# PROJECT MANAGEMENT OF STEEL PLATE WAREHOUSE INVENTORY INFORMATION SYSTEM

**Samidi[1]; Fitrah Romadhan[2*]**

Computer Science, Faculty of Information Technology[1, 2]
Budi Luhur University, Jakarta, Indonesia[1, 2]
www.budiluhur.ac.id[1, 2]
samidi@budiluhur.ac.id[1], 2111601338@student.budiluhur.ac.id[2*]
(*) Corresponding Author

**Abstract**— *Information system project management is an activity of available resources from an information system solution development project so that a system solution can be produced that meets predetermined objectives. From the findings in the field that the process of applying the inventory information system project management is still constrained because the previous business process lacks support and some still use ms. office excel in recording the process of entering and exiting goods becomes an obstacle if many transactions occur in a day, and inventory data tends to have differences from the warehouse and head office, so this study aims to apply the inventory information system project management that has been developed using the waterfall development method can function optimally and effectively by implementing the Project Management Body of Knowledge (PMBOK) method where the focus of discussion is work breakdown structure analysis, activity of arrow analysis, and project cost estimate analysis. The results of this study obtained the results of stage-based WBS analysis, activity of arrow analysis with 58 days, while project cost estimate analysis with 14% for the communication stage, 20% for the planning stage, 57% for the modeling stage, 4% for the construction stage, 5% deployment stage.*

**Keywords:** *information technology planning, PMBOK, project management.*

**Abstrak**— *Manajemen proyek sistem informasi adalah suatu aktivitas pengelolaan sumber daya yang tersedia dalam proyek pengembangan solusi sistem informasi agar dapat menghasilkan solusi sistem yang memenuhi tujuan yang telah ditetapkan. Berdasarkan temuan di lapangan, proses penerapan manajemen proyek sistem informasi inventaris masih mengalami kendala karena proses bisnis sebelumnya kurang mendukung, dan beberapa masih menggunakan Ms. Office Excel dalam pencatatan proses keluar masuk barang. Hal ini menjadi hambatan ketika terjadi banyak transaksi dalam satu hari, serta data inventaris cenderung mengalami perbedaan antara gudang dan kantor pusat. Oleh karena itu, penelitian ini bertujuan untuk menerapkan manajemen proyek sistem informasi inventaris yang telah dikembangkan menggunakan metode pengembangan waterfall agar dapat berfungsi secara optimal dan efektif dengan menerapkan metode Project Management Body of Knowledge (PMBOK), di mana fokus pembahasannya meliputi analisis work breakdown structure (WBS), analisis activity on arrow, dan analisis estimasi biaya proyek. Hasil penelitian ini menunjukkan bahwa analisis WBS dilakukan secara bertahap, analisis activity on arrow menunjukkan durasi 58 hari, sedangkan analisis estimasi biaya proyek menghasilkan pembagian biaya sebagai berikut: 14% untuk tahap komunikasi, 20% untuk tahap perencanaan, 57% untuk tahap pemodelan, 4% untuk tahap konstruksi, dan 5% untuk tahap implementasi.*

**Kata Kunci**: *perencanaan teknologi informasi, PMBOK, manajemen proyek.*

## INTRODUCTION

Effective communication is the link between stakeholders with different cultures, backgrounds, expertise, viewpoints and interests. Communication in a project is the key to successful work management. Poor communication can lead to a project success rate of only 52%, while with good communication the project success rate can reach 80% (Mareno, Oktaviani, & Husin, 2022).

In a project management system there are methods that are commonly used, one of which is the project triangle or what can be called a triangle of constraints consisting of the scope, schedule and cost of the project. This project boundary triangle

consists of 3 main components, namely: time which means the duration of the start and end of a project, cost which means resources, costs, and personnel and others, and scope which means the results to be achieved. When starting a project, it must start from the initiation process which is only contained in the project integration management knowledge area. Project management knowledge area itself is guided by the Project Management Body Of Knowlegde (PMBOK)(Suwandana & Utami, 2022).

