

THE IMPORTANCE OF KNOWLEDGE TRANSFER IN THE IMPLEMENTATION OF AN INTEGRATED ERP SYSTEM

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Purpose: Importance of knowledge transfer in the process of implementing an integrated ERP class IT system.

Design/methodology/approach: The chosen research approach involved a case analysis, employing two distinct data collection methods an unstructured interview with a member of the implementation team and observation conducted by the article's author. The rationale behind investigating knowledge transfer in ERP systems implementation projects is well-founded, as it is deemed essential for enhancing the overall efficiency of project management in this domain.

Findings: The research demonstrates a clear correlation between the stages of the knowledge life cycle and those of the project. In the project's preparatory phase, essential organizational knowledge is identified. Subsequently, during the IT solution design phase, there is a transfer of knowledge from employees to consultants, contributing to the development of a cohesive IT solution project. This project is then implemented in the subsequent phase, leveraging organizational knowledge for solution creation, testing, and utilization.

Research limitations/implications: The insights presented in this study pave the way for additional theoretical and practical exploration. The adoption of an integrated ERP class IT system represents a strategic decision with profound implications for business processes, resource utilization, and management efficiency. The ramifications of this decision underscore its pivotal role in shaping the overall trajectory of organizational operations.

Practical implications: The implementation process demands a spectrum of diverse and often specialized knowledge from participants, leading to multidirectional flows of such knowledge. Consequently, there arises a crucial necessity for research into knowledge transfer methodologies within the design environment.

Originality/value: Implementation projects necessitate a range of diverse, often specialized knowledge from participants and entail multidirectional flows of such knowledge. The focal point of these projects is the amalgamation of organizational, management, business, and technological knowledge possessed by all participants, encompassing future users of the integrated system.

Keywords: ERP systems, knowledge transfer, small and medium-sized enterprises.

Category of the paper: Case study.

1. Introduction

Integrated IT system of the ERP class stand as among the most sophisticated and advanced categories of IT system, playing a crucial role in supporting the holistic management of enterprises and institutions. Their deployment significantly impacts the optimization of internal processes and immediate environmental dynamics by providing pre-configured tools. Key features of such systems include (Maditinos, Chatzoudes, Tsairi, 2012; Miłosz, 2012; Issar, Navon, 2016).

1. **Functionality** - Integrated ERP class IT system are distinguished by their extensive functionality, offering a comprehensive suite of tools and capabilities. These systems are designed to address various organizational needs, streamlining processes and enhancing overall operational efficiency.
2. **Integration of Data and Procedures** - A hallmark feature is the seamless integration of data and procedures. This integration ensures a cohesive flow of information across different departments and functions within an organization. By breaking down silos and promoting data coherence, these systems contribute to a unified and synchronized operational environment.
3. **Functional and Structural Flexibility** - Another key attribute is the functional and structural flexibility inherent in ERP class IT system. They are adaptable to evolving organizational requirements, accommodating changes in processes, workflows, and organizational structures. This flexibility is instrumental in ensuring that the system aligns with the dynamic nature of modern businesses.
4. **Substantive and Technological Advancement** - Substantive and technological advancement is a defining characteristic, encompassing both the depth of knowledge embedded in these systems and the cutting-edge technologies that underpin their architecture. ERP class IT system incorporate the latest advancements in technology to provide organizations with a robust and future-ready IT infrastructure.

In contemporary business landscapes, the implementation and utilization of integrated ERP class IT system serve as the cornerstone for streamlining business management processes, reshaping organizational structures. Enterprises, navigating heightened competition, face escalating demands for quality, speed, and timeliness, particularly in trade and production. Swift responses to customer needs, the ability to offer innovative solutions, and a reduction in project costs become critical avenues for achieving a competitive advantage (Bytniewski, Matouk, Hernes, 2018; Malik, Khan, 2021).

Recognizing the imperative, numerous small and medium-sized enterprises (SMEs) now acknowledge the need for integrated ERP class IT system to effectively support enterprise resource management. A diverse array of systems, primarily designed for SMEs, is readily available in the market (Estébanez, 2021). The implementation of an integrated system is

a strategic decision, with profound effects on business processes, resource utilization, and management efficiency. The success of such implementations hinges on various factors related to both the operational activities of the company and the management approach to the implementation project (Grochowski, 2022).

