Master Business administration Dissertation

Evaluate the challenges associated with internal supply chain integration in family-owned business. Case study: Basic Electronics Company.

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I express my warm thanks to My Wife Yasmeen for her support. And I would like to give it to my mother, father, and my children Jana and Waleed.
Declaration and statement

DECLARATION

This work is being submitted in partial fulfilment of the requirements for the Degree of MBA and has not previously been accepted in substance for any Degree and is not being concurrently submitted in candidature for any degree.

Signed: Yazid Jaradat

Date: 17-5-2018

STATEMENT

I hereby give consent for my dissertation, if accepted, to be available for photocopying and for inter-library loan, for deposit in Cardiff Metropolitan University's e-Repository, and that the title and summary be available for outside organizations.

Signed: Yazid Jaradat

Date: 17-5-2018
Supervisor Statement
Abstract

Supply chain management is one of the important topics in which a lot of researches and studies were prepared last 20 years. This is because of its importance and its ability to give the companies a competitive edge in a highly competitive market.

The aim of this study is to evaluate and determine the challenges that face the internal supply chain management integration to reach to the integrated system with better coordination between the involved people and departments. Depending on the literature review and qualitative research, this study examines the key theories and concepts on developments in supply chain management, explores the challenges of developing and improving internal collaboration and communications within supply chain organizations, evaluates the challenges and strategies for developing and improving internal supply chain collaboration and communication within a particular focus on Basic Electronics Company, and evaluates the role of information technology and its effectiveness in supply chain integration in Basic Electronics.

The literature review is important to make the questions which will be discussed with the selected sample during interviews. The findings of the interviews will be presented by discussing each challenge separately and offering some suggestions that help overcome these challenges.
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1. Introduction

1.1 Purpose of the study

Few researches were undertaken about the challenges and obstacles for internal supply chain integration. Most of the found researches were talking about challenges for supply chain integration in general inside and outside the organizations. Supply chain management is a research domain that will have always new studies and projects due to fast changing in business and new challenges appear which directly affects the supply chain system of the organizations.

(Quansah et al, 2013) argued that the best way for implementing supply chain integration is to start from internal to external integration. But before starting the internal integration we shall know the challenges and obstacles that may face this integration. Functional challenges, technical challenges, relationship challenges, communication challenges, managerial challenges, and flexibility challenges are issues that facing the internal supply integration. The companies which success in internal supply chain integration overcome all these challenges or some of them. Recently, all companies were seeking to minimize inventory and reduce lead time, cost in every activity, and task involved in supply chain system.

The characteristics of the modern supply chain are flexibility, proactive, integrated, and information technology based. Using information technology in supply chain management will remove completely the old way of work and old practices and use a new way to manage the core elements of the supply chain such as procurement, inventory, retail, and distribution management with accurate and timely information between all departments and peoples.

The proposed research topic is to evaluate and explore the challenges and obstacles associated with internal supply chain integration with particular focus on Basic Electronics Company to reach to integrated system with better coordination between the involved departments and activities as per the following research objectives; Objective one: To examine the key theories and concepts on developments in supply chain management. Objective two: To explore the challenges of developing and improving internal collaboration and communications within supply chain organizations. Objective three: To evaluate the challenges and strategies for developing and improving internal supply chain collaboration and communication within a particular focus on Basic Electronics Company.

Basic Electronics Company is a family business company with rich experience in trading electronics in Saudi Arabia for more than 50 years, but unfortunately, the Logistics and supply chain system wasn’t updated for many years. During these years, many companies updated their systems and became more competitive and had a good reputation in the market, although they had less experience and fewer employees than the Basic Electronics Company. In the same period, Basic electronics depended on paperwork and old inventory software which unable to give accurate information in line with the requirements of the current stage. Hence the spark, a real change was started and updated for supply chain
system using Enterprise resource planning (ERP) system and doing upgrade to the information infrastructure for all company location and branches. After two years of starting implementing the ERP system there were many problems raised, so this study will try to figure out the challenges that prevent the integration. The conservative culture for the owner and founder which reflected on the way of employees work is also a major reason to stay not updated for years, but after his sons run the company they start the openness in new technology to develop the system and processes inside the company.

1.2 Working title

Evaluate the challenges associated with internal supply chain integration in family-owned business. Case study: Basic Electronics Company.

1.3 Research Question, objectives, and scope

One key research question has been identified in this proposal:

- What are the challenges and the obstacles associated with internal supply chain integration in Basic Electronics Company?

The purpose of this research is to evaluate and determine the challenges that face the integration of internal supply chain management to reach to the integrated system with better coordination between the involved departments and activities as per the following research objectives;

Objective one: To examine the key theories and concepts on developments in supply chain management.

Objective two: To explore the challenges of developing and improving internal collaboration and communications within supply chain organizations.

Objective three: To evaluate the challenges and strategies for developing and improving internal supply chain collaboration and communication within a particular focus on Basic Electronics Company.

Objective Four: To evaluate the role of information technology and its effectiveness in supply chain integration in Basic Electronics.

Basic Electronics LTD Company is chosen in this dissertation as a case study. It is family business established in 1961; it is a general agent for more than 48 brands for electronics, home appliances, air conditioning, Security system, medical system, and solar energy. It has more than 1000 employees.

This study will focus on the internal supply chain integration system inside the chosen organization to do a case study. The scope will evaluate the Coordination between departments and the communications between them in three perspectives technically, managerial, and relationships. That will be done through a qualitative method by using
interviews with employees that are working in supply chain and using literature review as secondary data.

The scope will evaluate the supply chain operations management and employees efficiency as well. The scope will mention the Enterprise resource planning system that implemented recently and how we can use it to achieve the desired integration. All the previous steps should lead to identify the challenges that face the internal supply chain integration system and determine the barriers and obstacles to overcome them.

1.4 Structure of the dissertation

Following the introduction of the dissertation, aims, and objectives, the chapters are organized as follows.

The second chapter is the literature review; it is to explore and find researches and studies that talking about the challenges and obstacles for internal supply chain integration and role of Information technology in supply chain integration and development. The chapter starts with an introduction and the history of supply chain management, and then reviews many definitions and concepts of the supply chain management system.

The third chapter is methodology; it is to explain the research approach which will be the inductive approach, strategy, and method which will be the qualitative method that will be used to collect and analyze the secondary and primary data. In this chapter the type of case study that will be used to answer the research question and the type of interview that will be used as data collection technique will be explained. The sampling strategy, size of interviews, the structure of the interviews, number of interviewees and what the expected from it will be explained as well in this chapter.

The fourth chapter is finding and data analysis, this chapter presents the respond of research participants and codes and categories for the internal supply chain integration challenges. The findings for each code reviewed by presenting the questions and answers for the participants for each code separately. The findings for the roles of information technology reviewed as well by presenting the questions and answers for the participants for each role separately.

