

Effect of Information Technology in the Implementation of Electronics Supply Chain Management to Improve Competitive Advantage and Company Performance

Sy. Akmal¹, S. Sinulingga², H. Napitupulu³, N. Matondang⁴

^{1,2,3,4}Industrial Engineering Department, Faculty of Engineering, Universitas Sumatera Utara, Medan, Indonesia

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Abstract:

This research aims to find out whether the Impact Information Technology with electronic supply chain management and competitive Advantage will provide a significant influence on company performance. The approach of electronic supply chain management with five dimensions, namely: communication, collaboration, information sharing, Trust, and trading partner's power. Variable of competitive advantage consists of five dimensions, which are price, Quality, Delivery, product innovation, and time to market. As for variable of company performance measured by three indicators: financial performance, operational performance and performance-based marketplace. Data collection is gathered by distributing questionnaires. The Analysis method used in hypothesis is Structural Equation Modeling (SEM) by using Partial Least Square (PLS). The research found that the Effect of Information Technology with electronic Supply Chain management and Competitive advantage have significant effect on the performance of the company.

Keywords: Technology Information Systems, SEM, PLS

I INTRODUCTION

The development of Information Technology has had a tremendous impact on the business world. Digitizing Information in addition to offering a variety of business opportunities on the one hand, while causing business pressure for companies on the other. Competition is becoming increasingly tight because technology causes global competition Increasing competition in business, increasingly complex customer demand and the increasing number of products that emerge, encourage every company to create innovative products so that the company can compete and increase competitive advantage [1].

The development of information technology cannot be denied has changed the way the company works and opens new opportunities to

maintain competitiveness. according to research [2], the growth and development of the internet changed the entire supply chain management process. The use of the internet and e-commerce for chain management will be needed by every company [2,3,4]. In the Information era, innovation is an important factor for organizational development, one of which is by establishing an electronic supply chain management model which is an integration of e-commerce and supply chain management [5]. Electronic supply chain management can change the way decision-making, production methods, organizational efficiency, and customer satisfaction. Therefore companies both small and large need to develop electronic supply chain management to be able to maintain their competitiveness [6].

Manufacturing and service companies see the material delivery chain (supply chain), an important area that can reduce costs, and gain competitiveness [7, 8]. The main factor that drives companies to implement supply chain electronics is to gain competitiveness in response to market demand [9, 10]. This research was conducted in furniture companies, based on preliminary research conducted, showing that some companies still use a simple supply chain system, not maximizing existing technology, the village produced is not following consumer demand, marketing is not as expected, raw materials often late. Therefore, it is expected that by adopting technology in the supply chain, it can overcome the obstacles faced by the furniture company.

II FORMULATION OF THE PROBLEM

Based on the research background, the objectives of this study are:

- Does technology have a significant effect on electronic supply chain management.
- Does electronic supply chain management affect the competitive advantage
- Does information technology affect competitive advantage
- Does information technology affect the company's performance
- Does electronic supply chain management affect the company's performance
- Does competitive advantage affect company performance

III THEORETICAL BASIS

3.1 Information Technology

Information technology plays an important role in the application of Electronic supply chain management [11]. Information Technology has become the main facilitator for business activities, contributing greatly to changes in organizational structure, operations, and management. The role of information technology in chain supply is [6]:

- Eliminate.

Eliminate the process that is deemed no longer necessary if a computer system can be implemented.

- Simplified.

Simplifying certain processes or reducing supply chains, to implement faster and cheaper activities.

- Integrate.

Integration of several processes from the units in the supply chain becomes a simpler process.

- Automate.

Change things - things that are done manually become activities using a computer.

3.2 Electronic Supply chain Management (E – SCM)

E - SCM is a more advanced form of Supply chain management. The traditional processes carried out by supply chain management such as procurement, shipment, etc., also receive a special part in the e-SCM concept. his concept of connecting between units in the supply chain can be done with technology that allows unlimited connections between parties in the supply chain because the internet presents information at any time and becomes real-time which has an impact on creating faster collaboration between business partners [13]. There are 5 dimensions that form electronic supply chain management (e-SCM) [5].

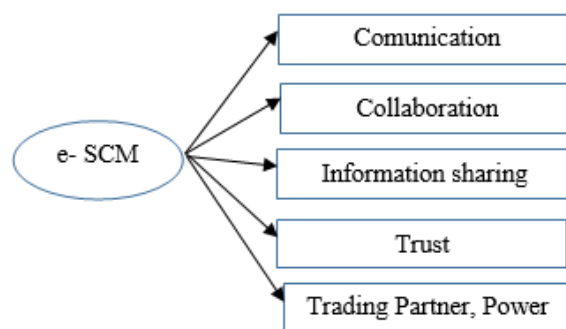


Figure 1. Dimension of e-SCM

3.3 Competitive Advantage

Competitive advantage is needed in the face of global competition [15]. Competitive advantage is the direction of organizational strategy that is not the final goal but is a tool to achieve company

goals, namely the performance of the organization that produces profits [16]. Defining competitive advantage is the advantage of competitors obtained by offering lower value or by providing greater benefits with competitive prices [17].