There are many factors that trigger project delays, one of which is project planning that is unreasonable or impossible to apply to project implementation in the field. For example, the estimated duration is too short, making it difficult to be realized. Therefore, the project planning process is one of the vital functions in achieving project goals. Good project planning should provide a clear guideline to sharpen the strategy in integrating the fundamentals of the project as a whole. So it can be concluded that project management is a project strategy starting from planning, controlling and implementing projects for more efficient and effective achievement. The success of good project management can improve the quality of a project so that there is a positive relationship between the success of project management and project quality (Ritonga, Megayanti, & Herawati, 2023).

It also applies where the company does not have an adequate system to support project management activities so as to make project goals a little slowed down or delayed. Information technology serves to increase the advantages and increase the ability of activities in the industry or organizational bodies (Wahdah & Soewito, 2022). Currently the author is improving management activities that used to use a manual system in the form of inventory recording using ms. office excel which makes searching for inventory data time consuming in the process of inputting data on incoming and outgoing goods, for example, incoming or outgoing goods must search for item data that must correspond to the title of the master item, this is very time consuming if there are transactions with many items and types of goods. Inventory data that does not match the inventory data in the field with the inventory data in the head office. From the existing problems, the author makes an application that aims to save time, with the solution of inputting the process of entering and exiting goods that are easier and more organized, and displaying inventory in real time. Another kind of service industry that provides a data system application program with the aim of helping and facilitating the management of the budget process, innovation, turnover and other strategic policies (Pratama N et al., 2024). From these gaps, project management often causes delays in project

completion and is always out of the predetermined planning schedule (Alawiyah, Mulyani, Gunawan, Setiaji, & Nurdin, 2022).

Which according to good management is a project processing process that includes planning, organizing and managing resource tasks to realize the goals to be achieved, taking into account the factors of time and cost. Project management can be applied to any type of project, and is widely used to complete large and complex projects. The main focus of project management is the achievement of all project objectives within the constraints of time, quality and budget available (Fendi & Amrina, 2021).

A management information system is an organized series of a number of parts or components that together function or move to produce information for use in company management. The input for management information systems is data then the process is the collection, storage, and processing of that data; while the output is information. Management information systems aim to meet the general information needs of all managers within the company or within an organizational subunit of the company (Kustina et al., 2022).

Based on the Project Management Body of Knowledge (PMBOK), project management is the implementation of science, skills, equipment, and techniques used in projects to meet the needs of the project (Al Tafakur et al., 2023). By using a system that is summarized in an appropriate inventory management system and also a system that supports cloud computing and widespread internet, it is possible to access far and wide areas so that companies can create inventory strategies, inventory operations and maintain inventory levels within safe limits without product shortages (Bose, Mondal, Sarkar, & Roy, 2022), (Tian & Wang, 2021).

As in the current research, reviewing previous research that has been conducted by (Rajabiantoro, Yusril, Idrus, & Yaqin, 2022) after the implementation of PMBOK, it is known that 40 out of 49 PMBOK processes are fulfilled according to the activities in the National Education Standards, this means that implementing PMBOK in school organizations is very good because the National Education Standards can be met. Subsequent research has been conducted by (Suwandana & Utami, 2022) designed to find out how the standards set by the Project Management Institute as the publisher of the book, and how to manage a project so that it is in accordance with the original purpose of making and on target. The focus area of this research will be very useful for a project management to manage projects that are owned and can also be useful for organizing the company's documentation process which was previously

messy, not only the Project Manager, the company leadership can also monitor all the processes of making projects. This research is able to be a solution to the problems that exist at PT Tekno Mandala Kreatif and is able to increase the efficiency of the work of company employees. Research that has been done by (Wijaya & Susanty, 2021) designed a visual basic based inventory information system at PT Urip Sugiharto which produces cigarettes using the SDLC (System Development Life Cycle) method and UML (Unified Modeling Language) as a modeling tool. The advantage of this inventory information system application is that it provides higher productivity value, savings in terms of cost, energy and time for recording, searching and processing data warehouses, and can present information quickly, precisely and accurately.

From some of the related research above, it becomes a reference as a renewal step from previous research, in writing this research, it focuses on explaining WBS analysis, AoA analysis, Critical Path Method analysis, PERT analysis and Project Cost Estimate analysis to design a steel plate warehouse inventory information system that is not explained in previous research.

