

# E-Logistic SMEs Model: Information Technology to Support SMEs Logistic

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## Abstract

The logistics procedures of corporations pursue a suitable supply of sell, restructure processes, decrease charges, and delivery of their goods to the buyer in an effective way and permit them to change helpful development in order to be viable in the market. Nevertheless, these procedures are fewer effective of the SMEs. The purpose of this paper is to identify critical factors for SMES logistics. The research method uses systematic literacy reviews from several reputable journals. The findings of the critical factors for the success of SMEs logistics can be used as components of the SMES logistic model

## Keywords

E-logistic, SMEs, information technology, model

## 1. Introduction

Strategy of any company considers different areas of business operations, such as, e.g.: supplies, production, marketing, finance, and logistics. The growth of international business forced out changes in supplies of goods and services to the consumer market, so logistics strategy understood as the set of guiding principles, driving forces, and ingrained attitudes that help to coordinate goals, plans, and policies and which are reinforced through conscious and subconscious behavior within and between partners across the network. (Talevski, 2017). When logistics strategy is put in place in a company, the competitiveness of the latter grows, both when logistics services are rendered by firms manufacturing goods and services, as well as when such services are bought from external service-providers from the transport-shipping-logistics company

Since logistics progressive from 1950s, there were many explorations intensive on this area in dissimilar area. Due to the tendency of nationalization and globalization in current periods, the reputation of logistics supervision has been rising in numerous areas. For businesses, logistics assistances to optimize the current manufacture and delivery procedures based on the similar resources concluded management techniques for endorsing the effectiveness and attractiveness of organization. The important component in a logistics is transport system, which linkages the divided actions. Transportation inhabits one-third of the sum in the logistics charges and transport systems effect the concert of logistics system enormously. Transporting is essential in the whole manufacture events, from industrial to distribution to the last customers and proceeds. One a good management among each section would take the profits to a determined.

In literature, there is a rare amount of publications which mention to the logistics near corporate management. Seeing the background connected to the development in attractiveness in the SMEs, logistics take a significant element. The assortment of a combined strategy needs correct acknowledgement of logistics procedures. Hence, business information about singularities experimental in the area converts crucial, lengthways with the information about difficulties connected to the fields of organization. This, in turn, results in the fact that it is necessary to complement knowledge, using numerous available sources. At current, the grouping of information connected to logistics procedures with management approaches converts a requirement for SMEs. Hence, logistics in SMESs

should association information and services to design logistics procedures, to control them, to development their application and to appropriately from the market (Janczewska, D. 2019)

Transportation and logistics are important things that will make the transportation system efficient (Guarnieri, 2016),(Agrawal,2109), Agrawal(2106),(Accorsi, 2017). Logistics can increase the competitiveness of SMEs (Kherbach, 2016),(Balakrishnan,2018). Logistics can reduce costs, reduce risks, increase profits (Waithaka, 2018), (Mageto, 2018).

The current logistics trend is the use of third party services in logistics delivery (3PL / 3th Provider Logistic). The use of third party services for logistics delivery will affect the performance of SMEs in supporting SMEs logistics (Mageto,2018), so that many SMESs and companies use logistics provider services (Sundari.2020),(Payaro,2017)(Dallasega,2019). Logistics service providers also provide integrated operation services, warehousing and transportation services. Taking into account the sustainability n issue makes reverse logistics even more significant (Mavi, 2017). In addition, logistics service providers also have the advantage of having a wider operating range and being able to satisfy clients who have a high frequency of transportation needs every week. Specialized operators better understand market and customer needs. They also have well-designed strategies and business models to continually increase their offering, coverage area, and specialization in all industry sectors (Sinani, 2020), therefore logistics service providers have an important role in the supply chain. (Giri, 2017)..Several other industries besides SMEs have implemented logistics such as the retail industry (Loske,2020),(He, Z.,2019), (Enes, M, 2020) (Holzapfel, 20,18), (Owuor ,2019), in the manufacturing industry(Funke,2020), (Velázquez.2020) (Aghamohammadzadeh,2020), (Fartaj,2020), (Attaran,2017)in the healthcare industry (Fragapane,2019), ,(Lucchese,2020),(Egorov,2016)(Frichi,2020),(Sorteberg,2019)

