Effective project monitoring for ERP implementation success: A case study in a S&M company in Vietnam

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ABSTRACT

This research paper shed a light on the challenges faced during the implementation of an Enterprise Resource Planning (ERP) system in an organization, with a specific focus on project management and project monitoring. This paper also presents a case study of a company in Vietnam that experienced difficulties during the go-live phase of their ERP implementation due to poor project monitoring. The objective of the research is to identify these challenges and propose a solution to resolve the ineffective project monitoring. By doing that, the paper highlights the importance of effective project monitoring in ensuring the success of ERP implementation projects. The results of implementing the proposed solution are promising, as demonstrated by a reduction in completion time, elimination of late delivery days, and effective management of resource deviation. These outcomes illustrate the potential for improving project efficiency, reducing costs, and ensuring successful ERP system implementation. Overall, this research provides valuable insights and best practices for organizations embarking on ERP system implementations, offering guidance on overcoming challenges and achieving a smooth and successful go-live phase.

Keywords: project management, ERP implementation, project monitoring

1. INTRODUCTION

Enterprise Resource Planning (ERP) is an integrated system implemented by businesses to improve internal business processes in various departments in order to provide greater efficiency, increased automation to its processes, and improved communication across the business [1]. The enterprise resource planning (ERP) market in Vietnam has seen significant growth in recent years, driven by the country's expanding economy and increased adoption of digital technologies. According to a report by Technavio, the ERP market in Vietnam is expected to grow at a CAGR of over 9% during the period 2018-2022 [2]. This growth is being driven by a number of factors, including the increasing demand for ERP solutions from small and medium-sized businesses (SMBs), the growing need for integration and automation in business processes, and the government's focus on promoting the adoption of digital technologies. In terms of the S&M business segment, Vietnam's SMBs are increasingly recognizing the benefits of implementing ERP systems to streamline their operations and improve efficiency.

Enterprise resource planning (ERP) is software designed for organizing and managing business processes (core and administrative) by sharing information across functional areas. Core processes include production planning and control, inventory management, purchasing, and distribution; administrative processes include accounting (cost control, account payable and receivable, ect.), and human resource management [3]. This can help SMBs make better-informed decisions, reduce costs, and improve their overall competitiveness. Overall, the ERP market in Vietnam has strong potential for growth, especially in the S&M business segment. As Vietnam's economy continues to expand and the adoption of digital technologies increases, more and more SMBs are expected to turn to ERP solutions to help them manage and grow their businesses.

Most multinational firms are using ERP and that more small and midsize companies have begun to adopt ERP. Despite ERP's promises to benefit companies and a substantial capital investment, not all ERP implementations have successful outcomes. ERP implementations commonly have

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delayed an estimated schedule and overrun an initial budget [4]. With no specific plan or detailed procedure, the company may spend a great deal of resources, and time on ERP implementation but may not enjoy a bit of the benefit the ERP system should have brought out. ERP is a management mode or techniques. Many companies regard ERP system implementation as a project management [5]. Effective project management is crucial for the success of any ERP implementation, as it helps ensure that the project stays on track, on budget, and on schedule. Poor project monitoring can have serious consequences for an enterprise resource planning (ERP) implementation, as it can lead to delays, cost overruns, and a failure to achieve the desired benefits. A typical successful ERP implementation project has the advantages of cost and time reduction and high system quality. But besides the technical perspective, the management part of the implementation process is also a vital part contributing to the general success of the ERP system provider.

In this research paper, we present a case study of an organization that was facing a number of challenges during the implementation process, mainly arise from poor monitoring. These issues contributed to delays in the project and increased costs. To address these challenges and cut down the project time, we propose a solution that focuses on improving project monitoring.

2. THEORETICAL BASIS AND METHODOLOGY
2.1. Theoretical Basis
2.1.1. Enterprise Resource Planning (ERP)
Enterprise Resource Planning (ERP) systems are a type of integrated software solution designed to manage and automate various business processes across an organization. These systems provide a centralized platform for managing and coordinating key business functions such as accounting, inventory management, human resources, customer relationship management, and supply chain management. The primary objective of ERP systems is to improve organizational efficiency and decision-making capabilities by providing real-time access to accurate and comprehensive business information.

