Impact of Total Quality Management (TQM) on Supply Chain Management (SCM)

Case Study: Afghanistan Paint Industry

Aria Afghan Paint Company

By

Sayed Reshad Sediqi

Supervised By

Aimal Mirza

March, 2020

Final project submitted in partial fulfillment of the requirement for the degree of MBA at Kardan University, Kabul, Afghanistan

Declaration of Authorship

I hereby certify that the work embodied in this thesis project is the result of original research and has not been submitted for a higher degree to any other university or institution.

Name

912 – 1604074

Term C (Non – Business)

Acknowledgement

I am grateful to ALMIGHTY ALLAH, for providing me with strength and motivation to complete my research work. I am thankful to family for cooperating with me and supporting me to which made this thesis work possible to me.

I would like to extend my gratitude to my respected supervisor, Mr. Aimal Mirza, for guiding me in research work. I am thankful to all of my teachers who assisted me throughout my research work and provided me with useful information, guidelines and directions. I am also thankful to all my beloved friends who encouraged me all the time and provided me the ways through which the things become easier gradually.

Abstract

TQM is mainly focusing on the following essential and main practices:
Leadership, Strategic planning, Customer focus, Human resource management, Process management, and Information Analysis which have been used by various companies and now in this Thesis I aim to check the above six major fundamentals in supply chain management of the Paint Industry.

This quantitative research paper discusses the implementation of TQM practices that support SCM to improve the performance of paint company quality supplies. The company's management want to know the relationship of TQM on SCM and apply them for the sake promotion and earning profit. In addition, this thesis is focusing on the link of TQM practices with the SCM of Afghanistan's paint companies. It is a useful source for most researchers, as it is the basis of two management systems.

This research describes the introduction of the research and introduced the areas which this research covered. Moreover it includes background of study, problem definition, research question, research objective, significance of study, and organization of the study.
It also focuses on paint industry in Afghanistan, Aria Afghan Paint Company, TQM in Aria Afghan, and SM in Aria Afghan Company.

The research explains a method of data collection that consisted of primary, construct measurements, a description of how to process data and the methods used in analyzing data.

This research summarizes and interprets the output of SPSS data collected from the survey.

In addition, it includes all the recommendations, limitations, and the conclusion and it states how the future research should be done if it would be on the same topic.

In conclusion, this research paves the ground and is a guide for new researchers in order to understand there right path and know where to focus in their researches. I hope to see various manufacturing companies applying all TQM practices on their supply chain for delivering products with having best quality especially in construction material part.

List of Tables

Table 1 Demographic Profile of Respondent

Table 2 Data Reliability Test

Table 3 Variables

Table 4 Normality Test of Customer Focus

Table 5 Normality Test of Process Management

Table 6 Normality Test of Information Analysis

List of Figures

Figure 1 Gender

Figure 2 Age

Figure 3 Current job

Figure 4 Length of time in company

Figure 5 Variables

Figure 6 Leadership

Figure 7 Strategic planning

Figure 8 Customer focus

Figure 9 Human resource management

Figure 10 Process management

Figure 11 Information Analysis

Contents

Declaration of Authorship ii

Acknowledgement iii

Abstract iv

List of Tables v

List of Figures vi

CHAPTER ONE 1

INTRODUCTION 1

1.1. Background of Study 4

1.2. Problem Statement 4

1.3. Research Question 4

1.4. Research objective 5

1.5. Significance of study 5

1.6. Organization of Study 5

CHAPTER TWO 6

REVIEW OF LITERATURE 6-10

2.1 Conceptual Framework 10

Chapter Three 11

3.1 . Preliminary Data Gathering Procedure 11

3.1 Research Design 11

3.3. Population of Study 11-13

3.4. Samples and Sampling Technique 14

3.5 Operationalization of Variables 14

3.6 Data Collection Procedure 15

3.7. Data Analysis Procedure 15

Chapter Four 16

4.1 Introduction 16

4.2. Data Reliability Test 16-20

4.3. Descriptive Statistics Anlysis & Findings 20-22

4.4. Discussion on Data Norrmality Test 22-25

4.5 Hypothesis Test 25

4.6 Discussions 26-28

Chapter Five 29

5.1. Conclusion 29-30

5.2 Recommendations 31

References 32-33

Appendix (Questionnaire) 34-35

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION:

Total quality management (TQM) and supply chain management (SCM) is the main strategy for manufacturing services both small scale enterprises medium and large scale. Numerous organizations execute Supply Chain Management as a strategy to meet client needs and fulfillment. Afghanistan industrial companies face various challenges and opportunities due to economic globalization. Particularly manufacturing companies are encountered with this competitive environment, so they are required to gain the ability of making an environment in order to support them in national and international markets. One of the many ways for creating competition in the market is set of operating management practices to be accepted and applied. Thus, principles and techniques of Total Quality Management is the most advantageous and accepted one in the market. The most essential part in Supply Chain Management SCM to be focused is quality whether checking during manufacturing process, before goods arrival to customer, and checking as raw material while entering into industrial unit. It is the responsibility of the purchasing department to confirm quality of the materials being used in a production prior to transferring to the customer. In the buying process, quality is too essential since the manufacturing department is required to give directions such as physical description, dimensional measurement, chemical composition, performance specifications, and brand name. To ensure the stabilization of productions, quality management is needed which has four main types like quality planning, quality assurance, quality control, and quality improvement. It is worth mentioning that quality management not only focus on the quality of products or services but it focuses on successful completion of a product.

If managers can implement Total Quality Management (TQM) in the company then it improve products and services more gratified customers and employees' reduced costs improved financial performance improved competitive and increased productivity.

Aria Afghan Paints Afghanistan LTD: Aria Afghan was established in the industrial city of Herat in 2003 using modern machinery and was authorized by the Department of Mines and Industry. The primary factory included office space and a laboratory. In 2005, it was officially inaugurated by Shri Ah Zia Masood (Vice President of the Islamic Republic of Afghanistan), Mohammed Ismail (Minister of Energy and Water), Mr Obaidullah Ramin (Minister of Agriculture) and Mr Amma Farhang (Minister). Commerce), Shri Karim Khorum (Minister of Information and Culture and other officials, Head of Government Departments of Herat).

Aria Afghan is the largest paint, resin, dryer and metal maker manufacturer in Afghanistan. With over 17 years of experience in coatings and specialty chemicals, we are one of the industry leaders. Aria Afghan is committed to providing our customers with high quality products. We believe that the key to our success is consistency in producing innovative and high quality products. Aria is the most recognized brand of the paint industry in Afghan Afghanistan. Our mission is to provide customers with valuable products through high quality products at affordable prices.

Aria Afghan Paint Company Goals: Aria Afghan Paint Company has started operations in Herat Industrial Park in the fields of producing various types of oils and plastics, anti-corrosion, transportation and primer paints to continuously improve its functions by utilizing the experience of the founding committee did attract customer satisfaction. As a result, senior management in the organization has identified key missions to meet the requirements of an integrated quality management system, including:

- Market share increase and offering products in new domestic and foreign markets.
- Daily increase in product quality through effective controls based on relevant standards.
- Staffs capacity building in production areas.
- Environmental pollution prevention and control arising from the activities and processes of the company based on the rules, regulations.

The company has regional offices in Herat, Kabul, Kandahar, Ghazni, Helmand, Mazar and Jalalabad. A large team of sales staffs and a wide network of dealers and distributors serve customers in all urban centers across the country.

SCM in Aria Afghan paints Ltd: The supply chain department of the company has been working over 5 main areas.

1. Production
2. Manufacturing
3. Ware housing
4. Distribution
5. After sales/services

Note: Everything, from the raw materials to delivery to the customer, falls into the supply department. Aria Afghan was a very large organization in itself, so it was a little difficult for them to manage the supply chain department in a single window, so they had a separate department for the smooth execution of operation.

1.2 Background of Study

To achieve competitive advantage, maintaining and developing supportive relationship between members of the chain is highly needed and creation of this relationship needs to be in close relation with suppliers and customers and this is indeed making of Supply Chain Management (SCM). Significant competitive advantages includes supplying at the specific time spot, place and reasonable cost.

The competitive advantage principles pursued the whole performance of supply chain system to product and process quality. Thus, Total Quality Management was used by the organizations to improve attractiveness of the market. It had been used to maintain supply chain quality all over the organization and to achieve a high place in global market.