**MATERIALS AND METHODS**

In 2006 PT Dwinajaya Berkat Abadi is a company engaged in the field of steel plate stockists with headquarters at Jalan Mutiara Taman Palem Blok C 10 No. 16 Cengkareng West Jakarta, serving the sale of black steel plates, bordes plates, ship plates and other steel plates.

This PMBOK guide is the foundation on which organizations can build the methodologies, policies, procedures, rules, tools and techniques, and life cycle phases needed to practice project management. In this study after obtaining primary data the next step is the implementation of the sixth edition of PMBOK, there are 5 group phases including (Ghifari, Fitri, Rahmaniati, & Yaqin, 2022) :

1. Initiate. The initiate stage is the introduction stage of a project which will later be used as a reference in project planning.
2. Planing. This stage aims to create a plan that will be used in a project and ensure that the project to be created is carried out according to the needs of the organization.
3. Executing. This stage is coordinating resources to carry out the processes of the plan that has been made.
4. Monitoring and Controlling. This stage consists of what processes are needed to supervise and control the performance of the project, ensuring all plans are carried out in accordance with the predetermined targets.

5. Clossing. This stage is carried out to complete all activities and ensure the report on the project that has been carried out is completed.

The research method used is a descriptive method with a qualitative approach. According to Sugiyono, it explains that descriptive research is research conducted to determine the value of independent variables, either one or more (independent) variables without making comparisons, or connecting with other variables. According to Sudjana and Ibrahim, descriptive research is "research that tries to describe a symptom, event, event that is happening at the present time" (Putri Artifasari, Rahayu, & Ria Mustikasari, 2021).

While the author uses a qualitative approach is a research method based on the philosophy of protectionism, used to research on natural object conditions where the researcher is the key instrument. According to Sugiyono, qualitative research methods are methods used to research natural object conditions where the researcher is the key instrument. It can be concluded that descriptive qualitative is a study that explains or describes what is currently happening (Innuddin, Rachman, Hairani, Anas, & Hasbullah, 2022).
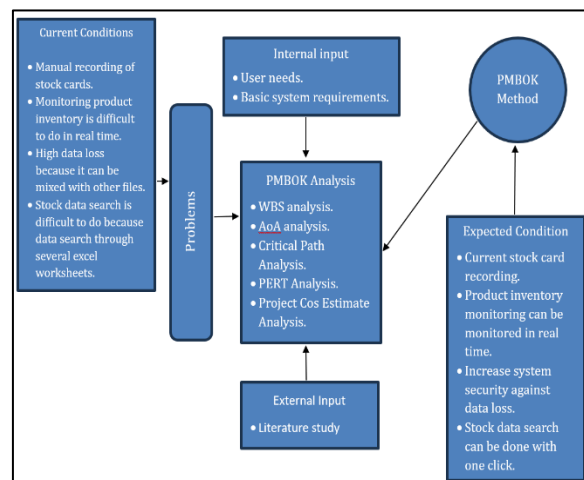


Source: (Research Results, 2024)
Figure 1. Thinking Framework

In this study, using the data analysis method is a stage of the research process, where the data that has been collected is managed to be processed in order to answer the problem formulation (Nuria Wally, Jamlaay, & Marantika, 2022). The analysis includes project cost estimation, as illustrated in Figure 1, which outlines the process from identifying current conditions to achieving the expected outcomes using the PMBOK method. Developers gather user needs through interviews, documenting complaints that arise under current conditions. They then seek solutions to these

problems by reviewing previous literature and implementing the PMBOK method to design a system that can effectively address these issues. Activities and tasks are common milestones of the Standard Work Plan, as presented in Table 1, which is organized by project phase.

