert type since the questions were derived from an extensive literature review the measures were generally considered to have content reliability. The secondary data for this study were collected from books, articles, journals, published documents, etc.

3.8. Data collection Procedure

The Primary data for this study were collected from questionnaires and semi structured type of interview from the target respondents who were well informed about the topics. Respondents participated by the questionnaire from the staff had a college diploma and above and respondents from external were all those eleven registered distribution agents included by the questionnaire. Respondents participated in the interview from the staff were top managers whose work directly related with Supply Chain Management Practices and responsible for supply chain management in their organizations and those interview participants without the factory were all the factory's Addis Ababa distribution agents. Whereas, the secondary data for this study were collected from books, articles, journals, published documents, etc.

3.9. Data validity and reliability

Reliability test is important test of measurement tools in research. A measuring instrument (questionnaire) is reliable if it provides consistent results. A reliable data collection questionnaire provides consistent result with repeated measurements of the same subject of the study and with the same instrument. Reliability is the degree of consistency with which an instrument measures the constructs it is designed to measure. Reliability is known as to what extent the research findings can be replicated, if another study is undertaken using the same research methods (Ritchie and Lewis, 2003). This means the measure (data collection tools) should provide the same answer on another occasion or similar result should be obtained by another researcher using the same measuring instrument (Saunders *et. al.*, 2007).

According to George and Mallery (2003), Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer Cronbach's alpha coefficient to 1.0 the greater the internal consistency of the items in the scale. George and Mallery (2003) suggested that Cronbach's alpha coefficient greater than 0.7 is acceptable. For this study, it is believed to be a very good measure of reliability. Accordingly, a pilot test of the internal consistency (reliability) of the data collection instrument for all the variables were conducted on thirty respondents in the case study research and the results were incorporated with the rest respondents. The test results are depicted below.

Table3.2 Reliability test (Cronbach's alpha)

No	Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
1	Strategic Supplier Partnership	.776	.795	4
2	Level of Information Sharing	.781	.766	4
3	Quality of Information Sharing	.866	.867	5
4	Internal Integration	.737	.717	4
5	Customer Relation Management	.839	.870	4
6	Postponement	.759	.772	2

Source: Researcher (2018)

3.10. Data analysis method

The data obtained through questionnaire is presented and analyzed using descriptive statistics. For the purpose of descriptive analysis, for each and every item the mean value calculated under study. In this study both quantitative and qualitative data analysis employed. The quantitative type of data analyzed using statistical tools called SPSS version 16.

For qualitative type data of the study used Likert scales to give some insight about the respective questions. Then, similar responses would be summarized and displayed in narrative form. Finally, after the data are analyzed, summary of findings, conclusions and recommendations were stated clearly and precisely.

3.11. Ethical Consideration

Respondents were informed about the objective and purpose of the study and verbal consult were obtained. Participants were also informed their right not to participate in the study at any time. Participants were informed the benefit of the research and thus research has no risk. Participants had the right to ask the question for clarification and refuse to give information in any time in the research process.

CHAPTER FOUR

4. DATA ANALYSIS INTERPRETATION AND DISCUSSION

4.1. Introduction

This study was carried out to establish the effect of supply chain management practices on competitive advantage on the case of National alcohol and Liquor factory, Ethiopia. The data were collected from staff and the factory's distribution agents.

4.2. Response rate

A total of 166 questionnaires were distributed in which 155 of them for the staffs and the rest 11 are for their genuine distribution agents (customers) who are located in Addis Ababa. Out of the 155 questionnaires distributed for the staff, 120 or 77.4% were returned to the researcher. Similarly out of 11 questionnaires distributed for the distribution agents 10 or 91% were returned. It represents a total response rate of 78%. This percentage was considered sufficient for this study. The 22% who never returned the questionnaires due to their own reasons to fill them.

4.3. General information

The first part of the questionnaire contained demographic information regarding the respondent. The areas sited regarding the staffs were: The respondent's educational qualification, the position of the respondent in the organization, and their service year in the organization. Regarding distribution agents (customers), the areas incorporated were their duration working with the case factory and their experience in such business.

4.4. Demographic information of the respondents

4.4.1. Staff respondents

The respondents were asked to indicate their educational qualifications, the positions they held in the factory and the duration they had served in the factory.

As we have seen from the tables presented below, out of 120 respondents 30 or 25% of the respondents who participated in the study had an educational level of college diploma, 80 or 66.7% had first degree, and the rest 10 or 8.3% had MA/MSc/MBA or above. In respect with their position in the factory, 10 or 10.3% of the respondents were department manager, 15 or 12.5% were division head, 53 or 44.2% were senior officer, and 42 or 35% were officers. And in respect with their service years in the case factory, 9 or 7.5% of the respondents had been working less than 5 year with the factory, 49 or 40.8% of them had been working in between 5-

10 years with the factory, 51 or 42.5% of them had been working in between 11-15 years with the factory and the rest 11 or 9.2% of the respondents had been working with the factory for more than 16 years.

Standing from the above facts besides the educational level and their position on the factory, 111 or 92.5% of the total respondents had been working more than 5 years. This means they had enough understanding to reply genuinely about the issues raised in the questionnaires.

