

# The Impacts of Information System on Supply Chain Management on Selected Cement Companies of Nepal

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## Abstract

Supply Chain Management (SCM) includes organizing and monitoring of all operations related to manufacturing and purchasing, transformation, and all tasks of transportation management and also teamwork and engagement with channel members which may be distributors, brokers, third-party service providers and buyers. In general, the purchasing behavior and consumption trends of customers are greatly impacted by the greater incidence of broadband access, the continual usability of relevant technology and the probability of competition in terms of market functionality and costing. Emerging innovations including 3D printing, the Digital economy, and social networking sites have a major influence on the present and potential paradigm of supply chain management. SCM's purpose is to deliver goods that comply with user demands. The utilization of organization digital technologies enables every business individual and improves the company's productivity and profitability so that the organization can generate economic benefit and succeed in the international market by using information technology. In order to promote the phase of commercial operations, simplify business activities and improve productivity of workflows, each business organization utilizes information systems. Information systems allow enterprises to access all of their records, make organized decisions and enhance their business strategies. Throughout the overall transaction process, electronic service has arisen as a significant element in supplying consumers with an engaging access to the workflow, enabling organizations to provide the highest value and create good consumer relationships. Owing to the growing significance of evaluating and tracking the efficiency of marketing in the online commerce, the information infrastructure is regarded an important requirement for obtaining a competitive edge and profitability in recent times. Digitization is indeed a selection in the new age of modernization and a necessity for all organizations throughout all sectors.

The purpose of this research is to examine the relation between Information System and SCM in the Cosmos Cement Industries of Nepal. The purpose of this research is to find out how information system helps to improve in SCM of Cosmos Cement Industries.

**Keywords:** Supply Chain Management, Digitization, SPSS.

## 1 INTRODUCTION

Supply Chain Management includes organizing and monitoring of all operations related to manufacturing and purchasing, transformation, and all tasks of transportation management and also teamwork and engagement with channel members which may be distributors, brokers, third-party service providers and buyers (ANCA, 2019). Companies of all types have been influenced by larger economic developments (Prakash Agrawal, 2018). Supply chain management may be described as the control of the circulation of goods and resources starting with the production of the goods and ending with the sale of the material (Point, 2016). Modernization and the advancement of e-commerce have created business advantages also face obstacles, such as the accessibility and uncertainty of the supply chain at the given moment (Prakash Agrawal, 2018). About every part of people's lives is influenced by digitalization and the SCM are significantly affected (Andrés Muñoz-Villamizar, 2019). The prospect is to predict the effect of e-commerce on manufacturing, production, and delivery, and also the merging of internet and digital environments, and the growing production of home delivery alternative methods (Prakash Agrawal, 2018). The buyers of the present do not expect to wait-as quickly as practicable they like to purchase and collect the goods, and businesses have to adapt to these demands (Prakash Agrawal, 2018). The growth of the corporate world, which

tends to rise, is progressively crucial in a need for information technology in enhancing regular business operations (Azhar Susanto, 2019). One of the tasks that all organizations aim to do is to enhance supply chain processes (Al-Odeh, 2016). In general, the purchasing behavior and consumption trends of customers are greatly impacted by the greater incidence of broadband access, the continual usability of relevant technology and the probability of competition in terms of market functionality and costing (Prakash Agrawal, 2018).

The utilization of organization digital technologies enables every business individual and improves the company's productivity and profitability so that the organization can generate economic benefit and succeed in the international market by using information technology (Azhar Susanto, 2019).

In order to promote the phase of commercial operations, simplify business activities and improve productivity of workflows, each business organization utilizes information systems in particular (Azhar Susanto, 2019). Every business aims to balance supply with demand with the most effective utilization of capital in a meaningful manner (Point, 2016). In order to enable a business organization to sustain and have excellent customer performance for clients, information technology often plays a significant role (Azhar Susanto, 2019).

SCM helps to add to a company's economic performance (Point, 2016). Information systems perform a relatively wide role in corporate organizations in all areas of enterprise that exist in industries, including advertising and distribution processes that operate to maximize sales, see sales-oriented possibilities and business models and increase customer loyalty with goods and facilities (Azhar Susanto, 2019).