The fifth chapter is conclusion and recommendation, the conclusion of this study is made for each objective based on literature review and the primary findings. Some recommendations are proposed to help to overcome the challenges that face the internal supply chain integration which present in chapter 4 and to get maximum benefit from using information technology which is the most important to manage the supply chain effectively.
2. literature review

2.1 Introduction

In this chapter, it is important to explore the current established researches and studies about challenges and obstacles of the internal supply chain. The following literature review will concentrate on internal challenges inside the company and the role of information technology in supply chain integration and development and its role to overcome these challenges and obstacles. These findings from published reports will be the secondary data for this study. This study will try to find and identified the challenges and obstacles that face the internal supply chain in Basic Electronics. The following literature review also is related to objective one that examines the key theories and concepts on developments in supply chain management and objective two to explore the challenges of developing and improving internal collaboration and communications within supply chain organizations.

Nowadays supply chain management becomes an important player and has an essential role in the success of the companies in highly competitive markets. Now companies need to manage people, technology, resources and to integrate them not only within the company’s boundaries but also outside. So supply chain system shall be effective to help the company to achieve their goals and objectives. That can be done through organizing all activities and integrating all departments involved in supply chain system.

The nature of competition between companies had been changed in last 20 years due to development in information technology. This competition should be forced with integration activities both within and beyond company (Carter et al, 2009). Change also happened to supply chain management due to the appearance of new products or market niche (Hahn, 2015). This change was necessary to keep pace with successive change in markets. This strong competition required also from companies more attention to supply chain management to meet the high expectation of customers. This led to the emergence of supply chain management as an important competitive force in today’s marketplace (Melnyk et al, 2009).

(Melnyk et al, 2010) noted that a transition was taking place due to deliberate management that aimed to procure, develop and configure appropriate supply chain management, which would allow the company to compete in the market. This transition was from decoupled/price- driven supply chain to coupled/ value–driven supply chain. (Aishah et al, 2013) highlighted the supply chain management as an important factor to achieve long-term and sustainable economic growth.

Supply chain management has many activities and functions in the company. It has planning, management, coordination, and collaboration and communication role with partners, third party, suppliers, distributors, service provider and customers. The Supply chain consists of all business flow between partners to reach the same objectives (Bowles and Lu, 2014). As per (MacCarthy et al, 2016) supply chain is not static, it is developed and changed in shape, size, configuration, and the way to manage and control it.
2.2 History and evolution of Supply chain

The 1950s the concept for supply chain concentrated in transportation management due to the development of containers which was carried by ships, trains, and trucks. In 1960s clear trends was developed to depend more on transportation using trucks to save time, and that led to more attention about warehousing management and freight transportation which called (physical Distribution). In 1963 the national council of physical distribution management was founded. In 1970s companies started using computers to record the data instead of manual record and that opened the door for huge enhancement in logistics management especially the inventory and warehousing activities. In 1980s huge development was happened in logistics through the spread of computers that helped in planning. Since that, companies had started to integrate the inbound-outbound products. In that period companies became more interested in supply chain management after they had realized its benefits. In 1985 the national council of physical distribution management was changed to Council of Logistics Management. In 1990s huge development happened in logistics due to appearance of enterprise resource planning (ERP) system and revolution of technology which helped the organizations for integrations, also the communication and sharing information increased due to released internet explorer. In 2000s most of the large organizations started using ERP system, the huge improvement in information technology gave more accurate information on minimum time. The improvements were still going on to enhance the (ERP) system for better planning and integration. In 2005 the Council of Logistics Management was changed to Council of Supply Chain management professionals (Robinson 2015).

Recently we could see many fields get a lot of benefit and great value by using the supply chain management such as healthcare area.

2.3 Supply chain management definitions and concepts

There are many definitions of supply chain management. Some authors defined the supply chain management in operational terms involving the flow of materials and products, some of them defined it as management philosophy, and the rest saw it as management processes (Tyndall et al, 1998).

The American professional association had a comprehensive definition (the planning and management of all activities involved in sourcing, procurement, conversion and all logistics management activities. It also includes coordination and collaboration with channels partners, suppliers, intermediaries, third-party providers and customers). (Lambert et al, 1998) the supply chain is the alignment of firms that bring products or services to market. As per (Chopra and Meindl, 2003) (Supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves).

(Cox et al, 1995) described the supply chain as the function within and outside a company that enables the value chain to make products and provides services to customers. (Lummus
(and Alber, 1997) had another definition; it is the network of entities through which materials flow. Those entities may include suppliers, carriers, manufacturing site, distribution centres, retailers, and customers. (Ellram and Cooper, 1993) described it as an integration philosophy to manage the total flow of distribution channel from supplier to ultimate customer. (Monczka and Morgan, 1997) explained the concept of supply chain management is about going from the external customer and then managing all the processes that need to provide the customer with value in a horizontal way.

(Christopher, 1992) had another definition of supply chain management; it is the network of the organization that is involved in upstream and downstream linkages, through different processes and activities that will produce products and services to customers.

Daniell Elliot (Intelex, 2015) explained the modern supply chain system. According to the writer there are three characteristics of the modern supply chain: technology, continuous improvement, and resilience. This article is important because it gives a good idea of how the modern supply chain system shall be. Many useful articles posted in (Nobilis, 2011), these articles talked in details about old and new activities of supply chain system, modern practices of supply chain system, procurement, information technology, the main component of supply chain system, and integrated supply chain system. These articles are very useful to explain the activities of the supply chain such as warehousing, inventory, and transportation.

The academic research was done by (Muckstadt et al, 2001) Guidelines for collaborative supply chain system design and operation. The authors established a set of guiding principles for the effective design and execution of supply chain systems. These principles suggested why, what, and how collaborative relationships should be constructed. They talked about specific and details about several barriers to achieving goals such as demand uncertainty, supply chain with poor physical characteristics, and poor information technology infrastructure. Authors talked about the current supply chain models and this is very close to what shall be done at the end of this research.

(Schulz, 2011) explained best practices of logistics management; he explained the importance to have logistics strategy and its positive effect in minimizing the cost of supply chain and operation management. The article talked about the importance of using the information technology to measure, analyze, and give a good chance to succeed. It explained the role and the importance of effective transportation management system and its influence on customer service.

The supply chain system is divided into internal and external activities. The internal supply chain refers to all activities within the company such as purchasing, logistics, and sales. All these activities shall integrate together for the success of the company. Internal integration involves cross-functional teams that will work together to share information, process and make the product with each other (Otchere et al, 2013). According to (Aishah et al, 2013) the internal components of the supply chain which exist within the companies are most important factors compared to the external factors to achieve long-run competitiveness and efficiency of the supply chain performance.
The internal supply chain management also refers to many activities such as planning, organizing, control, and coordination of the supply chain management.

