

## **A Study of Supplier Evaluation with Reference to capacity utilization, inventory, logistics and Communication (With reference to Auto Component Industry)**

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**Abstract:** *With the rapid growth of technologies, our economic society and life are changing significantly in the 21st century. The way to capture their competitive advantage has become the most important issue for enterprises in the rapidly changing and uncertain business environments. Many researchers have pointed out that the adoption of technology is the most important tool for enterprises to keep their competitive advantage. The survival of an enterprise in the age of knowledge-based economy depends on how to improve their technological capability. In this sense, firms should develop adequate methodologies, in order to adopt, in a successful way, new technologies in the logistics field, and also to integrate logistics into the corporate strategy for becoming even more competitive. Growing number of firms are under pressure from their partners to change their traditional management style, both operationally and organizationally, replacing them with integrated systems that help increase the speed and fluidity of physical and information flows. In order to reach this kind of integration they are investing on new Information and Communication Technologies (ICT). Nowadays, as regards the data acquisition technologies, the firms usually deal with a large amount of goods and data which means that data collection and exchange are critical for logistics information management and control. Good quality in data acquisition can help firms deliver customers' goods more accurately and efficiently. The researcher had probed into the areas of capacity utilization, logistic and communication for which the researcher had prepared a structured questionnaire. The researcher had targeted only tier –I suppliers who directly supply to OEM's and the sample of 44 tier-I suppliers was taken for the survey.*

**Keywords:** *capacity utilization, inventory, logistic, communication & Interrelationships*

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### **I. Introduction:**

Since logistics advanced from 1950s, due to the trend of nationalization and globalization in recent decades, the importance of logistics management has been growing in various areas. For industries, logistics helps to optimize the existing production and distribution processes based on the same resources through management techniques for promoting the efficiency and competitiveness of enterprises.

The key element in a logistics chain is transportation system, which joints the separated activities. Transportation occupies one-third of the amount in the logistics costs and transportation systems influence the performance of logistics system hugely. Transporting is required in the whole production procedures, from manufacturing to delivery to the final consumers and returns. Only a good coordination between each component would bring the benefits to a maximum.

Information systems is a back bone of logistic chain and include modeling and management of decision making, and more important issues are tracking and tracing. It provides essential data and consultation in each step of the interaction among logistics services and the target stations.

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### **Objective:**

- 1) To study turnover and capacity utilization.
- 2) To study the Interrelationships of transportation and logistics.
- 3) To study the inventory and ware house management.
- 4) To study the communication system of the suppliers with the customers.

### **Universe:-**

There are close to **400** players in the organized sector and the research was carried out for organized suppliers.

**Sample size:-**

1) **44** number of tier-I manufacturer who falls in organized sector and who supplies to vehicle manufacturer directly.

**Sampling technique used:**

It was not possible, nor it was necessary, to collect information from the total population. Instead, a smaller subgroup of the target population or a sample was selected for the purpose of study. Sampling is the strategy of selecting a smaller section of the population that will accurately represent the patterns of the target population at large. The main purpose of the sampling was to improve quality of data by focusing on a smaller group.

The research is about Automobile Sector in Pune region. Pune region has been selected as there are plenty of SSI's in this sector and secondly, the researcher found it convenient to focus on the region on the grounds of vicinity.

Tier-I- who are direct vendors to the giant's vehicles manufacturer.

Though multi stage sampling is a part of random sampling the researcher has used multistage sampling for non random sampling for Tier-I.

Sampling design for Tier-I vendors.

- N= 200 approximate in Pune region
- n=44
- Sampling ratio 22%
- Method of sampling- Non random- Combination of convenience and Judgmental sampling. Judgmental on the basis of possibility of getting data.

**Data Collection**

Data collection means gathering information to address those critical evaluation questions that you have identified earlier in the evaluation process. There are many methods available to gather information, and a wide variety of information sources. The most important issue was to select the most appropriate information or evidence to answer the questions.

Taking into consideration all the facts the researcher has used.

1) Questionnaire: A structured questionnaire was prepared.

