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Supply Chain Management Knowledge and Practices in Pharmaceutical Industries: A Study on Eskayef Bangladesh Ltd

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Abstract

Supply chain management spans all movement and storage of raw materials, work-in-process inventory and finished goods from point-of-origin (POO) to point-of–consumption (POC). The supply chain function includes many sub-areas such as: forecasting and planning, purchasing and procurement, logistics, operations, inventory management, transportation, warehousing, distribution, customer service etc. Supply chain management (SCM) is the oversight of materials, information and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. The pharmaceutical sector has already been declared as one of the thrust sectors by the government of Bangladesh. Bangladesh has built a strong baseline and going towards the self-sufficiency for the production of medicine. Meanwhile, some companies have started to produce vaccine, insulin, anticancer drugs, etc. Our pharmaceutical industries are successful in domestic market. Now, it's the time to grow our international market because we passing golden time getting the opportunity of patent exemption by the TRIPS until 2030. The government should really be attentive to remove all the obstacles and solve all the problems to see pharmaceutical sector as a vital player in international market. The main focus of this study is to analyze the supply chain management knowledge and practices of a renowned pharmaceutical company in Bangladesh namely Eskayef Bangladesh Limited.

Keywords: Supply Chain Management, Pharmaceutical Sector, Procurement.

1. Introduction

Supply chain management spans all movement and storage of raw materials, work-in-process inventory and finished goods from point-of-origin (POO) to point-of–consumption (POC). SCM is a conscious and deliberate control, integration, and management of the business functions. SCM contributes and affects that supply flow

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through the business for the purpose of improving performance, costs, flexibility etc. which bring the ultimate benefits of the end customers or consumers. The supply chain function includes many sub-areas such as: forecasting and planning, purchasing and procurement, logistics, operations, inventory management, transportation, warehousing, distribution, customer service etc. Supply chain management (SCM) is the oversight of materials, information and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. SCM is both a horizontal business function (i.e. managing the supply chain in a business) and a vertical industry sector (i.e. businesses involved in managing supply chains on behalf of their clients).The supply chain management of pharmaceutical products deserves high priority as it is related to the life and death of men and animals around the world. The present study is an attempt to analyze the supply chain management knowledge and practices of are nowned pharmaceutical company in Bangladesh namely Eskayef Bangladesh Limited.

1.1 A General View of Pharmaceutical Supply Chain

The pharmaceutical supply chain is somehow different from other supply chains of physical goods because of its urgency, importance, storage, transportation, regulation etc. The following figures help understanding the SCM in pharmaceutical sector. According to Whew ell (2009), the pharmaceutical supply chain covers drug research, development, manufacture, distribution and application through a range of healthcare services and ancillary businesses that help effective functioning of these different stages. The pharmaceutical and healthcare industry is hugely complex because it involves so many markets, products, processes and intermediaries. It is also globally heavily regulated and used by everyone in life. Ricci (2006) identified the importance of pharmaceutical companies taking control of the own distribution to maximize the potential of the different channels and to protect patients from errors or defects occurred during repackaging or relabeling.

1.2 Statement of Problem

Eskayef Bangladesh Ltd is one of the largest and fastest expanding pharmaceutical companies in Bangladesh. The company, headquartered in Dhaka - the capital city of Bangladesh, is also known as SK+F and is a part of the Transcom Group. Eskayef Bangladesh Ltd was born from the old facilities of SmithKline & French in Bangladesh when the company was restructured to form GlaxoSmithKline in 2000. The pharmaceutical company is engaged in the manufacture and marketing of a wide range of therapeutic drugs, bulk pellets and animal health and nutrition products with annual sales surpassing 60 million US dollars. The company started its production of

pharmaceuticals with the manufacture ofgeneric products for the domestic market but has since moved into bulk products and the veterinary market. SK+F currently manufactures and markets 28 different animal health products in 57 different dosage forms.

With qualified, trained and skilled professionals on its staff and its unswerving standards of quality control, the company has distinguished itself as one of the most respected names in the pharmaceutical industry. Eskayef's manufacturing facility has transcended the frontiers after the accreditation of UK MHRA (United Kingdom Medicines and Healthcare products Regulatory Agency). The dedicated cephalosporin plant of Eskayef Bangladesh Limited is the top class state-of-the-art manufacturing facility in Bangladesh Pharmaceutical industry. Eskayef Bangladesh Ltd. has been showing a significant outcome in exporting medicines to many countries. Eskayef Bangladesh Ltd. has started supplying medicines in 16 countries like Germany, UAE, Nepal, Bhutan, Sri Lanka, Myanmar, Vietnam, Ghana, Iraq, Indonesia, Kenya, Guatemala, Belize, Yemen, Macau and Somalia. The study is designed to analyze the supply chain management of the organization.

1.3 Research Questions

The following research questions have been identified to conduct a meaningful study:
(i) What is the supply chain of Eskayef Bangladesh Ltd?
(ii) What is the supply chain management knowledge and practices?
(iii) What are the risks and challenges in Eskayef's supply chain?

1.4 Objectives of the Study

In view of the context and research questions, the broad objective of this study is to analyze the knowledge and practices of supply chain of Eskayef Bangladesh Ltd. The specific objectives are as follows:
(i) to analyze the supply chain of Eskayef Bangladesh Ltd;
(ii) to analyze the supply chain management knowledge and practices;
(iii) to analyze the risks and challenges in Eskayef's supply chain.

1.5 Literature Review

It is widely accepted that the review of literature provides an understanding of the issues closely related to the research topic. It also helps to justify the research under study and to find out the knowledge gap in the respective field. A number of books, articles, reports, web-sites on supply chain management have been studied for this research work. It has been found that literature with specific focus on this sector in Bangladesh is not sufficient. However, a brief review of literature has been carried out. As the pharmaceutical marketplace confronts daunting challenges with various

stakeholders demanding the pharmaceutical products to be affordable, strategic planning would be of the essence (Hold ford, 2005; Birdwell, 1994). For the pharmaceutical industry, it assumes special significance as medical commodities would require to be delivered through the supply chain timely and within the reach and means of the consumers to meet their needs and satisfaction (Enyinda, 2009). Supply chain is a set of players, processes, information, and resources which transfers raw materials, and components to finished products or services and delivers them to the customers. It includes suppliers, intermediaries, third-party service providers and customers. It also includes all of the logistics activities, manufacturing operations and activities with and across marketing, sales, product design, finance and information technology.

A Supply Chain is that network of organizations which are involved through upstream and downstream linkages in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer or consumer (Lysons and Farrington, 2010). This definition highlights the key features of supply chain such as networks, linkages-upstream and downstream, processes, value and ultimate customers. Supply Chain Management is defined as the network of organizations that are involved, through upstream and downstream linkages, in the different process and activities that produce value in the form of products and services delivered to the ultimate consumer (Dubyand Kumar, 2007). Supply chain management is the management of a network of retailers, distributors, transporters, storage facilities and suppliers that participate in the sale, delivery and production of a particular product (Chopra and Miendel, 2005). Hand field and Nichols(1999) defined pharmaceutical supply chain as "the integration of all activities associated with the flow of and transformation of raw materials through to the end-user, as well as associated information flows, through improved supply chain relationships to achieve a sustainable competitive advantage".