2.4 Internal supply chain integration and challenges

The purpose of Supply chain management is the efficient integration of all internal and external stakeholders in a distribution network in order to realize expected service levels, which are delivering the right quantity, in the right location, at the right time with the best price. As per (Quansah et al, 2013) the best way for implementing supply chain integration is to start from internal to external integration. So it is very important to achieve the coordination and integration of internal supply chain. According to (Chopra et al 2016), to achieve the coordination you have to take the top management commitment to coordination, allocate the resources, communication, and use the technology to share information. This strategic view creates a challenge of coordination and links between the upstream and downstream activities. The internal integration is the ability of the company to integrate and collaborate with cross-functional departments.

There were many definitions of internal supply integration. According to (Chen et al. 2007) the definition of integration is based on interaction and collaboration. (Gimenez 2004) defined it based on coordination, collaboration, and integration. (Griffin and Hauser 1996) in their research defined the integration as equal to communication and cooperation. (Swiink and song, 2007) defined it as coordination of timing and substance of functional strategies and development activities (Communication and cooperation). (Mokinnon et al, 2012) mentioned that the relationship is the key to effective supply chain integration. (Flynn et al, 2010) defined the internal integration is the collaboration, coordination, Communication and cooperation between departments.
(Baker et al, 2012) investigated in the barriers that facing the internal supply chain using system thinking, the authors identified and categorized the actual barriers related to behaviours /culture factors and organization factors that impose on employees. While (Aishah et al, 2013) selected knowledge, time, technology, leadership, communication, and commitment as internal factors. They reached a result that the knowledge has a positive effect on internal supply chain integration more than other factors. (Passanen, 2015) in her thesis on internal supply chain development in family own business found that the good internal cooperation between involved departments is essential to develop the internal supply chain.

(Melny et al, 2014) in their article introduced the supply chain design based on three level of analysis: influencers, design decisions, and building blocks.

Influencers; which are high-level considerations such as business, Design decisions; which include the social, behavioural, and physical design elements. Building blocks; which include inventory, transportation, capacity and technology used to implement supply chain. They proposed the supply chain using these three levels for better understanding by managers. This is very useful because the supply chain becomes a critical tool for the managers now with increasing evidence of growing the importance of supply chain system. (Salam, 2011) focused on his research on the behavioural perspective of the supply chain to identify its impact on the commitment and business process integration. His argued that the behavioural determinants play a vital role in achieving supply chain integration. While (Basent, 2013) found that the relationship not less important than coordination and communication for the internal supply chain integration. According to (Wu et al, 2018) the collaboration is very important to achieve the integration. Their argument was there are three major driving issues for collaboration, organization sharing behaviours, technology use behaviours, and social capital. As per result, they found that the technology is the most important factors in collaboration. (Beske, Seuring, 2014) agreed also that collaboration is the important key to supply chain integration and sustainability.

A key area that needs to be examined is the role of information technology, (Jha, 2014) highlighted the role of Information technology in supply chain management, and how effectively using it to manage the supply chain. He mentioned many kinds of software for supply chain and concentrated about Enterprise resource planning (ERP) and its functions in purchasing, accounting, sales, and inventory. He also mentioned the hardware consideration for supply chain system.

Another significant development that needs consideration is the areas of SC integration, (Carter et al, 2009) in their study focused on two important factors for supply chain integration: alignment and linkage inside and outside the company. Their argument was the supply chain strategy that shall be aligned with company vision, goals and objectives. The importance of communication and sharing information is needed for planning and decision making. Regarding the challenges, they identified 14 challenges that company has to meet to achieve the integration such as develop people and culture, develop a valid and reliable database, and build trust within the company.
(Inderfuth et al, 2013), (Qranfleh and Tarafder, 2014), (Zhou et al, 2014), (Wu et al, 2014), (Dubey et al, 2018) and (Bing et al, 2014) they all agreed that successful integration needs good information to pass between departments and that leads to enhancing the supply chain agility, adaptability, and alignment. Inaccurate information is causing a lot of problems with maximum inventory and poor customer services.

(Riley et al, 2016) argued that the internal integration needs training for the staff to enhance the company performance.

(Kaufman, 1997) described the aim of supply chain management that is to remove communication barriers and eliminate redundancies. That happens through effective coordination and monitoring all the tasks and processes. (Akkermans et al, 1999) opinions were the integration can be done through cooperation, collaboration, information sharing, trust, partnerships, shared technology, and shift to manage the supply chain function as integrated functions.

The article published by (Pfeiffer, 2017) mentioned three steps to achieve supply chain integration. The First step is adopting a collaborative mindset both internally within the company and externally with suppliers and partners. The Second step is creating collaboration infrastructure. The Third step is leveraging information.

(Quansah et al, 2013) in their study mentioned that poorly technological innovation, lack of information sharing, and poorly integrated database are the major challenges that may face the supply chain integration.

(Awad and Nasser, 2010) highlighted a key theme relevant to this study, the organizations that successfully implemented the integration of supply chain, they did it after they faced and overcame the integration challenges. The Author tried to cover all challenges and obstacles from different perspectives, technical, managerial, and relationships. He argued that the company should focus on four stages to design and integrate effective supply chain system network; internal supply chain, distribution system, information, and funds flow. He explained that the challenges are suitable for all business.
F.2. (Awad and Nasser, 2010) classification of supply chain integration challenges

- Transaction cost.
- Strategic flexibility.
- Strategic planning management.
- Customer order management.
- Logistic management.
- Operation flexibility.
- Measure of sc benefits.
- Standard of trade.
- Procurement management.
- Enterprise integration.

- Business process integration.
- Culture and change.
- Supplier competence requirement.
- Business transformation oriented to globalization.
- Effect of globalization.

- Data and information integration.
- Application integration.
- Extranet adoption.
2.5 Role of Information technology in supply chain management development and integration

Information technology has an essential role in supply chain management development and integration, it saves time and effort. Information technology is one of the key barriers to supply chain integration (Baker et al, 2012). It is one of the important components of supply chain management (Aishah et al, 2013). The rapid development in information technology led to the emergence of the term supply chain network which is an evolution of the basic supply chain (Awad and Nasser, 2010).

Information technology is one of the key enablers of the supply chain to make alignment and linkage. Through information technology, we can collect and share data and information to facilitate communication between people and support the decision making. It helps to ensure data availability, accuracy, and timeliness (Carter et al, 2009).

Information technology designs, implements, and controls the activities between departments. (Holland, 1995); (Hill and Scudder, 2002); (Lancioni et al, 2000); (Roberts and Mackay, 1998); (Sahay and Gupta, 2003); (Murillo, 2001) mentioned in their research that information technology is very important to improve the effectiveness of supply chain management. (Lin, 2014); (Wu and Chiu, 2015); (Youn et al, 2014) reported in their studies the important role of information technology in supporting collaborative behaviors in supply chain management and customer satisfaction. Information technology is used with information, system, and service quality. It is the most important precursor in determining collaborative behaviours in supply chain management. (Wu et al, 2018) state that the Information technology is the key driver of the collaborative effort.