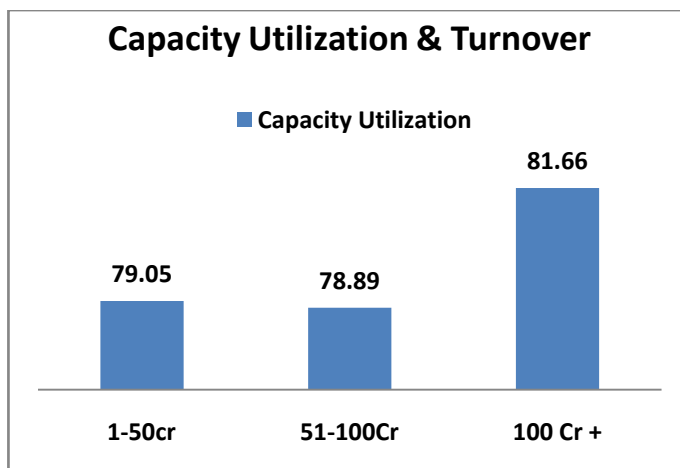
The responses was taken on the scale of scale of 1 to 5

**GIVE SCALE AS 1-STRONGLY DISAGREE, 2-DISAGREE, 3-NEUTRAL, 4-AGREE, 5-STRONGLY AGREE**

**Data analysis:**

**1) Capacity Utilization and Turnover:**

**Capacity utilization** is a concept in economics and managerial accounting which refers to the extent to which an enterprise or a nation actually uses its installed productive capacity. Thus, it refers to the relationship between actual output that 'is' produced with the installed equipment and the potential output which 'could' be produced with it, if capacity was fully used. The researcher had tried to find out whether capacity utilization of a plant increases with increase in turnover.



**Observation:** From the analysis it is found that as capacity utilization increases turnover of the company increases.

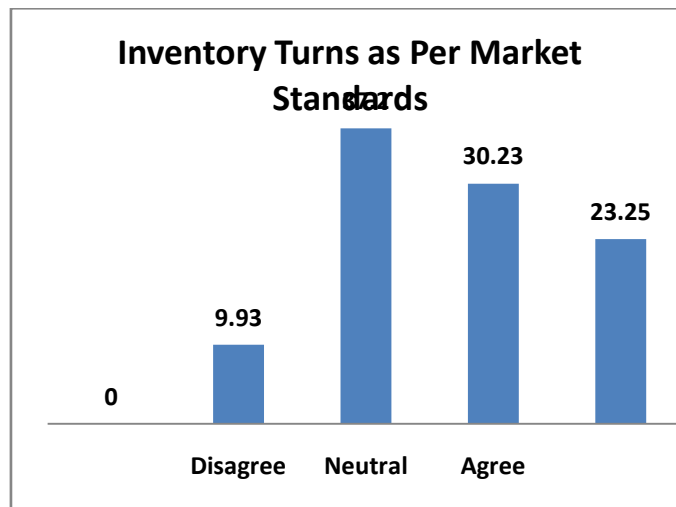
**Comments:** As companies' capacity utilization plays a very important role in reducing per unit cost of production every company has an objective to utilize its capacity towards 100% but it is observed that there are very less companies whose capacity utilization falls between 90-100% utilization. Still majority of the companies are falling below 80% capacity utilization. As capacity is unutilized it reduces the profit margin of the company and it is very difficult to have competitive pricing.

**2) Inventory as per market standards:**

Inventory Turns, also known as Inventory Turnover, is the number of times you sell your inventory each year.

**Inventory Turns (Inventory Turnover):** The number of times that a company's inventory cycles or turns over per year. It is one of the most commonly used Supply Chain Metrics.

Although results vary by industry, **typical manufacturing companies may have 6 inventory turns per year.** High volume/low margin companies (like grocery stores) may have 12 inventory turns per year or more.



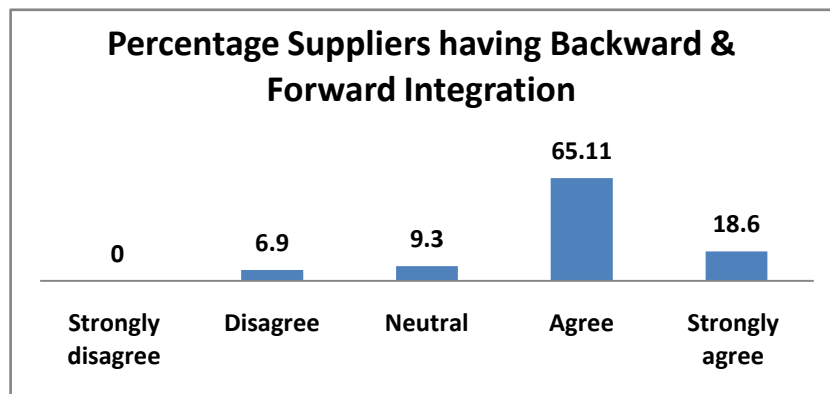
**Observation:** It is observed that 10% suppliers disagree that they have inventory turns as per market standards where as 37% suppliers are neutral whereas 53% suppliers agree that their inventory turns are as per market standards.

