



The Implementation of Integrated Information Systems in Supporting Strategic Decision-Making in Organizations

Sujarwo

Faculty of Science and Technology, Universitas Pesantren Tinggi Darul Ulum, Jombang, Indonesia

Email : jarwo@mipa.unipdu.ac.id

Abstract

Implementation of integrated information systems (IS) is a strategic step for organizations in facing the challenges of business complexity and the need for data-based decision-making. This study aims to analyze the implementation of SIT and its contribution to strategic decision-making in a manufacturing organization. The study uses a case study approach with qualitative methods. Data were collected through in-depth interviews, observations, and documentation. In this context, the Enterprise Resource Planning (ERP) system was adopted as the main framework in the integration of cross-functional business processes. The results of the study indicate that ERP-based SIT is able to increase the effectiveness of decision-making through the availability of real-time, accurate, and integrated data between departments. In addition, ERP also supports workflow synchronization and operational transparency. The main obstacles lie in the human resource aspect and optimization of analytical features available in the system. This study recommends the importance of continuous training, increasing technological literacy, and management support in the digital transformation process.

Keywords: *Integrated Information System, Strategic Decision-Making, Organization, ERP*

Abstrak

Penerapan sistem informasi terintegrasi (SIT) menjadi langkah strategis bagi organisasi dalam menghadapi tantangan kompleksitas bisnis dan kebutuhan pengambilan keputusan berbasis data. Penelitian ini bertujuan untuk menganalisis implementasi SIT dan kontribusinya terhadap pengambilan keputusan strategis pada sebuah organisasi manufaktur. Penelitian menggunakan pendekatan studi kasus dengan metode kualitatif. Data dikumpulkan melalui wawancara mendalam, observasi, dan dokumentasi. Dalam konteks ini, sistem Enterprise Resource Planning (ERP) diadopsi sebagai kerangka utama dalam integrasi proses bisnis lintas fungsi. Hasil penelitian menunjukkan bahwa SIT berbasis ERP mampu meningkatkan efektivitas pengambilan keputusan melalui ketersediaan data yang real-time, akurat, dan terintegrasi antar departemen. Selain itu, ERP juga mendukung sinkronisasi alur kerja dan transparansi operasional. Kendala utama terletak pada



aspek sumber daya manusia dan optimalisasi fitur analitik yang tersedia dalam sistem. Penelitian ini merekomendasikan pentingnya pelatihan berkelanjutan, peningkatan literasi teknologi, serta dukungan manajemen dalam proses transformasi digital.

Kata kunci: Sistem Informasi Terintegrasi, Keputusan Strategis, Organisasi, ERP

1. INTRODUCTION

In today's rapidly evolving business environment, organizations are increasingly required to make strategic decisions based on accurate, timely, and integrated information. The ability to respond to dynamic market conditions, shifting customer demands, and internal operational complexities depends heavily on how well information is managed and utilized within the organization. Traditional, fragmented information systems often hinder effective decision-making due to data duplication, inconsistency, and delays in reporting.

In the era of digital transformation, the role of information systems has evolved from supporting operational tasks to becoming a strategic tool for decision-making. Integrated Information Systems (IIS), especially Enterprise Resource Planning (ERP) systems, allow organizations to consolidate disparate data sources into a unified platform that supports timely and accurate strategic decisions [1], [2]. In Indonesia, many organizations have begun to adopt integrated systems to overcome fragmented data, inefficiencies, and decision delays [3], [4].

However, successful implementation of such systems does not solely depend on the technology itself but also on alignment with organizational goals, readiness for change, and human resource capabilities [5], [6]. Despite numerous implementations, many organizations still face challenges in leveraging these systems to improve decision quality.

This study aims to explore the implementation of an integrated information system in a medium-scale manufacturing company in Indonesia and to analyze its impact on strategic decision-making processes. This study aims to examine the implementation of an integrated information system within a manufacturing organization and analyze its impact on strategic decision-making processes. By exploring real-world applications, this research seeks to provide insights into the critical success factors and barriers faced during digital integration initiatives in organizational contexts.

2. LITERATURE REVIEW

2.1 Integrated Information Systems (IIS)

Integrated Information Systems are designed to centralize and automate business processes, enabling seamless information flow across departments [1], [7]. ERP systems, as the most common form of IIS, provide modules that cover finance, human resources, supply chain, and customer management, all operating from a single database. When implemented effectively, they reduce redundancy, improve accuracy, and support real-time decision-making.