ERP systems integrate with an organization's existing systems and databases and can be customized to meet the specific needs of the organization. They are widely adopted by medium to large businesses and organizations across various industries, including manufacturing, retail, healthcare, and government. ERP implementation is a complex and challenging task, requiring significant resources and careful planning. The success of an ERP implementation project depends on several factors, including the alignment of the ERP system with the organization's business processes, the level of user acceptance and training, and the effective management of the implementation project.

A modern ERP system connects all business processes across accounting and finance, risk management, enterprise performance management (EPM), and more, providing a single source of truth for data [6]. However, ERP implementation projects can also encounter significant challenges, including resistance to change, insufficient resources, and poor project management. Therefore, it's essential for organizations to carefully plan and execute ERP implementation projects to maximize the chances of success.

2.1.2. Project Management
Project management is the use of specific knowledge, skills, tools and techniques to deliver something of value to people [7]. It is a multidisciplinary field that draws on theories and best practices from various disciplines, including management, engineering, and computer science. ERP implementation project management refers to the process of planning, executing, monitoring, controlling, and closing an ERP implementation project in order to achieve specific goals and meet specific success criteria. It involves a wide range of activities, including project planning, project execution, project monitoring and controlling, and project closing.

One of the key theories in ERP implementation project management is the project life cycle, which describes the stages an ERP implementation project goes through from initiation to closure. The project life cycle typically includes the following stages: initiation, planning, execution, monitoring and controlling, and closing.
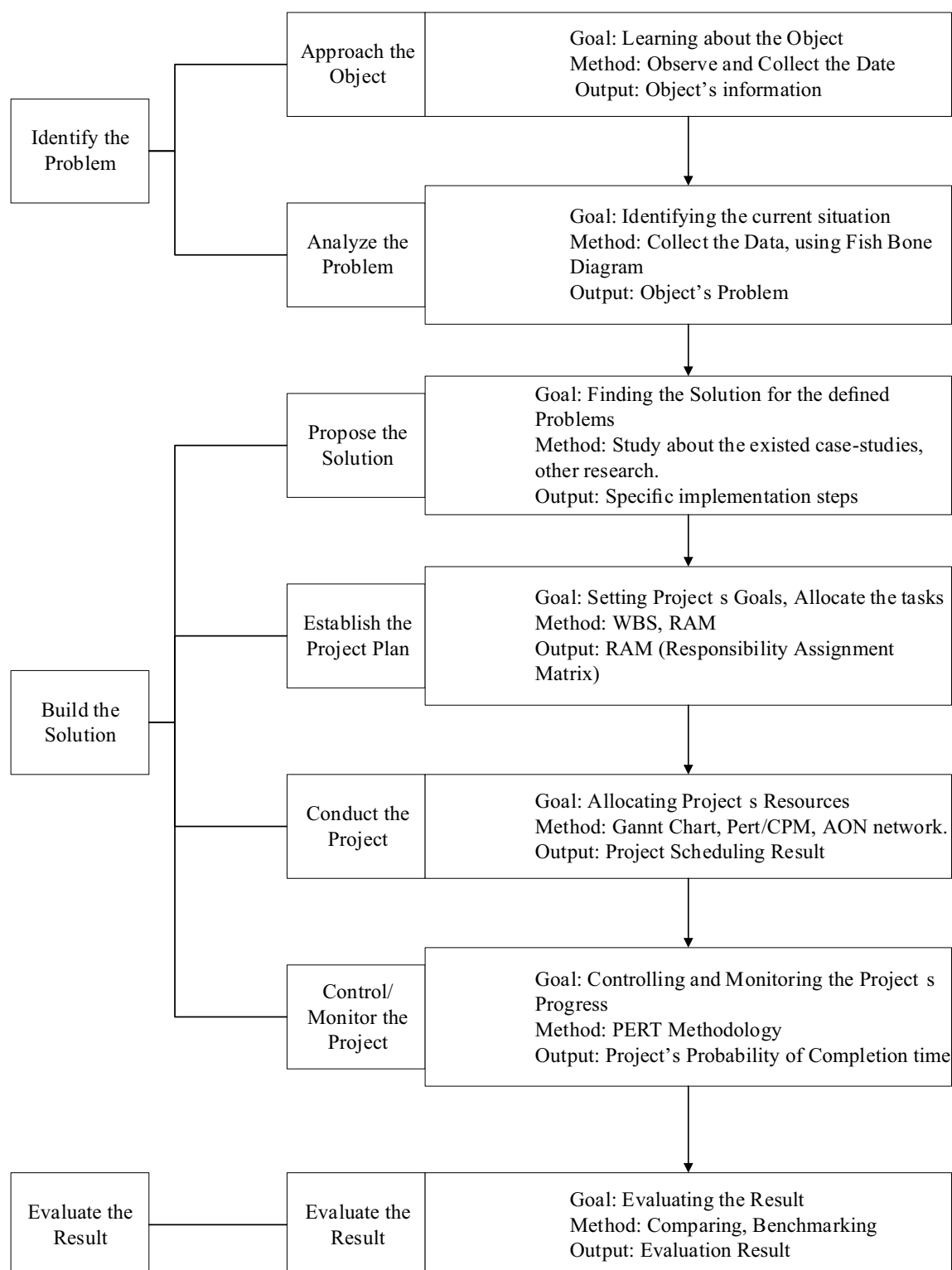
Another important theory in ERP implementation project management is the ERP implementation methodology. ERP implementation methodology is where the company declares their strategic decisions regarding how to conduct the