Table 4.1 Staff respondent's educational level

	Frequency	Percent	Cum. Percent
College Diploma	30	25	25
First Degree	80	66.7	91.7
MA/MSC/MBA or above	10	8.3	100.0
Total	120	100.0	

Source: Researcher (2018)

Table 4.2 Staff respondent's position in the factory

	Frequency	Percent	Cum. Percent
Department Manager	10	8.3	8.3
Division Head	15	12.5	20.8
Senior Officer	53	44.2	65
Officer	42	35	100.0
Total	120	100.0	

Source: Researcher (2018)

Table 4.3 Staff respondent's duration in the factory

	Frequency	Percent	Cum. Percent
< 5 year	9	7.5	7.5
5-10 Years	49	40.8	48.3
11-15 Years	51	42.5	90.8
16 years and above	11	9.2	100.0
Total	120	100.0	

Source: Researcher (2018)

4.4.2. Distribution agent respondents

Table 4.4 Distribution agent respondent's demography

		<5 Years		5-10 years		11-15 years		>16 years		
		F	%	F	%	F	%	F	%	
Duration with National Alcohol & Liquor Factory	N 10	2	20	2	20	6	60	-	-	100
Years of experience in such business	10	-	-	2	20	6	60	2	20	100

Source: Researcher (2018)

As we have seen from the tables presented above, out of 10 respondents 2 or 20 % of the respondents who participated in the study had less than 5 year duration with the factory,

Similarly 2 or 20 % of the respondents had been working in between 5-10 years with the factory, and the rest 6 or 60 % of the respondents had been working with the factory for more than 16

years. In respect with their experience in the business, 3 or 30% of them had between 5-10 years experience, 5 or 50 % of them had an experience between 11-15 years, and the rest 2 had more than 16 years experience in such business.

Standing from the above facts, besides their experience in the business, 8 or 80 % of the total respondents had been working with the factory for more than 5 years. This means they had also enough understanding to reply genuinely about the issues raised in the questionnaires.

4.5. Extent of supply chain management Practices

The study sought to show the extent to which the factory applied supply chain management practices. A number of questions were fronted to the respondents who gave their responses on a scale of 1-5 where 1 represents to strongly disagree, 2 represents disagree, 3 represents neutral, 4 represents agree, and finally 5 represents strongly agree.

The following table depicted the mean and standard deviation of factors that were used by the researcher to show the extent to which the factory applied the various supply chain management practices.

Table 4.5 Strategic supplier partnership

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The National Alcohol and Liquor Factory (NALF) consider quality as number one criterion in selection of suppliers	3.05	27.48	3.05	54.96	10.68	3.43	1.1
The factory regularly solve problems jointly with its suppliers	5.34	30.53	3.05	57.25	3.01	3.22	1.1
The factory actively involve its key suppliers in new product development processes	2.29	32.82	2.29	32.82	29	3.54	1.3
The factory have continuous improvement programs that include its key suppliers	9.92	35.87	7.63	41.22	3.82	3.02	1.5
Average mean						3.30	

Where, N= 130

From the table 4.5 above regarding quality as a no. one criteria for selection of suppliers the mean becomes 3.43; concepts about regularly solving problems jointly with suppliers the mean lies 3.22; actively involvement of key suppliers in new product development the mean becomes 3.54; and regarding concepts on continuous programs that include key suppliers the mean becomes 3.02; This result indicates that most of the respondents agreed with the items imply that there is a great application of strategic supplier partnership in the factory.

Table 4.6 Level of information system

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The factory informs its supply chain partners in advance of changing needs.	17.6	64.1	7.6	8.4	1.5	2.12	0.85
The factory and its supply chain partners share proprietary information.	20.61	67.18	0	3.05	8.39	2.11	1.04
The factory and its supply chain partners exchange information that help establishment of business planning	7.63	42.75	4.58	36.64	7.63	2.94	1.19
The factory and its supply chain partners keep each other informed about events or changes that may affect the other partners	14.5	47.32	3.05	25.95	8.39	2.66	1.25
Average mean						2.5	

Where, N= 130

In the table 4.6 above regarding points informing supply chain partners in advance of changing needs the mean becomes 2.12; concepts about sharing proprietary information the mean lies 2.11; In exchanging information for establishment of business planning the mean becomes 2.94; and for issues about keeping information each other that may affect other partners the mean becomes 2.66. This shows that on an average the respondents choose neutral on the level information system.

Table 4.7 Quality of information System

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
Information exchange between The factory and its supply chain partners is timely	20.61	57.25	6.11	12.21	3.05	2.19	1
Information exchange between the factory and its supply chain partners is accurate	7.63	58.01	10.69	19.08	3.82	2.53	1.01
Information exchanged between the factory and its supply chain partners is complete	10.68	62.59	6.1	19.84	0	2.35	0.92
Information exchange between the factory and its supply chain partners is adequate	21.37	57.25	9.16	7.63	3.82	2.14	0.97
Information exchange between the factory and its supply chain partners is reliable	9.92	65.65	3.05	17.55	3.05	2.37	0.99
Average mean						2.3	

Where, N= 130

From the table 4.7 above regarding issues on timely information exchange the mean becomes 2.19; issues on accurate information exchange the mean becomes 2.53; issues on the adequacy of information exchange the mean becomes 2.14; and reliability of information exchange the mean becomes 2.37. It can be inferred that there is low application on quality of information on the factory.

Table 4.8 Internal integration

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The integration with in functional departments in the factory is very tight	98.47	1.53	0	0	0	1.02	0.12
The impact of internal integration for factory's achievement is very high	29	32.06	3.05	23.66	12.21	2.58	1.43
The willingness of functional departments to integrate each other very high	19.08	51.15	0.76	27.48	1.53	2.41	1.12
The factory frequently evaluates the extent of integration	44.27	46.56	3.82	5.34	0	1.70	0.78
Average mean						1.93	

Where, N= 130

The issues related on internal integration discussed on the above table 4.8 shows that except the point on the impact of the internal integration on the factory's achievement which is almost neutral (2.58) the rest points shows disagree it implies there is loose or almost none internal integration among functional departments in the factory having an overall average mean of 1.93.