Supply chain management depends on information technology; it improves the communication and collaboration with suppliers. Information technology also enhances the supply chain efficiency by providing real-time information about products available, the level of stock, and shipment status (Radstaak and Ketlaar, 1998).

Using information technology and software gives actual information about stock balance and sales performance, and helps to give accurate forecasting. The development of internet and software such as Enterprise resource planning system helps supply chain and it offers flexible exchange information between trading partners. (ERP) system helps to integrate functions because the application performs common business functions through a common database. (ERP) system also helps to share information among members of the supply chain and connect with customers, partners, and co-workers (Awad, 2010).

Effective application of information technology is the integration of all activities and tasks in supply chain management. It effects on reducing the level of complexity. Information technology has an important role in supply chain performance; the information that is given to managers by information technology systems is used by them as input to take accurate decisions. Information technology is the eyes and ears of supply chain and part of the brain as well; it collects and analyzes information to make good decisions that are based on real information (Hughes et al, 2008). The flexibility of information technology has a positive link...
to company competitive advantages (Bhatt et al, 2010). It affects directly to supply chain agility (Ngai et al, 2011).

There are four benefits of (ERP) on supply chain; improving supply chain network by monitoring all the status and supply chain activities, minimizing delay by coordinates and executing all activities to ensure higher level of on-time delivery, enhancing collaboration by filling the gap between supply chain partners, and reducing cost in many ways such as improving inventory management (Nemati and Mangaladurai, 2014). There are many benefits of combining supply chain and (ERP) system such as improving efficiency across multiple departments that involved in supply chain management, increasing customer retention by improving customer service, and reducing operational and overhead cost by automation of workflow (Anon,2015).

Utilizing ERP is one of the best ways to improve the supply chain management through different ways; ERP can increase business profits and efficiency while reducing cost and waste. Using the ERP by employees will increase the accuracy, encourage teamwork, and reduce miscommunication. Top management will depend on accurate and timely data and information for supply chain strategy decision making (Inc, 2015).

2.6 Summary

In conclusion, this chapter reviewed the current literature in the same field of this study and explained the essential role of supply chain management in the success of the companies especially due to the development of information technology and that also link to the aim and objectives of the study that mentioned in objective one which examines the key theories and concepts on developments in supply chain management. First part introduction to supply chain management and its activities and tasks were given. Second part history and evolution of supply chain management since 1950 up-to-date. Third part many supply chain management definitions and concepts were mentioned from different perspectives. Fourth part explained and highlighted the internal supply chain integration and challenges may face the companies during the implementation of integration. Last part the importance of the information technology in supply chain management and integration. Many challenges and obstacles were found in literature should be tested in the case study such as coordination, communication, the sharing information, and the relationship between departments and people inside the company. The information technology infrastructure and the software such as Enterprise resource planning system have an important role to overcome these obstacles.
3. Methodology

3.1 Research Strategy

Interpretivism approach will be used in this study which cares about understanding human actions. This study will adopt the inductive approach and will use a qualitative method to check the collaborative and the communications between departments that involved in the supply chain. Through this approach, the employee’s abilities and skills will be checked to perform the tasks entrusted to them and the Enterprise resource planning will be checked also if it is fully utilized for integration. In this study will use mono-method for collecting the data which is the qualitative method. Only this method is used to collect information in this study because the number of interviewers is not as important as the important of collecting sufficient information about the subject of study and analysis of information also does not depend on what most employees agreed upon, so it will not be analyzed quantitatively. That is because through each employee’s experience and mission, the obstacles and challenges he or she faces are different. The importance here when using single method is avoiding mono-method bias.

The recent knowledge that was found in literature review will be applied and tested to determine the challenges in internal supply chain integration in Basic Electronics as a case study.

The Case study strategy will use the embedded case study to understand the context of the research and to answer the research question. A Mono method will be used which is semi-structured interview as data collection technique, answers can be got of what and why questions.

The semi-structure deep interview with employees will be used for different levels and departments. The interviews will have some key questions to ask all of them and they have time to talk freely about their experience. The common problems that face all of them and the problems between departments can be noted from the semi-structured interview.

Below the research onion:
3.2 Sampling Strategy

High quality and suitable sample size is selected to answer all the key questions; a complete response is expected during the interview. Then the conversation will go smoothly to collect more information about the subject from their experience. The selected sample will be the main employees that in charge of certain actions in the internal supply chain on available time for the study. The qualitative sampling seeks to understand more about the research question deeper understanding; maybe more people from some departments are needed. The selected sample will be the right people to conduct this interview and have the knowledge and experience that needed for the study.

The initial size of the interviews is about with 13 employees from different departments such as purchasing, distributions, logistics, information technology, sales, and finance.

The size of the selected sample is expected to give enough information about the supply chain system and the common challenges, obstacles, and barriers can be identified.

During the study, if there is a need for more interviews the size of the sample will be expanded to 20 employees.

<table>
<thead>
<tr>
<th>Purchasing</th>
<th>Distribution</th>
<th>logistic</th>
<th>Sales</th>
<th>Information technology</th>
<th>Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>two persons</td>
<td>one person</td>
<td>three persons</td>
<td>Three persons</td>
<td>One person</td>
<td>Three persons</td>
</tr>
</tbody>
</table>

Table.1. Size of the selected sample
3.3 Data collection

The data will be collected through two methods, primary and secondary methods. That will allow collecting data from people that have direct experience and knowledge about the research subject. It will allow collecting and analyzing a sufficient quantity of information.

- **Primary data:** qualitative method will be used to collect the primary data using the semi-structure interview that will be conducted outside the official working hours. The interviews will be with 13 employees as mentioned in 1.2. A range of questions (essential and extra questions) and ideas will be prepared to be asked and discussed with the selected sample about the subject of study, depending on the interview and the information that the interviewee has, some questions may be added or deleted. All notes and answers will be recorded during the interviews. The interview will help to collect a reliable and valid data about the research question and help to achieve objectives. This method is useful for exploring the problem that is relatively new. The form of research interview will be as following:

![Fig.4. The form of the research interview](image)

Appropriate language will be used in interviews, English and Arabic languages will be used depending on the interviewee. A translation from Arabic to English is needed with some interviews. The interviewer shall aware of the interviewing requirements such as questioning, listing, summarizing, dealing with difficult participants and recording.

The interview will have a guide include a heading (date, place, and interviewee), the questions, space between questions to record the answers, and conclusion.