implementation, and selects a focused path for ERP deployment [8]. There are several ERP implementation methodologies available, such as the traditional Waterfall model, the Agile model and the Hybrid model. Each has its own advantages and disadvantages, and the choice of methodology depends on the specific needs and constraints of the project.

2.2. Methodology

The methodology employed in this study is outlined in the diagram below, providing a comprehensive overview of the research design, data collection, and analysis methods utilized.
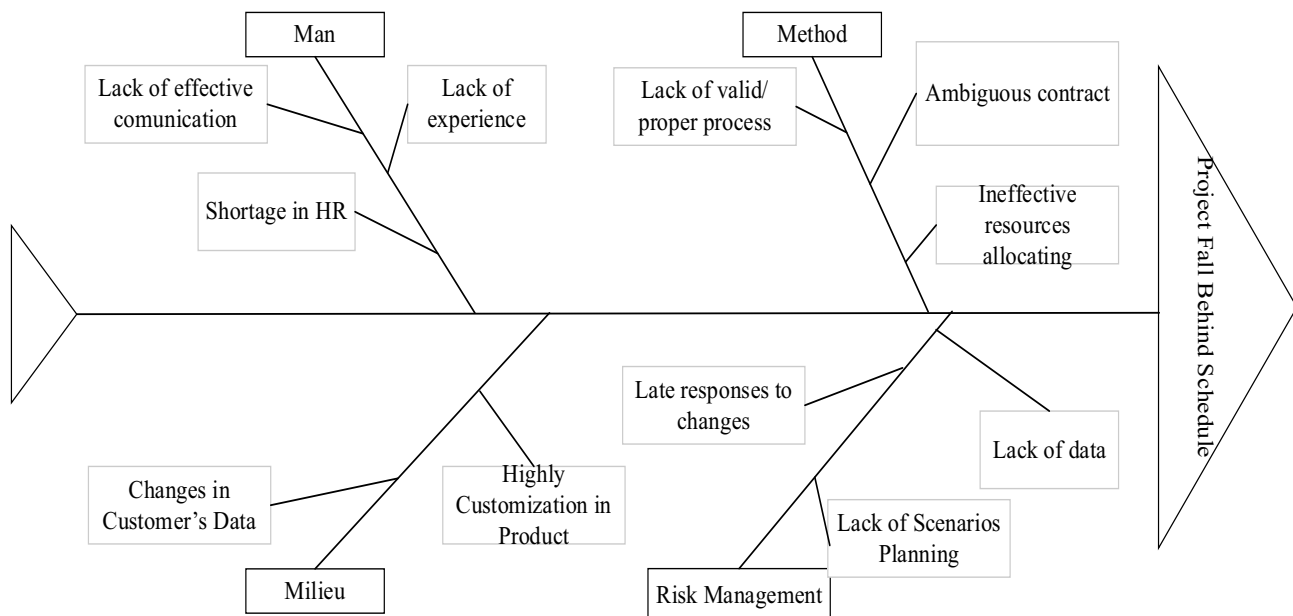