Table 4.9 Customer relation management

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The factory frequently interact with customers to set reliability responsiveness, and other standards for us	30.5	42	0	26.7	0	2.23	1.16
The factory frequently measure and evaluate customer satisfaction	29	51.1	0	0.8	18.3	2.28	1.39
The factory frequently determine future customer expectations	29	48.1	2.3	18.3	1.5	2.15	1.09
The factory facilitate customer`s ability to seek assistance from them.	19.8	53.4	1.5	15.3	9.2	2.40	1.23
Average mean						2.26	

Where, N= 130

The table 4.9 above shows that similar to concepts about internal integration the respondents disagree about the application of customer relation management showing on all points their disagreement with the mean between 2.15 and 2.40. This shows that there is poor customer relation management in the factory.

Table 4.10 Postponement

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
There is high practice of moving forward in their operations by predicting customer needs in the supply chain	17.6	55.7	1.5	16.8	7.6	2.41	1.19
There is high practice of being flexible in developing different alternatives of the product in order to meet changing customer needs	16	64.9	1.5	15.3	1.5	2.21	0.95
Average mean						2.31	

Where, N= 130

From the table 4.10 above it can be seen that there is disagreement on the practice of moving forward and being flexible for customer needs having a mean of 2.41 and 2.21 respectively. This also shows that poor application of postponement in the factory.

Table 4.11 Price

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The National Alcohol and Liquor Factory (NALF) is capable of competing against major competitors based on low price.	0	1.53	7.63	48.85	41.22	4.31	0.68
The factory offers competitive prices.	18.32	26.71	4.58	41.98	7.63	2.94	1.32
The factory is able to offer prices as low or lower than its competitors.	7.63	38.16	6.1	44.27	3.05	2.96	1.12
Average mean						3.40	

Where, N= 130

The table 4.11 above shows that the issue on capability of competing on low price is that the respondents shows their agreement with the mean lays 4.31; regarding offering competitive prices and offering low prices than its competitors the respondents mean shows 2.94 and 2.96 respectively. This implies that the factory gives more concerns on price and price related issues.

Table 4.12 Quality

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The factory is capable of offering product quality and performance that creates higher value for customers.	0	7.63	7.63	54.2	29.8	4.1	0.83
The factory is able to compete based on quality.	0	9.16	6.1	64.12	19.8	3.95	0.8
The factory offers products that are highly reliable.	0	22.14	7.63	64.12	5.34	3.53	0.9
The factory offers products that are very durable.	0	20.61	9.16	61.83	7.63	3.56	0.9
The factory offers high quality products to its customer.	0	29.77	6.11	60.3	3.05	3.36	0.95
Average mean						3.7	

Where, N= 130

Standing from the table 4.12 Above the concern of quality by the respondents response shows that the product has been quality, reliable, durable and the factory can compete based on quality showing a mean between 3.36 and 4.1. This implies that the factory is working strictly on quality matters.

Table 4.13 Delivery Dependability

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The factory is capable of providing on time the type and volume of product required by customer(s).	6.87	25.95	9.16	49.62	7.63	3.25	1.14
The factory deliver the kind of products needed.	7.63	37.4	3.05	49.61	1.53	3.0	1.12
The factory delivers customer order on time.	28.24	58.77	5.34	0	6.87	1.91	0.78
The factory provides dependable delivery.	11.45	52.67	5.34	29.77	0	2.53	1.04
Average mean						2.7	

Where, N= 130

From the table 4.13 above it can be seen from the response that the factory is capable, can deliver the kind needed and provide dependable delivery with the mean of 3.25,3.0, and 2.5 but its on time delivery performance mean of 1.9. This shows that the factory is weak in on time delivery or delay on providing the product to customers.

Table 4.14 Product Innovation

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The factory is capable of introducing new products and features in the market place.	0	16.03	9.16	61.1	12.97	3.71	0.89
The factory provides customized products.	32.82	51.14	7.63	6.1	1.53	1.91	0.89
The factory alters its product offerings to meet client needs.	13.74	68.7	4.58	10.68	1.52	2.16	0.85
The factory responds well to customer demand for “new” features.	19.84	59.54	4.58	13.74	1.53	2.16	0.95
Average mean						2.5	

Where, N= 130

Table 4.14 shows that the factory is capable in product innovation showing the response mean of 3.7 but on providing customized products, flexibility, and responding for customers demand on new features concerns the response mean shows weak with a mean of 1.91, 2.16, and 2.16. thus response shows that there is weak performance even if the factor is capable.

Table 4.15 Time to market

	Scale in %						
Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard Deviation
The factory is capable of introducing new products faster than major competitors.	0	21.37	9.16	58.01	10.69	3.58	0.95
The factory delivers product to market quickly.	19.84	51.9	6.87	19.08	1.53	2.3	1.05
The factory is first in the market in introducing new products.	6.87	40.45	9.92	37.4	4.58	2.92	1.12
The factory has time-to-market lower than industry average.	6.87	43.51	6.87	35.87	6.11	2.90	1.15

The factory has fast product development.	6.87	42.74	8.39	36.64	4.58	2.89	1.12
Average mean						2.9	

Where, N= 130

From the table 4.15 above all elements of time to market has been applied to different extent mean lies between 2.92 and 3.58. It can be inferred from the response that all those raised issues has been exercised by the factory well but still the factory has a capability to do more.

4.6. Correlation analysis

To identify the relationship between supply chain management practices and competitive advantage, correlation analysis is employed. The strategic supplier partnership, level of information system, quality of information system, internal integration, and customer relation management were taken as the independent variable and Competitive advantages was considered as the dependent variable. The indicators for competitive advantages were price/cost, quality, delivery dependability, product innovation, and time to market.