Putra and Surjawan (2019) found that ERP implementation in Indonesian manufacturing firms contributed significantly to operational efficiency and responsiveness to market dynamics[3]. Similarly, Raharjo (2017) emphasized the value of management information systems (MIS) in facilitating strategic planning through reliable data analysis[5]. Studies by Anggraini and Purnama (2018) further highlight that the integration of systems streamlines workflows and enhances decision speed, especially when combined with decision-support modules[8].

On the public sector side, Sutikno and Budi (2020) demonstrated that integrated systems could improve transparency and responsiveness of strategic initiatives in government agencies[9]. These findings suggest that IIS is not only operationally beneficial but strategically transformative.

Integrated Information Systems refer to a unified technological framework that connects different functional areas of an organization—such as finance, operations, human resources, and marketing—into a cohesive system. One of the most well-known forms of IIS is the Enterprise Resource Planning (ERP) system. According to Laudon and Laudon (2020), IIS aims to streamline business processes by enabling seamless data sharing and coordination among departments. This integration reduces data redundancy, enhances consistency, and improves real-time access to organizational data[1].

IIS is not only a technological solution but also a strategic asset. It facilitates transparency, process standardization, and centralized control, which are essential for large and complex organizations. However, successful implementation requires comprehensive planning, user training, and change management.

2.2 Strategic Decision-Making

Strategic decision-making involves long-term, high-impact choices that shape the overall direction and sustainability of an organization. These decisions are often made in conditions of uncertainty and require a broad understanding of both internal capabilities and external environments [10]. The effectiveness of strategic decision-making depends on the quality, relevance, and timeliness of the information available to decision-makers.

Accurate and integrated data allows leaders to assess organizational performance, identify trends, predict future outcomes, and allocate resources more effectively. In contrast, fragmented information systems may lead to misinformed decisions and reduced organizational responsiveness.

2.3 The Role of IIS in Strategic Decision-Making

Several studies have shown that the adoption of integrated systems significantly improves decision-making capabilities [11]. By offering real-time dashboards, data analytics, and reporting tools, IIS empowers managers to monitor key performance indicators (KPIs), simulate scenarios, and evaluate the outcomes of various strategic options.



Additionally, IIS facilitates cross-functional collaboration, which is essential for complex decision-making that involves multiple departments. The system serves as a single source of truth, reducing the risks of miscommunication and data inconsistency.

Despite these advantages, the literature also emphasizes the importance of aligning IIS implementation with organizational goals and culture. Without proper alignment, the system may be underutilized or even rejected by users.

3. METHOD

This research employs a qualitative case study approach, following the methodology outlined by Yin (2018), to gain in-depth insights into the implementation of an integrated information system and its strategic implications [12]. The study was conducted in a medium-scale manufacturing company based in Java, Indonesia, which recently adopted an ERP-based integrated information system.

Primary data were collected through semi-structured interviews with key informants including IT managers, department heads, and senior executives. Secondary data such as internal reports, implementation documentation, and system usage logs were also analyzed. Thematic analysis was applied to identify recurring patterns related to system implementation stages, decision-making processes, and perceived organizational impact.

The research framework is based on the model proposed by Laudon and Laudon (2020), which includes three dimensions of analysis: technological infrastructure, organizational alignment, and managerial decision-making outcomes [1]. This model was adapted to evaluate the degree to which the IIS contributes to strategic decisions in areas such as resource allocation, performance forecasting, and competitive strategy formulation.

This study adopts a qualitative research approach using a case study method to explore the implementation of an Integrated Information System (IIS) and its influence on strategic decision-making processes within an organizational context. The case study focuses on a manufacturing company in Indonesia that has implemented an Enterprise Resource Planning (ERP) system for over three years.

3.1 Data Collection

To obtain comprehensive insights, multiple data collection techniques were employed [13]:

- a. In-depth interviews were conducted with key stakeholders, including IT managers, operational managers, and system users from various departments (finance, logistics, and human resources).
- b. Direct observation of system usage was carried out during decision-making meetings and routine operational activities.



- c. Document analysis was performed on internal reports, system logs, policy documents, and performance metrics generated by the ERP system.

3.2 Data Analysis

The collected data were analyzed using thematic analysis, involving the identification of recurring themes related to system functionality, decision-making support, user perception, and system impact. The analysis followed these steps [14]:

- a. Data familiarization
- b. Generation of initial codes
- c. Searching for themes
- d. Reviewing and defining themes
- e. Interpretation of findings in relation to research objectives

Triangulation was used to ensure the validity and reliability of the findings by cross-verifying interview data with observations and documentation.