Figure 1. Approach Methodology

3. CASE-STUDY

The implementation of an ERP system is a significant undertaking for any organization, requiring careful planning and execution to ensure a successful outcome. The go-live phase (which in this company's situation belongs to the "Evaluate the result" phase") is particularly critical, as it marks the transition from testing and development to live operation, and any issues that arise during this phase can have a significant impact on the overall success of the project. This case study endeavors to analyze the experiences of a firm that recently integrated an Enterprise Resource Planning (ERP) system. Similar to numerous other organizations in Vietnam, this company encountered difficulties with monitoring during the implementation phase, leading to an increase in costs and time. The objective of this study is to examine the project management challenges encountered during the go-live phase and provide recommendations for effective monitoring steps to overcome these obstacles. The aim of this case study is to impart valuable insights to organizations embarking on an ERP system implementation, highlighting potential challenges and offering best practices for ensuring a successful go-live phase.

3.1. Problems Identification

In this case study, the term "delaying in the go-live phase" refers to any deviation from the project timeline that results in a completion time longer than the allocated 5 days, or any deviation from the expected quality of the final product that does not meet the specified requirements. This could include issues such as system downtime, data migration errors, or user training difficulties that impede the smooth transition from testing and development to live operation. "The data collected from recent ERP implementation projects at our company indicates that a staggering 70% of our customers have experienced delays during the go-live phase. This is a concerning trend, as it suggests that a significant proportion of our ERP implementation projects are not meeting their expected timelines or quality standards. A fishbone chart will be used to identify and analyze the main factors that led to deviation in the completion time of an ERP implementation project at an agricultural company. The chart will focus on four main factors: Manpower, Method, Risk Management, and Milieu.

Figure 2. Facts that may affect the ERP project's performance

In case of this company, one of the main challenges encountered during ERP implementation is the presence of poor project management methods. This leads to a range of issues that hinder the successful deployment of ERP systems. Insufficient planning, ineffective execution, and inadequate monitoring and control of the implementation project result in delays, cost overruns, and a failure to meet desired outcomes. In this research, we will address these challenges by focusing on a specific case study where a company poorly planned their

ERP implementation. By analyzing this case, we aim to identify the root causes of the problems stemming from poor project management and propose effective solutions. Through this research, we will provide valuable insights and recommendations to help SMBs avoid or overcome similar challenges and improve the success rate of their ERP implementation projects.

3.2. Solution Proposing

This part will focus on the implementation of a typical monitoring method for an ERP implementation project at a company. The method being introduced is designed to improve the

efficiency and effectiveness of the monitoring process which will lead to solve the problems of delay in go-live phase.

3.2.1. Project Planning

This part will outline the initial stage of the project, including the determination of project goals, the construction of a work breakdown structure, and the creation of a task deployment matrix for each team of personnel. This project comprises several stages in the implementation process, including the creation of key deliverables represented by a work breakdown structure (WBS). Here is the WBS of this project.
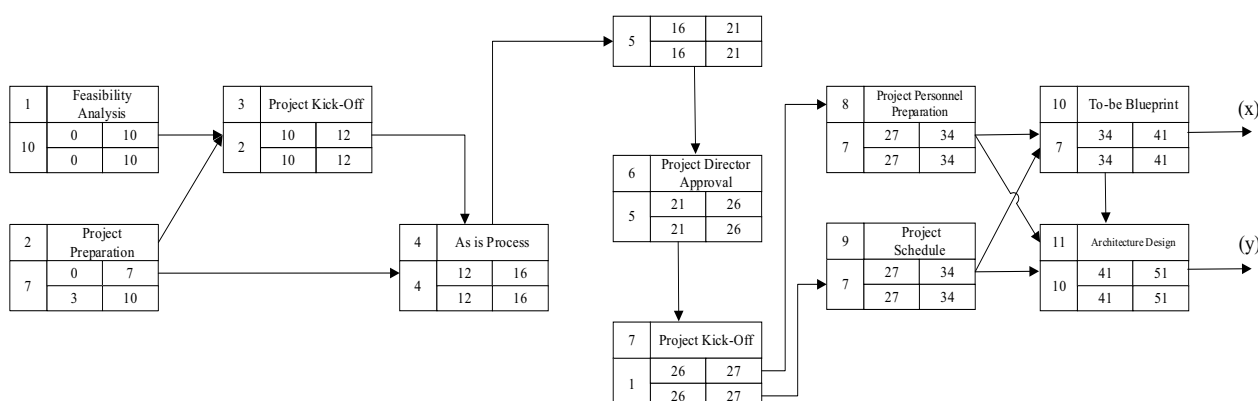
Table 1. Project's Work Breakdown Structure