SCM can be viewed as a set of activities to implement a management philosophy (Mentzer, J.T. et. al., 2001). They identified seven activities in this regard such as integrated behavior, mutually shared information, mutually shared risks and rewards, cooperation, the same goal and same focus on serving customers, integration of process, partners to build and maintain long-term relationship. Dubey and Kumar (2007) mentioned that effective supply chain management can impact and improve upon virtually all business processes, such as data accuracy, operational complexity reduction, supplier selection, purchasing, warehousing and distribution. The benefits of SCM are included as quicker customer response and fulfillment rates, shorter lead time, greater productivity and lower costs, reduced inventory supply throughout the

chain, improved forecasting precision, fewer suppliers and shorter planning cycles. The pharmaceutical industry is a more than $500 billion global business that requiresa tight, safe, and efficient supply chain. Modern pharmaceutical products rely on ingredients and materials from across the globe (Kaye, 2010).

The line between a company's internal operations and its external environment, in the opinion of Graves (2009), are becoming increasingly blurred. He stated that no area exemplifies this better than the supply chain where pharmaceutical manufacturers have to coordinate their own activities with those of partner organizations, healthcare providers and patients. He also noted that without a clear understanding of the context surrounding theprocess of delivering a drug to market, the chain can become a tangled web. Commenting onthe challenges of supply chain management, Hand field and Dhinagaravel (2005) stated that, multiple events occurring on a daily basis are shaping the competitive and regulatory environment in which channel members operate their business. They pointed out that, regulators are demanding that wholesalers and manufacturers reveal pricing and are challenging the cost of pharmaceutical distribution. Market channels such as mail order, direct shipping and website pharmacies are also important competitive channels to consider. Another major driver of change, according to Hand field and Dhinagaravel (2005), is the increasing share of generics that are coming into the market, as some largest branded drugs go off patent. They observed that although the process of manufacturing and distributing branded and generic drugs is quite similar, the design of the distribution channel might be substantially different. They also noted that many generic companies are exploring relationships with Indian and Chinese manufacturers to market their products. Given these changes, it is little wonder manufacturers, wholesalers, pharmacies, hospitals, and other participants are bewildered with the array of different competitive challenges that face them. They indicated that the unfortunate result is, poor perception has been created at different pointsin the supply and distribution chain; and channel participants have failed to communicate and work together to resolve the problems caused by this poor perception.

Svantesson (2009) has stated that pharmaceuticals, being high value goods, demand a safe process at all hubs in the chain, and security measurements must be harmonized and rigorously checked across the operating lanes with its sub-warehouses and on/off loading places. He further stated that the importance of utilizing as few on/off loading places and changes of transport mode is one of the challenges for a time effective and secure solution; this at a minimized cost level. According to Svantesson the market demands global solutions and customers are requesting the ability to order correct quantities and lower inventory levels. This situation brings a change to the order

profile; with orders becoming smaller and production changing accordingly. This is a challenge to the distribution of pharmaceuticals and consolidation possibilities that can meet with the lead time demand to the end customer are highly valuable. Svantesson noted that a change of routine in the supply chain can have dramatic effects if not properly implemented at all levels. With clear communication, the cost of change reduces dramatically. Global harmonization enhances the possibility of maximizing effects in a supply chain.

The goals of the pharmaceutical supply chain, as indicated by Chopra and Miendel (2005), obviously emphasize regulatory compliance and safety of products, but also include leveraging information to be more responsive to the needs of consumers. They noted that, the unique nature of the supply chain for pharmaceuticals makes managing complex information for supply chain effectiveness challenging, but clearly the rewards for doing so are significant. They also indicated that, companies that excel in supply chain operations perform better in almost every financial measure of success. Supply chain excellence that improves demand-forecast accuracy leads to 5% higher profit margins, 15% less inventory, up to 17% stronger "perfect order" ratings, and 35% shorter cash-to-cash cycle times (VeriSign Inc., 2006). According to Chopra and Miendel (2005), many of these findings come from the Consumer Products (CP) Industry, where supply chain excellence means tightly aligning operations with consumer demand to become "demand driven".

Dubey and Kumar (2007) observed that, the shift to a demand-driven focus has been taking place within the CP industry for years. While perhaps leading the way is n implementing demand-driven processes, the CP industry is not alone in this interest or intent. They noted that leading pharmaceutical manufacturers also recognize the value of adopting demand-driven supply chain practices and are benchmarking their organizations against CP manufacturers, and finding that their industry is generally behind the pace. They also indicated that the pharmaceutical industry is hindered by silos of information and a general lack of timely and reliable data as a result of historical business models and trading practices.

Lambert *et. al.* (1998) identified eight SCM processes such as Customer Relationship Management (CRM), Customer Service Management (CSM), Demand Management, Order fulfillment, Manufacturing Flow Management, Supplier Relationship Management, Product Development and Commercialization, Returns Management. In the perception of Chopra and Miendel (2005), to robustly and reliably enhance patient safety and to become more demand driven, the pharmaceutical supply chain needs a ubiquitous technology framework that includes: Item-level data management;

Standards for available data and how it will be accessed and maintained; Data sharing infrastructure to accommodate cost efficient management and retrieval of data; Reliable trust environment to determine who can access information, if information provided can be certified as authentic, and what can be done with information provided or accessed.

The Need for Standards In the opinion of Chopra and Miendel (2005), while item-level data management related to events within the enterprise may provide some incremental value, the potential for revolutionary value comes from the ability to link item-level data to events and observations outside the enterprise. In order to leverage item-level data across enterprises, standards are needed to ensure interoperability. According to Dubey and Kumar (2007), what is clear from early initiatives in item-level data sharing is that new types of data will be generated at unprecedented scale and will need to be exchanged in order to achieve measurable benefits across the supply chain. Conventional systems for business-to-business communications, as observed by Dubey and Kumar (2005), were not designed to manage this volume of data, and therefore will need to be augmented for item-level data management.

The research work carried by Privett and Gonsalvez (2014) identified the top ten challenges of global pharmaceutical supply chain such as Lack of coordination, Inventory management, Absent demand information, Human resource dependency, Order management, Shortage avoidance, Expiration, Warehouse management, Temperature control, Shipment visibility. There are many examples now in the news about counterfeit drugs circulating in black market channels and the places in which it is the biggest recurring problem is in the developing world where, in Africa and parts of Asia and Latin America, the proportion of counterfeit medicines has been estimated to be as high as 30%. Pharma companies have to manage incredibly complex supply chains and manage the operational challenges of working and interacting with huge numbers of suppliers contributing ingredients and components to drug production.

2. Methodology of the Study

Research method is a process which consists of various techniques or steps of gathering data or information, processing and presenting of collected data and analyzing data(Abed in, 2005). The method of research is a process of establishing a general proposition of gathering and weighing evidence (Hans Raj, 1987).The broad objective of this study is to evaluate the supply chain management of EK+F. The study follows cross section data analysis techniques and tools for identified different aspects of SCM of EK+F. The survey method of field investigation is utilized and standard tools are applied to achieve the objectives of this study.