Table 1. Project Requirement

|  | Checkpoint | Original Completion | Actual Completion |
|---|---|---|---|
| **1** | **Communication** | | |
| A | Requirements Analysis | 5 Days | |
| B | System Modeling | 5 Days | |
| C | Information Requirements | 4 Days | |
| **2** | **Planning** | | |
| A | Creating Userflow | 4 Days | |
| B | Creating Wireframe | 3 Days | |
| C | Creating Visual Desain | 4 Days | |
| D | Creating Prototypes | 5 Days | |
| E | Perform Usability | 3 Days | |
| **3** | **Modeling** | | |
| A | Database Design | 5 Days | |
| B | Create Warehouse Admin View | 4 Days | |
| C | Create an Office Admin View | 4 Days | |
| D | Creating a Supervisor View | 6 Days | |
| E | Creating a Presidential Display | 5 Days | |
| F | CRUD Admin, Supervisor, Managing Director | 12 Days | |
| **4** | **Contruction** | | |
| A | Performance Testing | 1 Day | |
| B | Unit Testing | 1 Day | |
| C | Sistem Testing | 1 Day | |
| D | Testing Complete | 1 Day | |
| **5** | **Deployment** | | |
| A | Statistics | | |
| A.1 | Inventory Statistics | 2 Days | |
| B | Maintenance | | |
| B.1 | System Maintenance | 2 Days | |

Source: (Research Results, 2024)

The research procedures carried out are starting from finding problems, determining research objectives, collecting and processing data. The stages carried out for data processing are work breakdown structure (WBS) analysis, activity of arrow (AOA) analysis and project cost estimate analysis.

The research instruments used in data collection are the interview method and observation method. Meanwhile, data processing is conducted using Microsoft Project to assist in designing project cost estimations. To describe the system implemented in project activities, the author utilizes the Conceptual Framework method, which encompasses the entire project activity process. The Work Breakdown Structure (WBS) is one of the key components in this approach, detailing the phases

and responsibilities within the project, as summarized in Table 2.

Table 2. Work Breakdown Structure

| Project Organization | Describe the organizing needs of overall project management, including: planning, scheduling, registration procedures and project submission at the tendering phase. Preparation of supporting documents such as: RAB (Cost Budget Plan), taxation, business license, work contract and other supporting documents. |
|---|---|
| Scope | At this phase the project has begun to be implemented, the participation of the partners and relations involved in the work contract must be identified in detail. |
| Planing | The planning stage defines the specifications of the work to be carried out, including: Budgeting and realization of the approved CBP (Cost Budget Plan). |
| Risk Management | In this phase, the leader emphasizes the focus of activities on supervisory policies related to the implementation of ongoing project activities. |
| Progress and Performance | This phase is a form of progress and realization that has been carried out in all ongoing project activities. |
| Auditing, Documentation and Closing | Final report on project activities, filing and documents and documentation carried out in the field. The form of the report that has been prepared will be accounted for to the stakeholders. |

Source: (Pratama N et al., 2024)

**RESULTS AND DISCUSSION**

The implementation of a good project management plan must begin by identifying the activities to be carried out. A well-structured plan ensures that each phase of the project is executed efficiently and meets the defined objectives. The scope of activities to be carried out in the project can be described in a simple work breakdown structure, which helps in organizing tasks systematically.
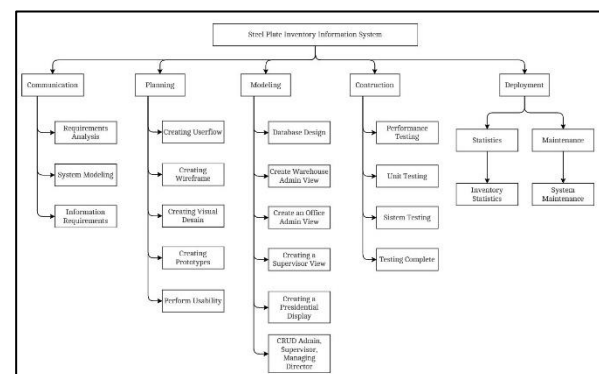


Source: (Research Results, 2024)
Figure 2. Work Breakdown Structure

The following stage-based work breakdown structure, as illustrated in Figure 2, provides detailed information about the system project to be implemented. It categorizes the project into five main phases: Communication, Planning, Modeling, Construction, and Deployment. Each phase consists of several sub-activities that contribute to the successful development of the Steel Plate Inventory Information System.