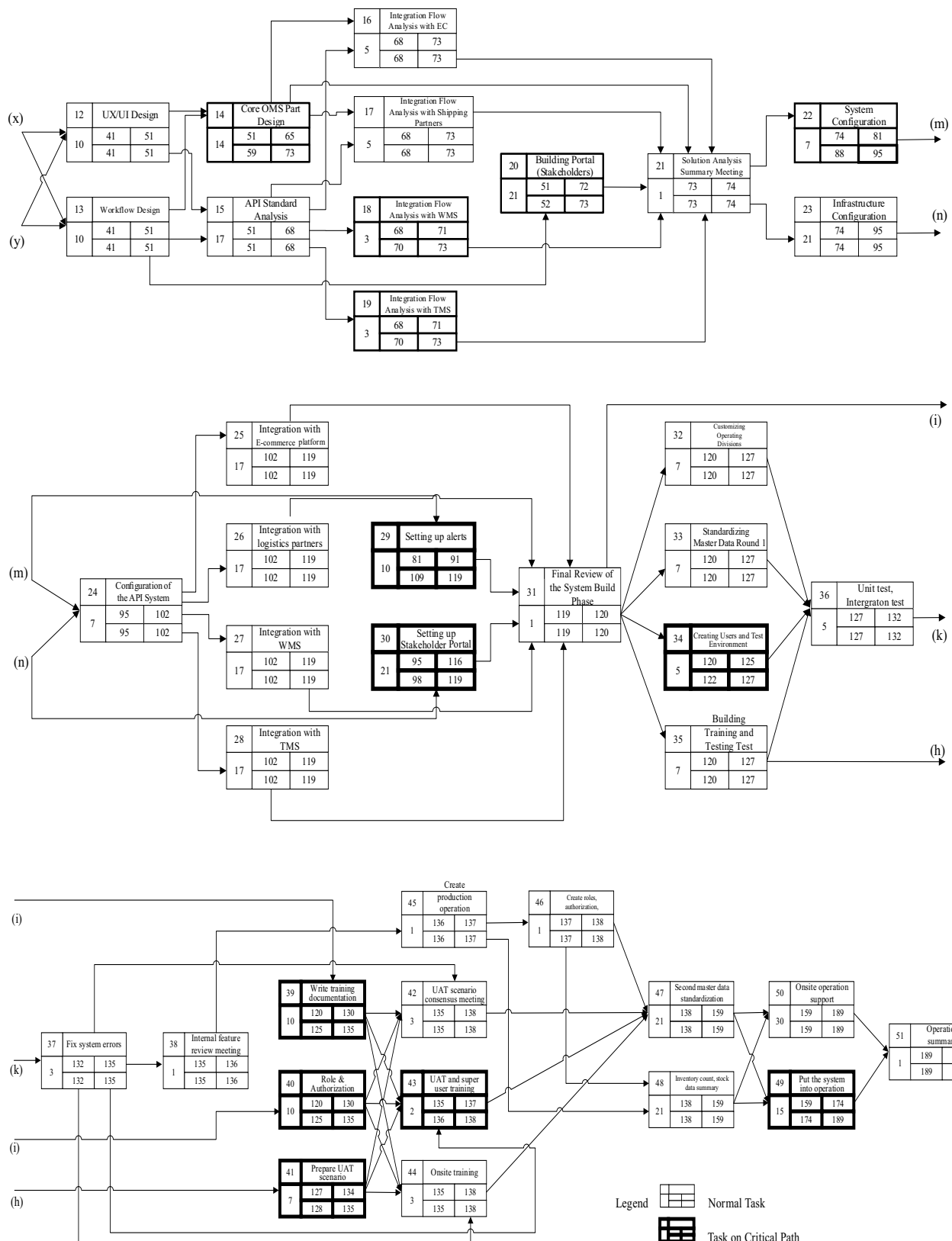| No	WBS	Task name
1	1.1	Project Preparation
2	1.2	Planning
3	1.3	Analyzing and Solution Designing
4	1.4	System Configuring
5	1.5	Testing
6	1.6	Transition
7	1.7	Operating

3.2.2. Project Scheduling

In this section, we will present the initial plan to implement the project. All of the specific information related to each task will be provided in the form of an attachment in the appendix 2.

