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TESTING THE EFFECT OF SUPPLY CHAIN LEARNING ON SUPPLY CHAIN FLEXIBILITY

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ABSTRACT

The supply chain learning process involves different components that bring the best in supply chain integration and flexibility. The processes range from simple and adds incremental to the current knowledge situations. This study investigates the relationship between supply chain learning process and supply chain performance flexibility, though internal integration which is the company internal departments, and external integration in SGS Company in Jeddah city, Saudi Arabia. This study assists in realizing the impact of supply chain learning and answering the question whether supply chain learning is affecting the supply chain performance flexibility. The mixed method and tools have been used in this study to gather data among the management from the services industries and the employees of the company. The study used (SPSS) program to analyse the data. The test and analysis included in this study are reliability analysis, descriptive analysis, regression, and finding the correlation. The data in this study reveal that there is a Positive relationship between supply chain learning and supply chain performance flexibility.

INTRODUCTION

Supply chain cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities [1]. Supply chain job is to deliver the product or service from raw materials till it become a finished product that meet different needs of human by taking advantage from resources available around, it includes people, organization, activities, and resources to come up with the finished product or service and deliver it from the supplier to manufacturer till it reaches to the end users. Supply chain need a continuous improvement to achieve competitive advantages, it plays a big role in the organization

performance, they must meet demands of its customers, to obtain a good satisfaction level, the organization connected by physical flow like movements and storage of goods, and information flow to track and control the day-to-day plans and goods [1].

According to Handfield et al. (2015), the learning process may involve both operational learning and strategic learning. In both processes, the supply chain is enabled by the use of different modes [2]. For example, it may involve a one-one relationship between players involved in that particular chain. This process may apply to a customer and a supplier. The other mode may occur in different groups of different firms. These groups must have elements of shared learning. Suppliers' club involves many suppliers. This may also involve gradations whereby a firm may work with a group of different suppliers [3].

Supply chain involves the development of products, their sourcing, their development as well as their information on the coordination of every activity. Its main concern is developing the product from raw materials to finished goods through processing stage. Raw materials are obtained from the natural resources available. For an organization to bear finished goods, it requires efforts from both individuals and machinery. The materials are delivered from suppliers, processed and the end results in benefits users as well as the organization itself through the creation of profits [4].

According to Stadtler (2015), performance, flexibility involves the right way of the organization to change with any condition, to enhance the proper satisfaction of their customers [5]. By measuring the flexibility of their performance, an organization is more likely to be competitive and to make enough profits. For an organization to achieve better flexibility in their performance, it should ensure that its internal integration is well managed to bring positive effects on its external integration. It should also emphasize on learning through the acquisition of new knowledge concerning the better method of production, supply, means of rewarding of their customers and raw materials. The combination of the above will bring a competitive advantage towards the firm by improving its performance [6].

It is important for an organization and its suppliers to work together to determine the right way to be on track with the environmental changes to achieve customers' needs and wants satisfaction by measuring their performance flexibility that could be strong competitive advantage to the organization. To deliver and reach organization goal of performance flexibility organization needs to make sure the internal integration (II) that consist of different departments inside the organization connected such as operation, finance, accounting, marketing and so on, are connected and works together to exchanging information's and make the flow easier and better, so this will have an effect on the external integration (EI) which is suppliers, distributors, and so on. The company internal integration (II) delivers to external integration (EI) the information's they need, and keeps them updated and on track with the company and what's happen within their processes [7].

To achieve performance flexibility Supply chain should emphasize on learning, learning is a process of acquisition new knowledge, experience, from our daily lives, and it's a needed skill in order to improve the organization, organization have to implies a constant process of learning through different ways like research and development and technology, to survive and obtain their goal of performance flexibility. Therefore, this study investigates the relationship between supply chain learning process and supply chain performance flexibility, though internal integration which is the company internal departments, and external integration in SGS Company in Jeddah city in Saudi Arabia.

METHODOLOGY
This study aims to investigate the relationship between supply chain learning and supply chain performance flexibility, internal integration and external integration.

Study Design

Research methodology is a "logical and systematic search for new and useful information on a particular topic, it is an investigation of finding solutions to problems through analysis" [8]. There's three approaches of methodology which are Quantitative approach, Qualitative approach, & and Mixed approach. In this study, quantitative approaching is used which will be a conduct survey in collecting and analysing data.

Tools of Data collection

There are many kinds of data collection tools, to collect data the researcher must ask four questions before starting, first which data to collect, how to collect the data, who will collect the data, and when to collect the data.