1. Communication involves requirements analysis, system modeling, and gathering necessary information.
2. Planning includes creating workflows, designing virtual models, prototyping, and usability testing.
3. Modeling focuses on database design and the development of different administrative views such as warehouse, office, and supervisory views.
4. Construction consists of performance testing, unit testing, system testing, and final integration testing.
5. Deployment covers statistical analysis of inventory data and system maintenance to ensure long-term functionality.

By structuring the project in this manner, it becomes easier to manage resources, track progress, and ensure that each stage is completed efficiently. This breakdown also allows potential risks to be identified early, enabling necessary adjustments to be made for optimal project execution.

The PERT method (Project Evaluation Review Technique) is a method that aims to predict the duration of a project and calculate the likelihood of the expected time for each activity.

Activity A = 6   + 4*9  + 20 / 6 = 10 Days
Activity B = 13  + 4*15 + 41 / 6 = 19 Days
Activity C = 14  + 4*16 + 42 / 6 = 20 Days
Activity D = 2   + 4*4  + 8  / 6 = 4 Days
Activity E = 3   + 4*5  + 9  / 6 = 5 Days
Total Days based on PERT method is 58 Days.



Source: (Research Results, 2024)
Figure 3. Implementation Schedule

Figure 3 shows the main task divided into sections such as "Communication", "Planning", "Modeling", "Construction", "Deployment", and "Maintenance". Each section contains sub-tasks with specific details on their duration and completion status. Detailed implementation schedule in the form of a gantt chart diagram.
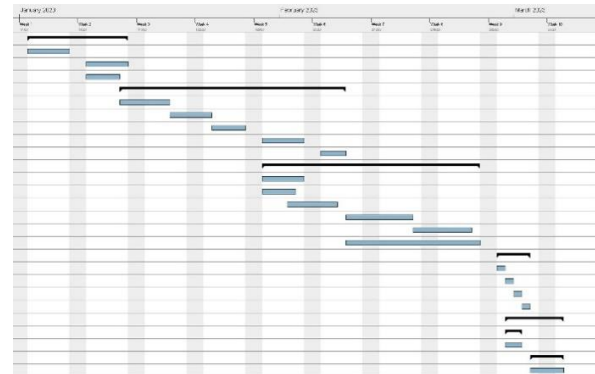


Source: (Research Results, 2024)
Figure 4. Gantt Chart

Figure 4 shows the implementation schedule converted to a gantt chart. This chart helps manage the project by visualizing the project schedule. The horizontal axis shows time, divided into weeks from January to March 2023. The vertical axis lists the tasks to be completed. Each horizontal bar represents the time duration allocated to each task. This diagram is used to manage projects by visually seeing the progress and timeline of the work.

Table 3. Activity Schedule

| Activity | activity precede | Time | Early Start | Late Finish |
|---|---|---|---|---|
| A | - | 10 | 0 | 10 |
| B | A | 19 | 10 | 29 |
| C | B | 20 | 29 | 49 |
| D | C | 4 | 49 | 53 |
| E | D | 5 | 53 | 58 |

Source: (Research Results, 2024)

Table 3 shows that activity A is the initial activity before the process of other activities with 10 time, activity B starts after activity A takes 19 time starting from the 10th time, activity C starts after activity B ends taking 20 time starting from the 29th time, activity D starts by taking 4 time starting from the end of activity C at the 49th time, activity E starts after activity C ends taking 5 time with the end of the schedule at 58 time. Precedence identifies activities that must be completed before the current activity can begin (for example, 'A' precedes 'B'). Time is the estimated duration of each activity. Early Start is the earliest possible time to start each activity based on the dependency of the previous activity. Late Finish is the latest time each activity

can be completed without delaying the entire project.

