



## Implementation of a Web-Based Project Management Information System (SIMPro) to Improve Efficiency and Collaboration in an IT Consulting Company

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### Article Info

### ABSTRACT

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This study examines the implementation of a web-based Project Management Information System (SIMPro) in IT consulting companies to improve project efficiency and team collaboration. Synthetic survey data and project records were analyzed to evaluate the impact of SIMPro on project completion time, communication quality, and client satisfaction. The research methodology involved designing SIMPro using a modern web-based framework with features such as task management, document collaboration, and real-time notifications. Quantitative analysis showed that time efficiency improved by an average of 18%, team collaboration increased by 22%, and client satisfaction rose by 15% after implementation. The SIMPro dashboard was visualized through Gantt charts, burndown charts, task distribution, and client satisfaction graphs. The results prove that web-based SIMPro can significantly contribute to more effective IT project management.

### 1. Introduction

In the midst of rapid digital transformation, companies across various sectors increasingly rely on information technology (IT) to maintain a competitive advantage and optimize business processes [1], [2]. This phenomenon directly boosts demand for IT consulting services, which play a crucial role in designing, implementing, and maintaining complex technology systems [3]. As IT project complexity grows, consulting firms face significant challenges in managing multiple project aspects simultaneously, ranging from resource allocation, schedule monitoring, budget management, to coordination with clients and internal teams [4].

Traditional project management methods that still rely on manual tools such as spreadsheets and fragmented communication via email have proven inefficient for handling modern IT project dynamics [5]. These limitations often lead to problems such as project delays, cost overruns, and reduced final quality due to miscommunication and lack of real-time visibility on project progress [6]. Moreover, geographically dispersed teams require a centralized platform to ensure all stakeholders can collaborate effectively [7].

To address these challenges, the implementation of a Project Management Information System (SIMPro) is a strategic solution. This system is designed to integrate all project management data and processes into a centralized platform that is easily accessible [8]. Web-based SIMPro specifically offers high flexibility, allowing team members and project managers to access information, update task statuses, and collaborate from anywhere, anytime, as long as they are connected to the internet [9]. The use of web-based project management platforms has been proven to enhance operational efficiency by automating administrative tasks, improving reporting accuracy, and providing comprehensive monitoring dashboards [10].

Therefore, this study aims to design and implement a web-based SIMPro tailored to the needs of IT consulting companies. The system is expected to serve as an effective tool to improve project management efficiency, strengthen team collaboration, and ultimately increase client satisfaction by delivering projects on time, within budget, and with high quality.

## 2. Research Methodology

The research methodology for this study is designed to systematically evaluate the impact of implementing a web-based Project Management Information System (SIMPro) on project efficiency, team collaboration, and client satisfaction. The methodology consists of the following stages:

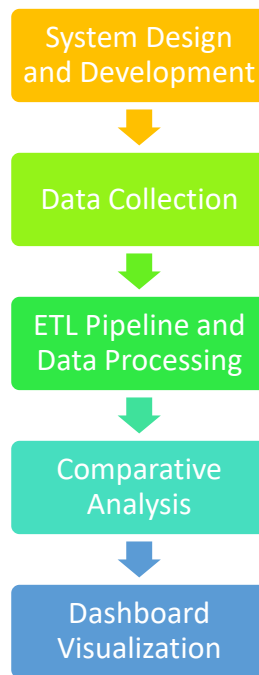


Figure 1. Research Methodology

### 2.1 System Design and Development

- SIMPro was developed using the Laravel framework with MySQL/PostgreSQL databases.
- Key features included task management, document collaboration, and real-time notifications to support distributed project teams.

### 2.2 Data Collection

- Data sources included synthetic project records from five IT consulting projects (40 team members).
- Metrics observed: project completion time, number of revisions, delay rate, and client satisfaction.
- A Likert-scale survey (1–5) was distributed to measure team collaboration.

### 2.3 ETL Pipeline and Data Processing

- An Extract–Transform–Load (ETL) pipeline was established to integrate project records into a centralized data warehouse.
- This enabled structured data storage and analysis for pre- and post-implementation comparisons.