### **1.1 Research Background**

Supply chain management has become an important part of the industry which is a key to the growth and fulfillment of every organization. Supply chain management needs IT implementation because IT implementation will generate detailed suggestions for improving organization efficiency, customer gratification and organization performance. With Internet expanding far and wide and even the rise in popularity of global economic growth, e-business and e-commerce approaches were developed as a product of technological advancements that allow effective social interaction (Kalkan, 2018). A well-organized supply chain management system encompasses the optimization of rapid and effective execution features. Supply chain management is the operation of a series of interconnected businesses that are affected by end-customers in the ultimate distribution of required goods and service products (Mahadi Hasan Miraz, 2016). Integration of technology may increase an organization's management efficiency, and also reduce the deficiencies created by weak supplier results, volatile consumer demand, and unstable market climate. Supply chain management involves moving and collecting raw materials, inventory and manufactured products from source to destination (Avani Phase, 2018).

### **1.2 Ethical Issues Involved**

The digital economy is based on the development, processing, combination, and exchange of vast data sources for which conventional governance mechanisms and risk reduction strategies are inadequate (Accenture, 2016). Accountability includes elected authorities in SCM to account for, monitor, clarify and defend operations, and take consideration for the effects of local economic spending (Modeni Mudzamba Sibanda, 2020). A company's ethical and environmental mission is brought to reality by the supply chain (KPMG, 2020). Supply chains become an integral aspect of the globalized trade (Gurzawska, 2019). Ethics are fundamental values that regulate the actions of an individual or the performance of an action (Eleanor Bird, 2020). Financial problems are associated with contamination of the environment growing unemployment, declining working conditions and pervasive, relentless exploitation of advertisement by customer preferences (Aneta Oniszczyk-Jastrzabek, 2020).

### **1.3 Problem Statement**

The study goal is to build a logical model to analyze how information system is connected to one another in order to strengthen supply chain management and contribute easily and efficiently to the unpredictable market. The study focuses various ideas about the relationship between Information

System and Supply Chain Management:

- Lack of good coordination between the client and the organization that operates the information structures contributes to shortcomings in the product (Demir, 2017).
- Lack of acceptance by users has long become an obstacle to the success of new information systems (Inda Sukati, 2018).
- Users are afraid that the new computerized system will diminish the importance of its role in the work and whether they will be capable of handling the new system appropriately (Kalkan, 2018).
- Shortage of perfect communication between consumers and the organization that utilizes the information systems leads to defects in the result (Seung Jun Lee, 2018).

#### **1.4 Research Questions**

- What is the function of the Information System in supply chain management?
- How does Information System help Supply Chain Management activities?
- How the performance of SCM getting enhanced by implementing is IS?
- How does the use of information system in the supply chain management reduce lead time?

#### **1.5 Purpose of the Study**

The purpose of this research is to examine the relation between Information System and SCM in the Cosmos Cement Industries of Nepal. The purpose of this research is to find out how information system helps to improve in SCM of Cosmos Cement Industries. The purpose of this research is to find the answers of the research questions.

#### **1.6 Objectives of the Study**

- To examine the various functions of Information System in Supply Chain Management.
- To determine the various factors affecting the activities of Supply Chain Management with the use of effective information system.
- To examine the performance of SCM after the implementation of IS.
- To calculate the lead time in the supply chain management after the use of Information System.

#### **1.7 Scope of the Study**

The scope of this research is to determine the uses of information system in organizations and how the information system helps in Supply Chain Management. The research attempts to examine the benefits of use of information system in order to make the supply chain management effective. With the review of literatures related to information systems implementation in companies of different countries which results in better supply chain performance, this research attempts to outline similar theory for selected cement companies of Nepal which uses information system for better supply chain performance. This research is limited to the selected cement companies of Nepal.

#### **1.8 Significance of the Research**

The research gives the vision about the role of information system in supply chain management of the selected cement companies of Nepal. This research would be useful to organizations as they can take the correct decisions for the implementation of Information System in order to improve their supply chain management.

Nowadays innovative methods to commerce and operation have begun to change through the integration of information systems (Kalkan, 2018). Supply chain management actively manages the movement of products and services (Avani Phase, 2018). Information technology plays a key role in company effectiveness by allowing information flow which improves the effectiveness of the supply chain and productivity resilience (Inda Sukati, 2019). Companies can gain managerial values through the adoption of advanced IT technologies that can lead to better performance in the workplace (Seung Jun Lee, 2018). Information provides insight to the supply chain, enabling executives to make choices and enhance the efficiency of the supply chain (Education, 2016).