2.1 Data Sources and Methods of Data Collection

The data from the primary sources have been gathered through field survey from the relevant respondents. Total number of respondents is 120. The respondents are retailers, executives, consumers and medical services officer. This method is employed to assess the stakeholders' opinions towards the process, benefits, views, knowledge, risks of the supply chain management of Eskayef Bangladesh Ltd. The suggestion for achieving an effective supply chain are also taken from the respondents. Data was collected from both staff and managers of Eskayef and Transcom Distribution Company, Retailers of Eskayef's products, and end customers through structured interviewsand administration of questionnaire. The sample distribution is as follows:

Table 2.1: Distribution of Respondents

Category of Respondents	Frequency	Location	Types of Sampling
Retailers	60	Dhaka = 15 Chittagong =15 Khulna = 15 Rajshahi= 15	Purposive
Executives	30	Dhaka TDCL= 15 EK+F = 15	Purposive
Consumer	30	Dhaka	Random
N	120		

Secondary Sources

Secondary sources include published official statistics, reports, documents, laws, ordinances, books, articles, periodicals of different domestic and international agencies etc. Annual reports of Eskayef, different reports and statistics on the pharmaceutical sector in Bangladesh has been used.

2.2 Data Analysis and Presentation

Data processing

The collected data from secondary sources have been processed in an orderly manner so that it could be used for econometric modeling. The survey data from primary sources are arranged and scrutinized carefully on the basis of the completed questionnaire. Appropriate processing steps such as editing, coding, classification and tabulation are followed carefully.

Analysis plan
The collected data are analyzed by applying statistical tools and techniques such as correlation, Factor Analysis, Percentage Form etc.

Data presentation
Some suitable data have been presented in graphs, charts, and pictogram.

Interpretation of results
Results are interpreted suitably and unambiguously.

Data processing and models testing are performed by MS-Excel, SPSS software's.

2.3 Techniques of Data Analysis
To address the research objectives, this study utilizes a mixed methods approach comprised of quantitative and qualitative techniques. Questionnaire technique of survey method is used to collect primary data. Purposive and simple random sampling method are used to select 30 respondents who are directly involved in managing operations and supply chain of Eskayef Bangladesh Limited procurement; 60 from retailers and 30 from consumers (end customers).

A semi structured and pre-tested interview schedule has been used to collect data. Necessary correction, modification and alterations will be done accordingly. Data has been collected through personal interview during December 2020-January 2021. Respondents were asked to indicate on a five-point scale ranging from 1 to 5.

The responses of the respondents that were recorded in the interview schedule hasbeen transferred into a master sheet for entering the data in the computer. The recorded data has been put into the computer for statistical analysis. The SPSS computer programme was used for analysis of data. Various descriptive statistical measures such as number and percentage distribution, range, mean and standard deviation will be calculated. Simple tabular techniques will be used to explain the data. Minimum, maximum, mean, standard deviation and percentage for quantitative variables and T- test and percentage for qualitative variables are used to illustrate the results. Multiple response analysis, Factor analysis are also used to reflect the research objectives.

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Secondary sources include published official statistics, reports, documents, laws, ordinances, books, articles, periodicals of different domestic and international agencies etc. Annual reports of Eskayef, different reports and statistics on the pharmaceutical sector in Bangladesh has been used. The responses of the respondents that were recorded in the interview schedule has been transferred into a master sheet for entering the data in the computer. The recorded data has been put into the computer for statistical analysis. The SPSS computer programme was used for analysis of data.

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3.0 Analysis of Data of the Retailers (Pharmacy Level)

Total sample size for retailer respondents is 60 equally drawn fifteen from each four major cities in Bangladesh. The distribution of respondents from the retail sector has been shown in Table:

Table 3.1: Distribution of Respondents (Retailers)

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Dhaka	15	25.0	25.0	25.0
	Chittagong	15	25.0	25.0	50.0
	Khulna	15	25.0	25.0	75.0
	Rajshahi	15	25.0	25.0	100.0
	Total	60	100.0	100.0	

Source: SPSS Output of Field Survey, January 2021

The reliability statistics of the sample is shown by Cronbach's alpha which is 0.93.

Table 3.2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.903	.909	15

Source: SPSS Output of Field Survey, January 2021

The mean variance, co- variances and item-wise correlations are shown in Table 3.3:

Table 3.3: Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.664	3.267	4.150	.883	1.270	.059	15
Item Variances	.912	.541	1.690	1.149	3.123	.076	15
Inter-Item Covariance	.349	-.090	.662	.753	-7.328	.027	15
Inter-Item Correlations	.401	-.103	.806	.909	-7.846	.036	15

Source: SPSS Output of Field Survey, January 2021

The Anova with Tukey's Test for Non-additivity has been shown in the Table-4.3 and Table 4.5. The F-statistic is significant at 5% level. The Hotelling 's T-Squared Test is found significant at 5% level.

Table-3.4: ANOVA with Tukey's Test for Nonadditivity

			Sum of Squares	df	Mean Square	F	Sig
Within People	Between People		341.996	59	5.797		
	Between Items		49.929(a)	14	3.566	81.49	.000
	Residual	Non-additivity	.695(b)	1	.695	1.236	.267
		Balance	464.042	825	.562		
		Total	464.738	826	.563		
	Total		514.667	840	.613		
Total			856.662	899	.953		

Grand Mean = 3.66, **Source:** SPSS Output of Field Survey, January 2021

a Kendall's coefficient of concordance W = .058.

bTukey's estimate of power to which observations must be raised to achieve additivity = 1.701.

Table-3.5: Hotelling's T-Squared Test

Hotelling's T-Squared	F	df1	df2	Sig
79.365	4.420	14	46	.000

Source: SPSS Output of Field Survey, January 2021

Table-3.6: Intra-class Correlation Coefficients

	Intra class Correlation(a)	95% Confidence Interval		F Test with True Value 0			
	Lower Bound	Upper Bound	Value	df1	df2	Sig	Lower Bound
Single Measures	.383(b)	.296	.491	10.302	59.0	826	.000
Average Measures	.903(c)	.863	.935	10.302	59.0	826	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

a) Type C intraclass correlation coefficients using a consistency definition-the between-measure variance is excluded from the denominator variance.
b) The estimator is the same, whether the interaction effect is present or not.
c) This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

Source: SPSS Output of Field Survey, January 2021

3.2 Retailers' Knowledge about Supply Chain Management

Retail Respondents' knowledge about SCM of EK+F is shown in the following Table 4.7. It is observed that 23.3% respondents have reported that they know the SCM very well followed by moderate knowledge (21.7%), sufficient knowledge (20%), somehow knowledge (20%) and 15% respondents have poor knowledge about SCM.

Table-3.7: Respondent's Knowledge about SCM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	poor	9	15.0	15.0	15.0
	Somehow	12	20.0	20.0	35.0
	Moderate	13	21.7	21.7	56.7
	Very Well	14	23.3	23.3	80.0
	Sufficient	12	20.0	20.0	100.0
	Total	60	100.0	100.0	

Source: SPSS Output of Field Survey, January 2021

3.2.1 Respondent's View about SCM.

The results show that only 25% respondents reported that they identified SCM as Data Collection, Supplier, Purchasing, Warehousing, Stocktaking, Distribution. While 46.7% respondents viewed SCM as Supplier Selection, Purchasing, Warehousing, Stocking, Distribution, 12% viewed SCM as warehousing and distribution and only 6% considered SCM as distribution.

