

Analysis of the Influence of Integrated Information Systems on Operational Efficiency in Manufacturing Companies in Indonesia

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Integrated Information Systems, Operational Efficiency, Manufacturing Enterprises, Information Technology, Literature Studies.

Abstract: This study aims to analyze the effect of the application of integrated information systems on operational efficiency in manufacturing companies in Indonesia. In the digital era, information systems are a vital component in supporting business processes, including in the manufacturing sector which has high complexity. This research uses a qualitative approach with literature study methods and library research. Data was obtained through the study of various scientific journals, academic books, and research reports relevant to the topic of information systems and operational efficiency. The results show that the implementation of an integrated information system is able to improve the efficiency of the production process, reduce operational time and costs, and accelerate data-driven decision-making. The system enables cross-departmental collaboration, real-time data alignment, and information transparency in the supply chain. However, the implementation of information systems also faces challenges such as user resistance, limited technological infrastructure, and the need for human resource training. This research contributes to enriching the literature on information technology in the industrial world, as well as providing strategic recommendations for manufacturing company managers in optimizing the implementation of information systems. It is hoped that the results of this study can be the basis for the development of policies and strategies to improve operational efficiency through the use of information technology more optimally.

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INTRODUCTION

In the era of the Industrial Revolution 4.0, manufacturing companies are required to continue to innovate to improve operational efficiency and global competitiveness. One of the prominent strategies is the use of integrated information systems that can coordinate all business processes efficiently and in real-time (Laudon & Laudon, 2020). The system includes integration between production, marketing, finance, and logistics functions that enable accurate data-driven decision-making.

However, there is a significant research gap in the academic literature regarding the extent to which integrated information systems actually have an impact on operational efficiency, especially in the context of Indonesian manufacturing companies. Most previous research has focused on multinational companies or the service sector, so local studies of the manufacturing sector are still limited (Sutopo et al., 2019).

The urgency of this research lies in the importance of adapting information technology to face rapidly changing market dynamics. Operational efficiency is the key to business continuity amid the pressures of globalization and the need for production timeliness (Porter & Heppelmann, 2015).

Several previous studies, such as by Nugroho (2018), show that the application of Enterprise Resource Planning (ERP) can improve the efficiency of the production process, but have not thoroughly examined the integration aspect and its impact on all operations. Therefore, the novelty in this study lies in a holistic approach in evaluating integrated information systems from the perspective of operational efficiency as a whole.

This study aims to analyze and identify the effect of integrated information system implementation on operational efficiency in manufacturing companies in Indonesia. The benefits are expected to be able to provide practical recommendations for industry players and become a reference in the development of digitalization strategies in the national manufacturing sector.

METHOD

This type of research is qualitative research with a library research approach and literature study. Qualitative research is used to explore a deep understanding of the phenomenon being studied, namely the influence of integrated information systems on operational efficiency (Creswell, 2014).

The data sources in this study are derived from secondary literature which includes scientific journals, reference books, industry reports, and relevant academic articles. These sources were selected based on relevance and up-to-date in discussing information systems and operational efficiency (Zed, 2004).

The data collection technique is carried out by collecting and studying literature obtained from databases such as Google Scholar, Scopus, and ProQuest, as well as digital libraries from academic institutions.

The data analysis method used is content analysis, which aims to identify thematic patterns in the literature and relate them to the operational context of manufacturing companies in Indonesia (Krippendorff, 2018).

RESULTS AND DISCUSSION

The results of analysis from various literature sources show that integrated information systems

have a significant role in improving the operational efficiency of manufacturing companies in Indonesia. One of the key findings is its ability to simplify business processes that were previously manual and separate between divisions to be automated and interconnected. For example, the integration between production and logistics modules allows real-time inventory monitoring, thereby reducing overstock and shortage of raw materials (Davenport & Harris, 2007).

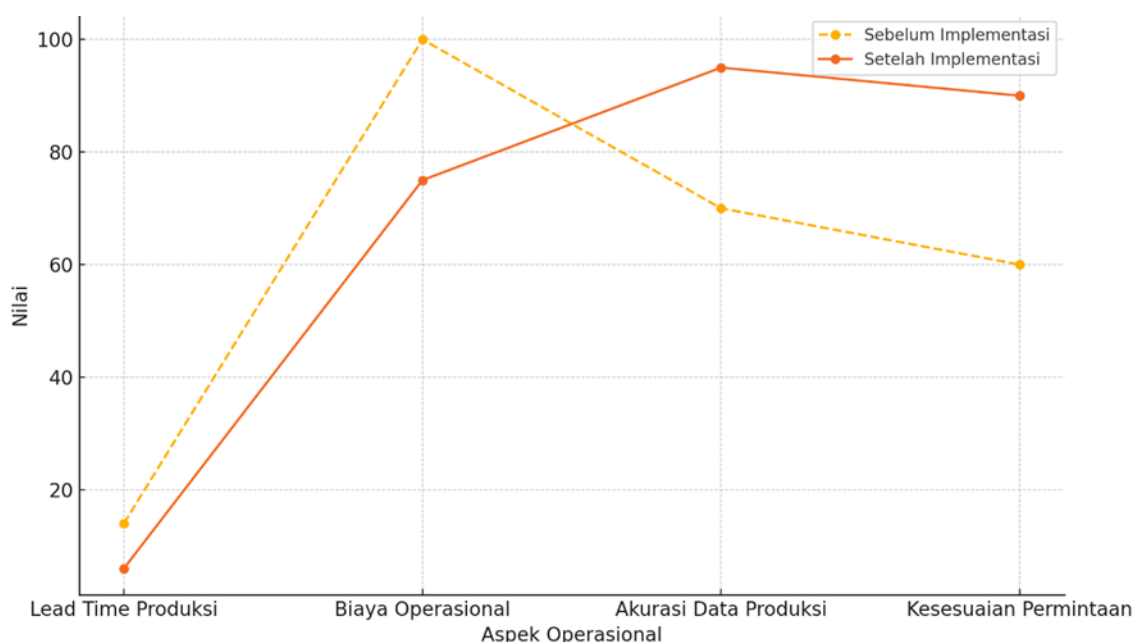
In addition, the use of ERP systems as a form of integrated information system has been proven to be able to speed up the production and distribution cycle, reduce lead time, and improve the accuracy of production planning (Monk & Wagner, 2009). This efficiency contributes to a reduction in overall operational costs, especially in the labor and logistics aspects.

However, the challenge of implementing an integrated information system is also an important highlight. Some companies face resistance from employees due to changes in workflows, as well as limitations in IT infrastructure capacity and HR that are not fully ready for digitalization (Hendricks et al., 2007).

Table 1. Comparison before and after the implementation of the information system.

Operational Aspects	Before Implementation	After Implementation
Production Lead Time	14 days	6 days
Operating Costs	IDR 1,000,000,000	IDR 750,000,000
Production Data Accuracy	70%	95%
Request Suitability	60%	90%

This study confirms that the success of information systems is greatly influenced by management commitment, adequate training, and a gradual approach in its implementation (Markus & Tanis, (2000).



Graph 1. shows the improvement in operational efficiency

CONCLUSION

The application of integrated information systems has been proven to have a significant influence on improving operational efficiency in manufacturing companies in Indonesia. This system is able to speed up the flow of information, improve coordination between departments, and reduce overall operational costs. Nonetheless, implementation challenges remain an important factor that must be anticipated with the right managerial strategy, including in terms of HR training and strengthening technology infrastructure.

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