## 1.1 Objectives

There are several factors that cause universities to not implement e-learning where one of the factors is the high cost of making e-learning systems and the unavailability of information technology infrastructure that supports the implementation of e-learning. The purpose of this research is to help educational institutions implement e-learning using cloud computing-based and open source technology. The result of this research is an open source e-learning model based on cloud computing

## 2. Literature Review

### 2.1 Logistic

In particular, the distribution and transportation functions are the main activities of logistics, affecting two important aspects: the use of place and time, which means owning goods at the required place and time. According to This criterion, there are many variations of the concepts surrounding this important activity, being one of the most widely used in both practice and in an academic context refers to transportation: as the main activity of logistics, whose function is the transfer of materials and goods to the destination of consumption, apart from adding the value of time and place. Based on this criterion, it can be said that the transportation system (TS) is a collection of modes, facilities and infrastructure, which become the basic material for the implementation, by humans, of transportation activities, through economic and juridical relations built in an organization (Lee & Lam, 2012).

## 2.2 Model

A model is a form of accurate representation, as an actual process that allows someone or a group of people to try to act on the model. It is an interpretation of the results of observations and measurements obtained from several systems". The formulation of the model has three main objectives, namely (Inayatulloh, 2016);

- 1) Provide a working description or description of the system for a certain period, in which there is implicitly a set of rules for implementing changes, or predicting how the system will operate in the future.
- 2) Provide a description of certain phenomena according to time differentiation or produce a set of rules that are valuable for the order of a system.
- 3) Producing models that present data and a short format with low complexity

Some studies use models to explain research objects such as block chain models for regional head elections(Inayatulloh,2020), CSF UKM models(Inayatulloh, 2020) new business models(Inayatulloh, 2016), IT governance models for SMEs(Inayatulloh, 2020) and Model for TAM SMEs (Inayatulloh, 2020).

## 3. Methods

This stage is carried out by searching for important factors related to SMES logistics from reputable journal such as emeralds, research gate, Ieee etc. The search for these factors uses a systematic literature review (SLR) technique. In conducting a search using keywords as follows:

- 1) Logistics
- 2) Logistic AND (Component OR Micro Small business)
- 3) Logistic AND (Component OR Small Medium Business)

The use of the keyword "Logistics" to find papers that match the topic of discussion, but if more than 450 papers are found, the keywords will be added with the words "Component" OR "SMEs". The research method was carried out by making observations at several universities located in Jakarta. Only a small proportion have implemented e-learning. The constraints in implementing e-learning are the costs of building systems and supporting infrastructure for e-learning.

### 1. Results and Discussion

No	Year	CSF	Reference
1	2019	Online information	(Dallasega,2019)
2	2019	Monitoring inventory of raw materials and packaging, relationship, efficient process	(Janczewska, 2019).
3	2015	Continuity, integration, availability of materials, relationship	(Ardiansyah,2015)
4	2019	Low cost Cost of Delivery , low Cost of Warehouse, low Cost of Packaging base on large production	(Sendara,2015)
5	2013	Government support, both central and local government, entities involved in the procurement of main and supporting raw materials, technology providers and information systems that can ensure the sustainability of logistics	(Purnama, S. 2013)
6	2016	Large capacity of production, Relation with logistic company	(Bourlakis,2016)
7	2020	Large number of orders, implementation of IT	(Andrzejczak, B. 2020)
8		Forecasting,planning and stock management	(Sorak,2013)
9	2019	Relation with supplier and goverment support	(Sukoco,2019)
11	2017	Relation with supplier , logistic company, government	(Mihajlović,2017)
12	2020	relation with supplier, logistic company, Automation.	(Dallasega,2020)
13	2018	Low logistics cost	(Abdullah,2018)
14	2016	Low logistic cost	(Jusoh,2020)
15	2016	Relationship with supplier,logistic company	(Hoz,2020)