Table 3.8: Respondent's View about SCM.

A. Data Collection, Supplier, Purchasing, Warehousing, Stocktaking, Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	15	25.0	100.0	100.0
Missing	System	45	75.0		
Total		60	100.0		

B. Supplier Selection, Purchasing, Warehousing, Stocking, Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	46.7	100.0	100.0
Missing	System	32	53.3		
Total		60	100.0		

C. Warehousing, Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	12	20.0	100.0	100.0
Missing	System	48	80.0		
Total		60	100.0		

D. Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	6	10.0	100.0	100.0
Missing	System	54	90.0		
Total		60	100.0		

Source: SPSS Output of Field Survey, January 2021

3.3Benefits of SCM

Multiple Response Analysis (MRA) is carried out to identify the benefits of SCM. Only 2.8% respondents identified no impact of SCM, 38.1% respondents reported high impact of SCM, 31% viewed medium impact. In regards to heavy impact 20.7% respondents opined that SCM has heavy impact on the supply chain. The results are shown in Table 3.9:

Table 3.9: Impacts of the Benefits of SCM (Retailers)

Benefits(a)	Responses		Percent of Cases
	N	Percent	N
No Impact	25	2.8%	41.7%
Moderate Impact	67	7.4%	111.7%
Medium Impact	279	31.0%	465.0%
High Impact	343	38.1%	571.7%
Heavy Impact	186	20.7%	310.0%
Total	900	100.0%	1500.0%

a Group

Source: SPSS Output of Field Survey, January 2021

Factor Analysis of the responses regarding the benefits of SCM reveals that shorter lead time has high mean (4.15) followed by reduced cycle time (3.97), Reduced waste (3.80), competitive advantage (3.83), reduced cost (3.78), greater supply chain visibility (3.72), reduced inventory (3.62) etc. The results are shown in Table 4.10.

Table 3.10: Descriptive Statistics of the Indicators of SCM Benefits

Indicators	Mean	Std. Deviation	Analysis N
Superior Customer Value	3.27	1.300	60
Reduced Cost	3.78	.825	60
Cooperative Organizational Relationships	3.58	1.046	60
Effective Business Process	3.47	.929	60
Information Sharing	3.68	.965	60
Integrated Relationships	3.78	.958	60
Shorter Lead Time	4.15	.799	60
Reduced Waste	3.80	.755	60
Reduced Cycle Time	3.97	.736	60
Improve Responsiveness to Customer Requirements	3.63	1.025	60
Greater Supply Chain Visibility	3.72	.993	60
Enhanced Quality and Service	3.42	.979	60
Competitive Advantage	3.83	.905	60
Improved Supply Chain Communications	3.27	.972	60
Reduced Inventory	3.62	.993	60

Source: SPSS Output of Field Survey, January 2021

KMO and Bartlett's Test is used to measure sampling adequacy of influencing factors to examine the appropriateness of factor analysis. Here the KMO value is 0.768 reveals that the sampling adequacy of factor analysis. The Bartlett's test of Sphericity (Table 4.11) indicates that Chi-Square value i.e. 632.94 with 105 degree of freedom meaning that overall significant of the analysis.

Table 3.11: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.768
Bartlett's Test of Sphericity	Approx. Chi-Square	632.935
	df	105
	Sig.	.000

Source: SPSS Output of Field Survey, January 2021

3.4 The Communalities of the Factors

Extraction Method: Principal Component Analysis is used find the importance of the factors. Here shorter lead time (0.857), reduced cycle time (0.838), reduced waste (0.825), improved supply chain communications (0.790), integrated relationship (.0.762), information sharing (0.691) are the most important factors for the benefits of SCM. The results are shown in Table 3.12:

Table 3.12: The Communalities of the Factors

Indicators	Initial	Extraction
Superior Customer Value	1.000	.282
Reduced Cost	1.000	.724
Cooperative Organizational Relationships	1.000	.602
Effective Business Process	1.000	.713
Information Sharing	1.000	.691
Integrated Relationships	1.000	.762
Shorter Lead Time	1.000	.857
Reduced Waste	1.000	.825
Reduced Cycle Time	1.000	.838
Improve Responsiveness to Customer Requirements	1.000	.649
Greater Supply Chain Visibility	1.000	.761
Enhanced Quality and Service	1.000	.709
Competitive Advantage	1.000	.745
Improved Supply Chain Communications	1.000	.790
Reduced Inventory	1.000	.548

Extraction Method: Principal Component Analysis.

The extraction sums of squared loadings that component 1 has 45.05% variance, component 2 has 17.65% and component 3 has 7.23% variance.

Source: SPSS Output of Field Survey, January 2021

The total variance explained of the factor analysis is shown in Table 4.13. The initial eigenvalues for components 1, 2 and 3 are respectively 6.758, 2.65 and 1.09. It reveals that the component 1 has alone explained 45.07% of variance while component 2 has explained 17.66%, Component 3 has explained 7.27%. Other components are insignificant in terms of explaining total variance of the model. The rotation sums of squared loadings for component 1 is 4.82 (32.16%), 3.49 (23.28%) for component 2 and 2.18 (14.55%) for component 3.

Table 3.13: Total Variance Explained

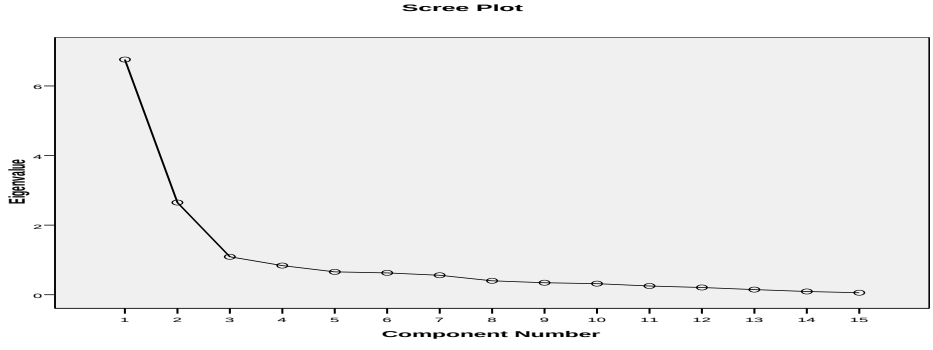
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.758	45.057	45.057	6.758	45.057	45.057	4.824	32.159	32.159
2	2.648	17.656	62.713	2.648	17.656	62.713	3.491	23.276	55.435
3	1.091	7.273	69.986	1.091	7.273	69.986	2.18	14.551	69.986
4	.838	5.587	75.573						
5	.657	4.383	79.956						
6	.628	4.185	84.141						
7	.560	3.731	87.872						
8	.401	2.672	90.545						
9	.344	2.295	92.840						
10	.318	2.121	94.962						
11	.251	1.673	96.635						
12	.207	1.383	98.017						
13	.148	.984	99.001						
14	.093	.618	99.619						
15	.057	.381	100.000						

Extraction Method: Principal Component Analysis.