Executing implementation projects goes beyond acquiring and launching the appropriate IT infrastructure; it involves imparting knowledge that enables the effective utilization of this infrastructure in supporting business processes. Projects demand diverse, often specialized knowledge from participants and involve multidirectional flows of organizational, management, business, and technological knowledge. Participants, including future users of the integrated system, contribute their expertise. Throughout these projects, various implementation and management activities directly contribute to creating and consolidating knowledge in the implementation products, establishing resources that concurrently become the intellectual capital of the entities involved in the projects. (Finnery, Corbett, 2007; Alaskari, Pinedo-Cuenca, Ahmad, 2021; Żółtowski, 2021; Zwierzchowski, 2022). The overarching goal of this article is to underscore the critical importance of knowledge transfer in the process of implementing an integrated ERP class IT system.

2. Knowledge transfer in the process of implementing an integrated system

The implementation of a standard integrated system ranks among the most intricate and challenging IT projects faced by contemporary business organizations. This ambitious endeavor unfolds across a spectrum of key economic processes, implicating substantial organizational resources and concurrently necessitating the adept management of diverse types of knowledge. As the focal point of business operations, these systems permeate various facets of the organizational structure, demanding a sophisticated orchestration of resources and expertise. Scholars and industry experts alike emphasize the critical role of knowledge transfer in ensuring the seamless integration of these systems, prompting discussions on the formulation of specialized procedures to facilitate knowledge transfer specifically tailored to the challenges posed by integrated system implementation (Rodriguez, Molina-Castillo, Svensson, 2020; Rupcic, 2021).

It is imperative to underscore the pivotal role of research dedicated to knowledge transfer in IT projects, with a specific emphasis on ERP implementation projects. The justification for such research lies in its potential to offer profound insights that can enhance the efficiency and effectiveness of project management. The complexities of knowledge transfer within the realm of IT projects, particularly those involving ERP systems, warrant a nuanced understanding that transcends traditional project management paradigms (Lech, 2011). Through empirical studies and theoretical frameworks, this research endeavors to unravel the intricacies of knowledge

transfer, shedding light on the dynamic interplay between technological elements and organizational knowledge. The outcomes of such research endeavors not only contribute to the academic discourse but also provide practical guidance for organizations undertaking the formidable task of implementing integrated systems, offering a roadmap for more efficient knowledge transfer strategies and ensuring project success (Chaudhry, Nawab, Shafi, 2021; Mohd Zamhari, 2020).

The implementation of an ERP system is a multifaceted process that demands meticulous planning, execution, and ongoing monitoring. Among the pivotal factors influencing the success of an ERP implementation, the knowledge transfer curve assumes a critical role (Jayawickrama, Liu, Smith, 2014). The knowledge transfer curve serves as a metric to gauge how effectively users of an ERP system comprehend and utilize the system as the implementation progresses. This curve manifests as a graphical representation, illustrating the trajectory of knowledge transfer and the adoption of the ERP system by users throughout the implementation project's lifespan. Typically, the curve commences at a nascent level and ascends gradually over time as users grow more adept and familiar with the intricacies of the system. The transfer of knowledge curve encompasses several distinct stages, each delineating a phase in the life of an ERP implementation. These stages provide valuable insights into the evolving dynamics of user engagement, offering a roadmap for organizations to navigate the complexities of knowledge transfer and ensure a seamless integration of the ERP system into their operational fabric (De Luca, Cano Rubio, 2019).

1. **Pre-Implementation** - Before the commencement of the ERP system implementation, the knowledge transfer curve is situated at its lowest point. Users are unfamiliar with the system, and a comprehensive understanding of the benefits and impact of the impending changes may be lacking. During this initial stage, the project team plays a pivotal role by initiating preparatory measures, offering training sessions, and providing support to familiarize users with the upcoming system.
2. **Implementation** - The implementation stage stands out as the linchpin of an ERP project, witnessing a rapid ascent of the knowledge transfer curve as users actively engage with the new system. Ensuring a smooth transition during this phase requires robust training and support mechanisms. Comprehensive guidance is essential to empower users with the skills necessary for effective utilization of the ERP system.
3. **Post-Implementation** - Following the implementation stage, the knowledge transfer curve continues its gradual ascent. Users are becoming more proficient in navigating the system and are starting to witness the tangible benefits it brings. Despite this progress, there might still be areas where users require additional training and support to fully capitalize on the system's capabilities.