TQM in the modern methods is explained in broader logic by emphasizing the quality in each stage while controlling the process and sources to ensure there is nothing to lead the product into deficiencies. TQM focuses on the below important practices:

Leadership	Strategic Planning,
Customer Focus	Human Resource Management,
Process Management	Information Analysis.

In this Thesis I aim to check these six major fundamentals in supply chain management of the Paint Industry.

1.3 Problem Statement

Afghanistan is a war stricken country which has almost lost all of its infrastructures and other facilities like manufacturing companies and factories due to adversity of three decades of war. Absence of manufacturing companies and factories to produce goods and services head the country to go for importations from its neighbors. Most of the time the prices get exponentially increased due to various problems while importations such as lock down of the borders, increase taxes and so on which directly effects on the people's normal life and they can't afford even to continue their life since about half of the population is living under the poverty line. In the recent years manufacturing firms and factories activated to produce goods and services in a reasonable price, but still people are willing to use imported products because of the poor qualities of Afghani's products; the only reason is lack of management and not using total quality management and supply chain management practices in their production pipelines. Thus, I decided to have a research to find solution way and this research will definitely assist firms to increase their management while producing goods and services.

1.4 Research Question

To state that what is the impact of Total Quality Management TQM on Supply Chain Management in Afghanistan?

1.5 Research Objectives

The objective of this study is to understand and analyze Supply Chain Management and TQM practices in the Paint Industry. All the above mention factors and their relationship are the focus of this study and the area covered is only Afghanistan Paint industry.

1.6 Significance of the study

This thesis is discussing on how to improve quality supply of a paint company using TQM practices and Supply Chain Management. The company's management want to first understand the relationship of TQM on Supply Chain Management and then its application for developing manufacturing performances. To have better management of productions in a company, managers are highly encouraged to use the result of this study and apply it in their companies.

This paper has advantageous studies of Total Quality Management practices on SCM in paint industry of Afghanistan. Researchers who are eager to have research on this topic can definitely find this paper a valuable and worthy because of having focus on relation to two management system in manufacturing companies.

1.7 Organization of the Study

Chapter one describes the introduction of the research and introduced the areas which this research covered. Moreover this chapter includes background of study, problem definition, research question, research objective, significance of study, and organization of the study.

Second chapter defines the literature review of the research and it focuses on paint industry in Afghanistan, Aria Afghan Paint Company, TQM in Aria Afghan, and SM in Aria Afghan Company.

Third chapter highlights the methodologies in this study. It also explained the research design, method of data collection that consisted of primary, construct measurements, and description of how to process data.

Moreover, a hypothesis for data collection is developed, and independent and dependent variables are defined here.

Fourth chapter summarized and interpreted the output of SPSS data collected from the survey.

Fourth chapter includes all the recommendations, limitations, and the conclusion for the research. Furthermore, it states how the future research should be done if it would be on the same topic.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Literature review

Total quality management or integrated quality management (TQM) is a way of continuously improving performance at all levels of operations or processes in each functional area of an organization, using all available human and capital resources. Defined (Gaspersz, 2002). It is defined as an organizational philosophy that requires the participation of all employees at all levels to focus more efforts on improving business activities (Mehra et al, 2001).

Mehra and Ranganathan (2008) define TQM as a management strategy adapted to increase customer satisfaction through customer focus, and TQM applies to the operations of the manufacturing and service industries in various global cultures. TQM is a new open door at management level to improve the quality and performance of the organization. Mehra (2001) states that TQM is a continuous improvement in the long term and requires substantial resources, both financial and human. Bruce (2007) states that TQM focuses on organizational development and addresses customer satisfaction, and the sustainable development of process product and cultural development services requires the participation of all members of the organization.

Mehra and Ranangathan (2008) stated that TQM is a dynamic effort rather than static, continuous, with no time or time limit and objective process. TQM is a quality way of life. Multiple perspectives and underrepresented, since total quality management is only a work program through a long-term oriented management approach with a global reach for customer satisfaction (Gasparz, 2002). In reference to the study of literature, it has been determined that six indicators measure the practices of TQM.

1) Top management commitment

2) Customer focus

3) Training and education

4) Continuous improvement and innovation

5) Suppliers management

6) Employee involvement

Supply chain management in the SCM literature (2004) the timing mater is vast problem to focus on in SCM research. The SM target is to deliver products in the specific time, reasonable cost and in exact location in order to gain customers satisfaction. Furthermore, some researchers SCM (Chase et al., 2007; Simchi - Levi et al. , 2008; Lummus and Vokurka, 1999; Lummus et al . , 2003) have agreed that the SCM emphasizes the flow of material and information through the supply chain. This is because the traditional SCM is focused on physical distribution (Gilmour, 1999; Croom et al.2000).

TQM and SCM give the same ultimate goal in customer satisfaction, but their basic purpose is to put pressure on quality and supply. Supply Chain Management requires the coordination and configuration of the processes required to make products available on time and satisfactorily. The characteristics of Supply Chain Management can be achieved by systematically identifying and creating SCM practices. Implementing SCM involves a series of activities performed by an organization to begin effective supply chain management (Koh et al. 2007). A literature study of SCM (2011) determined that the same six indicators measured SCM practice.

1) Customer relationship
2) Material management
3) Strategic supplier partnerships
4) Information and communication technologies
5) Corporate culture
6) Close the supplier partnership.

In the previous, As Afghanistan was a war stricken country and due to absence of paint manufacturing companies, they started paint importation from Pakistan and Iran. Later on Afghanistan found itself in various sectors especially in production of construction materials like paint and currently there are companies like Aria Afghan, Kochi which are producing paints in a better quality and price.

The Afghanistan paint industry is distributed into two segments; the structured one, accounting for 30 to 40% of the market, and the unorganized segment that takes in the rest. In the systematized sector, major companies include the multinationals (Aria Afghan, Kochi).

Mostly there are three types of paint in Afghanistan's markets; Decorative paint, Industrial Paint, and Automotive paint. About 55 % to 70 % of market demand is for decorative paints (Aria Afghan). These paints can be found either as oil paint or as water paint. They are used in various areas such as exterior, interior and wood polishing as a special effect paints which are divided into emulsions (oil based) and enamels (water based), distempers and deco paints. Campaign started after entrance of various paint companies in local and international markets and they started branding of their products with having huge marketing for individuals and market awareness.

All companies which are in competition are seeking improve themselves by introducing special paint products with special and vast range of colors. From marketing perspective, the focus has shifted from painters or dealers to the end customer.

Local businesses are convinced that unlike in previous eras, when home painting was only seasonal and aimed at giving the living space a neat look, it has now become a family activity. Women have also become more proactive in negotiating directly with painters, dealers, contractors and architects. All family members actively participate in the selection of colors. Although each company claims to sell more of their products, if we go from the local color market tour to the product category, the higher levels generally favor selective liquid blends

rich in pigment (water-based acrylic). Distempers are known for their cost effectiveness, whether in plastic liquid mixtures or matte enamel and lower layers. Are popular.

Strong Supply Chain is most essential to distribute and sale decorative colors especially in rural and semi-urban markets which have got many demands of this product.

TQM is the most important component in the path of the supply chain of Aria Afghan paints; this factor is affecting the quality of the material supply to end users or customers. Quality plays a vital role in almost every department of the company. Even if department quality is a top priority for manufacturers. In the previous few years, almost all organizations have paid utmost attention to the quality of products and services offered to customers. The market share captured by Aria Afghan is due to the relevant quality assessment techniques that they adopt over time.

TQM has always been a very important factor in every sector of the company, but the most important is the supply chain management. Working in this direction, they make great improvements to the company's supply department. They created a fully functional quality assurance department within the company. This department is working to improve the quality of supply. The end user should find the content on time and in the best desired format.

The reason for this is that there are some sensitive products that are being manufactured in the Aria Afghan Paints factory and delivered to customers as soon as they have been ordered. Therefore, they have devised some methods for the delivery of such material that will keep the material or product in true condition and be distributed to the customer's hands. His QA department has been operating for the past decade and is looking after all the goods and products designed to provide the highest quality of customers. Above all, Afghan Aria have always been recognized for its quality in Afghanistan’s Market.

