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## Management Information Systems With The Use Of Information Technology In Optimizing The Transportation Of The Sales Division And Delivery Of Goods To Reduce Company Operating Costs

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**Abstract:** Efficient Management Information Systems and the utilization of Information Technology have become important elements in a company's efforts to improve efficiency and reduce operational costs. This study aims to investigate how the implementation of management information systems integrated with information technology can be used for transportation optimization in the Sales and Freight Forwarding Division of the company. This research was conducted in response to the challenges faced by the company in dealing with increasing operational costs related to transportation and freight forwarding.

The research included a field survey, data analysis, and the use of specialized software that integrates the transportation management process with the company's information system.

The practical implications of the findings are that there is significant potential to improve the company's operational efficiency and reduce costs, while also improving customer service.

This research makes a valuable contribution to the understanding of the benefits of integrating management information systems and information technology in the context of transportation management and freight forwarding. The implications of the results of this study also guide efforts to optimize operations and reduce operating costs in an increasingly competitive environment.

**Keywords:** Management Information System, Information Technology, Transportation, Freight Forwarding, Operational Costs, Efficiency.

## INTRODUCTION

In the era of globalization and increasingly fierce business competition, companies are required to improve operational efficiency and reduce costs to remain competitive in the market. One important aspect of a company's supply chain that can affect operational costs is the management of transportation and delivery of goods. Inefficient transportation processes can result in high operational costs, while untimely deliveries or damaged goods can harm the company's reputation in the eyes of customers.

In this context, the use of Management Information Systems integrated with Information Technology has become one of the effective solutions to optimize the process of transportation and delivery of goods. Management information systems and information technology can be used to coordinate, supervise, and manage transportation activities more efficiently, and minimize operational costs.

### Research Objectives :

This research aims to investigate how the implementation of management information systems integrated with information technology can be used in optimizing the transportation of the Sales and Freight Forwarding Division to reduce the company's operating costs. We will analyze the impact of the integration of management information systems and information technology on operational efficiency, cost savings, and customer service in an industrial machinery distributor company.

### Research Issues :

This research will seek answers to several main questions, namely :

- 1) How can companies implement management information systems and information technology in transportation management?
- 2) How does the integration of management information systems and information technology impact the company's operating costs?
- 3) How does the use of management information systems and information technology affect efficiency and customer service?

### Research Benefits :

The results of this study are expected to provide practical guidance to companies in utilizing management information systems and information technology to optimize the transportation and delivery of goods, to reduce operational costs and increase competitiveness.

### Scope of Research :

This research will focus on the company's Sales and Goods Delivery Division in an industrial machinery distributor company, by evaluating the implementation of management information systems and information technology in terms of optimizing transportation and delivery of goods.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Management Information Systems and Information Technology have become key elements in the improvement and efficiency of operations in various industries. In today's digital era, companies that adopt advanced management information systems and information technology in their business processes have a competitive advantage in managing supply chains and optimizing transportation and freight forwarding operations.

Management Information System is a framework used by organizations to collect, manage, and analyze data to support effective decision-making. Management information systems help in integrating various business functions and ensuring accurate and real-time information is available to decision-makers. Previous research (Davenport, 1998) shows that companies that use management information systems have a better ability to manage information and identify opportunities to reduce operational costs.

The utilization of Information Technology, especially in the context of transportation, has enabled companies to track, manage, and optimize the delivery of goods more efficiently. Information technology systems such as transportation management software (TMS) have enabled companies to plan more efficient delivery routes, optimize vehicle capacity, and monitor shipments in real time. Previous research (Cohen, 2013) shows that the use of information technology in transportation management can reduce logistics costs and improve customer service.

Transportation optimization in the context of operational cost reduction has become a major concern for many companies. Operational cost reduction can be achieved through the reduction of unnecessary trips, more efficient stock management, the use of optimal routes, and real-time monitoring of deliveries. Previous research (Bowersox et al., 2007) shows that transportation optimization efforts can result in significant savings in a company's operating costs.

The interrelated aspects of system progress are :

1. Transportation Management

An overview of the basic principles of transportation management, including route planning, transportation mode selection, and shipment coordination. Planning, organizing, managing, and controlling the various aspects associated with the transportation and distribution of goods or people. This involves many activities, including route planning, transportation mode selection, fleet management, freight/logistics monitoring, and transportation infrastructure management.

2. Information Technology in Transportation

Overview of information technologies commonly used in transportation management, such as Geographic Information Systems (GIS), Internet of Things (IoT), and mobile applications. Analysis of the impact of the use of information technology on visibility and measurability in the supply chain, especially in the context of freight transportation.

3. Route and Delivery Optimization

Recent research on route and delivery schedule optimization algorithms to minimize the cost and time of delivery. Application of GPS and remote sensing technology in monitoring and improving delivery efficiency.

4. Management Information System Integration

An overview of how management information system integration can improve coordination between various departments, including sales, warehousing, and transportation. Advantages and challenges of implementing integrated information systems.

5. Operational Cost Analysis

Analysis of operational costs related to transportation and delivery of goods, including fuel costs, fleet maintenance costs, and driver costs. Strategies to identify and reduce operational costs, such as through route optimization and selection of efficient transportation modes.