16	2020	the information systems , government regulations.	(Omoruyi,2018)
17	2018	Logistic service	(Sendara,2019)
18	2019	The relationship between the Logistic company	(Ardiansyah,2015)

Table 1. Critical Success Factor Logistic SMEs

Table 1 provides a summary of the results of the literature review which is summarized in the explanation below

1. Accuracy  
SMEs can find out accurate information from tracking goods in the delivery process through information technology support.
2. Integration.  
Information technology-based integration between all parties involved in SMEs logistics such as suppliers, logistics companies, government will improve the performance of the logistics process because it will facilitate coordination and communication between all parties involved in SMES logistics.
3. Monitoring  
SMEs can monitor the inventory of raw materials, goods in process and finished goods related to the logistics system in order to prepare material needs for each logistics process.
4. Continuity of raw material availability  
The continuity of the availability of raw materials is a very important factor because it will affect the continuity of the SMEs production process and indirectly have an impact on the logistic process.
5. Continuity of goods delivery  
Continuity of goods delivery will have a positive effect on reducing shipping and storage costs for SMEs goods in the warehouse
6. Relationship with Supplier  
The smooth production of SMEs is very dependent on the supply of raw materials from suppliers. By building relationships with suppliers, SMESs will get convenience and relief in sending raw materials from suppliers.
7. Large production:  
Warehouse costs are expensive due to low SMEs production capabilities. if the SMEs production capability is high, it can produce large items so that it can reduce storage costs in the warehouse
8. Government support  
The government has a very important role for SMEs logistics, especially those related to regulation. SMESs have many weaknesses in the logistics process, therefore the government has an important role to support SMES logistics
9. Theefficient and effective process  
The long logistics process from supplier to customer requires the right mechanism to produce an efficient and effective process.
10. Relationship with logistic company  
Logistic companies as SMEs partners to send their goods from suppliers to SMESs and from SMESs to customers have a very important role because by establishing good relationships with logistics companies, SMESs will get relief in the process of sending goods considering that SMES products do not meet delivery standards.
11. Low Transportation Cost  
Shipping costs are the largest cost of the SMEs logistics process so if the shipping costs can be reduced it will greatly affect the SMEs logistics.
12. Quality  
In the process of sending goods from SMEs to customers where SMEs must ensure that the product that reaches the customer is received in good condition, undamaged and on time.
13. Demand  
An increase in demand for SMEs products can occur at a certain time so that the ability of SMEs to predict the increase in customer demand which impacts on the SMEs logistic process is important.
14. Low warehouse/ storage costs  
The limited production capability of SMEs has an impact on the ability to store goods in the warehouse which is also limited so that storage costs in the warehouse are high. Some logistics companies provide SMEs with low warehouse storage costs with certain requirements.

Based on the literature review found 14 critical factors of SMEs logistics, namely , Accuracy Integration Monitoring Continuity of raw material availability Continuity of goods delivery Relationship with Supplier Large production: Government support The efficient and effective process, Relationship with logistic company Low Transportation Cost Quality Demand forecasting Low warehouse/ storage cost.