- **Secondary data:** the recent information that obtained and collected from literature review will be the starting point to find the challenges that face the internal supply chain integration in Basic Electronics. The secondary data will be
qualitative in nature which includes articles, journals, books, reports, and academic studies. Much matching information was found on the internet which is suitable to be a secondary data. This access is considered an easy and not costly one to collect the required information. The secondary data that will be collected will help to answer the research question and meet objectives as well. But collecting this information takes time to read and revise and use the best information.

### 3.4 Analysis Methods

After collecting primary and secondary data; the secondary data will be analyzed using Microsoft word coding tool and the primary data that will be got from interviews will be analyzed through the following steps. Step 1 is listening to all interviews as a whole and makes notes about the first impression. Step 2 is listening again to one by one. Step 3 is writing all the answers for each participant for each question. Step 4 is summarizing the answers for all participants in a useful paragraph. The answers will be compared with the information that was collected from literature review to make sure that all the areas are tested and cover the subject from all sides. The administrative gap in supply chain integration management will be found out through all the answers and discussions. That will help to determine the challenges that face it. Finally, depending on the results, conclusions and recommendations can be adapted with structure and culture of the company.

### 3.5 Validity and reliability

Referring to data collection technique, if the same situation stays there in the company without any development to the supply chain integration, any person wants to conduct the same study will reach the same results. There are no threats to reliability because the study will help the staff and the company to develop the supply chain and a lot of enthusiasm to help in reaching the desired objectives. In addition, there is no authoritarian management style to prevent the staff to express their real opinions. Basic electronics one of the most companies that have employment security and this is an important reason for an employee to look for solutions to existing problems.

Regarding validity, there are no threats because nobody in the company stood the supply chain process before and because of the study period (5 months) so there is low chance that any participant will leave the company. In addition, the study doesn’t need testing and instrumentation.
- **Primary Research:** reflecting the validity and the reliability by avoiding bias when collecting the primary data through conducting interviews. This needs a strong attention while collecting and analyzing data and needs attention while writing the answers to the questions. This will guarantee creditability results and outcomes.

- **Secondary research:** All secondary data and reviewed materials including the literature review will obtain through Cardiff metropolitan library services, Google Scholar, and many useful and reliable references.

### 3.6 Access

The selected people had been contacted to ask them for permission to conduct an interview, where the access to them is easy since we are in the same company and colleagues. The study and its benefits were explained to them and so they are well aware of it. A clear purpose statement was provided to them and the exact data were required from them. The discussion raised the interest of many of them and all look ready to support. It is a positive and encouraging thing to move forward with the study. The selected sample will be the main source of information.

Regarding the access to online data, the university library, and Google Scholar will be used to obtain researches and information in an ethical manner.

### 3.7 Summary

In conclusion, this chapter discussed the methodology for the research study. The research strategy was discussed by using Interpretivism approach and adopting inductive research using a qualitative method to evaluate the challenges associated with supply chain integration in Basic Electronics. This study in Basic Electronics will be an embedded case study and will use mono-method, which is semi-structure interview to collect the primary information. Then it explained the sampling strategy for the study which will be with employees that working in supply chain activities. The initial size mentioned from different departments. The data collection was explained through two methods, primary and secondary methods. The analysis of the data will use qualitative method. Finally, this chapter explained the validity and reliability of research study and collection technique. Access to selected people and resources was mentioned.
4. Findings and data analysis

4.1 Introduction

This chapter presents the findings from secondary data and primary data that obtained through the method which was explained in methodology chapter. The interview questions were chosen based on the coding that obtained from secondary data, one or more questions were asked to the participants about each challenge. The following data findings will present what was found out related to the study objectives and qualitative data that had been collected through the literature review and semi-structured interview.

This chapter is structured to present the findings and data analysis related to challenges and obstacles that facing the internal supply chain integration in Basic Electronics Company and the roles of information technology in supply chain integration and the effectiveness of the information technology and its role in the supply chain integration in Basic Electronics.

4.2 Research Participants

15 important and high-quality employees were participating in the research study. All of them responded completely to the request for the interview and all of them answered all the questions. During the interview, many of the participants asked to keep their answers confidential.

The table below shows the participants number and their department.

<table>
<thead>
<tr>
<th>Dept Participant</th>
<th>Distribution</th>
<th>Logistics</th>
<th>Sales</th>
<th>Finance</th>
<th>Purchasing</th>
<th>Information technology</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Actual</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Table.2. Proposed and actual interview participants

I would change and mention positively that with qualitative research many participants offered valuable information and good experience in the field of research.

4.3 Coding Strategy

The coding strategy was used to process of coding the qualitative data and these were the following steps:

The First step: all the data were labeled and coded using assigning word or phrases to a certain code.

The Second step: all the codes that related to challenges and obstacles for internal supply integration were listed and categorized into three main categories. The initial coding and
categories were derived from literature review and academic studies. The challenges and obstacles that faced the internal supply integration were classified into three categories: managerial, technical and relationship as follows:

**CHL-REL-COL**: Collaboration between department and people involved in supply chain system and this included sharing information, ideas and procedures.

**CHL-REL-RBE**: Relationship among members involved in supply chain system.

**CHL-REL-COR**: Coordination between people and departments involved in supply chain system and this included work to same objectives.

*Fig.5. Challenges codes and categories*
**CHL-REL-INC:** Communication between employees and between management and employees, this included open communication between them and update each other with latest information and decisions.

**CHL-REL-BCF:** This included the different cultures and behaviours for the involved people in supply chain system.

**CHL-REL-CAT:** Employees commitment to do their job and the trust between them.

**CHL-MAN-STR:** Strategies for supply chain system such as purchasing strategy and transportation strategy.

**CHL-MAN-TMC:** Commitment to providing the necessary resources to do the job.

**CHL-MAN-ALR:** Using the available resources in an efficient way.

**CHL-MAN-KNO:** Understanding the knowledge of supply chain management.

**CHL-MAN-LEA:** Manager should adopt many leadership styles depending on the situation.

**CHL-MAN-AAL:** All departments’ objectives should be linked to the company mission, vision, and objectives.

**CHL-MAN-DVP:** Developing staff by giving them training courses.

**CHL-MAN-TRS:** Training the employees on the new software in the company.

**CHL-MAN-MOF:** Providing the fund for the supply chain system.

**CHL-TEC-ITI:** having the appropriate information technology infrastructure to integrate the supply chain activities.

**CHL-TEC-SHI:** The chosen software should have this important function which is sharing information.

**CHL-TEC-SOF:** The Company should choose the correct software which meets the supply chain requirement and contain the required functions for integration.