## 1.9 Methodology

Research design is important as it allows the plain transition of the different research procedures, thus creating research as highly skilled as possible, offering greater information with minimal effort, time and cost spending (Akhtar, 2016). The SPSS's Visualization Designer makes it accessible to non-expert people to create powerful and effective data visualizations. It avoids the need for highly developed programming experience via a user friendly, drag-and-drop design interface. The best questions are the ones that elicit a frank and precise answer from individual who completes the questionnaire the most easily (reference, 2018).

Descriptive Research is used to classify and collect knowledge on the features of a particular topic such as culture, entity or individuals (Akhtar, 2016). The questionnaire is a key element for collecting data in descriptive studies for which sources are varied and widely dispersed (Kabir, 2016). Descriptive research concerns about the whole thing to study and count (Akhtar, 2016).

## 2 LITERATURE REVIEW

Use of e-commerce is application in enterprises for various reasons like cost reduction, reaching to greater market and also boosting the relationship between buyers and sellers. With the new way of commerce, there is increase in new risks and threats like network attacks, identity theft, etc. This paper enlightens on the classification of threat in categories like Denial of Service, unauthorized access as well as theft and fraud and their control measures. (Revathi C, 2015) With the threat classification and identification, this paper also provides the concept of risk management framework which can be used by the e-commerce enterprises to enhance their security. Different aspects of security like privacy, availability, non-repudiation, etc. are also discussed in this paper.

Without privacy and security, customers wouldn't want to shop or visit the site of e-commerce. Here, privacy means the assurance that personal data is not tampered and security means that the data is not accessible or can't be tampered by people with unauthorized access. Thus, this paper reviews the privacy and security from various perspectives like social psychological, technical, organizational and economic perceptions. This paper has briefly explained the terms integrity, non-repudiation, authenticity, confidentiality, privacy and availability. (Ghayoumi, 2016) Identifying the security and privacy issues and making effort to resolve those issues are the vital concerns for e-commerce companies at the moment as information is vulnerable.

### 2.1. Information System

The increased speed of technical growth, extreme market rivalry, dramatic shifts in consumer expectations, and volatile and dynamic markets indicate that the supply chain must be able to feel, integrate and identify new business opportunities (Jing Li, 2020). Many aspects of corporate strategy are impacted by the exponential growth of digital technology related infrastructure, and online networks (Amit Ghildyal, 2017). Supply chain channel managers have set up SCM networks to harness the expertise and experience of their partners to gain stronger supply chain capacities to adapt to industry shifts and uncertainty in order to be competitive and increasing in volatile markets and vigorous globalization (Jing Li, 2020). In the era of globalization and sustainable market, application of IT for SCM is growing more and more relevant (Jing Li, 2020).

The framework for market operations around the world has radically shifted through the advent of digital technologies, including the widespread use of the online platform (Jing Li, 2020). The company's IT management seeks to create, guide and manage IT approach and capital by formulating the connection of various interconnected procedures and structures in attempt to accomplish the targets and purposes of the organization (Amit Ghildyal, 2017). IT promotes the prompt, open, reliable and varied transmission of views and the rapid exchange of goods and resources and also maintaining a collaborative, organized and interconnected supply chain (Jing Li, 2020).

### 2.2. Supply Chain Management

There is an empirical basis for the growth of supply chain management: the increasing presence of the customer, the modernization of economies and the digitalisation of business (Mukhamedjanova,

2020). SCM is the practice of controlling the movement of goods and items to the customer from the stage of manufacturing (Prof. Rekha D. M, 2019). SCM is essentially the organization of the shipment or movement of products and resources including transportation, keeping quality, evaluation of packaging and the distribution of products purchased, etc. (Mukhamedjanova, 2020). SCM involves the complete movement material from the phase of unprocessed products to the client's distribution of the final goods (Prof. Rekha D. M, 2019). SCM aims to build up the overall profitability of the company in the preparation and implementation of multiple supply chain operations of a given enterprise to assess the current business trend relating to the production and consumption of certain products or commodities and to synchronize them to evaluate the company's efficiency (Mukhamedjanova, 2020). Another dimension of innovative management and control is SCM (Prof. Rekha D. M, 2019). SCM is characterized as the incorporation of final market procedure by original distributors that provide goods, materials and data that contribute positively to clients and customers (Mukhamedjanova, 2020).