4. **Optimization** - The optimization stage marks the zenith of the knowledge transfer curve. Users have attained full proficiency in utilizing the system and have mastered all requisite skills. During this phase, the emphasis shifts from training to the optimization and continuous improvement of the ERP system. Organizations focus on refining processes, identifying efficiencies, and ensuring the system aligns seamlessly with evolving business needs.
5. **Maintenance** - The maintenance stage stabilizes the knowledge transfer curve at its peak level. Users have achieved a high level of comfort with the system, effectively supporting day-to-day business operations. Maintenance efforts during this stage revolve around ensuring the system's continued functionality, addressing any emerging issues, and implementing necessary updates to sustain peak performance.

A strategic approach involving comprehensive training and sustained support throughout all stages is imperative.

3. The process of implementing an integrated ERP class IT system in production enterprise

Contemporary enterprises recognize the pivotal role of implementing integrated ERP class IT system in effective process management. These solutions have evolved into indispensable tools for enhancing operational efficiency within enterprises. A trade and production company operating in the small and medium-sized enterprises (SMEs) sector has been a presence in the Polish market. Specializing in the wholesale and retail of electronic products, with headquarters in Bydgoszcz, the company serves customers nationwide. Its core objective is to ensure customer satisfaction by providing a comprehensive range of high-quality goods at competitive prices. Since 1999, the company has expanded into manufacturing and, in the last five years, has prioritized the development and modernization of its production plant. Products are available for direct purchase at the company, through sales representatives, at designated points of sale, and online. As the company grew, it encountered challenges unprecedented in its earlier years. The expanding product range and a rising customer base led to difficulties in order processing, resulting in numerous instances of incorrect goods handovers, necessitating corrective documents. The surge in orders, coupled with inefficiencies in warehouse operations, significantly prolonged order fulfillment times. The existing system proved inadequate, particularly in supporting the sales team and lacked features such as automatic price list updates. Faced with these challenges, the company's management decided to implement the Tisoft Work Manager system. The primary criterion for system selection was integration across all company facets and support for the quality assurance system. Initially, the company employed separate IT system for each department sales, accounting, and production leading to internal

inconsistencies. As the company expanded, unforeseen problems emerged, including issues with stock records, incorrect goods handovers, prolonged order processing times, operating in multiple databases, and utilizing outdated database technologies. These challenges hindered decision-making processes and impeded efforts to scale up production. The risk of erroneous data entry into the system escalated. The existing solutions no longer sufficed, making the implementation of an integrated IT system imperative for sustaining market position and fostering company growth.

The focal inquiry guiding this article centers on the management of organizational knowledge throughout various stages of implementing an integrated ERP class IT system. To address this, a comprehensive research methodology incorporating multiple data collection methods was employed. Specifically, the following approaches were utilized:

- unstructured interview - an in-depth, unstructured interview was conducted with a member of the implementation team; the interview, lasting for a duration of 3 hours, was meticulously recorded to capture nuanced insights; the respondent was queried about the methods employed, their effectiveness, and the outcomes at each stage of the knowledge life cycle during the diverse phases of the project,
- observation - the author of the article actively engaged in observational methods to complement the interview data; this involved firsthand observation of the implementation team's activities, interactions, and practices throughout the project; the observational data enriched the overall understanding of knowledge dynamics within the organizational context.

During the unstructured interview, the respondent was prompted to share insights on specific aspects such as the methods used for knowledge transfer, the impacts of these methods, and the overall implementation of knowledge life cycle stages in different project phases. This iterative process involved posing additional questions in response to the respondent's answers, creating a dynamic and insightful dialogue. The culmination of these research efforts resulted in the synthesis of interview responses and observational data, forming a comprehensive narrative that delves into the intricacies of knowledge transfer practices across the various phases of implementing an integrated ERP class IT system.

The interviewee, a member of the complete system implementation team, brought a wealth of knowledge derived from several years of managerial experience. Noteworthy was their analytical thinking ability and proficiency in establishing cause-and-effect relationships, proving instrumental in crafting a business concept that seamlessly integrated organizational knowledge into the ERP system's functionality.