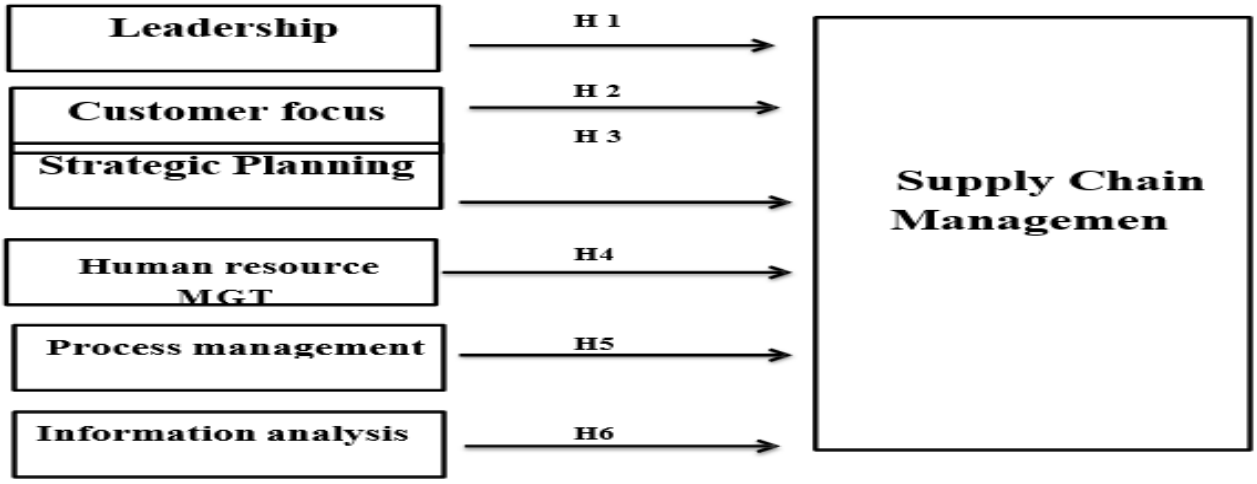
Recently in housing sector, the paint industry is exponentially growing in Afghanistan especially in Kabul. Between 2002 to 2013 about 5 million Afghans were repatriated to their country, mainly from Pakistan and Iran (Urban Improvement National Policy AF0007), assuming that war was over and they could settle back to Afghanistan thus, people faced to

construct houses and the housing in Afghanistan specially in Kabul had got an exponential growth after 2002 and percentage of share in GDP has increased from 5% in 2003 to 11% in 2013 (Housing Profile, Ministry of Urban Development and Housing, UN – Habitat). Painting industry had a parallel development with it.

2.2 Conceptual Framework

The questionnaire was settled based on the model which shows the integration between Supply Chain Management SCM and Total Quality Management. For the recognition of critical factors survey and industry were performed and in that basis we express the below Six set of hypothesis to express the relationship between the SCM practices and TQM practices.

In total six hypothesis are formulated for testing and validation of the model.



H1: Indicates leadership and SCM relations

H2: Indicates strategic planning and SCM relations

H3: Indicates customer focus and SCM correlations.

H4: Indicates human resource management and SCM correlations.

H5: Indicates process management and SCM relations.

H6: Indicates information analysis and SCM relations

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Preliminary Data Gathering Procedure

The self-administered questionnaire was distributed to make the data standardized and to build relationships. Survey Form | the questionnaire was sent to the managers of the Paint Company (Aria Afghan Paints). About 200 sets of questionnaires were sent to managers of paint company (Aria Afghan Paints), Specified types of people were targeted to prepare the required information. The answer for these questionnaires were asked from those who are expert and well aware of the company's daily operations (SCM Managers).

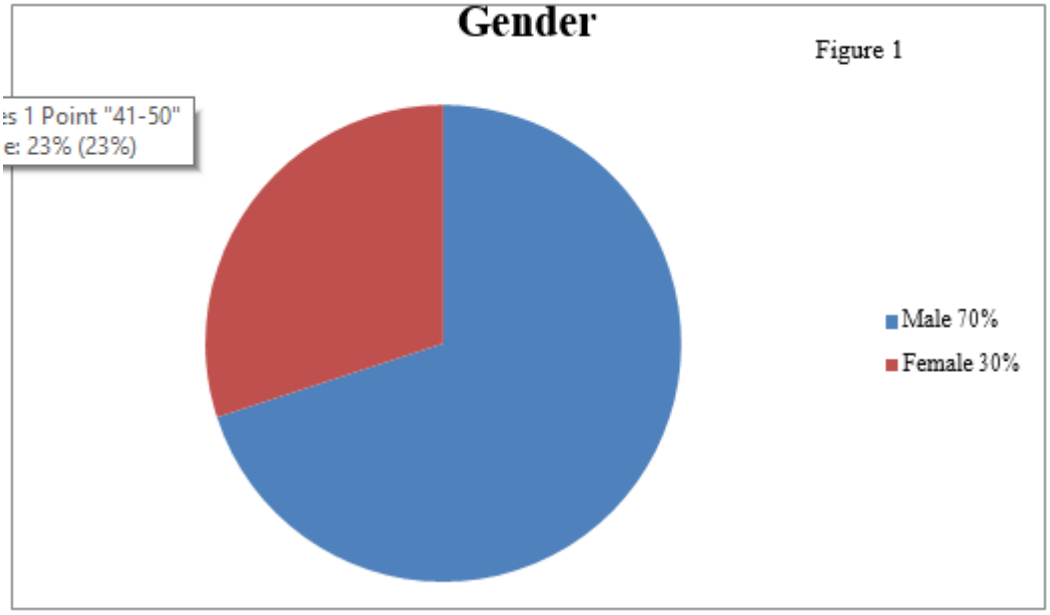
3.2 Research Design

The methodology for this study is to use questionnaire for data collection from primary source and analyze it with aid of SPSS and Microsoft Excel. Therefore, this research is quantitative research.
Literature review completed. The variables are identified. Based on the identified variables, the theoretical model was developed and the researches were formulated. The questionnaire was developed and data were collected from the target audience.

3.3 Population of Study

The self-administered questionnaire was distributed to make the data standardized and to build relationships. Survey Form | the questionnaire was sent to the managers of the Paint Company (Aria Afghan Paints). About 200 set of questionnaires were sent to managers of paint company (Aria Afghan Paints) either in the center or in its branches (Herat, Kabul, Kandahar, Ghazni, Helmand, Mazar and Jalalabad) Specified type of people were targeted to provide the survey information and from 200 questionnaire 188 were filled and 12 were not filled. Those who were working as SCM managers have received the questionnaires because of the awareness of company's daily performance.

Table: 1.0	Frequency	Percentage
Gender:		
Male	**131**	**70 %**
Female	**57**	**30%**
Age :		
20-30	**60**	**30**
31-40	**70**	**35**
41-50	**45**	**22.5**
More than 50	**25**	**12.5**
Current job Position:		
Executive	**60**	**30**
Manager	**70**	**35**
Head of Department	**45**	**22.5**
Other	**25**	**12.5**
Length of time in Company :		
Less than 1 year	**70**	**35**
1-5 years	**60**	**30**
6-10 years	**45**	**22.5**
More than 10 years	**25**	**12.5**