There are two types of data namely primary and secondary data. Primary data which refer to first time collected data for a specific topic by the researcher or someone else they hire. It's a real time data that offer an inside view and there are different kinds of methods for collecting primary data like observation, personal interview, and records. The secondary data are the collected and stored for research, service, and other official purposes by researchers. This kind of data could be available as journals, official record, and research publications.

Population

Population is defined as an entire group about which some information is required to be ascertained [9]. The population considered in this study is Saudi Arabia Jeddah, SGS (Saudi Ground Service Company) in Jeddah; consist of management from the services industries and the employees of the company.

Saudi ground services is a company provides 3 ground services for Saudia Arabian airline ground service (SAAGS), National Handling Services (NHS), and Attar Ground Handling (Attar Travel Co.), the 3 companies collaboration is rich with providing quality service for the clients, which leads to establish

SGS. The company vision is to provide safe, secure and efficient service to all its customers, thereby ensuring a continuity and profitability of the business. The Saudi ground services company mission is to be the most preferred and respected ground handling service provider delivering sustainable value by:

- Providing professional Ground Handling Services to our esteemed Customer Airlines.
- Achieving excellence in Safety, Quality and Security in Operations
- Focusing on the culture of sustainability
- Ensuring growth and delivering value to the stakeholders
- Constantly improving innovation to our services, processes and our products.
- Strengthening the reputation as the safest and reliable Ground Service Provider in Saudi Arabia

Sample

Sample is the selected objects or people from the population, the sample obtained from one company which is SGC in Jeddah, the sample size is (32) from both genders' males and females, with an age range of (20 - 60) years old. This study targeted all employees of supply chain. The income of those employees is between (15,000 – 30,000) Rp, the larger responses are from male with 77.3%.

Data collection method

This study used an online survey to obtain data. The survey sent to all the participants who are the supply chain managers and employees in SGS to determine the relationship between supply chain learning and supply chain performance. The survey is the most appropriate method since this study is aiming to analyse the relationship between supply chain learning and supply chain performance from the point view of the employees

Hypothesis

The hypotheses assume that there is a positive relationship between supply chain learning and supply chain performance flexibility in Saudi Ground Services Company. H1, H2, H3 H4 and H5 represent the developed hypothesis of this study and the research model is shown in Figure 1.

H1:   Supply chain learning has a positive effect on internal integration.
H2:   Supply chain learning has a positive effect on external integration.
H3:   Internal learning has a positive effect on external integration.
H4:   Internal learning has a positive effect on flexibility performance.
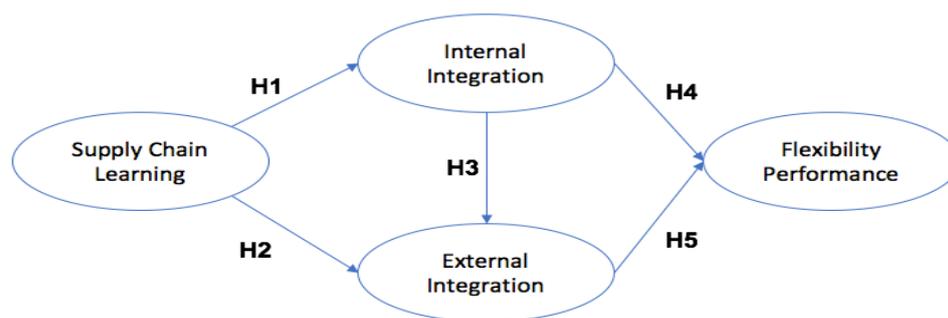H5:   External learning has a positive effect on flexibility performance.

Figure 1. Research Model

RESULT AND DISCUSSION

The study analysis will be conducted using SPSS in different stages. The test and analysis to be conducted in this study will include the reliability analysis, descriptive analysis, regression, and finding the correlation.

RELIABILITY ANALYSIS

Cronbach's Alpha

Reliability test was conducted to determine the consistency of the scales to measure the variables of the study. The data gathered from was analysed using Cronbach's Alpha, which is an internal consistency technique, aided by SPSS, an alpha coefficient of above 0.7 or higher indicated that the gathered data using questionnaires was reliable as it had a relatively high internal consistency.

Table 1 tabulates all the value of Cronbach's alpha as per checking reliability for the variables under study. The SCL, II, EI and PF questionnaire has an acceptable value of Cronbach's Alpha which is larger than 0.7, which indicates that that the gathered data using the questionnaire was reliable. The 5 items of SCL factors, 4 items of II factors, 4 items of EI factors and 4 items of FP factors are reliable and provide relatively high internal consistent information about supply chain learning and its factors. Based on Table 1, the research variables scale are above 0.7 which means that the reliability of the survey is high.