Utilizing this information, we will construct an

Activity-On-Node (AON) network diagram in order to graphically depict the project schedule and subsequently calculate the estimated project completion time. This method allows for clear visualization of the project's interdependencies and dependencies between tasks, enabling effective project planning and scheduling.

Figure 3. Project's Activity on Node network

Based on the AON the Project completion time is: 190 days Another the key components of an ERP implementation project is the human resource element. The initial human resource plan for the project should include a clear definition of the roles and responsibilities of each team member, as well as the necessary skills and qualifications required for the project.
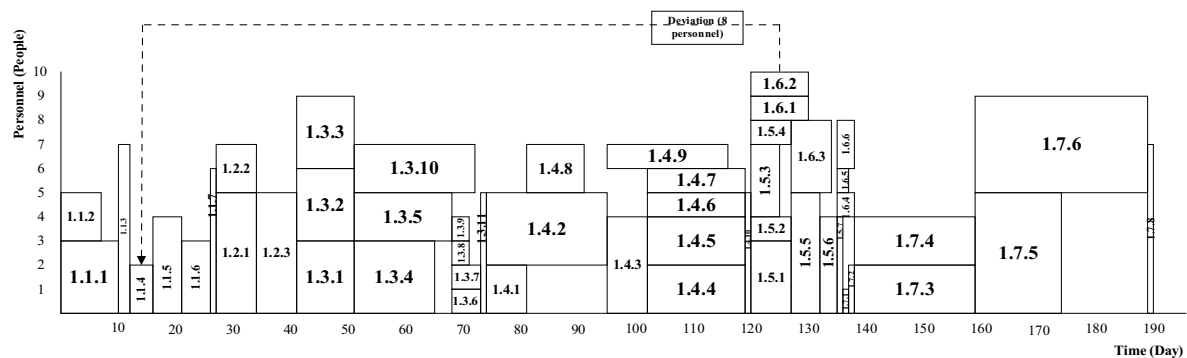
Figure 4. Initial Performance

The human resource plan should be reviewed and updated regularly throughout the project to ensure that the team has the necessary resources and support to meet the project's objectives. This is important to ensure that the project is completed on time, within budget, and to the required quality.

With this plan, it will take 190 days and 1,121,000,000 VND to complete this project.

3.2.3. Project Monitoring

In this section, we will implement effective project scheduling and monitoring techniques to ensure that the project is aligned with the most suitable plan, making adjustments as necessary.

We adjust the plan of this project along with personnel factors. The result is presented in the below chart.
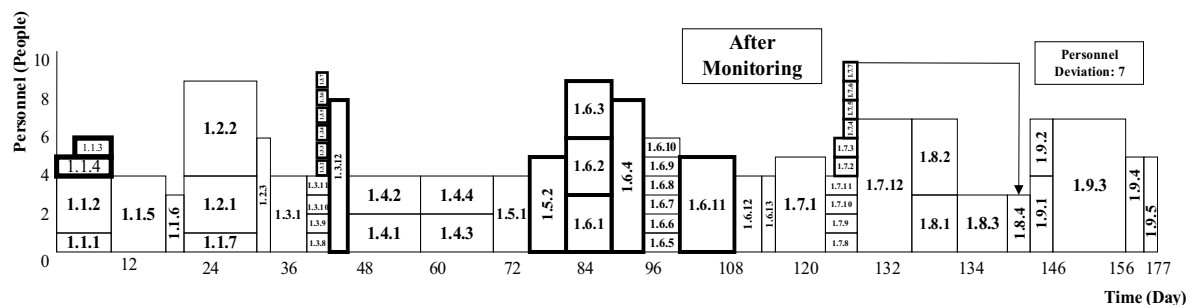

Figure 5. Project's Performance after Monitoring

Effective monitoring of the ERP project has led to a significant improvement in project performance. The completion time of the project was successfully reduced by 17 days, from an original 190 days to 177 days. Furthermore, the project implementation was completed within the scheduled time frame, eliminating any late delivery days. Additionally, the resource volatility was also effectively managed, resulting in a reduction from 8 people to 7 people, with a minimum resource usage level of 3 people and a maximum of 10 people. The company also save up to 7% of its project budget.