Correlations are the measure of the linear relationship between two variables. A correlation coefficient has a value ranging from -1 to 1. Values that are closer to the absolute value of 1 indicate that there is a strong relationship between the variables being correlated whereas values closer to 0 indicates that there is little or no linear relationship.

In this section, correlation analysis conducted in the light of each research Objectives and questions developed. The relationship between Supply chain management practices and competitive advantage was investigated using correlation analysis. This provides correlation Coefficients which indicate the strength and direction of relationship. The p-value also indicates the probability of this relationship's significance.

Table 4.16 Correlation analysis

		CA	SSP	LIS	QIS	II	CRM	PP
CA	Pearson Correlation	1	.380**	.536**	.256**	.369**	.062	.677**
	Sig. (2-tailed)		.000	.000	.003	.000	.483	.000
	N	130	130	130	130	130	130	130
SSP	Pearson Correlation	.380**	1	.477**	.448**	.314**	.111	.416**
	Sig. (2-tailed)	.000		.000	.000	.000	.210	.000
	N	130	130	130	130	130	130	130
LIS	Pearson Correlation	.536**	.477**	1	.836**	.533**	.103	.639**
	Sig. (2-tailed)	.000	.000		.000	.000	.241	.000
	N	130	130	130	130	130	130	130
QIS	Pearson Correlation	.256**	.448**	.836**	1	.466**	.046	.664**
	Sig. (2-tailed)	.003	.000	.000		.000	.602	.000
	N	130	130	130	130	130	130	130
II	Pearson Correlation	.369**	.314**	.533**	.466**	1	.370**	.425**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	130	130	130	130	131	130	130
CRM	Pearson Correlation	.062	.111	.103	.046	.370**	1	.165
	Sig. (2-tailed)	.483	.210	.241	.602	.000		.061
	N	130	130	130	130	130	130	130
PP	Pearson Correlation	.677**	.416**	.639**	.664**	.425**	.165	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.061	
	N	130	130	130	130	130	130	130

** . Correlation is significant at the 0.01 level(2tailed).

CA: Competitive Advantage, SSP: Strategic Supplier Partnership, LIS: Logistic Information System, QIS: Quality of Information System, II: Internal Integration, CRM: Customer Relation Management, PP: Postponement

Source: Researcher (2018)

According to correlation matrix that were depicted from the above table, among the elements of supply chain partnership practices; strategic supplier partnership, quality of information, internal integration, level of information and postponement have positive correlation and significant with competitive advantage, however their extent of correlation are above medium. But, the correlation level of customer relation management is insignificant with P value 0.483 which is greater than 0.005.

Standing from the matrix among elements of supply chain partnership practices; except customer relation management all have positive strong correlation each other. However, customer relation management has strong positive correlation only with internal integration and it is insignificant with the rest elements.

In relation with significance among elements of supply chain management practices; strategic supplier partnership is significant in relation with level of information, quality of information, internal integration and postponement with a p value < 0.005 whereas it is insignificant in relation with customer relation management with a p value > 0.005 ($p=0.21$). Level of information sharing is significant in relation with strategic supplier partnership, quality of information, internal integration and postponement with a p value < 0.005 whereas it is insignificant in relation with customer relation management with a p value >0.005 ($p=0.241$). Quality of information sharing is significant in relation with strategic supplier partnership, level of information, internal integration, and postponement with a p value < 0.005 whereas it is insignificant in relation with customer relation management with a p value >0.005 ($p= 0.602$).

Internal integration is significant in relation with all elements of strategic supplier partnership with a p value < 0.005 . Customer relation management is insignificant in relation with all elements of supply chain management practices except internal integration with a p value > 0.005 whereas it has significant correlation with internal integration having a P value < 0.005 ($P=0.000$) Postponement is significant in relation with strategic supplier partnership, quality of information, and level of information, and internal integration with a p value < 0.005 whereas it is insignificant in relation with customer relation management with a p value >0.005 ($p= 0.061$).

4.7. Regression Analysis

The regression analysis is concerned with the distribution of the average value of one random variable as the other variables which need not be random are allowed to take different values. A multiple regression model was applied. The regression model specifically connects the average values of y for various values of the x-variables

Table 4.16 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.170	.129		16.765	.000
SSP	.084	.035	.119	2.359	.020
LIS	.506	.054	.793	9.313	.000
QIS	-.683	.056	-1.024	-12.157	.000
II	.110	.054	.114	2.041	.043
CRM	-.126	.039	-.156	-3.268	.001
PP	.436	.034	.779	12.798	.000

a. Dependent Variable: CA

b. Predictors: (Constant), PP, II, CRM, SSP, LIS, QIS

Source: Researcher (2018)

The established regression equation was

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \varepsilon$$

Where;

β_0 = constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = coefficient

x_1 = Strategic supplier partnership

x_2 = Level of information sharing

x_3 = Quality of information sharing

x_4 = Internal integration

x_5 = Customer relation management

x_6 = Postponement

ε = error term

The equation becomes:

$$Y = 2.127 + .084x_1 + .506x_2 + (-).683x_3 + .110x_4 + (-).126x_5 + .436x_6 + \varepsilon$$

The regression equation established above that holding all factors (Strategic Supplier Partnerships, Level of Information Sharing, Quality of Information Sharing, Internal Integration, Customer Relationship Management, and Postponement Activities) constant, factors affecting competitive advantage will be 2.127.