### **3 RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

Creating studies on current information and applying it to this is the key component in all educational research practices, independent of discipline (Snyder, 2019). The philosophy and interpretation of conducting a study is research methodology (Abdulquadri Ade Bilau, 2018). In order to resolve, a problem to explain a phenomenon, to respond to questions or to create truth, the word research corresponds to a series of structured, analytical and moral actions (Dr. Walied ASKARZAI, 2017). Reasonable research concept is needed for a research to be completed effectively (Asenahabi, 2019 ). Based on the nature of study and other attributes, research technique varies (Lamanauskas, 2020). For research process design, there are indeed a variety of methods utilized (Sileyew, 2019). The research methodology also promotes the reader about how to reach around the outcomes of the research (Sileyew, 2019). The increasing amount of information created by devices, people, business systems instruments and channels, along with the related sophistication of the study context demands rapid pedagogical creativity in research methodology in academic programs (Daniel, 2018). The technique of research is a way to address the issue of research thoroughly (Mimansha Patel, 2019). In research studies, a research design is the method for gathering, processing, evaluating and presenting results (Boru, 2018). In attempt to improve understanding using this knowledge to create or validate reality, solve challenges, develop new ideas and offer novel solutions, research encompasses inventive work conducted on a systemic way (Nikolaos Basias, 2018).

#### **3.2 Research Framework**

A theoretical framework is made up of ideas shared by specialists in the area wherein users intend to perform studies, that can use for data analysis and findings perception (Kivunja, 2018). The theoretical framework is a system that incorporates principles and hypotheses where people construct through already developed and established information and refine to provide a theoretical context, or base, of the data analysis and understanding of the significance embedded in the research data (Kivunja, 2018). The theoretical framework is the foundation that retains or promotes a research study's concept (Kivunja, 2018). The theoretical framework is indeed a combination of the ideas of research experts as they apply to the conducted study or dissertation, as well as how to comprehend certain concepts and use them to comprehend the data (Kivunja, 2018). The absolute, logical orientation and relations of anything including all that shapes the fundamental thought, mechanisms, strategies and activities, and execution of the whole research study are referred to as a conceptual framework (Kivunja, 2018). The theoretical framework aims to explain what to search through within the data, how to interpret about what users see in the data matches together, and how to discuss the results in terms of current theories (Kivunja, 2018).

#### **3.3 Philosophical worldview (Paradigm)**

The collective beliefs and concepts that structure that a researcher thinks perceives, and behaves in

the environment are referred to as paradigms (Nguyen, 2019). It's a collection of core principles or philosophy that drives study or inquiry (Associate Professor Charles Kivunja, 2017). A research paradigm is fundamentally representative of the researcher's views on the society in which he or she resides and desires to live (Associate Professor Charles Kivunja, 2017). A conceptual way of thought is referred to as a paradigm (Associate Professor Charles Kivunja, 2017). As a consequence, paradigms are significant since they include values and guidelines that determine what must be explored, why it must be evaluated, and whether the study's findings must be presented for researchers in a specific field (Associate Professor Charles Kivunja, 2017).

Paradigms become essential because they present academics in a specific domain through convictions and guidelines that influence what must be learned, why it must be discussed, and how the study findings should be interpreted (Nguyen, 2019). It is made up of fundamental concepts and values that affect how a researcher perceives the universe, as well as how he perceives and behaves in it (Associate Professor Charles Kivunja, 2017). The word paradigm refers to an author's point of perspective (Associate Professor Charles Kivunja, 2017).

### **3.4 Research Approach**

The approach to research might be inductive, deductive or abductive (Abdulquadri Ade Bilau, 2018). Mixed method analysis is the style of study where components of qualitative and quantitative research methods are mixed by a researcher or group of researchers (Dr. Walied ASKARZAI, 2017). In both parallel and/or overlapping, a researcher gathers and evaluates both qualitative and quantitative data and the comprehensive way in which the scholar combines the both types of data depend on the scope of the examination and the researcher's conceptual perspective (Asenahabi, 2019 ). In a research, mixed approach research design is an incorporation of qualitative and quantitative research and results (Asenahabi, 2019 ). The deductive approach addresses theoretical progress through the viewpoint of data analysis, which is rigorously tested through a variety of theory-related concepts, and is therefore further subjected to relativist study (Abdulquadri Ade Bilau, 2018). Mixed method as an approach in which, in a particular research experiment, the investigator combines quantitative and qualitative research tools, processes, strategies and principles (Dr. Walied ASKARZAI, 2017). Mixed method is an observational analysis wherein, for the general reasons of scope and complexity of interpretation and corroboration, a scholar blends component of qualitative and quantitative testing methods (Asenahabi, 2019 ).