Furthermore, such as project scheduling, allocation of labor, and determination of labor costs with the Activity-on-Arrow method and Critical Path Method. This scheduling method aims to describe and determine the relationship between various activities and various interpretations of existing time (Modelina Cynthia, Cipta, & Syafitri Lubis, 2024).
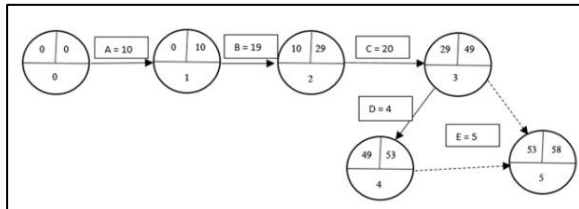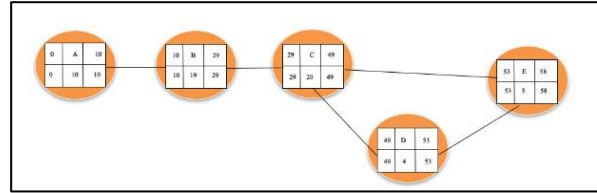


Source: (Research Results, 2024)
Figure 5. Schedule *Activity – on – Arrow*

Figure 5 illustrates the Activity-on-Arrow (AoA) method, where each activity is represented as an arrow, and nodes (circles) indicate milestones or events. The diagram provides a structured approach to defining activity dependencies,

sequencing tasks, and estimating durations.

After knowing the activity on arrow, scheduling is obtained based on the critical path method, namely A - B - C - D - E.



Source: (Research Results, 2024)
Figure 6. Critical Path Method

Figure 6 shows a Critical Path Method diagram illustrating the planning and organization of the project schedule. The numbers represent the initial schedule of work and the duration of the work performed as well as the final schedule of the work.

It can be seen from the activity of the arrow and the horizontal critical path drawn because the system developed uses the waterfall development method so that the next activity can run if the previous activity has been completed.

Table 4. Steel Plate Inventory Information System Project Cost Estimate

| WBS Items | Units/Days. | Cost/Unit/Dy. | Subtotals | Totals | % of Total |
|---|---|---|---|---|---|
| **1. Communication** | | | | **17.700.000** | **14%** |
| 1.1 Requirements Analysis | 5 | 1.200.000 | 6.000.000 | | |
| 1.2 System Modeling | 5 | 1.300.000 | 6.500.000 | | |
| 1.3 Information Requirements | 4 | 1.300.000 | 5.200.000 | | |
| **2. Planning** | | | | **25.900.000** | **20%** |
| 2.1 Creating Userflow | 4 | 1.500.000 | 6.000.000 | | |
| 2.2 Creating Wireframe | 3 | 1.250.000 | 3.750.000 | | |
| 2.3 Creating Visual Desain | 4 | 1.200.000 | 4.800.000 | | |
| 2.4 Creating Prototypes | 5 | 1.550.000 | 7.750.000 | | |
| 2.5 Perform Usability | 3 | 1.200.000 | 3.600.000 | | |
| **3. Modeling** | | | | **72.000.000** | **57%** |
| 3.1 Database Design | 5 | 2.000.000 | 10.000.000 | | |
| 3.2 Create Warehouse Admin View | 4 | 2.000.000 | 8.000.000 | | |
| 3.3 Create an Office Admin View | 4 | 2.000.000 | 8.000.000 | | |
| 3.4 Creating a Supervisor View | 6 | 2.000.000 | 12.000.000 | | |
| 3.5 Creating a Presidential Display | 5 | 2.000.000 | 10.000.000 | | |
| 3.6 CRUD Admin. Supervisor. Managing Director | 12 | 2.000.000 | 24.000.000 | | |
| **4. Construction** | | | | **4.950.000** | **4%** |
| 4.1 Performance Testing | 1 | 1.250.000 | 1.250.000 | | |
| 4.2 Unit Testing | 1 | 1.250.000 | 1.250.000 | | |
| 4.3 System Testing | 1 | 1.250.000 | 1.250.000 | | |
| 4.4 Testing Complete | 1 | 1.200.000 | 1.200.000 | | |
| **5. Deployment** | | | | **6.300.000** | **5%** |
| 5.1 Statistics | | | | | |
| 5.1.1 Inventory Statistics | 2 | 1.350.000 | 2.700.000 | | |
| 5.2 Maintenance | | | | | |
| 5.2.1 System Maintenance | 2 | 1.800.000 | 3.600.000 | | |
| **Total project cost estimate** | | | | **126.850.000** | |
| **Initial Project Estimate** | | | | **100.000.000** | |
| **Project Cost Overruns** | | | | **26.850.000** | |

Source: (Research Results, 2024)

After analyzing the scope of activities and implementation schedule, it is necessary to calculate the costs required for the estimated project costs in the implementation schedule. Project cost estimation is a predictive value based on the main factors, namely the state of the project, contract plans, construction schedules, technology used, basic labor productivity, cost estimation methods.