The findings presented also shows that taking all other independent variables at zero, a unit increase in Strategic Supplier Partnerships will lead to a 0.084 increase in competitive advantage, a unit increase in level of information sharing will lead to a 0.506 increase in competitive advantage, as a result of low quality of information sharing will lead to a 0.683 decrease in competitive advantage, a unit increase in internal integration will lead to a 0.110 increase in competitive advantage, as a result of low customer relation management activities will lead to a -.126 decrease in competitive advantage, and finally a unit increase in postponement activities will lead to a 0.436 increase in competitive advantage.

The study also established a significant relationship between competitive advantage and the independent variables; strategic supplier partnership ($p=0.020<0.05$), level of information sharing ($p=.000<0.05$), quality of information sharing ($p=.000<0.05$), internal integration ($p=.043<0.05$), customer relationship ($p=0.001<0.05$), and postponement ($p=0.000<0.05$).

Table 4.17 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	29.451	6	4.908	67.665	.000 ^a
Residual	8.922	123	.073		
Total	38.373	129			

a. Predictors: (Constant), PP, CRM, SSP, II, QIS, LIS

b. Dependent Variable: CA

Source: Researcher (2018)

The model summary below depicts that P- value of 0.000 (Less than 0.05) implies that the model of competitive advantage is significant at the 5 per cent significance. These independent variables are the benefits that accrue as a result of adopting supply chain management practices.

Table 4 .18 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.876 ^a	.767	.756	.26933	.767	67.665	6	123	.000

a. Predictors: (Constant), PP, CRM, SSP, II, QIS, LIS

CA: Competitive Advantage, **SSP:** Strategic Supplier Partnership, **LIS:** Logistic Information System, **QIS:** Quality of Information System, **II:** Internal Integration, **CRM:** Customer Relation Management, **PP:** Postponement

Source: Researcher (2018)

The model summary sought to identify which predictors are significant contributors to the 76.7% of explained variance in Y (i.e., $R^2=.767$) and which ones are not and in what way(s) do the significant ones help us to explain Y.

The R^2 , also called the coefficient of multiple determinations, is the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variables and is 76.7 %. This means that 76.7 % of the changes in the factory's competitiveness is explained by the changes in the independent variables in the model. The remaining 23.3% of the changes in the Y is explained by other factors not in the model. The C is the constant, where the regression line intercepts the y axis, representing the amount the dependent y will be when all the independent variables are 0. Here C is 2.127; the probability of the coefficient is significant.

The F statistic is used to test the significance of R. Overall; the model is significant as F-statistics is 67.7. The P- value of 0.000 (Less than 0.05) implies that the model of competitive advantage is significant at the 5 percent significance. These independent variables are the benefits that accrue as a result of adopting supply chain management practices. It is clear that they contribute to a large extent to the level of competitive advantage that is achieved by the factory. Hence, the regression model is statistically significant, meaning that it is a suitable prediction model for explain supply chain management practices and competitive advantage.

4.8. Analysis of interview questions

As per the interview conducted, with different employees of the factory in the logistics department, marketing department, planning department and specific distribution agents the supply chain management plays a significant role for the factory's performance.

Specially, in respect with customer relation management all interviewee agreed that there is poor customer relation management and a lot of works should be done to exert a significant impact on organizational competitiveness.

Beside this, the respondents told the researcher that other practices of supply chain management have a positive contribution but there are problems related with internal integration and quality and level of information that hinders the smooth operation.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This study was carried out to show the effect of supply chain management practices on competitive advantage in a case of National Alcohol and Liquor Factory, Ethiopia. The study had three objectives, investigating the level and quality of information system among functional departments, assessing the effects of internal integration on competitive advantage, and assessing the effects of customer relation management on the competitive advantage. This chapter presents the summary of findings for the three objectives mentioned above, the conclusions, recommendations made based on findings and the suggestions on areas that need to be researched as far as this concept is concerned.

5.2. Summary of Findings

From the results achieved by data analysis one of the interesting finding is that the supply chain management practices have influence on competitive advantage. It was also clear from the study that the six independent variables; strategic supplier partnership, level of information sharing, quality of information sharing, internal integration, customer relation management, and postponement; four of them: strategic supplier partnership, level of information sharing, internal integration, and postponement had positive effect competitive advantage; However, quality of information sharing, and customer relationship being significant they showed inverse relation with the competitive advantage.

Through the analysis of the relationship between supply chain management practices and organization competitiveness, it was demonstrated that the practices directly impact competitive advantage.

5.3. Conclusion

From the findings the following conclusions were drawn:

First, the case company applied almost all the elements of supply chain management practices.

Second, all the elements of supply chain management practices namely strategic supplier partnership, level of information sharing, internal integration, and postponement had strong significance and positive relationship with the case factory's competitive advantage.

Third, regarding quality of information sharing and customer relation management even if they had strong significance for the factory's competitive advantage, but due to low application it was inversely related.

Fourth, the competitive advantages experienced by the factory were derived from other functions in addition to those supply chain management practices.

5.4. Recommendation

Based on the overall findings and conclusions made, the under listed recommendations are made:-

- The researcher recommended that the management has a leading role to play in ensuring successful implementation of the supply chain management practices in the factory by coming up with appropriate measures that will encourage the firms and other organization to adopt the practices.
- Managers should also take a serious attention on the relationship among Supply chain management practices and competitive advantage and in the long term the success of the factory is heavily may dependent on its supply chain management practices.
- The management should apply the correct mix of practices that would lead to improve their competitiveness as the combined effect is greater than individual elements.
- Moreover, the factory should also practice customer relation management and quality of information as a strategy to improve their competitive advantage.

5.5. Limitations of the Study

The research only focused on the National Alcohol and Liquor Factory, Ethiopia. It did not feature other firms in the industry. This was because of limited time and resources. It was such an uphill task for the researcher to convince the respondents to participate in the study.