Table 1. Reliability Of The Variables

Variables	Cronbach's alpha
Supply chain learning (SCL)	.857
Internal Integration (II)	.886
External Integration (EI)	.930
Flexibility Performance (FP)	.913

Correlation Analysis

Table 2 shows the correlation between the variables of the study (supply chain learning, internal integration, external integration, and supply chain flexibility

performance) using the correlation matrix that provides Pearson's correlation. The correlation between the variable "supply chain learning" and "Internal integration" with .817, "supply chain learning" and "External integration" with .928, "internal integration" and "external integration" with .774, "Internal integration" and "supply chain flexibility" with .726, and "External integration" and "supply chain flexibility" with .827. These values refer to positive, significant correlation between the variables. So, there is a positive correlation between all the variables.

Table 2. Correlation Matrix For The Variables (N=32)

	SC-LAVG	II-AVG	EI-AVG	FP-AVG
SC-LAVG				
Pearson Correlation	1	.817**	.928**	.865**
Sig. (2-tailed)		.000	.000	.000
II-AVG				
Pearson Correlation	.817**	1	.774**	.726**
Sig. (2-tailed)	.000		.000	.000
EI-AVG				
Pearson Correlation	.928**	.774**	1	.827**
Sig. (2-tailed)	.000	.000		.000
FP-AVG				
Pearson Correlation	.865**	.726**	.827**	1
Sig. (2-tailed)	.000	.000	.000	

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

Regression Analysis

The analysis shows there is a positive relationship between supply chain learning and internal integration. Table 3 describes that the adjusted R square equals to 60%, which is less than 70% but close to it, which means that there's an average relationship between supply chain learning and internal integration. Table 3 describes that the adjusted R square equals to 80%, which is more than 70%, which means that there's a positive relationship between supply chain learning and external integration.

The analysis shows there is no concrete relationship between internal integration and external integration. Table 3 describes that the adjusted R square equals to 50%, which is less than 70%, which indicate the rejection of hypothesis 3.

Table 3. Model Summary Of Regression Analysis

Regression between	R	R square	Adjusted R square	Std. Error of the Estimate

Supply chain learning	Internal integration	.871[a]	.668	.657	.81100
Supply chain learning	External integration	.928[a]	.862	.857	.61584
Internal integration	External integration	.774[a]	.599	.585	1.04895

Table 4 shows there is a positive relationship between both internal integration and external integration, and supply chain flexibility performance. Table 4 describes that the adjusted R square equals to 60%, which less than 70% and close to it, which means that there's an average relationship between internal integration, external integration and supply chain flexibility performance.

Table 4. Regression Of Internal Integration, External Integration And Supply Chain Flexibility Performance

Model	R	R square	Adjusted R square	Std. Error of the Estimate
1	.838[a]	.703	.682	.75292

Descriptive Statistics

The sample size for the study is 32 participants which are 71.9% males and 28.1% females. About 43.8% from the participants are between the ages of 30-40 years, 37.5% are between the ages of 20-30 years, 15.6% are between the age of 40-50 years, and 3.1% are between 50-60 years.

DISCUSSION

Based on the analysis has showed there's a positive relationship between supply chain learning and external integration, average relationship between supply chain learning and internal integration, and internal integration, external integration and supply chain flexibility performance. On the other hand the relationship between internal integration and external integration is rejected.

From the results of the study, it was observed that there is a positive relationship between supply chain learning and supply chain flexibility. Therefore, it supports the hypothesis and research model (Figure 1) of the study of having a positive relationship between the two variables through internal and external integration. From the main results, this study concluded that the internal integration and external integration plays a big role in effecting the relationship between supply chain learning and supply chain flexibility. And both of supply chain learning and supply chain flexibility are connected and affect each other.

CONCLUSION

This study aimed to find the relationship between supply chain learning and supply chain flexibility performance, and internal and external integrations. The study indicates that the external integration influences the supply chain learning and flexibility more than internal integration. The findings of this study support the hypotheses in this study, where there is a positive relationship between supply chain learning, internal integration, external integration, and supply chain flexibility performance. This study recommends SGS supply chain to work on their relationship with the external integration (suppliers, transportations, customers) to become much better, grow their business and attract more company and airports to work with them to provide ground services.

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