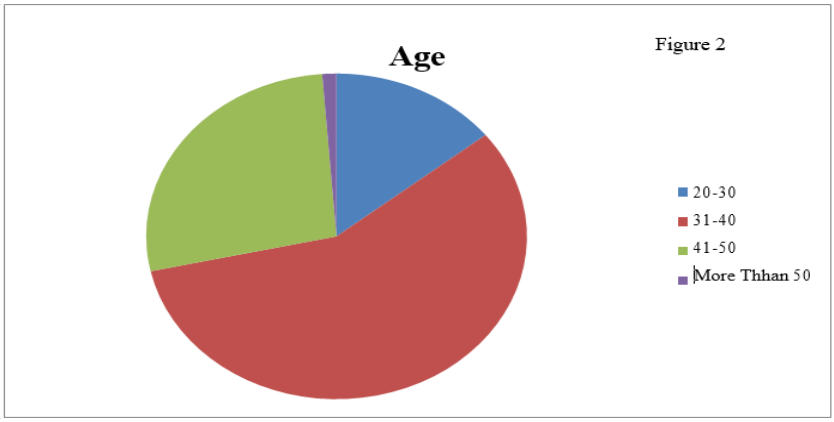


Figure 2

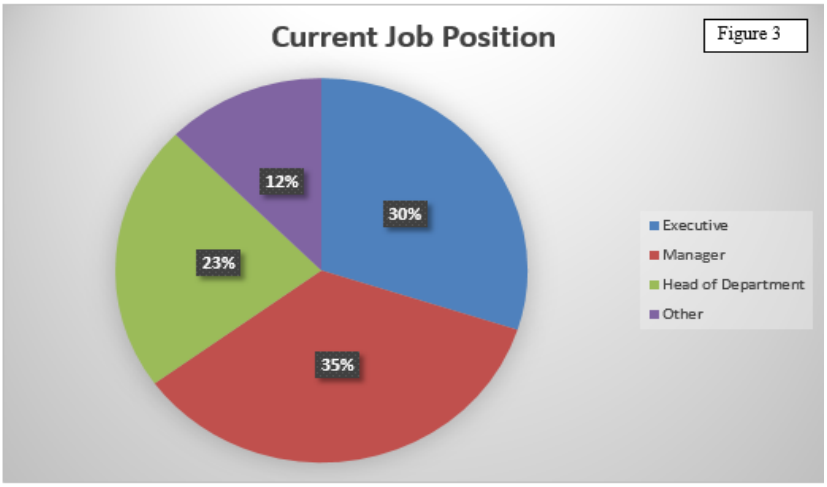


Figure 3

Length of time in Company

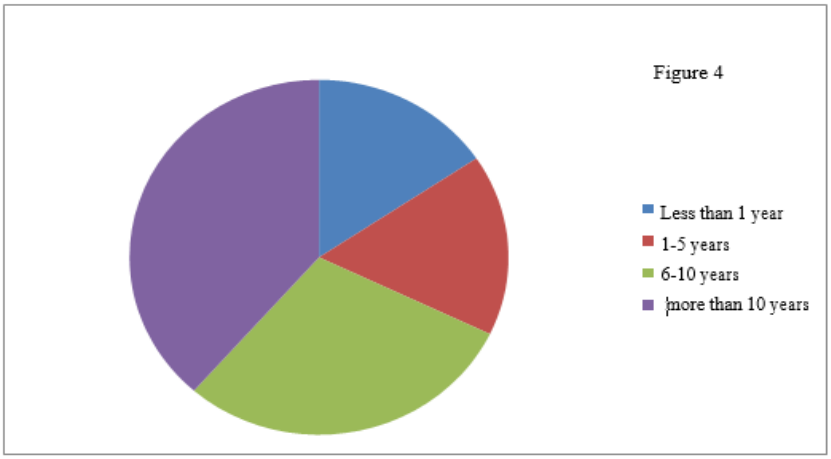


Figure 4

3.4 Samples and Sampling Technique

The targeted company for this research is Aria Afghan Paint Company. Stratified random sample methods has been utilized with unequal sampling. As stratified random sampling method provides more data and information within given size sample, so this method is the most effective tool (Sekaran, 2003). Based on the importance, in this sample the population is divided into various groups, sample size can be drawn when the stratum is clear by the random sampling techniques. The researcher has freedom to choose the number of elements in the sample from each stratum and it can be proportionate or disproportionate. The size of research is 200, which is filled by the Aria Afghan Company employees in every levels and in every branches such as Herat, Kabul, Kandahar, Ghazni, Helmand, Mazar and Jalalabad. Executive filled 60 questionnaires. 70 questionnaire filled by managers, 45 questionnaires filled by head of departments, and 25 were filled by others. The sample is taken from Aria Afghan Company.

3.5 Operationalization of Variables

All the variables such as leadership, strategic planning, process management, information analysis, Human Resource Management, and customer focus are included in this research which are individually analyzed and interpreted using SPSS software and Microsoft Excel. All the measured variables are clearly analyzed and interpreted in chapter four.

Descriptive analysis is done to analyze the demographic data received from the area and is based on the gender, age, position, and current job together with their interpretations.

To check the internal consistency of the items which is how strongly a set of items are related as a group, reliability test is applied and is applicable on all dependent and independent variables.

Normality test was conducted to ensure the data is normally distributed. This test is applied on dependent variables and chapter four states all the result with its interpretations.

3.6 Data Collection Procedure

The self-administered questionnaire was distributed to make the data standardized and to build relationships. Survey Form | the questionnaire was sent to the managers of the Paint Company (Aria Afghan Paints). About 200 set of questionnaires were sent to managers of paint company (Aria Afghan Paints) either in the center or in its branches (Herat, Kabul, Kandahar, Ghazni, Helmand, Mazar and Jalalabad). Targeted people to be surveyed were limited. Those who were included in this survey were SCM managers and other experts who were well informed of every daily performance of the company.

Data collection has been done through various processes which are as below:

3.6.1 Data Processing

Prior to data collection, procedures were needed to be performed to ensure the data collected were reliable and valid. Data processing included data checking, data editing and data coding.

3.6.2 Data Checking

Data checking was a process of ensuring the data collected were complete and usable for our analysis by making sure the respondent of questionnaires was our target respondent and all questions were answered in it.

3.6.3 Data Editing:-

Data editing was to exclude all incomplete or fault questionnaire that cannot be used in analysis. The incomplete questionnaires were either disregarded or allocated with the missing values. In this research, out of 188 questionnaires collected back (excluding non-response), there were 10 incomplete questionnaires and were extracted out, so left with 178 useable questionnaires.

3.6.4 Data Coding

Data coding was a systematic process of condensing a large data sets into smaller units via the formation of categories and concepts deduced from the data. In this research, the data were coded accordingly before the descriptive data were entered into SPSS for further analysis. For example, the variable „Leadership" had been decoded into „LD" before transcribing the collected data into SPSS.

3.7 Data Analysis Procedure

I have distributed the questionnaires and gave the participants responses in order to address my research question and mean, frequency and percentage of every item in the questionnaire were calculated using SPSS and Excel which will be clearly discussed in chapter 4. Thus, all above points illustrates the reason why I used descriptive analysis.

CHAPTER FOUR
DATA ANALYSIS AND FINDINGS

4.1 Introduction

Chapter 4 shows the questionnaire outputs presented the results which was submitted to 200 Peoples in the center and all branches (Herat, Kabul, Kandahar, Ghazni, Helmand, Mazar and Jalalabad) of Aria Afghan Paints Company. SPSS and Microsoft Excel were being used in analyzing and presenting the result.

4.2 Data Reliability Test

Table 2

Variables	No of Items	Cronbach's Alpha
Leadership	5	0.8573
Strategic Planning	5	0.7423
Customer Focus	6	0.7967
Human Resource Management	6	0.7856
Process management	5	0.7187
Information Analysis	5	0.8234

To measure the reliability of the items in the questionnaire, Cronbach Alpha test was used and must be in this range 0 <Alpha< 1

The value of Alpha must lie in the range of 0 to 1. The above table shows the Cronbach Alpha's values of study variables.

Higher value of alpha depicts that the items are measuring the underlying construct.

Cronbach Alpha close to 1 = instrument is more reliable

Reliability Coefficient (Alpha) >= 0.7 = instrument is considered good enough

The items have high internal consistency because Alpha is greater than 0.7 for all variables.