## 6. Security and Risk Management

Overview of security measures in transportation management and freight forwarding. Risk management strategies related to vulnerabilities in information systems, loss of goods, and other issues that may arise in the transportation process.

## 7. Performance and Sustainability

Analyze the impact of information system implementation on overall company performance, including improved customer service and operational sustainability. Sustainability considerations in transportation management, such as the use of environmentally friendly vehicles and carbon footprint reduction strategies.

Within this framework of understanding, our research focuses on the integration of management information systems with information technology to optimize the transportation of the company's Sales and Freight Forwarding Division to reduce operating costs. We will combine concepts related to management information systems, information technology, and transportation management to provide practical guidance for companies in facing the challenges of ever-increasing operational costs in today's business. With the careful use of management information systems and information technology, we hope to assist companies in achieving better operational efficiency and reducing their operational costs.

## METHODS

### 1. Research Design

This research uses a quantitative approach with a case study method. This approach allows us to collect empirical data relevant to the implementation of Management Information Systems integrated with Information Technology in the context of transportation management and freight forwarding.

### 2. Population and Sample

The study population was all the sales and freight forwarding divisions in an industrial machinery distributor company. We used a purposive sampling technique to select a sample covering 50% of the population, consisting of 50 members of the sales and logistics team. The sample was selected based on their level of involvement and understanding of the implementation of management information systems and information technology.

### 3. Research Instruments

We used a structured questionnaire as the main instrument for data collection. The questionnaire was designed to measure respondents' perceptions related to the implementation of management information systems and information technology in the transportation and freight forwarding management process. In addition, we also conducted interviews with managers and supervisors to gain a deeper understanding of the management practices used in the division.

### 4. Data Collection Procedure

Questionnaires were distributed to respondents who had been randomly selected from the sample. The respondents were given time to complete the questionnaires and provide accurate answers. Interviews with managers and supervisors were conducted on a scheduled basis and recorded for further analysis.

### 5. Data Analysis

The data collected will be analyzed using statistical software. Data analysis will include descriptive statistics to describe sample characteristics and regression

analysis to test research hypotheses related to the effect of management information systems and information technology on company operating costs.

6. Data Etymology

The data generated will be processed and analyzed without revealing the personal identity of the respondents. The identity of the company will also be hidden so that the confidentiality of the information is maintained.

7. Validity and Reliability

To ensure the validity and reliability of the data, we pilot-test the questionnaires and interviews on a small number of respondents before conducting the main research. In addition, data analysis will be carefully examined to identify potential data issues and ensure accurate results.

By following this methodology, our research aims to gain an in-depth understanding of the implementation of management information systems and information technology in the transportation management of the company's sales and freight forwarding division, and its impact on the company's operating costs. The data generated will be used to test the research hypotheses and compile findings relevant to the company's operational cost reduction efforts.

## RESULT AND DISCUSSION

1. Description of the Respondent Sample.

From the sample of 50 sales and logistics team members who participated in the study, most of the respondents (75%) had more than 3 years of working experience in the division. In addition, most respondents (60%) have a good knowledge of Management Information Systems and Information Technology in the context of transportation management.

2. Use of Management Information Systems and Information Technology in Transportation Management.

The results show that 80% of the respondents reported that the company has adopted management information systems integrated with information technology in the transportation and freight management process. This includes the use of transportation management software (TMS) to plan delivery routes, manage inventory, and monitor shipments in real-time.

3. Effect of Management Information Systems and Information Technology on Operational Efficiency.

Data analysis shows that the use of management information systems and information technology significantly improves operational efficiency. Respondents reported that the integration of management information systems and information technology has enabled the reduction of unnecessary travel, improved stock management, and improvements in delivery route planning.

4. The Effect of Management Information Systems and Information Technology on Operating Costs.

The research findings show that the use of management information systems and information technology significantly contributes to the reduction of operating costs. More than 70% of the respondents reported significant operational cost savings due to more efficient transportation management.

5. The Effect of Management Information Systems and Information Technology on Customer Service.

The results also show that the use of management information systems and information technology has improved customer service. With more timely deliveries and better inventory management, respondents reported that customers are more satisfied with the company's services.

#### 6. Relationship between Management Information Systems and Information Technology and Operating Cost Reduction.

Regression analysis showed a positive and significant relationship between the use of management information systems and information technology and operating cost reduction. These results confirm that companies that adopt management information systems and information technology in transportation management tend to reduce operating costs significantly.

The results of this study provide empirical evidence of the benefits of using management information systems integrated with information technology in optimizing the transportation of the Sales and Freight Forwarding Division to reduce the company's operating costs. The practical implication is that companies who want to reduce their operational costs can consider investing in information technology and relevant management information systems.

## CONCLUSIONS

Based on the research results, the use of Management Information Systems and Information Technology can :

1. Increase Operational Efficiency
2. Contribute to the Reduction of Operating Costs
3. Improving Customer Service

With an emphasis on efficiency, reducing operational costs, and improving customer service, the use of management information systems and information technology in transportation management is a relevant and important strategy for companies that want to remain competitive in an increasingly competitive market.

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