### **3.5 Research Design**

A satisfactory research design is needed for a good research study (Asenahabi, 2019 ). This is a technique used by a researcher before data gathering starts in order to accomplish the study objective in a reliable manner (Asenahabi, 2019 ). The aim of research design is to turn a research issue into data that can be processed to provide valid solutions to research questions for the least amount of money (Asenahabi, 2019 ). Research is a method of addressing questions and acquiring new knowledge that is thorough and structured (Asenahabi, 2019 ). An organized mechanism of exploration and development of human intelligence may be described as research (Asenahabi, 2019 ). Research should either answer a problem or contribute to the body of information in a creative manner (Asenahabi, 2019 ). The methodology and methods of study must be rigorous and precise, and it must adhere to applicable norms and criteria for accuracy and consistency (Asenahabi, 2019 ). Under the specified constraints of place, time, resources, and the researcher's availability, design is primarily associated with the goals, uses, objectives, expectations, and plans (Asenahabi, 2019 ). A researcher's thoughts are expressed in the research design (Asenahabi, 2019 ). The final strategy for relating conceptual study issues to specific and practicable empirical research is known as research design (Asenahabi, 2019 ). It's a form of research query that offers detailed guidance about how to perform a study (Asenahabi, 2019 ).

### **3.6 Research Method**

The philosophy of study helps decide the proper process by which a thesis could be performed (Abdulquadri Ade Bilau, 2018). Research must be rigorous and analytical in its methodology and methods for anything to be considered as analysis and must conform to applicable accuracy

requirements and criteria (Asenahabi, 2019 ). A core aspect of research methodology, which provides the framework of the entire research, is the general feature of studies (Lamanauskas, 2020). Research design is characterized as an investigative plan, framework and technique that are implemented in order to elicit solutions to research concerns with optimum control of variables (Asenahabi, 2019 ). The systematic study of the body of approaches and concepts identified with a field of science includes methodology (Mimansha Patel, 2019). A research must be focused on a conceptual perspective on which the effectiveness of the study can be defined (Abdulquadri Ade Bilau, 2018). Design is primarily dealing with the objectives, needs, goals, expectations and plans inside the realistic limit of place, duration, funds and accessibility of the investigator (Asenahabi, 2019 ). This is basically an overview to a specific study's approach as a full material, involving the nature of the study presented and the description of the most significant claims (Lamanauskas, 2020). Research Methodology is the science of learning how research is conducted. Research Methodology is a means to address the study dilemma effectively by the pragmatic adoption of multiple steps (Mimansha Patel, 2019).

The concept of research concerns the creation, existence and production of knowledge (Abdulquadri Ade Bilau, 2018). Research should answer an issue or apply innovatively to the current source of information (Asenahabi, 2019 ). Any analysis must be methodologically justified, i.e., the issue should be clearly defined and an expressed problem must be called to articulate a topic, thus addressing the definition of research, theory, methodology, architecture, etc. (Lamanauskas, 2020). The research design often defines the types of analysis to be conducted to achieve the outcomes of the purpose (Asenahabi, 2019 ). The thorough, analysis of the techniques implemented to an area of research is methodology (Mimansha Patel, 2019).

### **3.7 Data Sources**

#### **3.7.1 Primary data sources**

It was derived through the actual information channel. With the trustworthy study getting clear attached with the event of the incidents, the key data is increasingly accurate and provide a greater conviction process for decision. The primary collected data are the workplace of companies by evaluation, photographs, and workplace culture in photography and business and bottom staff questionnaires and conversations. For this thesis the primary data are collected from online questionnaires from the employees of the Cosmos Cement Industries.

#### **3.7.2 Secondary data**

In order to gather data from multiple secondary sources, an analysis was undertaken. It contains reports and project documentation for each field of development. Secondary data resources were collected from literature, and the remaining information was from the papers, records, and some administrative papers of the organizations involved in the analysis. Consideration was granted to authoritative journals, novels, assorted publications, periodicals, hearings, newspapers, blogs. For this thesis the secondary data are collected from the website of the Cosmos Cement Industries.

### **3.8 Data Collection Method**

The techniques of data collection are based on the preceding key concepts. Through the correct methods, the data collection methods are designed and planned.

In data collection layout, the process of capturing or obtaining data is designed (Mimansha Patel, 2019). There are numerous forms of data gathering. Primary data and secondary data are two kinds of data gathering (Mimansha Patel, 2019).