The roles of information technology were obtained from the secondary data that were mentioned in the studies and researches for integration of internal supply chain system, and then the employees in Basic Electronics Company were asked about these roles to check the effectiveness of the information technology.
4.4 Internal supply chain integration challenges findings and analysis

As per the semi structured interviews that had been conducted with the research participants and using the codes and categories that had been derived from the secondary data which was the literature review and academic studies, the following challenges are the challenges and obstacles that were tested in Basic Electronics Company. One or more questions were designed for each challenge to be asked to the participants. The following findings are related to objective three: To evaluate the challenges and strategies for developing and improving internal supply chain collaboration and communication within a particular focus on Basic Electronics Company and objective Four: To evaluate the role of information technology and its effectiveness in supply chain integration in Basic Electronics.

The study findings will discuss all challenges and obstacles one by one and discuss whether it exists in the company or not, to summarize at the end of this chapter what are the current challenges and obstacles that shall Basic Electronics overcome to enhance the supply chain system. The findings below also will explain and bind that there were some challenges related and linked to another challenges, it means some existing challenge will lead to another challenge.

4.4.1 Managerial challenges (Category 1):
Managerial challenges are the challenges related to management decisions such as developing appropriate strategies and linking all departments with the objectives and vision of the company, in addition to that provide the necessary funds for procurement and transportation and provide qualified and trained persons to work professionally. Below are the managerial challenges questions and answers.

- **Strategy (CHL-MAN-STR)**

  **Question1:** Is it possible to explain the strategy for your department?
  
  **Question2:** Do you know the company vision and mission?

  **Answer:** The study found that there is no clear strategy for short or long time for supply chain management in Basic Electronics. To over all the challenges that face the internal supply chain integration, it is essential to have strategy and clear plan for each cross-functional area that is involved in supply chain such as procurement and transportation, and all these strategies should integrate together in order to reduce the operation cost, enhance the customer satisfaction and reach the supply chain objectives. During the interviews, nobody gave me a clear strategy for his department or knew what the short or long term objectives are. (Aishah et al, 2013) and (Schulz, 2011) in their studies approved that developing a supply chain strategy is very important to improve the business strategy.
- **Top management commitment (CHL-MAN-TMC)**

  **Question:** Is there a top management commitment for supply chain management?

  **Answer:** the participants agreed there is a lack of commitment by the top management to provide the necessary resources in the belief that it is waste of money and pressure on employees to work with maximum power. The incentive policy is also absent in the company’s system to achieve company objectives. As per the participants top management commitment will increase the level of productivity, it is important to put a clear vision and strategy for supply chain system and determine the standard of the company and its direction and important for implementation of supply chain system. (Quansah et al, 2013) confirmed that in their study.

- **Allocate resources (CHL-MAN-ALR)**

  **Question:** Can you explain how do you or your manager allocate and manage the resources in your department?

  **Answer:** as per the participants this challenge is linked to top management commitment challenge and strategy, Basic Electronics doesn’t have a clear model for using the available resources in an efficient way with the absence of performance measurement as well. If the company wants to success in supply chain integration, it shall be able to manage and provide the required resources. (Chopra et al, 2016) agreed and supported that in their study.

- **Knowledge (CHL-MAN-KNO)**

  **Question1:** Is it possible to explain what the concept of supply chain management?
  **Question2:** What is your background or university certificate if you have?

  **Answer:** from the interviews in Basic Electronics most of the employees have weaknesses of understanding of supply chain management. Unfortunately, there is no person in the company with supply chain management background or education. All employees perform their duties and tasks entrusted to him with practical experience and learning from mistakes. (Aishah et al, 2013) confirmed that the knowledge has a positive effect on internal supply chain integration.
- **Alignment and linkage (CHL-MAN-AAL)**

**Question:** Are there any communications or meetings with other departments for sharing ideas or plans?

**Answer:** As per the participants, this is a very important challenge should the company focus on it, each department should have strategy and objectives align with company vision, mission, and business strategy. Those require sharing the important data between departments, planning and decision making. Still, there are no common goals and vision across the company Contributes to making the right decision. (Carter et al, 2009) confirmed that alignment and linkage are two important factors in internal supply chain integration.

- **Leadership (CHL-MAN-LEA)**

**Question:** What style of leadership do you use with your team?

**Answer:** This challenge does not exist in Basic Electronics, the managers have the experience to adopt many leadership styles and use it in different situations. This area can be used by the company to generate success in supply chain management.

- **Develop People (CHL-MAN-DVP)**

**Question:** Does the company give you training courses to develop your skills related to the supply chain, logistic, inventory, and purchasing?

**Answer:** Since the company considers the employees are the most important assets and provide proof that there are many employees has been working in the company for more than 20 years. Through the interviews, it becomes clear that the owner of the company treats the employees in a respectful manner and gives the employees his full financial rights but he doesn’t care about developing the employee to become efficient. The company doesn’t give or send employees for training courses to develop their skills. The participants suggested many training courses such inventory management, warehousing management, and purchasing management. It is important to overcome this challenge to build a perfect supply chain team.
- **Training for staff (CHL-MAN-TRS)**

  **Question:** Regarding the new ERP system, have you been trained by IT department or the third party?

  **Answer:** Most of the employees complained that they had not been adequately trained on the new ERP software, because of that there was a resistance to use it from employees at the beginning. This also brings us back to resources allocation challenges; there is no enough employees in IT department.

- **Money flow (CHL-MAN-MOF)**

  **Question** to finance department about the availability of funds for purchasing and other activities in the supply chain?

  **Answer:** Money is the lifeblood of the supply chain, any shortage of the cash will be a negative effect on the process. Actually, this challenge does not exist on Basic Electronics, the funds always available for all activities.

4.4.2 **Relationship challenges (Category 2):**

  Supply chain integration is not only software and system also the people and relationship among members are very important, the term relationship covers the internal relations within the company, coordination, communication, and trust between departments and peoples involved in supply chain system. Still many companies are struggling to manage these challenges due to differences in culture.

- **Collaboration (CHL-REL-COL)**

  **Question:** How do you evaluate the collaboration and share the information between the people and departments involved in the supply chain?

  **Answer:** As per the participants, the collaboration is still very weak at the level of sharing information, plans, ideas, procedures and resources. Through the interviews, the answers were that each department works separately and reports to another department to follow. There is a lack of understanding of what collaboration actually means as well.
(Chopra et al 2016), (Chen et al. 2007), (Flynn et al, 2010), (Passanen, 2015), (Wu et al, 2018), (Pfeiffer, 2017), confirmed that the importance of collaboration is to link between upstream and downstream to achieve the integration.

- The relationship between employees(CHL-REL-RBE)

**Question:** How do you evaluate the relationship between you and your colleagues and between the employees in general?

**Answer:** as per the participants it is important factors to develop the internal supply chain integration. In fact, the relationships between the employees in Basic Electronics are very good. The company is distinguished by the fact that many of its employees have been working for a long time and have a firm relationship with the owner as well. This good relationship seemed clear through the interviews.