**Comments:** Awareness of suppliers has to be increased by the customer in terms of inventory turns. It is still observed that suppliers carry raw material, semi finished and finished goods inventory.

**3) Suppliers having Backward and Forward Integration:**

**Backward integration:** Strategy employed to expand profits and gain greater control over production of a product whereby a company will purchase or build a business that will increase its own supply capability or lessen its cost of production.

**Forward integration:** A business strategy that involves a form of vertical integration whereby activities are expanded to include control of the direct distribution of its products.

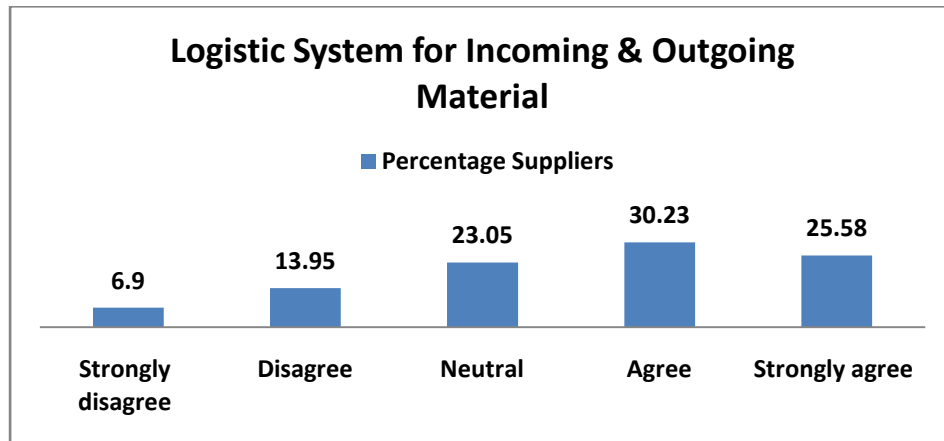


**Observation:** From the data analysis it is observed that large number of suppliers (84%) of suppliers has backward and forward integration.

**Comments:** To expand profits and gain greater control over production of a product companies are willing to increase its own supply capability or lessen its cost of production. It is also observed that companies are willing to have vertical integration whereby activities are expanded to include control of the direct distribution of its products.

**4) Logistic System for Incoming and Outgoing Material:**

Logistics is one of the main functions within a company. The main targets of logistics can be divided into **performance** related and **cost** related. They are high due date reliability, short delivery times, low inventory level and high capacity utilization. But when decisions need to be made, there is always a tradeoff between these targets. This is what makes being a logistician challenging and interesting.

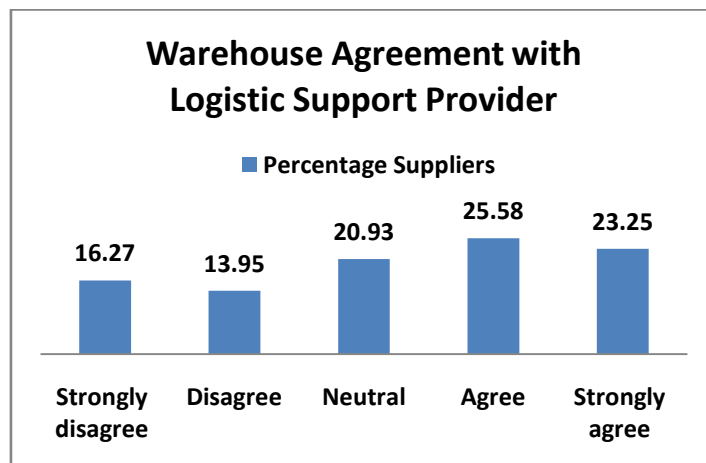


**Observation:** After analyzing the data it is revealed that still 21% of the suppliers do not have a defined logistic system for incoming and outgoing material in place. It is also observed that around 23% of the suppliers has very casual approach towards logistic. And the rest 51% suppliers believe that logistic system for incoming and outgoing material is one of the main functions within a company.