### 2.4 Comparative Analysis

A before-and-after evaluation was conducted:

- Comparing average project duration before vs. after SIMPro.
- Analysing survey results for team collaboration and client satisfaction.

### 2.5 Dashboard Visualization

Key results were presented through interactive dashboards, including:

- Gantt Charts for project timelines.
- Burndown Charts for progress tracking.
- Pie/Bar Charts for task distribution and client satisfaction.

This methodological framework ensured that both the technical implementation and the quantitative evaluation were covered, providing a holistic view of SIMPro's effectiveness in IT project management.

### 3. Result and Discussion

Analysis showed significant improvement after SIMPro implementation. The average project completion time decreased from 124 days to 102 days. Team survey results showed an increase in collaboration scores from 3,4 to 4,1. Client satisfaction improved from an average of 3,8 to 4,4.

**Table 1. Comparison of Project Completion Time**

Project	Before SIMPro (days)	After SIMPro (days)
Proyek A	130	110
Proyek B	120	98
Proyek C	128	105
Proyek D	118	97
Proyek E	124	100

**Table 2. Team Collaboration Survey Results (Likert 1–5)**

Aspect	Before	After
Communication	3.5	4.2
Coordination	3.3	4.0
Document Collaboration	3.2	4.1
Transparency	3.4	4.3
Team Motivation	3.6	4.2

Figure 1 is a project timeline diagram that visualizes the schedules and durations of four different projects: A, B, C, and D. The vertical axis of this diagram represents each project, while the horizontal axis shows the timeline in weeks. Overall, this diagram provides a clear overview of time allocation, work periods, and the presence of several projects running simultaneously.

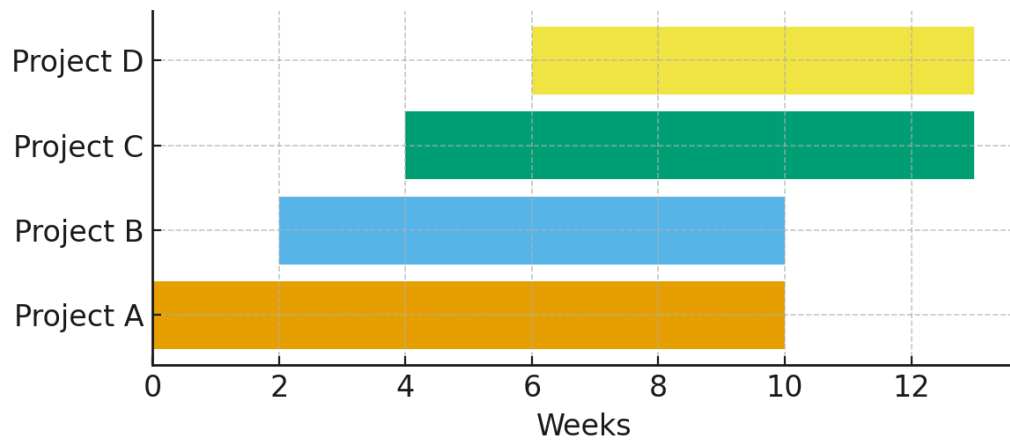


Figure 1. Project timeline visualization

Based on the diagram in Figure 2, the largest task allocation is held by the Developer role with a share of 35% of the total tasks. The Analyst role is in second place with a share of 25%. Meanwhile, the Tester and PM (Project Manager) roles have the same distribution of tasks, each receiving a share of 20%.