Source: SPSS Output of Field Survey, January 2021

The Scree Plot for Principal Component Analysis is shown in Figure 3.1:

Figure 3.1: Scree Plot for Principal Component Analysis



3.5 Component Matrix Analysis

The weight of each factor in each component is shown in Table 3.14:

Table 3.14: Component Matrix(a)

Indicators	Component		
	1	2	3
Superior Customer Value	.492	-.148	.135
Reduced Cost	.737	-.404	.137
Cooperative Organizational Relationships	.650	-.300	.300
Effective Business Process	.738	-.398	.104
Information Sharing	.698	-.430	.139
Integrated Relationships	.733	.474	.003
Shorter Lead Time	.646	.250	-.614
Reduced Waste	.753	.492	.125
Reduced Cycle Time	.727	.383	-.404
Improve Responsiveness to Customer Requirements	.680	.430	-.031
Greater Supply Chain Visibility	.757	-.349	-.258
Enhanced Quality and Service	.772	-.282	.184
Competitive Advantage	.656	-.519	-.214
Improved Supply Chain Communications	.432	.633	.450
Reduced Inventory	.471	.546	.168

Extraction Method: Principal Component Analysis.

a3 components extracted.

From the component matrix it is found that 12 factors have high influence on the benefits of SCM. These are enhanced quality and service (0.772), greater supply chain visibility (0.757) reduced waste (0.753), effective business process (0.737), reduced cost (0.737), reduced cycle time (0.727), information sharing (0.698), improve responsiveness to customer requirements(0.680), competitive advantage (0.656), cooperative organizational relationships (0.6.50). Components 2 and 3 are not important as most of the factors have negative coefficients.

The rotated weight of each indicator for each component is shown in Table 3.15:

Table 3.15: Rotated Component Matrix(a)

Indicators	Component		
	1	2	3
Superior Customer Value	.490	.194	.066
Reduced Cost	.832	.126	.126
Cooperative Organizational Relationships	.742	.225	-.038
Effective Business Process	.822	.118	.156
Information Sharing	.821	.087	.102
Integrated Relationships	.248	.738	.394
Shorter Lead Time	.176	.279	.865
Reduced Waste	.280	.811	.298
Reduced Cycle Time	.204	.505	.736
Improve Responsiveness to Customer Requirements	.228	.665	.394
Greater Supply Chain Visibility	.719	.022	.494
Enhanced Quality and Service	.793	.256	.120
Competitive Advantage	.761	-.142	.382
Improved Supply Chain Communications	.031	.882	-.105
Reduced Inventory	.047	.724	.147

Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 3.17 shows the component transformation. Here component 1 has more weight as compared to component 2 and component 3.

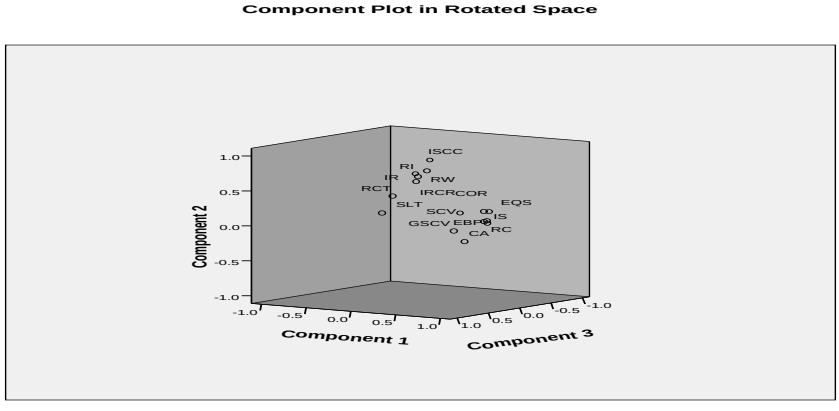
Table 3.17: Component Transformation Matrix

Component	1	2	3
1	.742	.515	.430
2	-.627	.760	.172
3	.238	.397	-.887

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Figure 3.2: Component Plot in Rotated Space



The component score coefficients are shown in Table 3.18:

Table 3.18: Component Score Coefficient Matrix

Indicators	Component		
	1	2	3
Superior Customer Value	.118	.044	-.088
Reduced Cost	.206	-.010	-.091
Cooperative Organizational Relationships	.208	.072	-.222
Effective Business Process	.198	-.020	-.063
Information Sharing	.209	-.020	-.097
Integrated Relationships	-.031	.193	.075
Shorter Lead Time	-.122	-.102	.557
Reduced Waste	-.006	.244	-.021
Reduced Cycle Time	-.099	.018	.399
Improve Responsiveness to Customer Requirements	-.034	.164	.097
Greater Supply Chain Visibility	.109	-.136	.235
Enhanced Quality and Service	.192	.045	-.119
Competitive Advantage	.148	-.177	.182
Improved Supply Chain Communications	-.004	.378	-.297
Reduced Inventory	-.041	.254	-.071

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Component Scores.

Eigen values of the three functions and Wilk's Lambda is shown in Table 4.19. Function 1 has higher eigen value (2.041) and 65.2% variance of function 1 is explained while the eigen value for function 1 is estimated at 0.719 and 23.0% variance is explained. The eigen value of function 3 is 0.371 and only 11.80% variance is explained.

Table 3.19: Summary of Canonical Discriminant Functions

A. Eigen values

Function	Eigen value	% of Variance	Cumulative %	Canonical Correlation
1	2.041(a)	65.2	65.2	.819
2	.719(a)	23.0	88.2	.647
3	.371(a)	11.8	100.0	.520

a First 3 canonical discriminant functions were used in the analysis.

B. Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.140	97.471	45	.000
2 through 3	.425	42.411	28	.040
3	.730	15.609	13	.271

The Chi-square test of function 1 through 3 is significant at 1% level where the p-value is .000 and the same for function 2 through is also significant at 5% level.

Standardized Canonical Discriminant Function Coefficients

	Function		
	1	2	3
Superior Customer Value	.435	.455	.060
Reduced Cost	1.067	.136	-.584
Cooperative Organizational Relationships	-.953	.084	-.206
Effective Business Process	.294	.418	.935
Information Sharing	-.649	.134	-.262
Integrated Relationships	.069	.619	.035
Shorter Lead Time	.169	-.249	-.419
Reduced Waste	-1.576	-.698	.023
Reduced Cycle Time	.076	-.548	.206

Improve Responsiveness to Customer Requirments	.216	.394	-.092
Greater Supply Chain Visibility	.107	-.590	-.023
Enhanced Quality and Service	-.365	.081	.520
Competitive Advantage	1.017	.397	-.043
Improved Supply Chain Communications	.539	.696	-.668
Reduced Inventory	-.229	.005	.733

Structure Matrix

Indicators	Function		
	1	2	3
Reduced Waste	-.416(*)	.311	.061
Enhanced Quality and Service	.048	.499(*)	.392
Improved Supply Chain Communications	-.306	.491(*)	-.202
Superior Customer Value	.063	.403(*)	.134
Reduced Cost	.125	.394(*)	.081
Information Sharing	.005	.373(*)	.124
Cooperative Organizational Relationships	-.125	.367(*)	.016
Integrated Relationships	-.224	.358(*)	-.043
Improve Responsiveness to Customer Requirements	-.176	.329(*)	.155
Competitive Advantage	.231	.233(*)	.167
Shorter Lead Time	-.005	-.073(*)	-.052
Effective Business Process	.031	.349	.491(*)
Reduced Inventory	-.241	.159	.350(*)
Greater Supply Chain Visibility	.136	.165	.314(*)
Reduced Cycle Time	-.121	-.009	.135(*)

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

Variables ordered by absolute size of correlation within function.