5.6. Implication for further study

It should be noted that supply chain practices is not the only factor that has an effect on competitive advantage but there are certain logistics activities like procurement, warehousing,, distribution and also the relation of logistics with other operation of the company like marketing,

production, finance and the like all have a say on the performance of the firm even if the major are those practices. Therefore, the implication for further study is to consider all other dimensions including firms involved in the same industry in order to have a full picture of factors having significant role for enhancing research findings.

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APPENDIXES

APPENDIX I

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

Please, be informed that I am a Post graduate student in Addis Ababa University College of business and economics school of commerce department of logistics and supply chain management.

This study is being carried out on the title “The effect of Supply Chain Management Practices on competitive advantage in the case of National Alcohol & Liquor Factory (NALF)” in partial fulfillment of the Award of a Master of Art Degree in Logistics and Supply Chain Management. Believing that, your frank and genuine responses will contribute immensely to the quality of the findings of this study. I would like to ask you kindly to complete this questionnaire. I would like to express my heartfelt thanks in advance for taking your time to complete the questionnaire.

Direction

- No need of writing your name
- If you can't get any satisfying choice among the given alternatives you can write your answer by attaching extra paper at the end
- Put “X” mark in the appropriate box

Contact Address

If you have any question, please contact me with the following address

- Mobile: 0911-85 3191
- E-mail : sentayehutesfaye@gmail.com

PART I:

➤ Demographic Information(for Staff)

1. Educational Qualification

College diploma ☐ First Degree ☐ MA/MSc/MBA or above ☐

2. Your position in the organization

Department manager ☐ Division head ☐ Senior officer ☐ Officer ☐

Other _____

3. How long have you been employee of National Alcohol & Liquor Factory (NALF)?

Less than 5 year ☐ 5– 10 years ☐ 11 – 15 years ☐

16 years and above ☐

➤ **Demographic Information(for distribution agents)**

1. How long have you been working /Customer with National Alcohol & Liquor Factory (NALF)?

Less than 5 year ☐ 5– 10 years ☐ 11 – 15 years ☐ 16 years and above ☐

2. How long have you been in such business?

Less than 5 year ☐ 5– 10 years ☐ 11 – 15 years ☐ 16 years and above ☐

With regard to Supply Chain Management Practices and Competitive advantage of the National Alcohol and Liquor Factory, please put “X” mark in the appropriate box to indicate the extent to which you agree or disagree with each statement below.

Hint: The item scales are five-point scales with

1 = Strongly disagree

2 = Disagree

3 = Neutral

4=Agree=

5=Strongly agree

Part II Supply Chain Management Practices Aspect

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
SSP	Strategic Supplier Partnership					
SSP1	The National Alcohol and Liquor Factory (NALF) consider quality as number one criterion in selection of suppliers					
SSP2	The factory regularly solve problems jointly with its suppliers					
SSP3	The factory actively involve its key suppliers in new product development processes					
SSP4	The factory have continuous improvement programs that include its key suppliers					
LIS	Level of Information Sharing					
LIS1	The factory inform its supply chain partners in advance of changing needs					
LIS2	The factory and its supply chain partners share proprietary information.					
LIS3	The factory and its supply chain partners exchange information that help establishment of business planning					

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
LIS4	The factory and its supply chain partners keep each other informed about events or changes that may affect the other partners					
QIS	Quality of Information sharing					
QIS1	Information exchange between The factory and its supply chain partners is timely					
QIS2	Information exchange between the factory and its supply chain partners is accurate					
QIS3	Information exchanged between the factory and its supply chain partners is complete					
QIS4	Information exchange between the factory and its supply chain partners is adequate					
QIS5	Information exchange between the factory and its supply chain partners is reliable					
II	Internal Integration					
II1	The integration with in functional departments in the factory is very tight					
II2	The impact of internal integration for factory's achievement is very high					
II3	The willingness of functional departments to integrate each other very high					
II4	The factory frequently evaluates the extent of integration					
CRM	Customer Relation Management					
CRM1	The factory frequently interact with customers to set reliability responsiveness, and other standards for us					
CRM2	The factory frequently measure and evaluate customer satisfaction					
CRM3	The factory frequently determine future customer expectations					
CRM4	The factory facilitate customer's ability to seek assistance from them.					
PP	Postponement					
PP1	There is high practice of moving forward in their operations by predicting customer needs in the supply chain					

PP2	There is high practice of being flexible in developing different alternatives of the product in order to meet changing customer needs					
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Part III: Competitive Advantage Aspect

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
P	Price/cost:					
P1	The National Alcohol and Liquor Factory (NALF) is capable of competing against major competitors based on low price.					
P2	The factory offers competitive prices.					
P3	The factory is able to offer prices as low or lower than its competitors.					
Q	Quality:					
Q1	The factory is capable of offering product quality and performance that creates higher value for customers.					
Q2	The factory is able to compete based on quality.					
Q3	The factory offers products that are highly reliable.					
Q4	The factory offers products that are very durable.					
Q5	The factory offers high quality products to its customer.					
DD	Delivery Dependability:					
DD1	The factory is capable of providing on time the type and volume of product required by customer(s).					
DD2	The factory deliver the kind of products needed.					
DD3	The factory delivers customer order on time.					
DD4	The factory provides dependable delivery.					
	Product Innovation:					
PI1	The factory is capable of introducing new products and features in the market place.					
PI2	The factory provides customized products.					

PI3	The factory alters its product offerings to meet client needs.					
PI4	The factory responds well to customer demand for “new” features.					
TM1	The factory is capable of introducing new products faster than major competitors.					
TM2	The factory delivers product to market quickly.					
TM3	The factory is first in the market in introducing new products.					
TM4	The factory has time-to-market lower than industry average.					
TM5	The factory has fast product development.					