#### **3.8.1 Primary Data collection methods**

There are qualitative data sources. The qualitative sources are field observation, questionnaires and interviews.

#### **3.8.2 Online Questionnaire**

Questionnaire techniques are used to gather data in large geographical regions (Mimansha Patel, 2019). Questionnaires are then submitted to the testing areas by mail and circulated among the participants (Mimansha Patel, 2019).

The research population comprised of Cosmos Cement Industries' workers from the manufacturing industries. A maximum of 210 sector sample sizes across various divisions replied to the online questionnaire.

**3.8.3 Datasets and Data Structure**

Readings are correlated to metrics and entities in datasets (Marshima Mohd Rosli, 2016). Various forms allow for various representations of data structure (Marshima Mohd Rosli, 2016). Most datasets have metadata that applies to measurements made on other sites, such as web pages or archives (Marshima Mohd Rosli, 2016). Understanding what the estimation values in datasets are supposed to represent is critical to their usefulness (Marshima Mohd Rosli, 2016).

**3.9 Data Analysis**

The researcher switches to the task of analysing the collected data shortly just after data collection (Mimansha Patel, 2019). It will be adjusted to raw data. For analysis, multiple aspects are required such as coding, tabulation, processing, and mathematical evaluation (Mimansha Patel, 2019). In the form of questionnaires, data may be gathered (Mimansha Patel, 2019). Therefore, via coding, the data obtained in brief formats will be developed. At the time of gathering or processing the data, editing may be performed (Mimansha Patel, 2019). The researcher eliminates all the flaws in the report by editing them (Mimansha Patel, 2019). This is going to be brushed. The researchers do the task of designing the tables by tabulating them (Mimansha Patel, 2019).

**3.9.1 Qualitative Data Analysis**

Qualitative research has been characterized as the method of obtaining and analysing textual data in order to obtain an understanding of person’s perceptions of phenomena (Dr. Walied ASKARZAI, 2017). Qualitative analysis focuses on investigating and interpreting the nature of a social or individual dilemma attributed to an individual or community of people (Asenahabi, 2019 ). The qualitative method is associated with Qualitative Study (Mimansha Patel, 2019). Qualitative analysis is intended to present the study with a way of witnessing or communicating with the sample subjects to perceive a phenomenon (Boru, 2018). In order to find the most acceptable findings, all analysis must have a clear, structured, systemic methodology (Mohajan, 2018). Qualitative analysis, excluding the use of statistics and calculations and the collection of computational data, is a really wide concept that supports research methods that deal with events through examining interactions, attitudes and connections (Nikolaos Basias, 2018).

**3.9.2 Data analysis software**

The data was entered and evaluated using SPSS on Windows 10. The research assisted by the SPSS program contributed greatly to the result. The data validation and accuracy of the outcomes of the SPSS led to this. In the study questionnaires, the program evaluated and correlated the effects of multiple variables utilized.

**4 DATA ANALYSIS AND FINDINGS OF RESEARCH**

**4.1 Analysis**

Statistics		
IsInformationSystemspeeduptheinternalcommunication		
N	Valid	210
	Missing	0

IsInformationSystemspeeduptheinternalcommunication					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	184	87.6	87.6	87.6
	Neutral	6	2.9	2.9	90.5
	Strongly Agree	20	9.5	9.5	100.0
Total		210	100.0	100.0	



**Statistics**  
HowdoestheInformationSystemmadetheproductpriceminimize

N	Valid	210
	Missing	0

**HowdoestheInformationSystemmadetheproductpriceminimize**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	38	18.1	18.1	18.1
	Excellent	63	30.0	30.0	48.1
	Good	109	51.9	51.9	100.0
Total		210	100.0	100.0	

**Statistics**  
Doesthecompanyprovideonlineservicetothecustomer

N	Valid	210
	Missing	0

**Doesthecompanyprovideonlineservicetothecustomer**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	140	66.7	66.7	66.7
	Strongly Agree	70	33.3	33.3	100.0
Total		210	100.0	100.0	

**Statistics**  
HowthearrivalsofInformationSystemprovideeasyaccessto

N	Valid	210
	Missing	0

**HowthearrivalsofInformationSystemprovideeasyaccessto**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	30	14.3	14.3	14.3
	Excellent	82	39.0	39.0	53.3
	Good	98	46.7	46.7	100.0
	Total	210	100.0	100.0	