Table 4 shows the estimated project cost which explains the cost of each sub task of the project planning. And also explains the total cost of the main work and explains the percentage of each main task. Explained the initial budget of 100 million with an excess project cost of 26 million.

In the early stages of costing it is necessary to make decisions with the project estimator, in the final stages of costing it is necessary to control the amount of project costs. The ultimate goal is to complete the project according to the quality, on the schedule specified in the budget plan.

The results of this study obtained the results of stage-based WBS analysis, activity of arrow analysis with 58 days, while project cost estimate analysis with 14% for the communication stage, 20% for the planning stage, 57% for the modeling stage, 4% for the construction stage, 5% deployment stage.

## CONCLUSION

Cost estimation is made using the concept of WBS (Work Breakdwon Structure) so that it can estimate project costs involving the application of various cost estimation techniques for each work package and combine the results to get the total project cost. Analog estimation, for example, uses historical data from similar projects to estimate current project costs. Parametric estimation, on the other hand, relies on mathematical models or formulas to estimate project costs based on relevant parameters or variables. Bottom-up estimation uses detailed estimates of each work package and sums them up to get the project cost. Three-point estimation involves using optimistic, pessimistic, and most likely estimates of each work package and applying a weighted average to get the project cost.

## REFERENCE

Al Tafakur, P., Ode, L., Syarif, M., Purnama, H., Latupeirissa, J. E., Gusty, S., … Ola, N. La. (2023). *MANAJEMEN PROYEK KONSTRUKSI.* CV. TOHAR MEDIA. Retrieved from https://toharmedia.co.id

Alawiyah, T., Mulyani, Y., Gunawan, M., Setiaji, R., & Nurdin, H. (2022). Sistem Informasi Manajemen Proyek (SIMAPRO) Berbasis Web (Studi Kasus: PT. Arya Bakti Saluyu). *Jurnal Khatulistiwa Informatika*, *10*, 129–135. https://doi.org/10.31294/jki.v10i2.14061

Bose, R., Mondal, H., Sarkar, I., & Roy, S. (2022). Design of smart inventory management system for construction sector based on IoT and cloud computing. *E-Prime - Advances in Electrical Engineering, Electronics and Energy*, *2*. https://doi.org/10.1016/j.prime.2022.100051

Fendi, F. & Amrina, E. (2021). MANAJEMEN PROYEK PEMBANGUNAN RUMAH SUBSIDI PERUMAHAN DEVELY RESIDENCY. *Sigma Teknika*, *4*(2), 221–233. https://doi.org/10.33373/sigmateknika.v4i2.3353

Ghifari, R. B., Fitri, S., Rahmaniati, A., & Yaqin, M. A. (2022). Pemodelan Proses Bisnis Manajemen Proyek Berdasarkan Project Management Body of Knowledge (PMBOK). *ILKOMNIKA: Journal of Computer Science and Applied Informatics*, *4*, 1–24. https://doi.org/10.28926/ilkomnika.v4i1.362

Innuddin, M., Rahman, D. F., Hairani, H., Anas, A. S., & Hasbullah, H. (2022). Sosialisasi Internet Sehat, Cerdas, Kreatif dan Produktif di Era Pandemi COVID 19 pada MA NW Tanak Maik Masbagek. *ADMA : Jurnal Pengabdian Dan Pemberdayaan Masyarakat*, 2(2), 179–186. https://doi.org/10.30812/adma.v2i2.1609

Kustina, K. T., Nurhayati, N., Pratiwi, E., Hertati, L., Qodari, A., Nurhayati, A., … Munim, D. (2022). *Sistem Informasi Manajemen*. Cendikia Mulia Mandiri. Retrieved from https://books.google.co.id/books?id=JSi3EAAAQBAJ