**Comment:** Logistics is one of the main functions within a company. The main targets of logistics can be divided into **performance** related and **cost** related. They are high due date reliability, short delivery times, low inventory level and high capacity utilization. Hence much of awareness has to be made within the suppliers to have a systematic logistic management which has a greater importance in today's era of JIT.

**5) Warehouse agreement with logistic support provider:**

Logistic service provider's management is the outsourcing of logistics operations to a third party. Companies, or clients, use these third parties known as logistics service providers (LSPs) to provide logistics services. LSPs may provide logistic services to one or more clients at any given time. Clients may choose to outsource a portion, or all of their logistics services to one or more LSPs. When sending information to an LSP, the client communicates the receipts or shipment to the LSP, which then runs the transaction on behalf of the client. Therefore, the client may be a buyer or seller for a transaction.

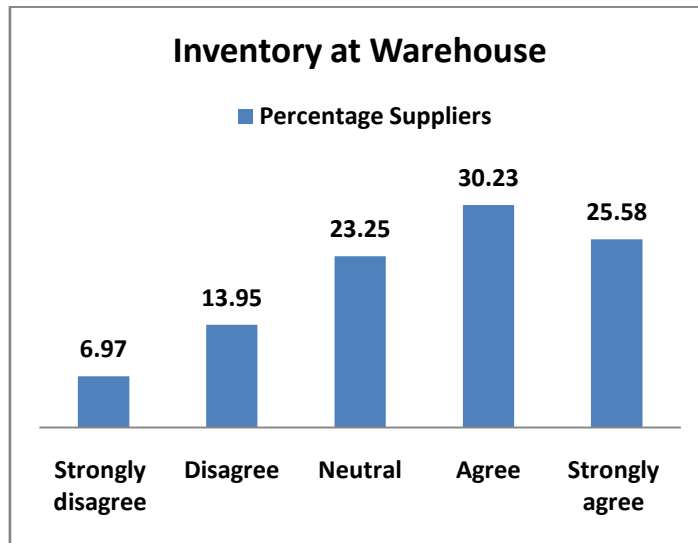


**Observation:** From the data analysis it is observed that use of third party logistic by the suppliers is still not adopted on a larger scale.

**Comments:** Clients may choose to outsource a portion, or all of their logistics services to one or more LSPs. When sending information to an LSP, the client communicates the receipts or shipment to the LSP, which then runs the transaction on behalf of the client. Hence it is suggested that suppliers should appoint a third party logistic provider. Which will reduce the burden of logistic on the suppliers and they will have an asses to the technology of the third party LSPs.

**6) Inventory at warehouse:**

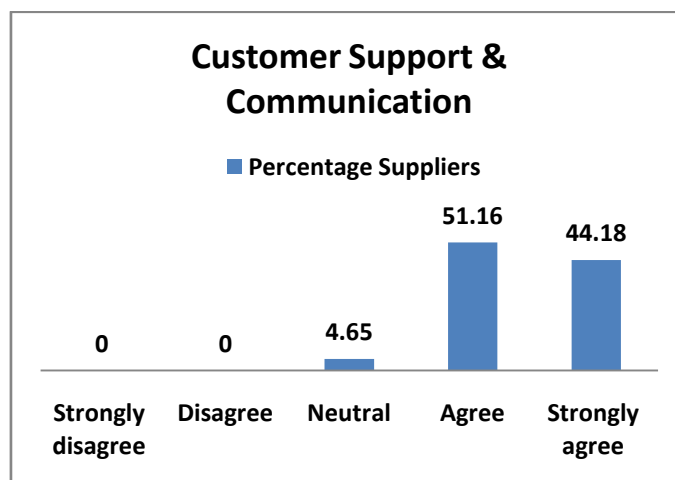
Processes in the area of Inventory Management address the recording and tracking of materials on a quantity and value basis. This includes planning, entry, and documentation of stock movements such as goods receipts, goods issues, physical stock transfers, and transfer postings as well as the performance of physical inventory (stocktaking). Warehouse Management Processes cover warehouse-internal movements and storage of materials



**Observation:** From the analysis it is observed that 21% of the suppliers disagree for maintaining inventory at warehouse while 23% suppliers are neutral where as 56% of supplier agrees to maintain inventory at warehouse.