Variables:-

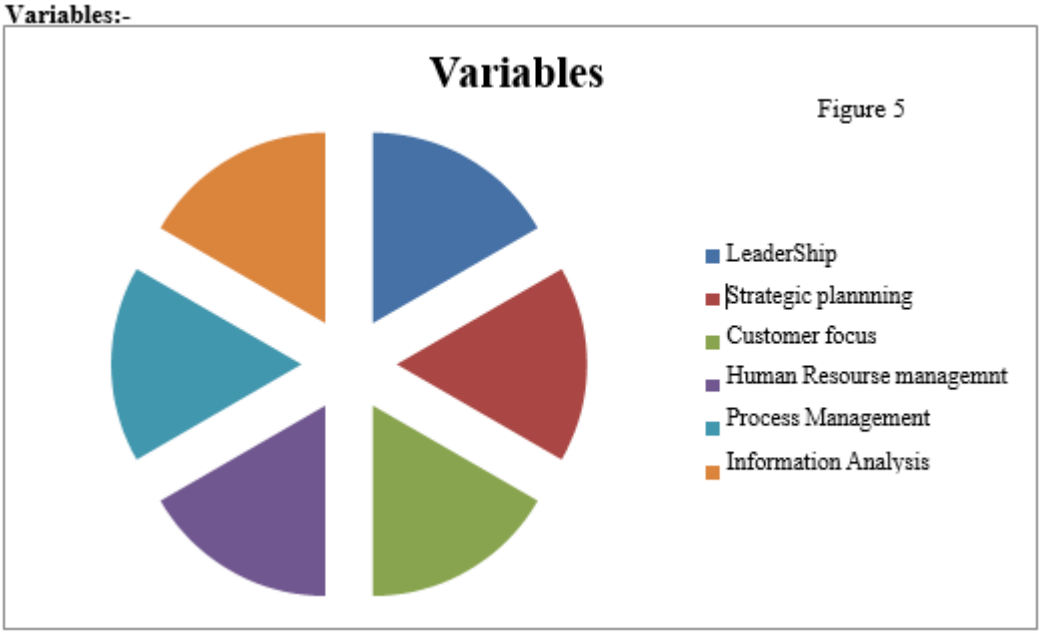


Figure 5

Table: 3.0

Variables	Item	Mean	Std Deviation
Leadership (LD)	LD1	4.6743	0.9235
	LD2	4.6865	0.8756
	LD3	5.3456	0.8478
	LD4	5.1467	0.9064
	LD5	5.1145	0.7945
Strategic planning (SP)	SP1	5.2567	0.8934
	SP2	5.3845	0.7756
	SP3	5.3134	0.7867
	SP4	5.2788	0.9864
	SP5	5.3468	0.8456
Customer Focus (CF)	CF1	5.0560	0.8678
	CF2	5.3567	0.9367
	CF3	5.2234	0.8650

	CF4	5.0757	0.9646
	CF5	5.4678	0.8746
	CF6	5.4678	0.7658
Human resource management (HRM)	HRM1	5.4678	0.8467
	HRM2	5.0867	0.8675
	HRM3	5.3467	0.8264
	HRM4	5.1678	0.8234
	HRM5	5.1756	0.8976
	HRM6	5.1876	0.678
Process Management (PM)	PM1	5.5098	0.8655
	PM2	5.2657	0.7625
	PM3	2.1876	0.8435
	PM4	2.2113	0.9546
	PM5	5.3576	0.8657
Information Analysis (IA)	IA1	5.1896	0.7456
	IA2	5.0456	0.9478
	IA3	5.1765	0.9567
	IA4	5.1467	0.8356