1. In the project preparation phase, occurring at the project management level, the respondent actively participated. This phase culminated in the formal establishment of a project team, signifying the identification of crucial knowledge. Individuals possessing this identified knowledge were appointed to the project team, although the specific method of knowledge identification remained unknown to the respondent.

2. During the business concept stage, the respondent did not need to identify additional knowledge. Knowledge transfer took precedence, facilitated through workshops (both in-person and online) led by a consultant. Participants from various company departments shared their insights, allowing the consultant to integrate organizational knowledge with system knowledge, ultimately shaping a comprehensive business concept.
3. The implementation phase saw the consultant configuring the integrated system in alignment with the detailed business concept. Configuration drew upon integrated knowledge from relevant areas, incorporating insights about the enterprise and the system's functionality. The knowledge transferred in prior phases played a pivotal role in constructing the system.
4. Activities in the preparation phase for launch involved verifying system configuration correctness and end-user training. Test scenario generation required the project team to leverage knowledge about the organization to anticipate diverse business process variations and common errors. Simultaneously, end-users underwent system operation training, representing knowledge transfer from the consultant.
5. During the launch phase, team members and end-users alike applied their knowledge about the organization. The respondent highlighted the anticipation of all conceivable solutions, establishing connections between organizational knowledge and system functionality.

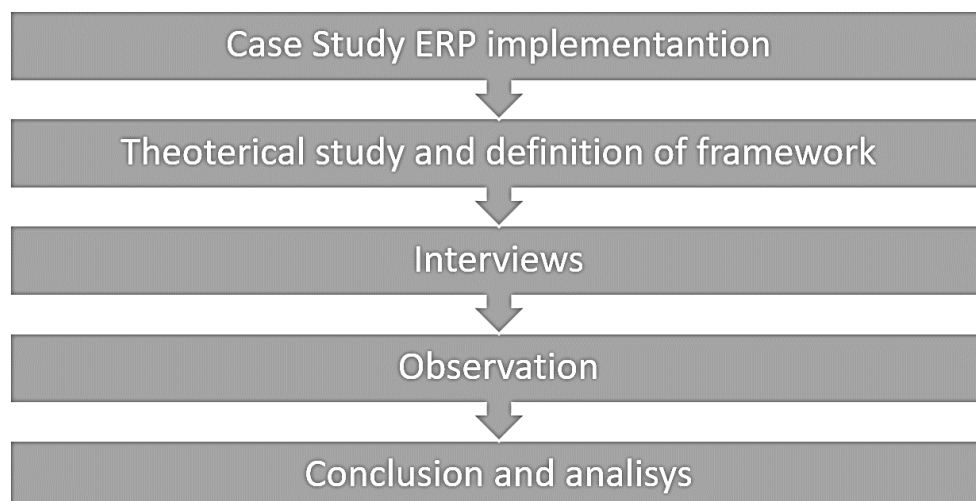


Figure 1. Research process.

This comprehensive account elucidates how knowledge about the organization was managed across distinct phases of the integrated ERP class IT system implementation project, underscoring the pivotal role of knowledge transfer in the successful execution of each stage.

4. Conclusions

The implementation project of an integrated ERP class IT system encompasses critical business processes and demands substantial organizational resources, necessitating the management of various knowledge types. The presented case study highlights the pivotal role of knowledge transfer in the implementation project, emphasizing that effective management of organizational knowledge is a fundamental prerequisite for project success. Accurate incorporation of this knowledge into the system ensures alignment with the organization's economic objectives.

In the realm of IT project success factors, with a primary focus on ERP projects, user involvement is commonly cited. Introducing the dimension of knowledge transfer to the investigation of IT project success elucidates a key outcome of such involvement the proficient management of organizational knowledge for seamless integration into the emerging IT solution.

The study underscores the correlation between knowledge life cycle phases and project phases. In the project preparation phase, essential organizational knowledge is identified. Subsequently, during the IT solution design phase, knowledge about the organization undergoes transfer from employees to consultants responsible for implementation, storage in the form of business concept documents, and integration with system knowledge. This process results in the development of a cohesive IT solution project, implemented in the subsequent project phase. Ultimately, organizational knowledge is leveraged for solution creation, testing, and utilization. The findings emphasize the critical role of knowledge transfer in integrated systems projects, highlighting the imperative need for research into knowledge transfer methodologies within the design environment.

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