3.3 Research Scope and Limitations

This study is limited to a single organization in the manufacturing sector, which may not fully represent other industries or organizational scales. However, the case provides valuable insights into the practical implementation of IIS and its strategic implications. Future research may consider comparative studies across different sectors or quantitative assessments to generalize findings.

4. RESULTS AND DISCUSSION

4.1 System Implementation Overview

The case study organization a mid-sized manufacturing company implemented an Enterprise Resource Planning (ERP) system to integrate its operations across departments, including finance, procurement, production, and human resources. The system was deployed in phases over 18 months, beginning with core operational modules and followed by managerial reporting tools. Users accessed the system via a centralized dashboard with role-based authorization.

The study found that the implementation of an integrated information system in the company was carried out in a phased manner, following the ERP implementation cycle as described by Laudon and Laudon (2020), starting from the planning stage, system design, development, testing, training, and finally full operational use (go-live). Throughout this process, the company faced challenges in adjusting internal business processes and overcoming user resistance, but these were successfully addressed through intensive training programs and strong involvement from top management.



The implementation of the integrated information system in the case study organization followed a step-by-step ERP lifecycle (Laudon & Laudon, 2020), including planning, system design, development, testing, training, and full operation. This staged approach minimized disruption to daily operations and allowed continuous feedback from stakeholders.

The company faced key challenges:

- a. User resistance (34% of initial users reported reluctance).
- b. System training duration: Averaged 20 hours per department, especially for finance and logistics units.
- c. These issues were addressed by appointing change champions in each division and providing intensive training modules.

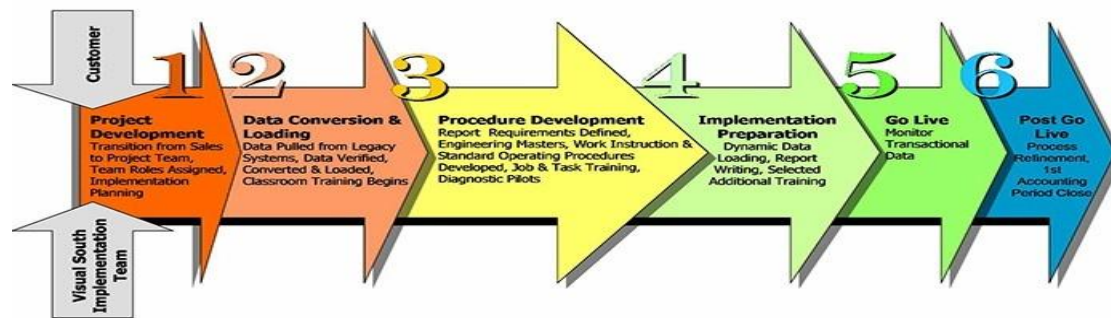


Figure 1: ERP Implementation Phases and Timeline [15]

The implementation process was guided by both internal IT staff and external consultants. Despite some initial resistance, especially from middle management, the system was fully operational within the planned timeline.

4.2 System Contributions to Strategic Decision-Making

Following the implementation of the integrated system, there was a significant improvement in the organization's strategic decision-making process. Data that was previously scattered across various departments could now be accessed in real-time through a unified platform. This is consistent with the findings of Putra and Surjawan (2019), who noted that ERP systems enhance both the speed and accuracy of decision-making by consolidating previously isolated data sources.

A concrete example can be seen in production planning: decisions that previously required two to three days—due to the manual collection of reports—can now be made within hours, thanks to the availability of real-time analytic dashboards embedded in the system.

The adoption of the integrated information system brought several tangible benefits to the strategic decision-making process:



- a. **Improved Decision Timeliness:** With access to real-time data, senior managers were able to respond more quickly to changes in inventory levels, sales trends, and operational efficiency.
- b. **Enhanced Data Accuracy and Consistency:** Redundancies and inconsistencies between departmental reports were significantly reduced. Unified data reporting enabled executives to rely on a single source of truth when making high-level decisions.
- c. **Better Resource Allocation:** Real-time cost and performance data supported budget planning and workforce deployment across business units.
- d. **Scenario Analysis and Forecasting:** The system's built-in analytics features allowed for predictive analysis and the simulation of strategic scenarios, such as production scaling or raw material sourcing shifts.

These findings align with the literature, particularly Turban et al. (2018), who emphasized that integrated systems serve as a foundation for data-driven strategic planning.