Leadership (LD):-

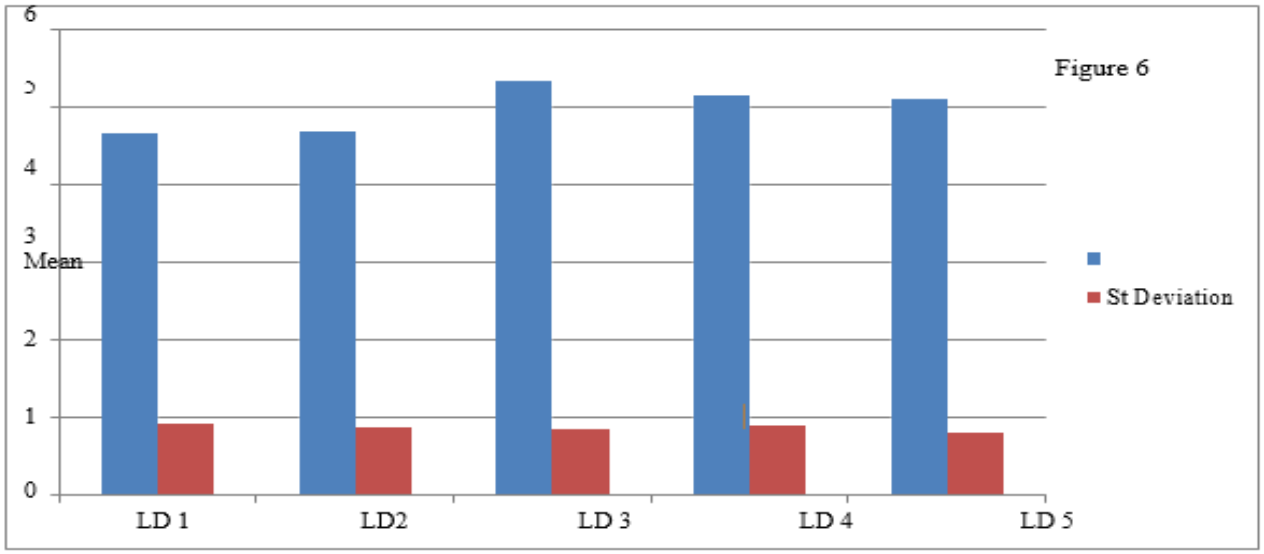


Figure 6

Strategic Planning:-

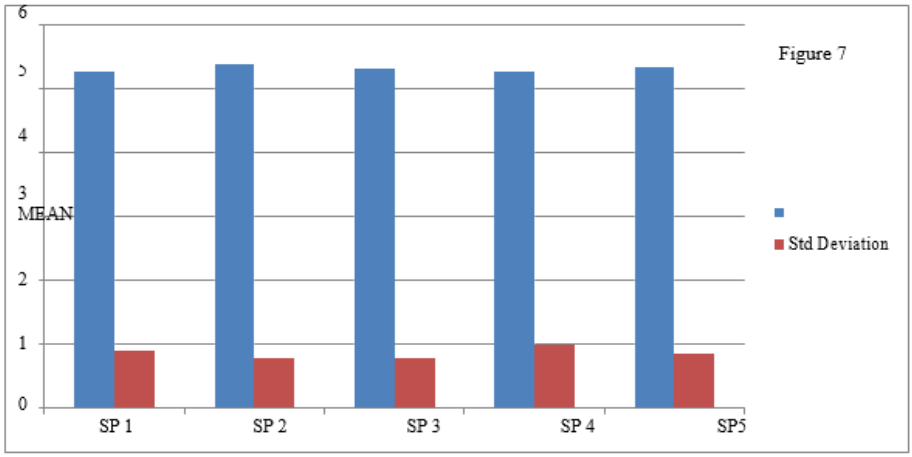


Figure 7

Customer Focus:-

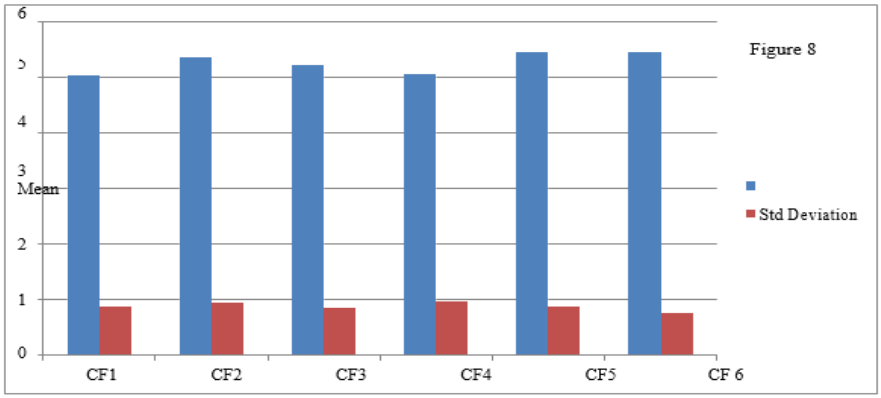


Figure 8

Human Resource Management:-

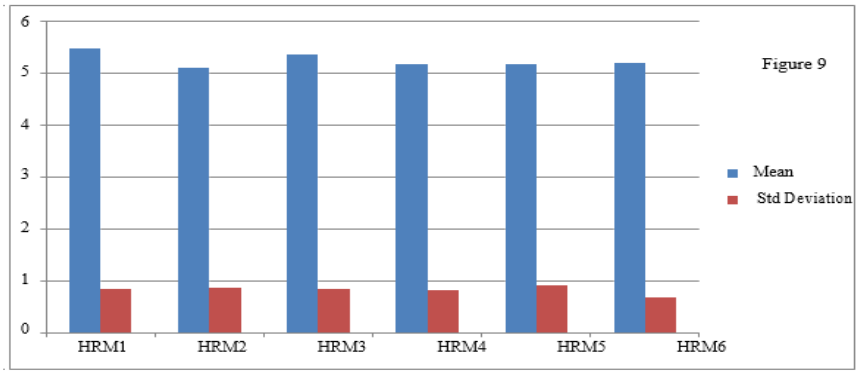


Figure 9

Process Management:-

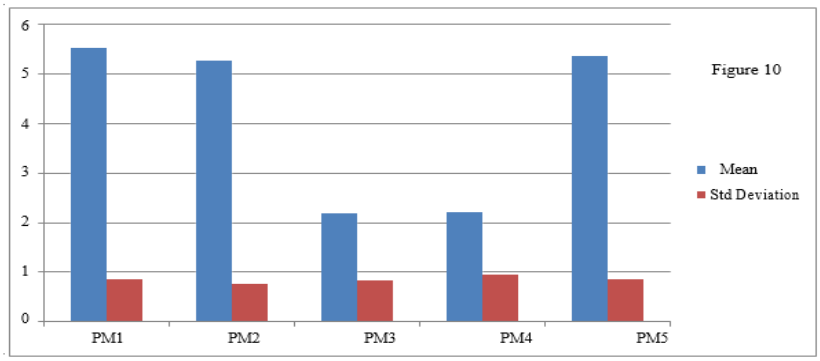


Figure 10

Information Analysis:-

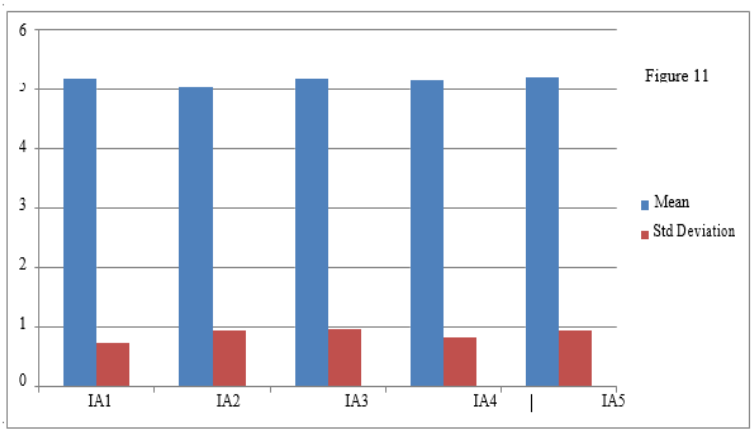


Figure 11

PM1 has gotten 5.5098 which is the highest mean among all other variables where majority agree to item.

LD1 has gotten 4.6743 which the lowest mean among variables where somehow agree to item to certain extent.

PM4 has gotten the highest standard deviation between all other items which states various series of ideas.

IA1 has gotten the lowest standard deviation between all other variables which shows high ideas stability for the item.

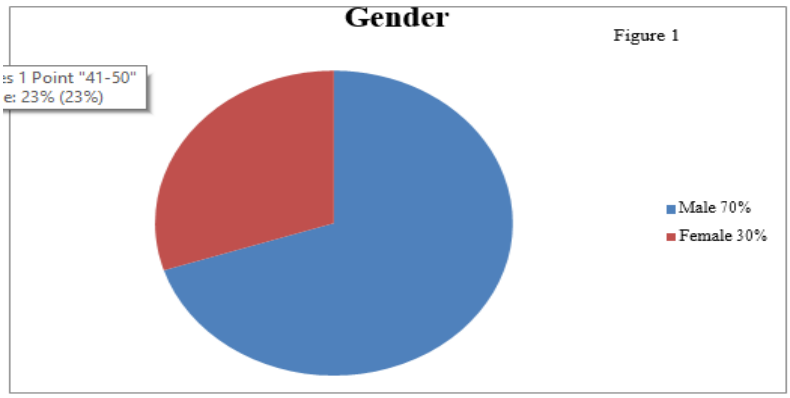
4.3 Descriptive Statistics Analysis & Findings

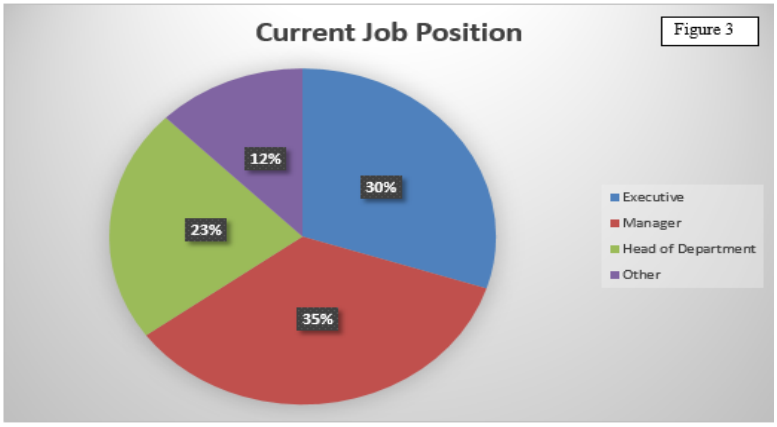
From 200 questionnaire 188 were filled and 12 were not filled

Demographic Profile of the Respondents:-

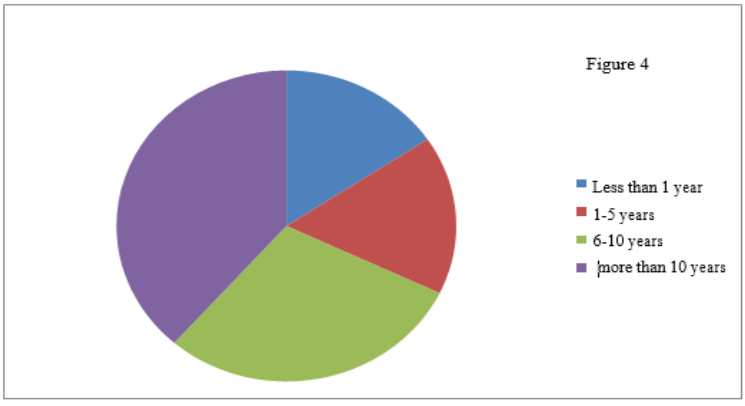
Table: 1.0	**Frequency**	**Percentage**
Gender:		
Male	131	70 %
Female	57	30%
Age :		
20-30	60	30
31-40	70	35
41-50	45	22.5
More than 50	25	12.5

Current job Position:		
Executive	60	30
Manager	70	35
Head of Department	45	22.5
Other	25	12.5
Length of time in Company :		
Less than 1 year	70	35
1-5 years	60	30
6-10 years	45	22.5
More than 10 years	25	12.5





Length of time in Company



4.3.1 Findings

According to the results collected, male respondents occupy 70%, and female respondents occupy the remaining 30%. The age of the respondents was 31 to 40 years, which was 35% of the respondents. Furthermore, 87.5% of the respondents were department managers, heads of departments, and the remaining 12.5% were CEO or director. Of the respondents, 22.5% worked for 6 to 10 years, 30% worked for 1 to 5 years, 35% worked less than 1 year, and the remaining 12.5% worked more than 10 years.

4.4 Discussion on Data Normality Test

Since the sample data is chosen from population, so it is vital to check whether the data is normally distributed or not and this can be find by applying Normality Test.

With having sample size 200, we can elect base of values of Skewness and Kurtosis to specify whether the data is normal or not.

1. For small sample size ($n<60$), z-scores (for either skewness or kurtosis) >1.96, Alpha level = 0.05, then reject the null hypothesis and calculated the distribution of the sample is non – normal.
2. For medium sample size ($50<n<300$)
   Reject null hypothesis at absolute z-value over 3.29 which corresponds with an alpha level 0.05 and conclude the distribution of the sample is non-normal.
3. For the sample size greater than 300, depend on the histograms and absolute values of skewness and kurtosis without considering z-value. Either an absolute skew value larger than 2 or an absolute kurtosis (proper) larger than 7 may be used as reference values for determining substantial non-normality

This section will include histograms to graphically represent the data normality and skewness and kurtosis for analysis

Dependent Variables: Customer focus, process management, and information analysis, Leadership, human resource management HRM, strategic planning.