4. CONCLUSION

In conclusion, the findings of this research have demonstrated the significant impact of effective project monitoring on the completion time and cost of ERP implementation projects. By addressing the challenges faced during the go-live phase and implementing a solution focused on improving project monitoring, remarkable improvements were achieved. The implementation of the proposed monitoring method resulted in a reduction in the project's completion time by 17 days, highlighting the effectiveness of the approach in streamlining processes and ensuring timely project delivery. This reduction in completion time not only enhances operational efficiency but also allows organizations to realize the benefits of the ERP system sooner, enabling them to make better-informed decisions and improve overall competitiveness.

Moreover, the implementation of effective project monitoring techniques led to substantial cost savings, with up to 7% of the project budget being saved. By closely monitoring task progress, managing risks proactively, and optimizing resource allocation, organizations were able to minimize cost overruns and ensure efficient resource utilization throughout the implementation process. These results highlight the importance of project management and monitoring in ERP implementation projects,

particularly during the critical go-live phase. By carefully planning, coordinating, and tracking project activities, organizations can effectively address challenges, reduce delays, and control costs, ultimately leading to successful project outcomes. As organizations continue to adopt digital technologies and embrace ERP systems to streamline their operations, the findings of this research serve as a valuable guide for organizations embarking on similar implementation journeys. By applying the recommended project monitoring techniques, organizations can optimize their project timelines, control costs, and maximize the benefits derived from ERP systems, ultimately driving business growth and success in the increasingly competitive landscape.

REFERENCES

[1] A. Pati, S. Kumar Sagar, P. Tripathi, and Professor A, "ERP and its successful implementation," *International Research Journal of Engineering and Technology*, vol. 06, pp. 709-712, 2019.

[2] Technavio. "Enterprise Resource Planning Software market by type, end-user, and geography - forecast and analysis 2023-2027." (no date). Available at: https://www.technavio.com/report/enterprise-resource-planning-software-market-industry-analysis. (Accessed: 2022).

[3] R. D. Reid and N. R. Sanders, "Operations Management: An Integrated Approach," *Wiley*, 2019, pp. 481.

[4] G. Seo, "Challenges in Implementing Enterprise Resource Planning (ERP) System in Large Organizations: Similarities and Differences Between Corporate and University Environment," *Master of Science in Management Studies, Massachusetts Institute of Technology*, June 2013.

[5] G. Anees, A. Ara, and A. S. Al-Mudimigh, "The Role and Impact of Project Management in ERP project implementation life cycle," *Global Journal of Computer Science and Technology*, vol. 11, no. 5, pp. 6-10, Apr. 2011.

[6] Oracle Corporation. (n.d.). What is ERP? The Top Five Benefits of Enterprise Resource Planning. [Online]. Available: https://www.oracle.com/erp/what-is-erp/erp-benefits/#top-five-benefits. [Accessed: 02-Sep-2022].

[7] Project Management Institute. (2017). A Guide to the Project Management Body of Knowledge (PMBOK® Guide). 6th Edition. Project Management Institute, Inc.

[8] M. M. Dunaway, "Chapter 4: ERP Implementation Methodologies and Strategies," Readings on Enterprise Resource Planning, preliminary version, University of Arkansas, 2022.

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TÓM TẮT

Nghiên cứu này trình bày về các vấn đề gặp phải khi triển khai một hệ thống quản lý nguồn lực doanh nghiệp (ERP) tại một tổ chức, qua việc tập trung vào việc quản lý và điều chỉnh dự án. Nghiên cứu này cũng trình bày một case study của một công ty tại Việt Nam, công ty này gặp những khó khăn trong quá trình go-live khi triển khai dự án ERP do việc quản lý và điều chỉnh dự án không hiệu quả. Mục tiêu của nghiên cứu này là xác định các khó khăn và trình bày các giải pháp để giải quyết các vấn đề gặp phải từ việc quản lý và điều chỉnh dự án không hiệu. Kết quả của nghiên cứu khá tiềm năng khi đã giảm được chi phí, giảm thời gian hoàn thành dự án, và giảm sự biến động nhân lực. Chung quy lại, nghiên cứu này đã mang lại cái nhìn giá trị, các bài học trong việc triển khai dự án ERP, cung cấp giải pháp để vượt qua các khó khăn và đạt thành công trong quá trình go-live.

Từ khóa: quản lý dự án, triển khai ERP, kiểm soát dự án