**Comment:** Warehouse Management Processes cover warehouse-internal movements and storage of materials which is an important function from the suppliers and customers point of view. In the era of high-tech technology and reduction in lead time and cycle time and linking of various activities along with dependency of the operation in the sequence it has become even more important that the material should be available at the place and time where it is required for further operations. And also in the era of outsourcing inventory management and logistics has to plays a very important role to ensure the smooth flow of material.

**7) Customer Support and Communication:** The researcher wanted to check the support given by the customer to supplier.

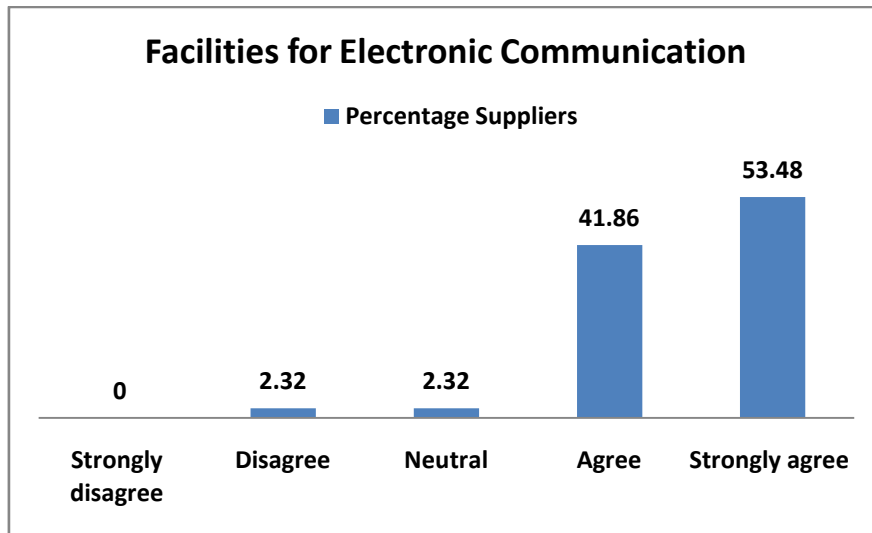


**Observation:** After data analysis it is observed that good support and communication is provided by the customers to their suppliers. It is observed that more than 95% suppliers are satisfied with the support given by the customer and also with the communication by the customers.

**Comment:** As due to intense competition and large scale outsourcing it has become necessary for the customers to extend support to their suppliers. It is also necessary to provide communication support to the suppliers as companies are going for JIT.

**8) Facilities for Electronic Communication:**

Communication and electronic media go hand in hand. In this technology oriented era the use of electronic communication is inevitable. The role and importance of electronic communication can't be overlooked. Electronic information interchange is necessary for the survival in current era. Information is the back bone of the economy of a Nation. Electronic media has improved communication numerous ways. The Internet and electronic communications (also called computer mediated communications, or CMC) doesn't just mean new tools for communication; it means new ways to communicate. Today our organization interacts with its various constituents differently - employees, board members, customers, partners and others - depending upon the nature of the message, the goals you are trying to achieve and the strengths (and weaknesses) of the available media - telephones, voice mail, fax machines, print, etc. Electronic communications adds a powerful new channel that not only will change how you use this mix of options, but it will create entirely new ways to interact.

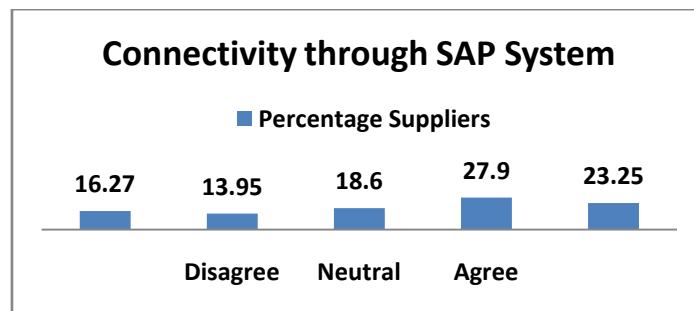


**Observation:** It is observed that almost all (95%) of the supplier are of the opinion that in this technology oriented era the use of electronic communication is inevitable. The role and importance of electronic communication can't be overlooked.

**Comment:** Electronic information interchange is necessary for the survival in current era. Information is the back bone of the economy of a Nation. Electronic communications adds a powerful new channel that not only will change how you use this mix of options, but it will create entirely new ways to interact.

**9) Connectivity through SAP System:**

With the SAP for Automotive solution portfolio, you get the solutions you need to better understand, anticipate, and optimize your business; collaborate across the extended enterprise; and inspire your customers, employees, and shareholders by delivering results.