Independent Variables: Supply Chain Management

We will calculate and analyze the dependent variables:

4.4.1 Customer Focus:

Descriptive

Table 4			Statistic	Std. Error
CE	Mean		3.49	0.044
	95% Confidence Interval for Mean	Lower Bound	3.40	
		Upper Bound	3.58	
	5% Trimmed Mean		3.49	
	Median		3.00	
	Variance		0.39	
	Std. Deviation		0.626	
	Minimum		2.01	
	Maximum		5.01	
	Range		3.01	
	Interquartile Range		1.00	
	Skewness		0.019	0.172
	Kurtosis		-0.26	0.342

Z – Value must be -1.96=<Z<=1.96

Skewness and Kurtosis must be close to zero in SPSS.

To find Z-Value = Skewness or Kurtosis / Standard Deviation

Z – Value for Skewness = Skewness / Standard Error

Z = 0.019 / 0.172 **Z= 0.11**

Z – Value for Kurtosis = Kurtosis / Standard Error

Z = -0.26 / 0.342 **Z = -0.771**

Note: Both values are in the range of (-1.96, 1.96) and based on this analyze we can say that data is approximately normally distributed in terms of Skewness and Kurtosis.

4.4.2 Process Management: .

Descriptive

Table 5			Statistic	Std. Error
ME	Mean		3.96	0.046
	95% Confidence Interval for Mean	Lower Bound	3.86	
		Upper Bound	4.05	
	5% Trimmed Mean		3.97	
	Median		4.00	
	Variance		0.441	
	Std. Deviation		0.663	
	Minimum		2.01	
	Maximum		5.01	
	Range		3.00	
	Interquartile Range		0.00	
	Skewness		-0.2	0.17
	Kurtosis		0.17	0.34

Z – Value Formula:

Z – Value for Skewness = Skewness / Standard Error

Z – Value (Skewness) = -1.55

Z – Value (Kurtosis) = 0.50

Note: Both values are in the range of (-1.96, 1.96) and based on this analyze we can say that data is approximately normally distributed in terms of Skewness and Kurtosis.

4.4.3 Information Analysis: .

Descriptive

Table 6			Statistic	Std. Error
DE	Mean		3.29	0.049
	95% Confidence Interval for Mean	Lower Bound	3.19	
		Upper Bound	3.39	
	5% Trimmed Mean		3.31	
	Median		3.00	
	Variance		0.49	
	Std. Deviation		0.701	
	Minimum		2.01	
	Maximum		5.01	
	Range		3.01	

Interquartile Range	1.01	
Skewness	-0.30	0.172
Kurtosis	-0.66	0.342

Z – Value Formula:

Z – Value for Skewness = Skewness / Standard Error

Z – Value (Skewness) = -1.76

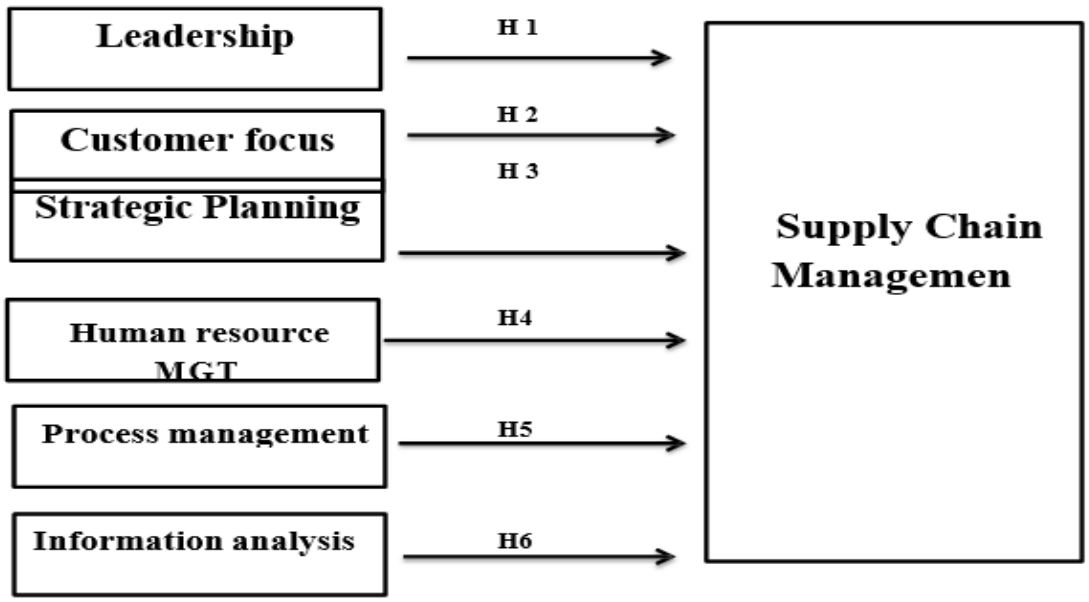
Z – Value (Kurtosis) = -1.93

Based on the above analyze the data is normally distributed in terms of Skewness and Kurtosis.

4.5 Hypothesis Test:

The questionnaire was settled based on the model which shows the integration between SCM and TQM. For the recognition of critical factors survey and industry were performed and in that basis we express the below Six set of hypothesis to express the relationship between the SCM practices and TQM practices.

For validation of the model, 6 hypothesis are formulated to test.



H1: Indicates leadership and SCM relations

H2: Indicates strategic planning and SCM relations

H3: Indicates customer focus and SCM correlations.

H4: Indicates human resource management and SCM correlations.

H5: Indicates process management and SCM relations.

H6: Indicates information analysis and SCM relations

4.6 Discussion

Below are the discussions and major findings of existing research and there relation with research question and research objective:

4.6.1 Leadership (LD)

Based on the results, LD is showing an important relationship with supply chain management (SCM). Based on the hypothesis analysis, we found an important relationship between LD and SCM.

This results were credible by previous researchers who illustrated that leadership in transformative supply chains had an absolute impact on supply chain efficiency. Moreover, since information management was part of SCM, the result was that advantageous leadership (LD) affects its IT abilities for SCM in a positive form. To create inspirational and useful work environment in which employees are committed to have great performance, LD is highly needed. Furthermore, allocation of enough resources by the top level management is another assistance in improving the quality in Supply Chain Management. This positive relationship between LD and Supply Chain Management also indicates that quality is much more essential to management of the companies than the production cost and they boost their profit by increasing production quality.

4.6.2 Strategic Planning (SP)

Previous researchers pointed that Strategic Planning has great effect on the firm's performances however, this result shows that there is not any important relationship between these two terms. There is flexibility which is working as a mediator between Strategic Planning SP and Supply Chain Management SCM which had shown that these two terms has direct effect on each other.

Although Strategic Planning is the process to push environmental instability, it is not adequate to affect performance, thus we can finalize that there is no positive relation between these two terms.

While decision making, the top level management are required to show flexibilities in order to bring changes in performance, technical issues, and financial issues which impacts supply chain performance.

4.6.3 Customer Focus (CF)

The output of the analysis has shown that Customer Focus CF can impact Supply Chain Management by empowering capabilities and financial act, thus these two terms have direct relationship based on the results. Besides, SCM shows that the supplier relationship can be improved if we achieve the customer's goal and this is the goal which all companies have.

Therefore, the link between Customer Focus and SCM reflects the significance of having a "customer focus" attitude within the company. Firms can have a successful SCM when it always welcome the customers complaints and resolve it in a better way that time employees can be satisfied.

If a company can attract its customers focus, then this will head the company toward improvements by meeting all customer requirements and needs.

4.6.4 Human Resource Management (HRM)

The output of analysis shows that there is a direct relationship between Human Resource Management HRM and Supply Chain Management SCM. It is vivid that for having quality in SCM, a firm must allocate trainings in various areas for the employees in different levels and this is indeed the duty of HR office. Moreover, I can say that both factors of Human Resource Management HRM (Management and Employees Care) have positive and direct influence on Supply Chain Performance of a company.

It is the HR responsibilities to encourage the employees by rewarding them and this causes employees to work hard with quality; this shows their active participation in bringing quality in Supply Chain Performances.

In conclusion, to enhance the Supply Chain Performance, a company must have many encouraged, committed, and active teams in the system.

4.6.5 Process Management (PM)

Our analysis shown that there is no essential relation between Process Management PM and SCM which is in apposite of prior researches, there was no significant relationship between PM and SCM, So H5 was not sustained.

Process Management cannot improve the SCM performance alone, so it needs the leaders' commitment to take the advantage of constant process improvements.