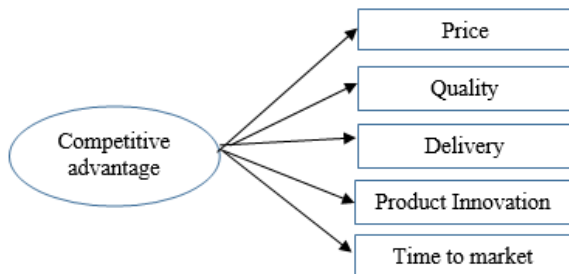


Figure 2. Dimension of Competitive Advantage

3.4 company performance

Performance is a description of the level of achievement of the task in an organization, in realizing the goals, mission objectives, and vision of the organization [18]. The organizational performance will be achieved if each individual in the organization is motivated to exercise authority and fulfill responsibilities as members of the organization [19]. Dimensions of company performance that are most often used in empirical research are: financial performance, operational performance and market based performance.

IV RESEARCH METHODOLOGY

This study will examine the Impact of Information Technologies (IT) and Electronic supply chain on Competitive advantage and performance of the company. Partial Least Square analysis is used to test the hypothesis. The respondents of this research are company members covering general manager, head unit/section, owner and board of direction and administrative staff who work in plantation companies both state-owned and private, with experience of at least 250 questionnaires distributed, only 185 questionnaires were used while there were 43 non – return questionnaires and 22 incomplete questionnaire. The description of the questionnaire. The average number of years that respondents had worked in their organization

(working experience) was 10,5 overall, 25 percent of respondents were owner company, 30 percent were managers, 20 percent of respondents were chief information and 25 percent respondents were the supplier. PLS analysis has two models, outer model and inner model. Outer model shows the specification of the relationship between variables and the indicator. While the inner model (Inner relation/structural model) shows the specification of the relationship between the latent variable, which is between exogenous/independent variable and endogen/dependent variable.

V RESULT AND DISCUSSION

3.5 Composite Reliability Test

Table 1

Composite Reliability

Construct	Composite Reliability	Explanation
Information	0,912	Reliable
Technology	0,823	Reliable
e- SCM	0,765	Reliable
Competitive advantage	0,789	Reliable
Company performance		

Reliability testing is done by composite reliability. From the table above shows that the overall test results are above 0.70, so the data taken is reliable and reliable and can be used to test the hypothesis.

3.6 Reliability Test

Table 2

Reliability Test

Construct	Cronbach's	Explanation
Information	0,801	Reliable
Technology	0,733	Reliable
e- SCM	0,792	Reliable
Competitive advantage	0,901	Reliable
Company performance		

Cronbach's alpha is the level of consistency of the respondent's answers in one latent variable. Reliability shows the research instrument used has high accuracy, so it can reveal reliable data. Questionnaires are said to be reliable or reliable if

the respondent's answers to the items are consistent over time. Generally to reset the thesis and dissertation the value of Cronbach's is > 0.7 . Based on table 5.2 for this study the answers of respondents above > 0.7 and Realible.

Table 3
Respondent Value

	Original sample	Mean of sub sample	Standard dev.	T. Statistic
IT --> e- SCM	0,495	0, 499	0,188	4,798
e –SCM --> CA	0,469	0, 487	0,179	3,632
IT --> CA	0,377	0, 391	0,165	3,972
CA --> CP	0,312	0, 401	0,133	1,853
e - SCM--> CP	0,397	0, 215	0,172	1,219

Following is the estimation of path coefficient.

- The effect of IT on e-SCM on the t – stats value is 4.798. When t statistic $>$ t table, with the influence of the electronics supply chain on Competitive Advantage, is 0,465 with statistic 0,3632. The Information Technology variable contributes 0,495 to the electronic supply chain management, means that if electronic supply chain management increases by one unit, then the Information Technology will increase by 0,495. The electronic supply chain management variable has an effect on 0,469. Therefore, the effect is: $0,495 + 0,469 \times 0,377 = 0,363 - 36, 3 \%$.
- The effect Competitive Advantage against company performance and electronic supply chain management against competitive advantage with T statistic is 1,853, Where t stat $>$ t- table 1,96. Therefore, the effect of Competitive Advantage against company performance is significant with path coefficient 0,312. Competitive advantage variable give contribution effect as 0,312 to company performance , means if variable Competitive advantage increase one unit the company performance also increase 0,397

towards company performance are: $0,312 + 0,397 \times 0,469 = 0,332 = 33, 5 \%$.

VI CONCLUSION

Information Technology has a significant effect on company performance. The good Implementation of Information Technology can improve the performance of the company. The electronic supply chain has a significant effect on company performance. The good implementation of electronic supply chain management will improve both financial and marked leader of the company performance.

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