**Statistics**  
DoestheInformationSystemprovidethecustomerswithupdatedi

N	Valid	210
	Missing	0

**DoestheInformationSystemprovidethecustomerswithupdatedi**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	143	68.1	68.1	68.1
	Strongly Agree	67	31.9	31.9	100.0
Total		210	100.0	100.0	

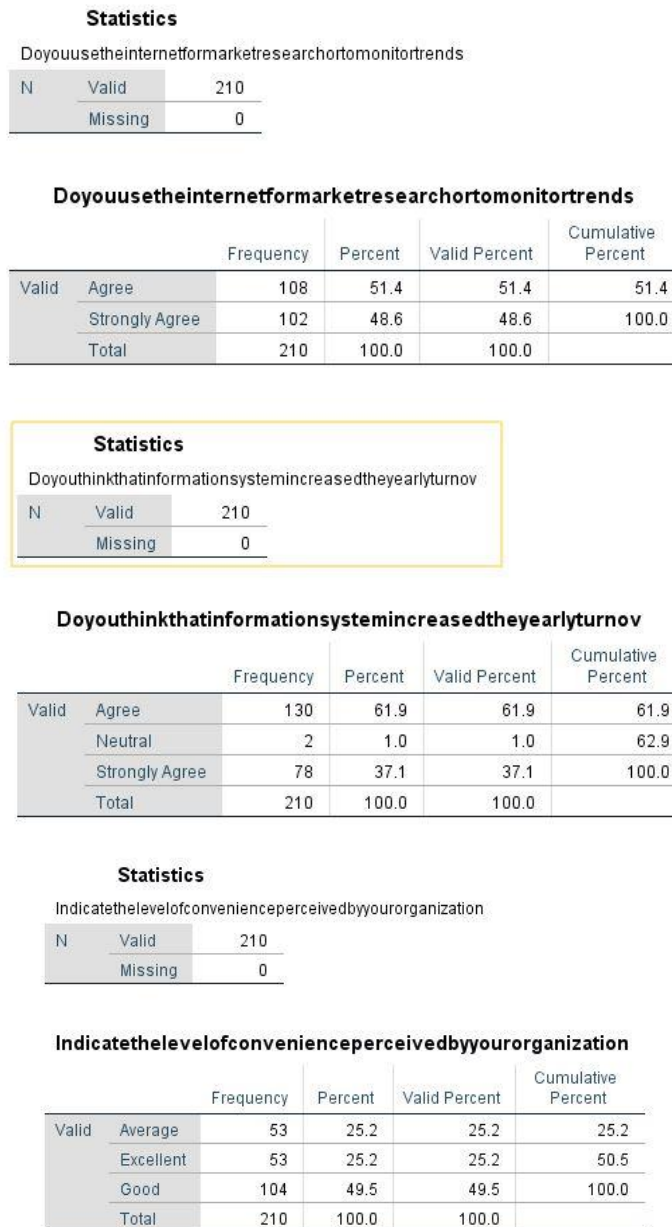


Figure 1: Data Analysis

## 4.2 Summary

From the questionnaires, it is found that 87.6% agree and 9.5% strongly agree that IS plays a vital role to speed the internal communication. 51.9% said that IS is good to minimize the product price while 30% said that IS is excellent to minimize the product price. 66.7% agree that company facilitates online service and 33.3% strongly agrees about this. 46.7% said that IS makes easy access to information and 39% says that IS is excellent for accessing information. 68.1% agree that IS provide updated information and 31.9% strongly agree about this. 51.4% agree that the company use internet for market research and 48.6% strongly agree about this. 61.9% agree that IS plays a vital role for yearly turnover and 37.1% strongly agree about this. 49.5% said good that SCM becomes convenience by the use of IS 25.2% gives their opinion as excellent and 25.2% said average about this.

## 5 Discussion

### 5.1 Findings

From the questionnaires, most of the employees of the Cosmos Cement Industries gives the positive

view about the use of IS. The IS has greatly affected in the supply chain management of the company. The IS plays a vital role in the communication between the employees and customers of the company. IS makes the easy communication and provide updated information to the company.

## 5.2 Answers of Research Questions

**Research Question 1:** What is the function of the Information System in supply chain management?

**Findings** – The Cosmos Cement Industries used saral billing software for supply chain management. From questionnaires with the employees, it is found that this provides the company for yearly turnover. 61.9% agree and 37.1% strongly agree about this. The IS may help the company for good communication and helps the company for yearly turnover.