Thank You!!!

APPENDIX II

Formula for determining sample size

Formula for determining sample size

$$s = X^2 NP(1 - P) + d^2 (N - 1) + X^2 P(1 - P)$$

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

Source: Krejcie & Morgan, 1970

APPENDIX III

	Company Name: NATIONAL ALCOHOL & LIQUOR FACTORY ብሔራዊ አልኮሎና ኢራቅ ፋብሪካ	Document No.: OE/NALF/073
Issue No: 0	Document Title: Performance Evaluation Report Form/Bord የዕቅድ አፈፃፀም ሪፖርት	Page 5 of 57

2. የአፕሪልን ዕቅድ አፈፃፀም (ዓበይት ተግባራት)

2.1 የምርት ዕቅድ አፈፃፀም

ለማምረት በዕቅድ ከተያዘው የአልኮል መጠጥ ምርት የዕቅዱን 109%፣ የንፁህ አልኮል ምርት የዕቅዱን 105% እና የእሳት አልኮል ምርት የዕቅዱን 102% ተከናውኗል።

የምርት ክንውኑ ከ2008 በጀት ዓመት ተመሳሳይ ወቅት ክንውን ጋር ሰነፃፀር የአልኮል መጠጥ ምርት በ24% ፣ የንፁህ አልኮል ምርት በ28% እና የእሳት አልኮል ምርት በ16% ብልጫ አሳይቷል።

2.1.1 ምርት ከተያዘው ዕቅድ እና ከ2008 በጀት ዓመት ተመሳሳይ ወቅት አፈፃፀም ጋር ሲነፃፀር

በ2009 በጀት ዓመት የምርት ዕቅድ አፈፃፀም												
ቁ. ፡ ቁ.	የምርት አይነት በቅዱስ ሪከ	ዕቅድ	ክንውን	ዕቅድ	ክንውን					ክንውን በ%	የ2008 በጀት ዓመት ተመሳሳይ ወቅት የምርት ክንውን በአ.ት.ር	ከ2008 በጀት ዓመት ተመሳሳይ ወቅት ክንውን ጋር ሲነፃፀር ልዩነት በ%
		በአ.ት.ር		በጠርመሪያ								
ሀ	አልኮል መጠጥ				800ሊ/ሊ	750ሊ/ሊ	500ሊ/ሊ	250ሊ/ሊ	100ሊ/ሊ			
1	መካኒካል	8,509,498	9,209,585	9,561,234	10,322,517	30,060				108	6,853,905	34
2	ሰበታ	2,039,030	2,285,489	4,418,645	1,437,757	136	540	4,009,488	31,416	112	2,405,855	(5)
	ጀምር	10,548,528	11,495,074	13,979,879	11,760,274	30,196	540	4,009,488	31,416	109	9,259,760	24
ለ ንፁህ አልኮል												
1	መካኒካል	4,279,500	4490539							105	3,337,592	35
2	ሰበታ										160,273	(100)
	ጀምር	4,279,500	4,490,539							105	3,497,865	28
ሐ እሳት አልኮል												
1	መካኒካል	342,360	349611							102	290,162	20
2	ሰበታ										12,000	(100)
	ጀምር	342,360	349,611							102	302,162	16



2.1.2 የማምረት አቅም አጠቃቀም

ቁ.ቁ.	ገበያ	መለኪያ	የዓመቱ ዕቅድ	በመጠን በአ.ት.ር/	
				ክንውን	በ%
1	ምርት				
	1.1 የአልኮል መጠጥ	አ.ት.ር	10,548,528	11,495,074	109
	1.2 ንፁህ አልኮል	አ.ት.ር	4,279,500	4,490,539	105
2	የማምረት አቅም አጠቃቀም				
	2.1 ኬሚካሎችን አቅም	አ.ት.ር			
	2.1.1 የአልኮል መጠጥ	"	15,000,000	11,495,074	77
	2.1.2 ንፁህ አልኮል	"	6,570,000	4,490,539	68
	2.2 ሊዩሪስቶ የግዴታ	"			
	2.2.1 የአልኮል መጠጥ	"	12,705,882	11,495,074	90
	2.2.2 ንፁህ አልኮል	አ.ት.ር	5,400,000	4,490,539	83

APPENDIX IV

	Company Name: NATIONAL ALCOHOL & LIQUOR FACTORY ብሔራዊ አልኮሎና ሊኒዩር ፋክቶሪ	Document No.: <u>OE/NALF/073</u>
Issue No: 0	Document Title: <u>Performance Evaluation Report Form/Bord</u> የዕቅድ አፈፃፀም ሪፖርት	Page 10 of 57

2.2 የምርት ሽያጭ ዕቅድ አፈፃፀም

የምርት ሽያጭ በዋጋ የአልኮል መጠጥ የዕቅዱን 119%፣ የጥፋት አልኮል ዕቅዱን 130% እና የአሳት አልኮል የዕቅዱን 128% በመሆን ተከናውኗል፡፡ በአጠቃላይ ከተያዘው የሽያጭ ዕቅድ 119% የተከናወነ ሲሆን ከ2008 በጀት ዓመት ተመሳሳይ ወቅት ከጉድጓድ ጋር ሲነፃፀር የአልኮል መጠጥ በ28% ፣ የጥፋት አልኮል ሽያጭ በ73% እና የአሳት አልኮል ሽያጭ በ28% ብልጫ አሳይቷል፡፡ በአጠቃላይ የዓመቱ ሽያጭ ካለፈው በጀት ዓመት ተመሳሳይ ወቅት ጋር ሲነፃፀር በ28% ብልጫ አሳይቷል፡፡