**Observation:** From the analysis it is observed that there are still a large number of suppliers who are still not connected through SAP system.

**Comments:** The customers should insist the suppliers to get connected through SAP.

➤ **Turnover of the suppliers and perceived value of Logistic and Communication**

- 1) Inventory as per market standards
- 2) Suppliers having Backward and Forward Integration
- 3) Logistic System for Incoming and Outgoing Material
- 4) Warehouse agreement with logistic support provider
- 5) Inventory at warehouse
- 6) Customer Support and Communication
- 7) Facilities for Electronic Communication
- 8) Connectivity through SAP System

Turnover	1	2	3	4	5	6	7	8
<b>1-50Cr</b>	3.53	3.78	3.22	2.92	3.28	4.31	4.33	3.14
<b>51-100Cr</b>	3.57	3.71	3.86	3.71	4.14	4.71	4.29	2.86
<b>100Cr &amp; +</b>	4.33	4.67	4.33	4.67	4.67	4.33	4.67	4

**Observation:** From the above table it is observed that there is a strong linkage between turnover of the supplier and the importance given by the suppliers in terms of logistic and communication. It is observed that as the turnover of the company increases there is growth in the suppliers following the systems and methods and also they stream line their processes and follow the guide line given by the customers. It also increases the use of logistics and better communication options which will facilitate the suppliers as well as customers in producing the product more efficiently and effectively.

**Findings:**

- 1) It is found that there is a positive correlation between capacity utilization and turnover of a company.
- 2) It is observed that 10% suppliers disagree that they have inventory turns as per market standards where as 37% suppliers are neutral whereas 53% suppliers agree that their inventory turns are as per market standards.
- 3) It is observed that large number of suppliers (84%) of suppliers has backward and forward integration.
- 4) After analyzing the data it is revealed that still 21% of the suppliers do not have a defined logistic system for incoming and outgoing material in place.
- 5) It is observed that use of third party logistic by the suppliers is still not adopted on a larger scale.
- 6) From the analysis it is observed that 21% of the suppliers disagree for maintaining inventory at warehouse while 23% suppliers are neutral where as 56% of supplier agrees to maintain inventory at warehouse.
- 7) It is observed that more than 95% suppliers are satisfied with the support given by the customer and also with the communication by the customers.
- 8) It is observed that almost all (95%) of the supplier are of the opinion that in this technology oriented era the use of electronic communication is inevitable.
- 9) It is observed that there are still a large number of suppliers who are still not connected through SAP system.

## II. Discussions And Conclusions

**Discussions**

Integration of logistics and e-business is the future trend. In order to get more advantageous position and build a complementary and dependent relationship, manufacturing industries, should cooperate with logistics industries. The integration could reduce the middle-level procedures. The producers could immediately give the products over to the terminal customers. This could reduce expenses and also administer sources more efficiently. Companies do not have to take the costs of inventory and warehouse, and therefore they become modernized industries of low cost, more efficiency and division of specialty.

The integration and promotion of business activities have to involve transportation systems at various stages. The integration of various applications brings the convenience through promoting the system of information flow and business operations. Customers and firms could make business more efficient and easier through the help of e-commerce and the Internet. However physical delivery still relies on the transportation system to finish the operations. The cost of transportation operation may be one-third of logistics costs. Meanwhile, transportation systems and techniques are needed in almost every logistics activity. Thus the reform of business patterns has to consider transportation systems.

### **Conclusions**

- 1) Logistics system has a more and more important position in the society activities.
- 2) Transportation and logistics systems have interdependent relationships that logistics management needs transportation to perform its activities and meanwhile, a successful logistics system could help to improve the profitability and develop transportation.
- 3) Since transportation contributes the highest cost among the related elements in logistics systems, the improvement of transport efficiency could change the overall performance of a logistics system.
- 4) Transportation plays an important role in logistics system and its activities appear in various sections of logistics processes. Without the linking of transportation, a powerful logistics strategy cannot bring its capacity into full play.
- 5) The review of logistics system in a broad sense might help to integrate the advantages from different application cases to overcome their current disadvantage.
- 6) The development of logistics will be still vigorous in the following decades and the logistics concepts might be applied in more. Effective Communication system has a great role to play in the era of intense competition and also when majority of the companies are adopting JIT (Just in Time) concept.

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