The findings of these critical factors are based on the research and implementation of SMEs logistics, which can be used to build a more complete and comprehensive SMEs logistics model below. In figure 1, there are sections that are adopted from critical success factors and the addition of several parts that are adapted to the SME logistic process. The SME e-logistics model consists of the following parts

1. Supplier is the party that sends raw materials to the warehouse. All suppliers who become SMEs partners will send raw materials to the warehouse center. The goal is to focus on storing raw materials so that the shipping and storage processes in the warehouse are more efficient.
2. From a warehouse center that collects raw materials from suppliers then it is sent to SMEs Mass production where this place is the center of SME production. The purpose of concentrating SME production is to facilitate the distribution of finished goods from this location to the finished goods warehouse.
3. Distribution center is a warehouse that is usually owned by a logistics company to accommodate goods to be sent to their destination which are then sent to customers
4. The SME community is a combination of several SMEs in an organization where in this logistic system the role of the SME community is the back-end information system or information technology that connects all stakeholders involved in this logistics system.
5. Technology for logistic support is a website-based information system platform that functions for
  - a. Managing supplier information that becomes SME partners in the logistic process
  - b. Manage raw materials in a flashlight warehouse to support SME production
  - c. Manage packaging and product quality standards for SMEs at SME production centers
  - d. Manage finished goods produced by SMEs in warehouses and logistic companies
  - e. Manage logistic company information
  - f. Manage customer information using SME products
6. Government is the party that provides support in the form of regulations for SMEs

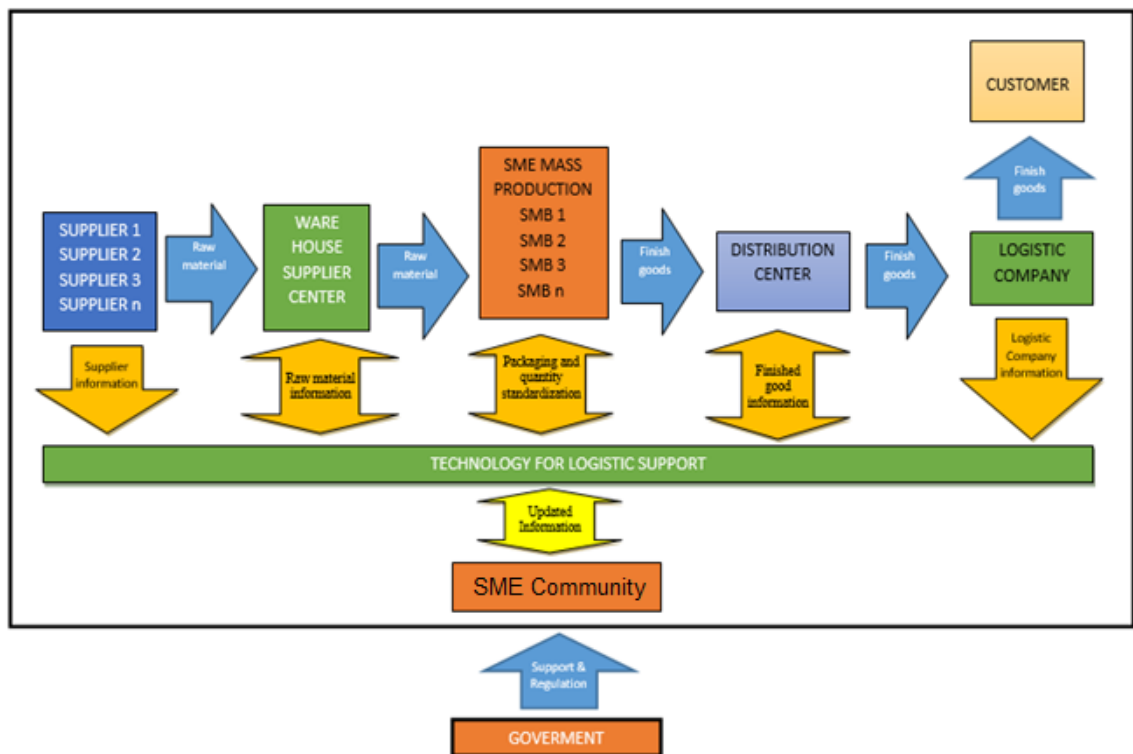


Figure 1. E-logistic model for SMEs

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## Biography

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