Mareno, R., Oktaviani, C. Z., & Husin, S. (2022). ANALISIS KORELASI FAKTOR KOMUNIKASI PROYEK TERHADAP PENCAPAIAN KINERJA WAKTU DI KOTA BANDA ACEH. *Jurnal Arsip Rekayasa Sipil Dan Perencanaan*, *5*(1), 38–46. https://doi.org/10.24815/jarsp.v5i1.25284

Modelina Cynthia, M., Cipta, H., & Syafitri Lubis, R. (2024). PENERAPAN CRITICAL PATH METHOD (CPM) DALAM MENGANALISIS MANAJEMEN WAKTU PADA PERENCANAAN IKLAN GMS DIGITAL MARKETING. *Jurnal Ilmiah Pendidikan Matematika, Matematika Dan Statistika*, *5*(2), 820–834. https://doi.org/10.46306/lb.v5i2

Nuria Wally, S., Jamlaay, O., & Marantika, M. (2022). ANALISIS MANAJEMEN RISIKO PADA PROYEK PEMBANGUNAN GEDUNG LABORATORIUM TERPADU DAN PERPUSTAKAAN MAN 1 MALUKU TENGAH. *Menara : Jurnal Teknik Sipil*, 17(2), 61-69.

https://doi.org/10.21009/jmenara.v17i2.27124.

Pratama N, H. A., Saputra, K. K., Patriasta, E., Nurfarizi Ahmad, L., Jonatal Siregar, K., & Wijoyo, A. (2024). PERANCANGAN MANAJEMEN PROYEK SISTEM INFORMASI : SISTEM INFORMASI KONTRAKTOR. *OKTAL : Jurnal Ilmu Komputer Dan Science*, *3*(2), 332–341. Retrieved from https://journal.mediapublikasi.id/index.php/oktal

Putri Artifasari, E., Rahayu, S., & Ria Mustikasari, V. (2021). Analisis kebutuhan pengeksplisitan hakikat sains (NOS) dalam bahan ajar pada topik lapisan bumi. *Jurnal MIPA Dan Pembelajarannya*, *1*(2), 137–141. https://doi.org/10.17977/um067v1i2p137-141

Rajabiantoro, M. A., Yusril, M., Idrus, T., & Yaqin, M. A. (2022). Implementasi Project Management Body Of Knowledge (PMBOK) pada Organisasi Sekolah. *ILKOMNIKA: Journal of Computer Science and Applied Informatics*, *4*(1), 104–115. https://doi.org/10.28926/ilkomnika.v4i1.134

Ritonga, R. A., Megayanti, A., & Herawati, H. (2023). PENERAPAN TOOLS MANAJEMEN PROYEK PADA PT. KRAKATAU IT CILEGON. *JIKA (Jurnal Informatika)*, *7*(2), 210. https://doi.org/10.31000/jika.v7i2.7674

Suwandana, A. V., & Utami, A. W. (2022). Rancang Bangun Sistem Informasi Manajemen Proyek Berbasis Website Menggunakan Project Management Body of Knowledge 6 (Studi Kasus PT. Tekno Mandala Kreatif). *Journal of Emerging Information System and Business Intelligence (JEISBI), 3*(4), 80–89. Retrieved from https://ejournal.unesa.ac.id/index.php/JEISBI/article/view/49162

Tian, X., & Wang, H. (2022). Impact of IT Capability on Inventory Management: An Empirical Study. *Procedia Computer Science*, 199, 142–148. https://doi.org/10.1016/j.procs.2022.01.018

Wahdah, F., & Soewito, B. (2022). PENGEMBANGAN MANAJEMEN RESIKO APLIKASI KEUANGAN PADA PERUSAHAAN ABC MELALUI KOMBINASI NIST SP 800-30, COBIT, PMBOK, DAN ISO 31000. *EDUSAINTEK: Jurnal Pendidikan, Sains Dan Teknologi, 9*(1), 251-263. https://doi.org/10.47668/edusaintek.v9i1.452

Wijaya, L. J., & Susanty, A. (2021). Perancangan Sistem Informasi Inventory Berbasis Visual Basic pada PT. Urip Sugiharto Pekalongan. In *Seminar dan Konferensi Nasional IDEC 2021*.