* Largest absolute correlation between each variable and any discriminant function

Table: 3.17 Canonical Discriminant Function Coefficients

	Function		
	1	2	3
Superior Customer Value	.346	.362	.048
Reduced Cost	1.349	.172	-.738
Cooperative Organizational Relationships	-.943	.083	-.204
Effective Business Process	.335	.475	1.065
Information Sharing	-.689	.143	-.278
Integrated Relationships	.077	.688	.039
Shorter Lead Time	.206	-.304	-.512
Reduced Waste	-2.428	-1.075	.035
Reduced Cycle Time	.102	-.739	.277
Improve Responsiveness to Customer Requirements	.220	.401	-.094
Greater Supply Chain Visibility	.110	-.605	-.024
Enhanced Quality and Service	-.404	.090	.577
Competitive Advantage	1.178	.460	-.050
Improved Supply Chain Communications	.635	.820	-.787
Reduced Inventory	-.245	.005	.782
(Constant)	.663	-2.611	-.162

Unstandardized coefficients

Table 3.19: Functions at Group Centroids

Location of Respondents	Function		
	1	2	3
Dhaka	.952	.762	-.758
Chittagong	-2.139	-.492	-.287
Khulna	-.254	.820	.824
Rajshahi	1.441	-1.090	.220

Unstandardized canonical discriminant functions evaluated at group means

Classification Function Coefficients

	Location of Respondents			
	Dhaka	Chittagong	Khulna	Rajshahi
Superior Customer Value	1.264	-.239	.944	.809
Reduced Cost	3.126	-1.607	.342	2.744
Cooperative Organizational Relationships	.105	2.819	.924	-.709
Effective Business Process	1.319	.189	2.627	1.643
Information Sharing	.158	1.978	.557	-.715
Integrated Relationships	-1.719	-2.802	-1.710	-2.917
Shorter Lead Time	5.005	4.507	3.928	5.168
Reduced Waste	-2.129	6.739	.792	-1.290
Reduced Cycle Time	-.292	.450	-.019	1.398
Improve Responsiveness to Customer Requirements	-.257	-1.484	-.647	-.984
Greater Supply Chain Visibility	-3.289	-2.879	-3.494	-2.137
Enhanced Quality and Service	-1.387	.020	.017	-1.188
Competitive Advantage	5.801	1.558	4.327	5.475
Improved Supply Chain Communications	5.857	2.498	3.895	3.880
Reduced Inventory	1.116	2.234	2.648	1.750
(Constant)	-30.043	-30.312	-30.927	-25.669

Fisher's linear discriminant functions.

3.6 Regression Analysis

Model Summary (b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
	R Square Change	F Change	df1	df2	Sig. F Change	R Square Change	F Change	df1	df2	Sig. F Change
1	.527(a)	.278	.053	1.265	.278	1.235	14	45	.285	2.055

a Predictors: (Constant), Reduced Inventory, Competitive Advantage, Shorter Lead Time, Improved Supply Chain Communications, Cooperative Organizational Relationships, Effective Business Process, Improve Responsiveness to Customer Requirements, Information Sharing, Integrated Relationships, Enhanced Quality and Service, Reduced Cycle Time, Reduced Cost, Greater Supply Chain Visibility, Reduced Waste

b Dependent Variable: Superior Customer Value.

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.680	14	1.977	1.235	.285(a)
	Residual	72.054	45	1.601		
	Total	99.733	59			

a Predictors: (Constant), Reduced Inventory, Competitive Advantage, Shorter Lead Time, Improved Supply Chain Communications, Cooperative Organizational Relationships, Effective Business Process, Improve Responsiveness to Customer Requirements, Information Sharing, Integrated Relationships, Enhanced Quality and Service, Reduced Cycle Time, Reduced Cost, Greater Supply Chain Visibility, Reduced Waste

b Dependent Variable: Superior Customer Value.

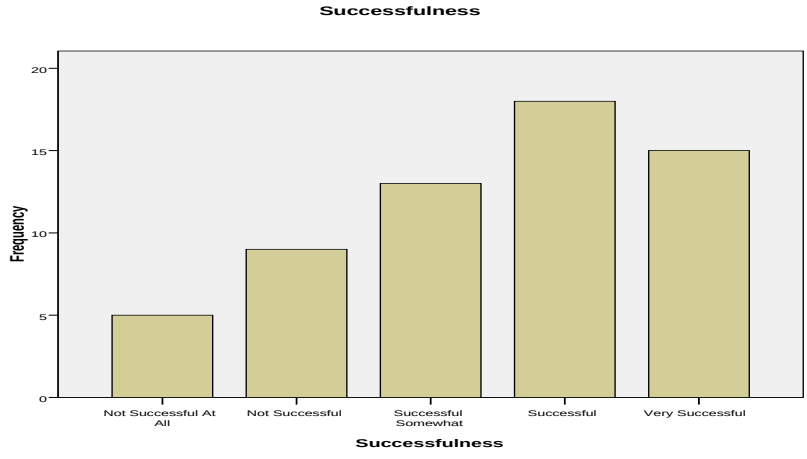
3.7 Successfulness of SCM of EK+F (Retailers)

The successfulness of SCM as reported by retailers is shown in Table 4. 30.0% respondents reported that SCM of SK +F is successful, 25% as very successful, 21.7% as successful somewhat. Only 8.3% respondent reported that SCM is not successful at all, 15% reported as not successful.

Table 3.21: Successfulness of SCM of EK+F (Retailers)

Indicators		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Successful At All	5	8.3	8.3	8.3
	Not Successful	9	15.0	15.0	23.3
	Successful Somewhat	13	21.7	21.7	45.0
	Successful	18	30.0	30.0	75.0
	Very Successful	15	25.0	25.0	100.0
	Total	60	100.0	100.0	

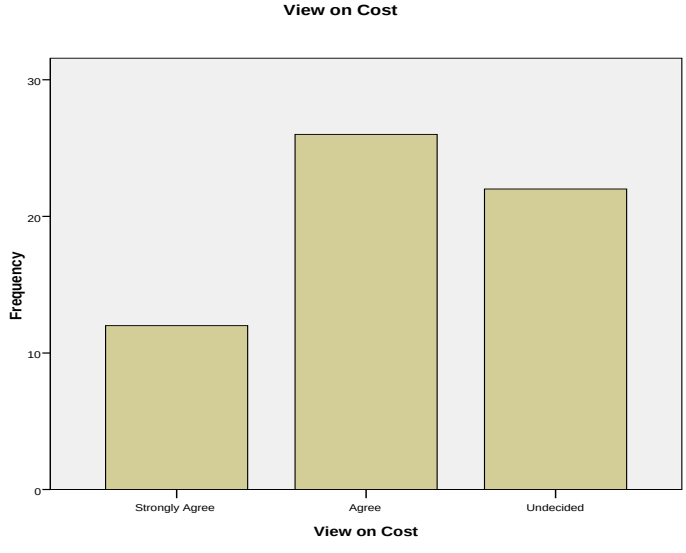
Source: SPSS Output of Field Survey, January 2021.