- Coordination(CHL-REL-COR)

**Question:** Is there any coordination between your department and other departments before you processed to a new stage?

**Answer:** The study found that there is a lack of supply chain coordination. Each stage of supply chain is done without taking into account the effect of this step on the next stages. The lack of coordination occurs because of lack of sharing information and having different objectives. The participants said that there is a pressure to close the task as soon as possible from their managers. (Quansah et al, 2013), (Chopra et al 2016), (Chen et al. 2007), (Flynn et al, 2010), and (Basent, 2013) confirmed in their studies that the coordination is one of the important bases of internal supply integration.

- Internal communications(CHL-REL-INC)

**Question1:** How do you evaluate the communication between employees and how do you communicate with each other?

**Question2:** In your opinion how can we improve the communication and collaboration between people and departments?

**Answer:** the study found that the internal communication in Basic Electronics has a positive effect on employee satisfaction and this has a positive influence on internal
supply chain integration. The study found that the top management always updates the employees with latest information and decisions. Although the weakness of the supply chain system, the internal communication between the employees and management is what makes the wheel work. On the other hand, there is some weakness among the employees involved in supply chain; some of them are still using old devices for communication like fax, despite of official company email and ERP software. (Chopra et al 2016), (Griffin and Hauser 1996), (Swink and song, 2007), (Flynn et al, 2010), (Aishah et al, 2013), (Basent, 2013), (Carter et al, 2009) confirmed the importance of communication and its positive influence in internal supply chain integration.

- Behaviours/ Culture factors (CHL-REL-BCF)

**Question: Do you know how to manage the diversity or people from other culture?**

**Answer:** the study found that Basic Electronics have culture challenges that must realize and accept to develop a strong working relationship. All labours and technicians are from different countries and cultures. Company doesn’t have regulation or internal system to deal with diversity to make the labour and technicians comfortable and minimize disadvantages. (Baker et al.2012) investigated in their study that the behaviours and cultures are actual barriers has to overcome to achieve the internal supply chain integration.

- Commitment and trust (CHL-REL-CAT)

**Question: Do you feel that you have a commitment toward your job and do you trust your colleagues?**

**Answer:** It is critical factors between supply chain team. The study found that there is no lack of trust and commitment in Basic Electronics. The participants explained the commitment and trust because of the strong relationship with the owner of the company and the employees in Basic Electronics.

4.4.3 Technical challenges (Category 3):

- These challenges include the software that is used to integrate the supply chain system such as Enterprise resource planning ERP, physical devices such as servers and computers for database, information technology infrastructure in all company locations, service providers, and internet connections.
  - **IT infrastructure (CHL-TEC-ITI)**
  - **Sharing Information (CHL-TEC-SHI)**
  - **Software (CHL-TEC-SOF)**
**Question 1:** How do you find the ERP?

**Question 2:** What is the existing procedure for the internal supply chain?

**Question 3:** How do you find IT infrastructure in your office?

**Answer:** As per the IT administrator, the Information technology offers many software solutions to help the companies to integrate their supply chain system. This software shall have the important functions such as easy to share the information between people and departments. It is important for the company to have the required infrastructure and physical equipment to run the software in the effective way. Basic Electronics selected a customized Enterprise resource planning to manage and integrate the internal supply chain. As per the interview with the IT team, the selected software has all functions required to manage and integrate the internal supply chain. As per their opinions, there was a resistance from the employees to learn all the functions and use it in daily work. On the other hand, many participants complained about the poor network connectivity in their areas and offices and complained also from some technical issues when using the ERP software. The employees now use the software in daily work but some departments are still not integrated fully such as finance and some departments need to share more information using the software like customs clearance.

**An example of sharing the information in Basic Electronics**

Once the procurement department finished the purchase order for the supplier, the supplier would send to them when the shipment started from the country of origin. This information should be put in the system to share it with another department such as customs clearance to prepare the required documents. Once the customs clearance department terminated clearance of goods, they should also upload the papers for the new arrival goods to the software to share this information with logistic to bring it from the port and put it in our store and insert it in the system to start using it from sales and distribution centres. This sharing information is still done in Basic Electronics in the old way by informing them verbally or sending the paper by fax. This will waste the time and money.

Daniell Elliot (Intelex, 2015) confirmed that in his article about modern supply chain management. (Muckstadt et al, 2001) also confirmed that poor information technology and poor physical infrastructure will be real obstacles for internal supply chain integration. (Otchere et al, 2013), (Chopra et al 2016), (Inderfuth et al, 2013), (Qranfleh and Tarafder, 2014), (Zhou et al, 2014), (Wu et al, 2014), (Dubey et al, 2018) and (Bing et al, 2014) all they agreed about the importance of sharing information to succeed in supply chain integration.
From the above findings the challenges that should be faced and overcome in Basic electronics to integrate the internal supply chain integration are:

1- Strategy
2- Top management commitment
3- Allocated resources
4- Knowledge
5- Alignment and linkage
6- Developing people
7- Training for staff
8- Collaboration
9- Coordination
10- Behaviours/ culture factors
11- Sharing information
12- IT infrastructure

4.5 Roles of information technology for internal supply chain integration

Information technology has the important role in supply chain integration by using the best software for integration the departments, automating the daily work, using good internet connections, and using good equipments for operating and protecting the database. All the following roles were obtained from literature review and secondary data, these roles are important to judge the performance for information technology and its effectiveness and it is best used to perform the tasks expected of it. And these findings are related to objective four to evaluate the role of information technology and its effectiveness in internal supply chain integration in Basic Electronics.

1. Save time and effort
2. Key enabler to alignment and linkage
3. Collect and Share information
4. Facilitate communication between people
5. Support Decision (accurate decision)
6. Ensure Timely and accurate data
7. Integration between departments
8. Improve the effectiveness of supply chain management
9. Improve Collaboration
10. Products available, level of stock and shipment status
11. Actual information about Sales performance
12. Give accurate forecasting
13. Reduce cost
14. Automation of workflow
**Question1:** Do you think the IT in Basic Electronics provides all the following roles? You can compare it with the old system without using the IT to manage the internal supply chain

**Question2:** Do you think using of new technology to integrate and manage the internal supply chain has a positive effect on the following roles?

**Answer:** All the participants agreed that the new technology and software are used now to manage, automate and integrate the internal supply chain succeed in the following and they gave examples Compared to the old system:

1- Save time and effort; especially in inventory which will take a lot of time, no need for many people to record and share the data, avoiding repeated process such as anybody can access the same data without sending a request to the in charge person to mail it, and arranges and streamlines many processes such as prepares monthly or annual sales reports.

2- Support decision (accurate decision); the software can give a lot of information for the top management that helps them to take the decisions in sales, purchasing and the status of customer payments. The ERP system can create high-quality database reports that can improve the process of decision making.