4.6.6 Information Analysis (AI)

Information Analysis IA and Supply Chain Management SCM has direct and positive correlation due to below reasons:

1. Supply Chain Management effectiveness can be improved by information management which one the Information Analysis part.
2. Recently, manufacturing companies are being inspired to promote Total Quality Management practices for having their better presentation which contain Information Analysis (IA).
3. Supply Chain Performance developments can be enhanced when there is better sharing information of quality between employees in various levels and different sections.

Finally, this Information Analysis will let the organization to bring efficient changes in the requirements, type of products, product costs, customer attraction, and future developments which by this the firms can finally achieve best supply chain performance and maintain its success in the market

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Although in these recent years the world economics is exponentially growing, some countries including Afghanistan have gotten many issues in their manufacturing part.
For solving quality issues in supply chain management pipeline and improving organization profit, total quality management practices is extremely essential to be continuously used in every single organization.

My research paper clearly stated the correlation and link of Total Quality Management and Supply Chain Management of paint industry in Afghanistan. It also explored how Afghanistan manufacturing companies can expand and improve their supply chain in order to meet the standards of global market in case of either quality or cost and that time they can well compete with international companies in the region and globally.

Six essential variables or situations were analyzed in this research which results that Leadership has the most vital and positive impact on Supply Chain Management. As leadership is the decision making point of an organization, so it well exceptionally increase the performance quality and contribute expanding of SCM.

On the other hand, analysis has shown that there is no relation between Strategic Planning (SP) and SCM and it always needs a mediator (flexibility) while preparing this strategic planning.

Or else, Customer Focus was another variable which has effective influence on SCM since if a company become able to attract the customers focus then can get their need and requirements to set and improve themselves based on the customer wants and it results getting customers satisfaction.

Furthermore, in order to increase the employees moral, motivation and commitment to the company to work with quality and effective, companies need a strong Human Resource Management (HRM), HRM also assist the SCM in a better way.
The final outputs shown no correlation among Process Management (PM) and SCM. Besides, we can find a positive link among Information Analysis (IA) and SCM in this research paper.

In conclusion, I hope other researchers focus and indicate that how strength points of TQM principles can be merged with SCM at the specific time. Which can be more cherished and interesting research from both practical and research perspective.

5.2 Recommendations

This research paper is restricted on single sector Company with having small sample size. The final output of this research paper is not dedicated to all organizations inside Afghanistan; it is just belong to the paint companies in Afghanistan and it excludes companies having updated and new supply chain programs with no quality management.

Moreover, all companies who are currently working in manufacturing areas especially in production of construction materials can use this research analysis in order to boost their management, employees performance, quality of production, making profit and competing in international markets by adjusting their decisions and future planning based on this analysis.

My current research is only analyzed and dedicated to Afghanistan; for making the results of analysis more reliable and stable, future researchers is highly recommended to take foreign countries in their research since that time the sample size will be large and the assessment with a large sample size will definitely come to strengthened and accurate result.

Further, future researchers can test relationships of TQM and SCM as well as the cultural and behavioral issues. Additionally, my research is a cross sectional study due to collection of data from specified time with no changes, so the future researches can be longitudinal study in order to attain reliable output. That time the outcome of research coverage will be much more and everyone all over the world can utilize it in making their path profitable specially for the companies having no budget and time restriction.

References

Anema, M. G., & Brown, B. E. (1995).Increasing survey responses using the total design method.

Agus, A. (2011). The structural influence of supply chain management on product quality and business performance. International Journal of Trade, Economics and Finance, 2(4), 269-275.

Bandyopadhyay, J. K., & Sprague, D. A. (2003). Total quality management in an automotive supply chain in the United States. International Journal of Management, 20(1), 17-22.

Croom, S.R. "Optimizing the Purchasing Process for MRO Items: An Investigation of the Strategic and Operational Value of Adopting a Web-based System for the Procurement of Operating Resources," Warwick Business School Working" 1998.

Casadesus, M., & Castro, R. (2005). How improving quality improves supply chain management: empirical study.

Chang, G. (2009). Total quality management in supply chain. International Business Research.

Chen, I. J., & Paulraj, A. (2004). Towards a theory of supply chain management: The constructs and measurements. Journal of Operations Management.

Danusantosa, J. (2011). Stackelberg leadership and effectiveness of demand disruption management in a three-tier electronics supply chain. Doctoral dissertation, University of Oklahoma.

Das, A., Handfield, R. B., Calantone, R. J., & Ghosh, S. (2000). A contingent view of quality management: The impact of international competition on quality.

Defee, C. C., Stank, T. P., & Esper, T. (2010). Performance implications of transformational supply chain leadership and followership.

Desatnick, R.L. (1992). Inside the Baldrige Award guidelines category 7: customer focus and satisfaction.

Forker, L. B., Mendez, D., & Hershauer, J. C. (1997). Total quality management in the supply chain: What is its impact on performance?

Forza, C. (1995). Quality information systems and quality management: a reference model and associated measures for empirical research. Industrial Management.

Francis, M. (1998).Lean Information and Supply Chain Effectiveness.

George, S., & Weimerskirch, A. (1994). Total quality management: Strategies and techniques proven at today‟s most successful companies.

Gowen III, C. R., & Tallon, W. J. (2002). Enhancing supply chain practices through human resource management. Journal of Management Development

Grzybowska, K. (2012). Sustainability in the supply chain: Analyzing the enablers. Environmental Issues in Supply Chain Management

Gunasekaran, A., & McGaughey, R.E. (2003).TQM in supply chain management.

Gundlach, G. T., Bolumole, Y. A., Eltantawy, R. A., & Frankel, R.. (2006). The changing landscape of supply chain management, marketing channels of distribution, logistics and purchasing.

Tarofder, A. K., & Ashiquzzaman, (2008). Supply chain management practices: Malaysian perspective. International Journal of Management and Entrepreneurship, 4(2), 58–81

Lakhal, L, Pasin, F. and Liman M. (2006). Quality management practices and their impact on performance. International Journal of Quality and Reliability management, 23 (6), 625-646.

Mentzer J.T, Min S. and Zacharia Z.G. (2000). The nature of inter-firm partnering in supply chain management. Journal of Retail 76, 549–568

NO	Questions	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Disagree (5)
	Leadership					
01	In SCM Our top level managers strongly encourage employee (worker) involvement in quality management					
02	In SCM Our top management allocate adequate resources toward efforts to improve quality					
03	In SCM Our top management takes responsibility for quality performance					
04	In SCM Our top management places more emphasis on quality than cost in SCM					
05	Is SCM our top management views quality improvements to gain profit					
	Strategic planning					
01	In SCM Our mission has a clear focuson quality					
02	In SCM We take a clear long-term view on how to achieve our goals					
03	In SCM We allocate sufficient resources for the successful implementation of strategies focused on quality					
04	In SCM At each level of the company, teams are assigned to set objectives and devise action plans					
05	In SCM resource allocation is for application of strategies focused on quality					
	Customer Focus					
01	In SCM We have a system for collecting complaints or suggestions from customers					
02	In SCM We have introduced and maintained the "customer focus" philosophy for a long time					
03	In SCM We reset our standards whenever customer needs and expectations change					
04	In SCM Customers requirement are communicated to employees					
05	In SCM We follow up with customers on services provided to receive prompt and actionable feedback					
06	Is SCM seeking services to get customer satisfaction					
	Human Resource Management					
01	In SCM We provide training and training resources to employees (workers) and encourage them to attend these training programs					
02	In SCM We have many active improvement teams					
03	In SCM We actively evaluate and implement employees‟ suggestions related to quality and supply chain management, if they are suitable					
04	In SCM Our line employees (workers) are responsible for and inspect the quality of their own work (self-inspection)					

05	In SCM Our employees (workers) are actively involved in quality management-related activities					
06	In SCM We provide awards to individuals and groups for excellent suggestions					

Process Management

01	In SCM Our service specification are clear					
02	In SCM Every attempt has been made to ensure that our process design is fail- safe so that the possibility of employee					
04	In SCM We continually use internal or external audits to make sure we deliver quality services					
05	In SCM We emphasize the continuous improvement of quality in all work processes					

Information Analysis

01	In SCM We have information sharing among functions for the objectives of quality improvement					
02	In SCM We display information on quality performance at most of the work stations and everybody knows it					
03	In SCM We examine customer-related/market data to develop priorities for improvement					
04	In SCM We keep our information technology current with changing business needs and directions					