2.2.1 የምርት ሽያጭ ከተያዘው ዕቅድ እና ከ2008 በጀት ዓመት ተመሳሳይ ወቅት አፈፃፀም ጋር ሲነፃፀር

2.2.1.1 በዋጋ

ቁ.ቁ	የምርት ዓይነት	የ2008 በጀት ዓመት ሽያጭ አፈፃፀም በብር			የ2008 በጀት ዓመት ተመሳሳይ ወቅት ሽያጭ በብር	ከ2008 በጀት ዓመት ተመሳሳይ ወቅት ከጉድጓድ ጋር ሲነፃፀር ልዩነት በ%
		ዕቅድ	ከጉድጓድ	ከጉድጓድ በ%		
1	አልኮል መጠጥ	500,817,685	596,929,051	119	467,909,114	28
2	ጥፋት አልኮል	3,155,909	4,101,875	130	2,365,621	73
3	አሳት አልኮል	4,763,270	6,082,353	128	4,763,838	28
ጅምር		508,736,864	607,113,279	119	475,038,573	28

2.2.1.2 በመጠን

የአልኮል መጠጥ ሽያጭ በሊትር የዕቅዱን 125%፣ ጥፋት አልኮል በ130% እና የአሳት አልኮል የዕቅዱን 104% በመሆን ተከናውኗል፡፡ ከ2008 በጀት ዓመት ተመሳሳይ ወቅት ከጉድጓድ ጋር ሲነፃፀር የአልኮል መጠጥ ሽያጭ በ28% ፣ የጥፋት አልኮል ሽያጭ በ73% እና የአሳት አልኮል ሽያጭ በ104% ብልጫ አሳይቷል፡፡

ቁ.ቁ	የምርት ዓይነት	የ2008 በጀት ዓመት ሽያጭ አፈፃፀም በሊትር			የ2008 በጀት ዓመት ተመሳሳይ ወቅት ሽያጭ በሊትር	ከ2008 በጀት ዓመት ተመሳሳይ ወቅት ከጉድጓድ ጋር ሲነፃፀር ልዩነት በ%
		ዕቅድ	ከጉድጓድ	ከጉድጓድ በ%		
1	አልኮል መጠጥ	9,288,875	11,613,577	125	9,089,885	28
2	ጥፋት አልኮል	62,580	81,338	130	46,909	73
3	አሳት አልኮል	342,360	356,981	104	211,498	69

የአሳት አልኮል ሽያጭ ዕቅድ አፈፃፀም ካለፈው አመት አገጻጸም በዋጋና በመጠን ልዩነት የሚታየው በዚህ በጀት ዓመት የመሆኑ ዋጋ ማስተካከያ በመደረጉ ነው፡፡

APPENDIX V

	Company Name: NATIONAL ALCOHOL & LIQUOR FACTORY ብሔራዊ አልኮሎና አረቆ ፋብሪካ	Document No.: <u>OF/NALF/073</u>
	Document Title: <u>Performance Evaluation Report Form/Bord</u> የሰነድ አፈጻጸም ሪፖርት	Page 28 of 57
Issue No: 0		

4.2.4 በሠው ኃይል ልማት ዙሪያ የተከናወኑ ተግባራት

4.2.4.1 የሰው ሃይል መግለጫ

ሀ. በአምራች በድጋፍ ሰጪ

በዓይነት	ንባር ሠራተኛ			አዲስ የተቀጠረ			የለቀቀ			አሁን በሰራ ላይ ያለው		
	በጾታ			በጾታ			በጾታ			በጾታ		
	ወ	ሴ	ድምር	ወ	ሴ	ድምር	ወ	ሴ	ድምር	ወ	ሴ	ድምር
አምራች												
ቁጣ	78	82	160	12	6	18	5	4	9	85	84	169
ከገተራት												
ጊዜያዊ		28	28					5	5		23	23
ገደብ ድምር	78	110	188	12	6	18	5	9	14	85	107	192
ድጋፍ ሰጪ												
ቁጣ	235	91	326	18	1	19	20	5	25	233	87	320
ከገተራት	26	3	29	13	2	15	8	1	9	31	4	35
ጊዜያዊ	123	62	185	27	17	44	57	26	83	93	53	146
ገደብ ድምር	384	156	540	58	20	78	85	32	117	357	144	501
ጠቅላላ ድምር	462	266	728	70	26	96	90	41	131	442	251	693

ለ. በትህርት ይረዳ

የትምህርት ደረጃ	ንባር ሠራተኛ			አዲስ የተቀጠረ			የለቀቀ			አሁን በሥራ ላይ ያለው		
	በጾታ			በጾታ			በጾታ			በጾታ		
	ወ	ሴ	ድምር	ወ	ሴ	ድምር	ወ	ሴ	ድምር	ወ	ሴ	ድምር
2ኛ ዲግሪና በላይ	16	2	18				1		1	15	2	17
የመጀመሪያ ዲግሪ	77	26	103	7	1	8	4	1	5	80	26	106
ዲፕሎማ	103	29	132	17	5	22	11	4	15	109	30	139
ከ10-12 ክፍል	116	43	159	31	14	45	24	18	42	123	39	162
ከ8-9ኛ ክፍል	85	52	137	7	4	11	37	14	51	55	42	97
1-7ኛ ክፍል	53	84	137	8	2	10	13	4	17	48	82	130
ከ1ኛ ክፍል በታች	12	30	42							12	30	42
ጠቅላላ ድምር	462	266	728	70	26	96	90	41	131	442	251	693