This table can describe the main features of an integrated information system and how each feature supports strategic decision making in an organization.

Tabel 1. Integrated Information System Features

Integrated Information System Features	Influence on Strategic Decisions
Real-time Data Access	Accelerate decision making by providing accurate and up-to-date information
Centralized Data Repository	Reduce data duplication and inconsistency, improve decision quality.
Reporting and Analytics Tools	Enables data-driven analysis to predict trends and plan long-term strategies
Scenario Planning and Forecasting	Assists in simulating various strategic scenarios for better decision making
Cross-functional Data Integration	Improve collaboration between departments, ensuring more holistic and coordinated decisions.

4.3 Changes in Strategic Decision-Making



After system integration, decision-making processes improved in terms of speed, accuracy, and scope of data access.

Table 2. Key Metrics (Before vs. After Implementation)

Metric	Before ERP	After ERP	Improvement
Time to prepare strategic report	3 days	4 hours	↓ 83%
Forecast accuracy (sales)	±22% error	±7% error	↑ 68% accuracy
Cross-department data sync time	Manual, >24 hours	Instantaneous	↓ 100% delay

- Based on interview data with 8 department heads, 75% reported improved visibility into company-wide data.
- One senior manager noted: "Before ERP, we were making decisions based on fragmented spreadsheets. Now, we see live updates from production, sales, and finance all in one dashboard."

This aligns with Putra & Surjawan (2019), who found that ERP contributes directly to faster, data-driven decision-making in Indonesian manufacturing contexts.

4.4 Strategic Impact on the Organization

The strategic impact of the system is evident in several key areas: cost efficiency, precise resource allocation, and enhanced competitiveness. Raharjo (2017) emphasized that an effective information system can serve as a catalyst for achieving competitive advantage, particularly when utilized to support long-term strategic decisions.

Interview data indicated that management is now more confident in developing market expansion strategies due to comprehensive visibility into production capacity, distribution channels, and customer demand. This supports the argument made by Anggraini and Purnama (2018) that ERP systems not only enhance operational efficiency but also expand the strategic capabilities of an organization.

The following benefits were quantified within the first year post-implementation:



- a. Operational cost savings: Estimated at IDR 1.25 billion/year, primarily due to inventory optimization and reduced overtime in logistics.
- b. Inventory turnover increased from 4.2x/year to 6.1x/year, showing improved supply chain responsiveness.
- c. Employee productivity index improved by 22%, based on internal KPI benchmarking.

Raharjo (2017) suggests that such improvements are indicative of strategic value, where information systems act not just as tools, but as enablers of long-term growth and resilience.

4.4 Challenges and Limitations

Despite the overall success, several challenges were identified:

- a. Underutilization of Analytical Tools: Most users only employed basic reporting features and were unaware of advanced analytics modules. This limited the potential of the system to fully support strategic modeling.
- b. Limited User Training: While technical training was provided during initial deployment, ongoing capacity-building was minimal. Some departments continued to rely on external
- c. spreadsheets, which created data silos and introduced risks of inconsistency.
- d. Organizational Resistance: A segment of the workforce exhibited reluctance to adopt system changes, particularly older employees accustomed to manual processes.

4.5 Discussion

The results indicate that an Integrated Information System can significantly enhance strategic decision-making when properly aligned with business objectives and supported by sufficient organizational readiness. The findings are consistent with prior studies (e.g., Laudon & Laudon, 2020), which highlight the role of digital integration in improving decision accuracy and agility.

However, the case also underscores the importance of change management and continuous system optimization. Without sufficient investment in user development and cultural alignment, organizations risk underutilizing the very tools designed to empower their strategic capabilities.

5. CONCLUSION

This study explored the implementation of an Integrated Information System (IIS) in a manufacturing organization and its role in supporting strategic decision-making. The findings indicate that IIS significantly enhances the quality, speed, and reliability of decisions by providing real-time, consistent, and comprehensive data across departments. The system enabled improved resource allocation, scenario forecasting, and overall managerial responsiveness.

However, the effectiveness of such systems is not solely determined by the technology itself but also by the organization's ability to align it with strategic goals, invest in user training, and manage



cultural resistance. Underutilization of advanced features and insufficient post-implementation support remain key barriers to maximizing system benefits.

Therefore, organizations should view IIS not just as an operational tool but as a strategic asset that requires ongoing attention, evaluation, and development. Future research could expand this study by comparing different industry sectors or employing a quantitative approach to measure decision quality improvements more precisely.

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