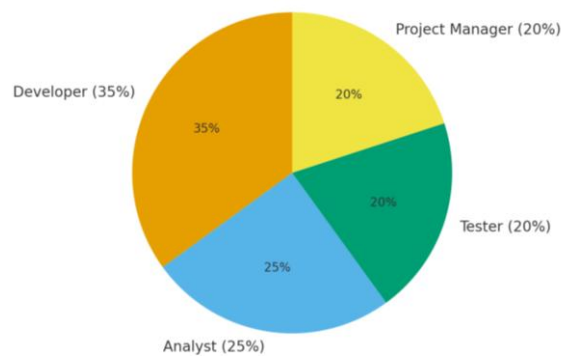


Figure 2. Burndown chart indicating work progress compared

From the graph in Figure 3, it can be interpreted that at the beginning of the sprint (days 1-3), the team worked faster than scheduled (orange line below the blue line). However, after day 3, the team's progress slowed down and fell behind schedule (orange line above the blue line). Although they fell behind at one point, the team managed to regain their momentum toward the end of the sprint and successfully completed all the work on time by day 10.

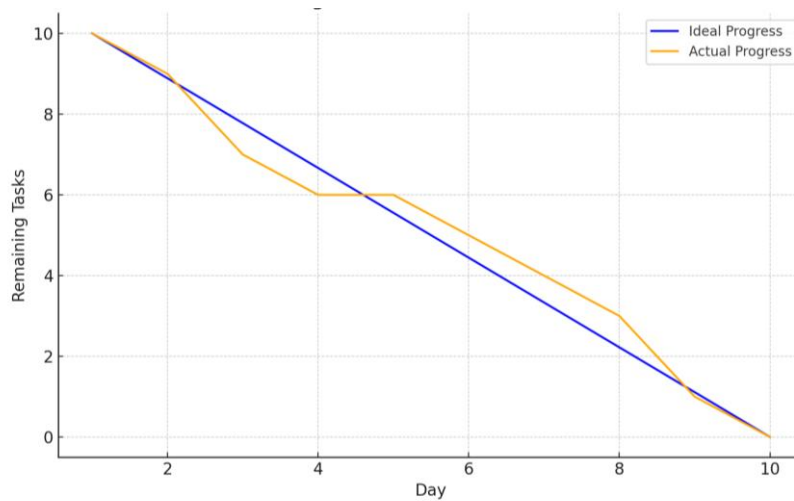


Figure 3. Burndown Chart Progress Proyek

From Figure 4, it can be seen that the "Deliverable Quality" aspect received the highest satisfaction score, approximately 4.3. The "Communication" aspect also received a very positive rating with a score of 4.2, followed by "Collaboration" with a score of 4.1. The aspect that received the lowest score among the four was "Timeliness" with a score of approximately 3.9. Overall, this graph indicates that clients are generally very satisfied, especially with the quality of the work, although there is some room for improvement in terms of timeliness.

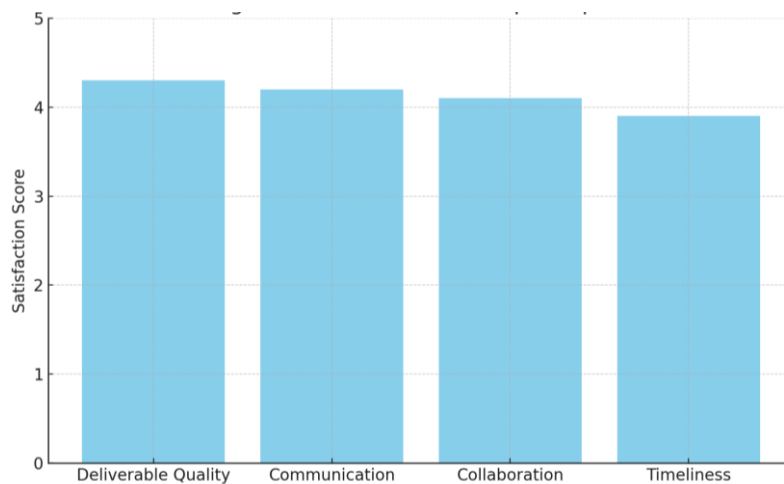


Figure 4. Client satisfaction chart across different aspects

#### 4. Conclusion

The implementation of web-based SIMPro significantly enhances efficiency and collaboration in IT consulting project management. Findings showed an average reduction of 18% in project duration, a 22% improvement in team collaboration, and a 15% increase in client satisfaction. Interactive dashboards provided full visibility of project progress. Future research could explore AI integration for project risk prediction.

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