Regarding view on cost of EK+F products 43.3% retail respondents agreed that the cost is high as compared to other companies while 20.0% strongly agreed with high cost while 36.7% respondent are undecided on this issue. Table 4.22 shows the view on cost:

View on Cost (Retailers)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	12	20.0	20.0	20.0
	Agree	26	43.3	43.3	63.3
	Undecided	22	36.7	36.7	100.0
	Total	60	100.0	100.0	



4. Analysis of Responses of Executives

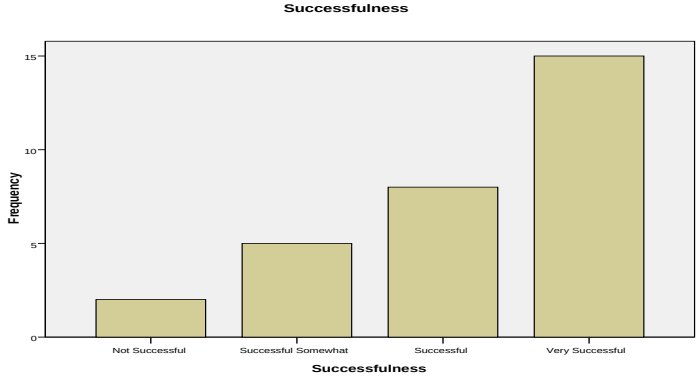
Supply chain is the management of a network of retailers, distributors, transporters, storage facilities and suppliers that participate in the sale, delivery and production of a particular product. The results from the responses of executives indicated that 50% of the respondents strongly agreed, 45% agreed and 5% were undecided as to the definition of the supply chain. This indicates that the 95% of the respondents are knowledgeable about the subject they provided answers for. One hundred percent (100%) of the respondents who were surveyed in the wholesale facilities considered data collection, supplier selection, purchasing, warehousing, stock taking, distribution as stages in supply chain management. However, the retail survey results indicated that 75% of the interviewees considered data collection, supplier selection, purchasing, warehousing, stock taking, and distribution as the stages in supply chain management

4.1 Successfulness of SCM

Regarding successfulness of SCM, 50% respondents reported it as very successful. 27.7% respondents identified SCM as successful, 16.7% reported as successful somewhat and only 6.7% as not successful.

Table 3.23: Successfulness (EK+F Executives)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Successful	2	6.7	6.7	6.7
	Successful Somewhat	5	16.7	16.7	23.3
	Successful	8	26.7	26.7	50.0
	Very Successful	15	50.0	50.0	100.0
	Total	30	100.0	100.0	



4.2 Supply Chain Challenges:

From the responses of 30 officials from EK+F and TDCL the following challenges have been identified:

- Lack of coordination
- Inventory management
- Absent demand information
- Human resource dependency
- Order management
- Shortage avoidance
- Expiration
- Warehouse management
- Temperature control
- Shipment visibility

The results of field survey reveals that 86.7% respondents has identified lack of coordination as a challenge to SCM while 80% as inventory management, 80% as order management, 33.3% as absent demand management, 50% as human resource management, 20% as shortage avoidance, 53.3% as expiration management, 66.7% as warehouse management, 63.3% as temperature control and 66.7% as shipment visibility.

Table 3.24: Frequency Distribution of Challenges

Challenges	Frequency			
	Yes	Percentage	No	Percentage
Lack of Coordination	26	86.7	4	13.3
Inventory Management	24	80	6	20
Absent Demand Information	10	33.3	20	66.7
Human Resource Dependency	15	50	15	50
Order Management	24	80	6	20
Shortage Avoidance	6	20	24	80
Expiration	16	53.3	14	46.7
Warehouse Management	20	66.7	10	33.3
Temperature Control	19	63.3	11	36.7
Shipment Visibility	20	66.7	10	33.3

Source: Field Survey, 2016

As a group 60% respondent identified supply chain management challenges as yes while 40% as no.

Table: 3.25 Challenges Frequencies (group)

		Responses		Percent of Cases
		N	Percent	N
SCMC[a]	Yes	180	60.0%	600.0%
	No	120	40.0%	400.0%
Total		300	100.0%	1000.0%

a Group

4.3 Factor Analysis

The factor analysis of the multiple responses has been done excluding three factors such as absent demand information, shortage avoidance and expiration because of low correlation coefficient. The components have been identified. The results have been shown in below mentioned tables.

Table:3.26 Component Matrix(a)

	Component		
	1	2	3
Order Management	.671	-.159	-.180
Inventory Management	-.643	.188	-.355
Temperature Control	.476	-.456	.211
Shipment Visibility	.228	.803	-.146
Human Resource Dependency	.542	.564	.275
Lack of Coordination	-.384	.115	.843

Extraction Method: Principal Component Analysis.

a3 components extracted.

Table: 3.27 Rotated Component Matrix(a)

	Component		
	1	2	3
Inventory Management	-.742	-.154	
Temperature Control	.668	-.173	
Order Management	.528	.143	-.457
Shipment Visibility	-.236	.802	-.136
Human Resource Dependency	.294	.770	
Lack of Coordination			.933

Extraction Method: Principal Component Analysis.

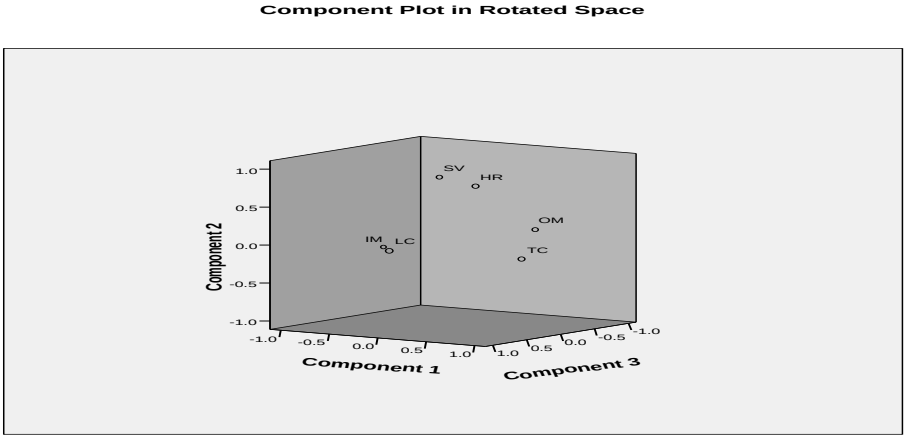
Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 5 iterations.

Table:3.28 Component Transformation Matrix

Component	1	2	3
1	.793	.448	-.413
2	-.444	.889	.111
3	.417	.095	.904

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.