**Research Question 2:** How does IS help SCM activities?

**Findings** – With the help of IS the company provides easy access of information to the customers. The company shares the updated information about the products and price to the customers.

**Research Question 3:** How the performance of SCM getting enhanced by implementing is IS?

**Findings** – IS helps to reduce the product price which is observed from questionnaire. 51.9% employees said that IS is good and 30% said that it if fruitful to minimize product price.

**Research Question 4:** How does the use of information system in the supply chain management reduce lead time?

**Findings** – IS plays a vital role in internal communication so the time for communication with customers and employees will be reduced because of online and effective software. Online service helps to interact with each other effectively and efficiently. For market research, the company does not have to travel from place to place; the company does online market research.

## 5.3 Conceptual Model

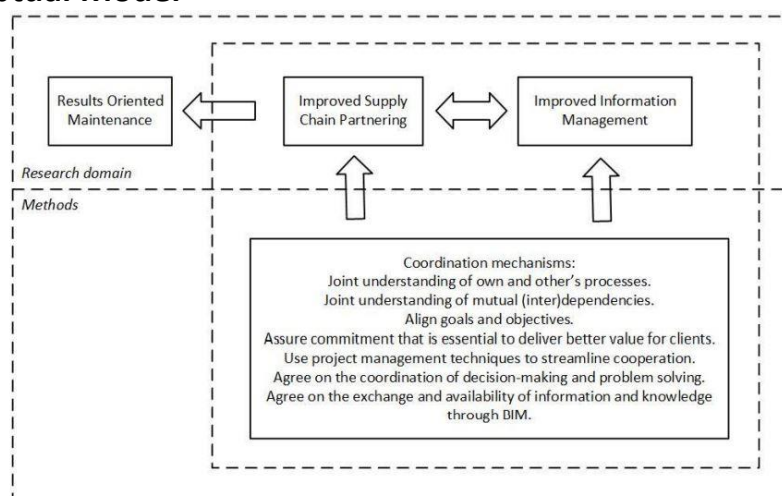


Figure 2: Conceptual Model (Goedknecht, 2017)

## 6 Conclusion and Recommendation

### 6.1 Discussions and Conclusions

The greater level of internet usage has dramatically altered customer purchasing habits and marketing strategies, placing increasing emphasis on the managers of the supply chain (Prakash Agrawal, 2018). In order to retain a strategic benefit in the market, the accelerated acceptance and implementation of new business criteria is the primary concern (Prakash Agrawal, 2018). These are the preceding threats and developments: competitiveness and revenue growth, exposure of the supply chain, standardization and integration of processes, cooperation with the supply chain, versatility in adapting to changing economies, and creativity and innovative marketing strategies (Prakash Agrawal, 2018). To adapt to the developments and improve processes while leveraging from new digital technology, it is critical to analyze the patterns and influences on supply chain

management (Prakash Agrawal, 2018). Supply chain managers are concerned with keeping their business at the forefront of development, and this can be done by designing plans that capitalize on strengths and benefits especially in the context of digitally enhanced supply chains (Prakash Agrawal, 2018).

Supply Chain Management aims to be beneficial and cost-effective via cooperative efforts around the entire process (ANCA, 2019). SCM key goal is to track and relates the manufacturing, delivery and shipping of goods and resources (Point, 2016). Instead of a portfolio of projects working together to create progress, digital transformation cannot be accomplished by the commitment of a single individual (Prakash Agrawal, 2018). Digital innovation is the mechanism of corporate transition that transforms modern technology, how a business creates demand through its brands, how it deals with its vendors, stakeholders and consumers, and how it performs in the competitive environment (Prakash Agrawal, 2018). The importance of information systems as a medium in the execution of business operations is very essential (Azhar Susanto, 2019). Improving Supply Chain Management can help companies increase productivity, produce more sales, and decrease operation cost (Al-Odeh, 2016). Digital transformation is a transition and any corporate change effort needs therefore be treated with intense caution (Prakash Agrawal, 2018).

### **6.2 Contribution and importance of the Thesis**

The importance of this research is to gain the knowledge about IS and SCM. This thesis will provide the concept how IS plays a significant role in the SCM. Today is the world of digital age and SCM also have to use digital technology for gaining the profit of the organization.

### **6.3 Limitations**

This work is limited only to the use of IS on SCM on Cosmos Cement Industries.

### **6.4 Future Recommendation**

In future the researcher may use new technologies for supply chain management. The researcher may derive the knowledge from this study.

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