3- Ensure timely and accurate data; always at any time the information available about customer information, stock, sales reports, purchase orders, invoices, and reserved goods.

4- Integration between departments: increasing the communication through increasing the access of the information. Inventory control, transportation, logistics, routing, and warehouse management are the most important activities that have been integrated.

5- Improve the effectiveness of supply chain management: by improving the operations of working with real-time information.

6- Products available, level of stock and shipment status: at any time they can know the level of stock in any store in KSA, allocated materials, and shipment status.

7- Give accurate forecasting: this function in Basic Electronics is used by purchasing manager; ERP system can generate a statistical forecast for each item and calculate safety stock quantities.

8- Automation of workflow: reducing paperwork, all information saved in the database, faster than manual work, and minimize mistake.

9- Reduce cost: by reducing inventory which reduces its time sitting on the floor, real-time communication provides the involved persons in the supply chain the required information about supply and demand which keeps the cost lower.

The difference occurred between the participants on the rest of the roles. These roles linked to the challenges that discussed before such as sharing information, collaboration, communication, and alignment and linkage. As per the IT administrator the information technology that is used in the company offers these roles to facilitate the supply chain
system but those need accurate input from the users, and that need help from the employees and management to overcome these challenges.

4.6 Summary

In conclusion, the benefits of using this method to know the challenges that are needed to be overcome from Basic Electronics to reach the integration in supply chain system and also to know that still many roles of information technology can benefit the company to achieve the integration. The first part of this chapter showed the number of participants and their departments that responded to the semi-structured interview. The second part, explained the steps of coding strategy and the categories for the internal supply chain integration challenges that are obtained from secondary data and gave a brief definition of each code. In the third part, included the primary findings for the internal supply chain challenges as per the semi-structured interviews and discussed each code one by one with support from secondary data. The last part included the evaluation of the roles of information technology in internal supply chain integration in Basic Electronics.
5. Conclusions and Recommendations

5.1 Introduction

This chapter will discuss successful objectives based on the findings in chapter 4 and literature review in chapter 2. Conclusion for each research objective will be mentioned. Recommendations will be proposed based on research findings. Limitations and future research development will be discussed also in this chapter.

5.2 Conclusion

This study evaluated the challenges associated with internal supply integration in Basic Electronics. The subject was discussed with participants from the company who had experience in the research study using semi-structure interview. The conclusion of this study will be made for each objective based on literature review and the primary findings.

Objective one: To examine the key theories and concepts on developments in supply chain management.

The literature review covered the history and evolution of the supply chain concept from 1950 to 2005. It explained the evolution of supply chain from the beginning with the concept of transportation and how it was developed later to warehousing management and freight transportation which called (Physical distribution). That time the national council of physical distribution management was found. Then, using the computers enhanced the logistics and inventory management. The spreading of computers made the company interested more in supply chain management and the national council of physical distribution management became the council of logistics management. After ERP system appeared a huge development happened. When companies started using the information technology, they started the integration and sharing the information between departments, people, customers, and suppliers. The council of logistic management changed to be the council of supply chain management professionals.

Many definitions and theories were reviewed for supply chain management. It explained what it means, what departments involved and what activities and processes were involved in supply chain management. Hence, recent terms were mentioned and explained such as modern and collaborative supply chain system. The difference between external and internal supply chain management was explained as well.

Objective two: To explore the challenges of developing and improving internal collaboration and communications within supply chain organizations.

The literature review explained the definitions of internal supply chain integration and the purpose of integration and its benefits to the company. Several research studies and
articles reviewed challenges and barriers facing internal supply chain system and how to achieve internal supply chain integration. Through these studies, the main challenges were identified to be tested in the selected company. These challenges included the relationship challenges, technical challenges, and managerial challenges.

**Objective three: To evaluate the challenges and strategies for developing and improving internal supply chain collaboration and communication within a particular focus on Basic Electronics Company.**

Findings and data analysis in chapter 4 presented the results for the evaluation of the challenges and strategies for developing and improving internal supply chain collaboration and communication within a particular focus on Basic Electronics Company using the semi structure interview. These findings evaluated and discussed the challenges according to the categories and codes that were obtained from the literature review. The question/questions and answers were written for each challenge. The answers were discussed whether the challenge was still presented or exceeded. Finally, the challenges that company should overcome were summarized.

**Objective Four: to evaluate the role of information technology and its effectiveness in supply chain integration in Basic Electronics.**

By using the roles of information technology that were motioned in the literature review, the participants were asked about these roles in the interview to evaluate these roles and its effectiveness in internal supply chain integration in Basic Electronics. The result was all participants agreed that there was a positive effect of using the information technology to manage and automate the supply chain system. For example, they agreed about some important roles such as saving time and effort especially in inventory. Timely and accurate data were available at any time especially about the stock level and product availability. The differences between the participants appeared in some roles such as sharing information, communications, and collaboration. These differences related to how much the department were integrated with the new software and how much the employees used the information technology to share the information and communicate with other departments.
5.3 Recommendations

Based on the findings in chapter 4, many challenges need to be overcome for better integration for the internal supply chain system in Basic Electronics, and to get maximum benefit from using information technology which is the most Important to manage the supply chain effectively.

The owner and top management in Basic electronics shall develop first clear mission and vision for the company to be as a guide to all departments inside the company in order to make strategies that are commensurate with the company’s strategy and objectives. Supply chain department is one of these departments that have to develop a clear strategy and process for activity and create a supply chain continuity team from involved departments to manage the supply chain tasks and enhance the coordination and collaboration between them. This strategy will facilitate to overcome the challenges related to top management commitment and allocate resources due to containing the required resources to implement the strategy and through a commitment from the top management to allocate them.

Human resource department has an important role in hiring skilled persons in supply chain to support the company with employees which have strong knowledge in the supply chain management and they are able to manage the department in a highly competitive market. HR department shall also prepare a training and development programme to increase the efficiency of existing staff. There are several proposed courses such as communication skills and teamwork courses.

Basic Electronics has culture challenges have to be realized and accepted to develop a strong working relationship. Regulations to manage the diversity shall be developed in Basic Electronics.

Regarding technical challenges, it is recommended to put redundancy servers and hire more people in information technology department to solve the daily issues in less time. Because of a large number of employees in the company in many branches, it is recommended assigning one or two trained and qualified persons in information technology in each branch to solve the problems and train the staff on the ERP software. IT department shall work with the software developer to integrate the finance department to the ERP software.
5.4 Limitations and future research

The important limitation in this research was the small size of the used sample to conduct this study. It was possible to increase the sample by conduct interviews with more employees from more than one branch of the company. More research time should be taken into consideration as well.

In future research, it will be more beneficial to increase the size of the sample to be comprehensive for all branches. Another type of collecting and analysing the data may use like quantitative research using questionnaires and another type of qualitative method can be used in addition to interviewing such as supervision.
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