4.4 Recommendation for Effective and Efficient Supply Chain (Retailers)

The most important recommendation form the retail responses is provide more affordable drugs (26.7%). Customer relationship management is also found as an important recommendation (20%). The other recommendations are decentralized distribution system (16.7%), improve data and communication system (13.3%, competitive price (8.3%), provide more logistics(6.7%), strengthen management structure(5%) and open wholesale and retail branches(3.3%).

		Responses		Percent of Cases
		N	Percent	
RES(a)	Open Wholesale and Retail Branches	2	3.3%	3.4%
	Provide More Affordable Drugs	16	26.7%	27.1%
	Strengthen Management Structure	3	5.0%	5.1%
	Improve Data and Communication System	8	13.3%	13.6%
	Competitive Price	5	8.3%	8.5%
	Provide More Logistics	4	6.7%	6.8%
	Customer Relationship Management	12	20.0%	20.3%
	Decentralized Distribution System	10	16.7%	16.9%
	Total	60	100.0%	101.7%

a. Dichotomy group tabulated at value 1.

5. Recommendations and Conclusion

5.1 Recommendations

From the analysis of the results obtained from the surveys, the following recommendations have been made to enable 'Eskayef Bangladesh Limited' to achieve its main vision is to lead the national pharmaceutical market, to be recognized as a multinational conglomerate from Bangladesh and stand out as a model of efficiency & trust to our collaborators, consumers, health care professionals & society. These include:

1. 'Eskayef Bangladesh Limited' should employ more marketing staff in order to effectively distribute its products to a wider customer base.
2. 'Eskayef Bangladesh Limited' should continue to produce the high quality pharmaceuticals products but at a less production cost so the prices of its products would be cheaper to ensure that low level income earners could also patronize them since the poor in Bangladesh form a larger proportion of the population.
3. To help the distribution chain, 'Eskayef Bangladesh Limited' should occasionally organize education seminars for communities to help them know the usage of drugs and the possible adverse effects of their abuse. It is well known in Bangladesh, that not all sick people go to the hospital or ask their pharmacists for correct medication, they rather purchase medicines from drug peddlers and unapproved retailers.
4. 'Eskayef Bangladesh Limited' should improve on its data collection and communication systems. These would enhance information flow within the Company and promote the implementation of new strategies and directives. It would also help to reduce its bad debts since customers can be followed up effectively to pay whatever they purchase. Good data collection system would help it improve on its forecasting system to reduce the shortages it encounters in order to effectively meet the needs of its customers.
5. 'Eskayef Bangladesh Limited' should buy more distribution vans to improve its supply chain system.
6. Ernest Chemists Limited should have franchise offices in the remaining three (3) regions and other business districts where it does not have a regional office or branch. This would enable it improve on its distribution processes and broaden its customers base. It would also increase its volume of business and market shares.

7. The Government of Bangladesh should encourage the development of local pharmaceutical manufacturing capacity by reducing or wavering off some of the taxes on pharmaceutical raw materials also called active pharmaceutical ingredients (APIs). In addition, the government should encourage the expansion of the local pharmaceutical companies by giving tax reliefs to companies with branches or offices in most if not all regional capitals and district capitals of the country.

8. Government should discourage foreign pharmaceutical companies from considering and/or taking Bangladesh as a dumping site for the substandard or disapproved products by other national food and drugs authorities.

9. Medicine export should be emphasized to LDCs than any other countries:Some companies are aggressive to enter the highly regulated overseas markets, such as, USA, Australia, Europe, Canada, France, and Golf countries. But the practical observation is that getting export status to those countries requires huge investment in the manufacturing plant to achieve certification from different international drug regulatory authorities, highly sophisticated documentation, and huge initial capital investment. Actually the export volume to the highly regulated countries will not be easily feasible; rather we can perform pretty well and can potentially increase our export if the exporters become more attentive to LDCs. Among 50 LDCs, only Bangladesh has its strong fundamental and modern manufacturing base, hence we can easily share the drug market of rest of the LDCs. So, considering the practical situation, the LDCs should be the targeted markets of our pharmaceuticals, of course, side by side, moderately regulated and highly regulated markets may be explored gradually. However, we can establish joint-venture, tool manufacturing, and contract- manufacturing business with the companies of developed countries, not only for exporting medicines.

10. Establishing Export cell by the govt./private Consultancy firms may promote Pharma export: Government can establish specialized Export Cell to promote exports of pharmaceuticals to grab and capitalize the huge export opportunities in LDCs. Some private Consultancy firms having experience and expertise in drug export professionally can be engaged to assist the pharmaceutical companies who do not have the technical and expertise know-how to go through the entire process of export, or have lacking in documentation skills or even do not have the skilled man power to deal with the drug export. Thus, Consultancy firms can play a significant role to explore export to maximum countries, accelerate export activities, and to reduce the overall cost of export. Even some small companies having International Marketing Department (IMD) can explore the benefits of outsourcing by hiring Export Consultants to

reduce its overhead expenditure and make a comparative study of cost-benefit ration to justify having IMD.

6. Conclusions

From the study it can be concluded that 'Eskayef Bangladesh Limited' has an effective supply chain management strategy even though there is still room for improvement. 'Eskayef Bangladesh Limited' provides good quality and efficacious medicines that are affordable and available to all level of income earners in Bangladesh. 'Eskayef Bangladesh Limited' does this by importing both patented and generic medicines from the world's leading pharmaceutical companies so nationals from all over the world in Bangladesh can have their trusted brands of medicines. Again, 'Eskayef Bangladesh Limited' produces some of the medicines locally from an ultra-modern factory plant in Tongi and distributes them through its own wholesales and other members of the pharmaceutical distribution chain to make sure accessibility of good quality and efficacious medicines at affordable prices. Moreover, the Bangladesh pharmaceutical industry has challenges and constraints. Notable among them are under development of manufacturing capacity, growing threat of counterfeit and diverted medicines from Asia, weaknesses in implementation of intellectual property rights, focus of local production on Over-the-Counter (OTC) medicines, inability for local manufacturers to produce essential medicines that meet standards for international tenders, poor pharmaceutical coverage for the majority of Bangladeshis, high concentration of retail pharmacies in major cities and rural areas, unmet professional human resource development and high mark-ups at every stage of the supply chain which tends to increase the price of medicines. Some of the challenges facing 'Eskayef Bangladesh Limited' include lack of funds for some expansion projects such as taking charge of its own pharmaceutical distribution chain and buying more vans to improve its distribution network. Also, lack of government subsidies on taxes for privately owned companies (for instance high utility bills) and high taxes on imported raw materials increases the cost of local production. The sector needs adequate support from the government to develop the API park to make the medicine products more competitive in global markets. The establishment of central drug testing laboratory is also required to strictly maintain the high standards of medicine and a bio-equivalence testing facility to the clinical testing which is prerequisite to register our products in the regulated markets. Manufacturers also need an uninterrupted supply of power and gas to the production units and special economic zones for the pharma industry with tax benefits, Collaboration between the industry and universities is required to promote research activities particularly in developing specialized drug delivery systems.

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