 p-ISSN 2827-8585
e-ISSN 2827-8062

International Journal of Multidisciplinary Research and Literature
IJOMRAL
Vol. 3, No. 3, May 2024 pp. 241-360
Journal Page is available at http://ijomral.esc-id.org/index.php/home

# SCHEDULING SYSTEMS *MAKE TO STOCK* TO OPTIMIZING THE PRODUCTIVITY PROJECT PLANNER AT PT. GUNANUSA FABRICATORS

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***Abstract***

*This research evaluates the effectiveness of the Make-to-stock scheduling system at PT. Gunanusa Utama Fabricators to optimize project planner productivity. The methods used include interviews, direct observation, and analysis of historical production data. The results show that implementing the Make-to-stock system increases production efficiency by maintaining stock that is ready to sell before demand arises. Challenges mainly relate to efficient stock management and complex production scheduling. This research highlights the importance of the role of project planners in facing a rapidly changing industrial environment and the comparison between manual and automatic scheduling. The implications are relevant for manufacturing companies in improving their operational performance by selecting scheduling methods that suit their unique context and characteristics.*

***Keywords****: Production Scheduling, Make-To-Stock, Efficiency, Project Planner, Challenges, Stock Management.*

## INTRODUCTION

The exponential growth of companies in the sectors of engineering services, procurement, manufacturing, field construction, and supervision in the oil and gas, petrochemical, chemical, and other heavy industries is motivating all producers to enhance productivity in order to remain competitive in the global market. Producers can enhance efficiency and boost productivity and production outcomes by integrating production processes.

In reference to this occurrence at hand, effective scheduling is needed, which can maximize the movement of productivity, distribution, resources, and production (Render et al., 2017). Production scheduling is a very important activity for a company because of the decisions taken by someone who optimizes productivity. The Project Planner plays a key role in planning and controlling production. These decisions affect not only a company's financial bottom line but also consumer confidence. With effective scheduling, companies can ensure that products are available on time, increase customer satisfaction, and generate greater profits (Nurainun, 2019). Information systems have been incorporated into the operational management of modern companies in order to facilitate activity scheduling. The utilization of an information system for scheduling has the potential to enhance efficiency, accuracy, and productivity while simultaneously lowering the likelihood of errors caused by human intervention and enhancing the coordination between departments.

On the other hand, there are circumstances in which manual scheduling is more efficient than automated scheduling. Particularly true for businesses that have limited resources or special needs that require customized adjustments. Automated systems will not be able to handle certain crises in certain circumstances.

When it comes to scheduling, manual scheduling allows for greater flexibility and a more rapid response to unexpected changes in circumstances or conditions that automated algorithms cannot predict. Therefore, companies need to consider a combination of automated and manual methods to achieve the best results in their operations.

A company that provides engineering services, procurement, manufacturing, field construction, and supervision of services for heavy industries such as oil and gas, petrochemical, chemical, and others is known as PT. Gunanusa Utama Fabricators. This company has extensive experience in handling large and complex projects that require high expertise and efficient management. One important aspect of the operations of PT. Gunanusa Utama Fabricators is an effective production scheduling system. This system is very crucial in ensuring that all projects can be completed on time with optimal resources.

PT. Gunanusa Utama Fabricators is the subject of this research, which focuses on the Make-to-stock scheduling system in order to maximize the productivity of the Project Planner. The decision was made to go with the Make-to-stock system because it has the capability of enhancing production efficiency by enabling the preparation and storage of finished products prior to the manifestation of demand. It is highly significant for PT. Gunanusa Utama Fabricators as frequently faces the challenge of meeting strict deadlines and maintaining exceptional quality standards demanded by its clients in the oil and gas sector and other heavy industries.

The scheduling of production is one of the most difficult challenges that PT. Gunanusa Utama Fabricators faces the context of heavy industry, which is the industry to which they are related. Scheduling errors can result in delays in the completion of a project, an increase in expenses, and a decrease in the confidence of the client. Thus, the implementation of an efficient Make-to-stock system is anticipated to resolve this challenge. This system enables companies to enhance production organization, minimize lead times, and optimize the utilization of current resources.

The purpose of this study is to investigate the various ways in which the Make-to-stock system can be implemented at PT. Gunanusa Utama Fabricators, with a particular emphasis on maximizing the productivity of the Project Planner. It is the responsibility of project planners to plan and manage production schedules in order to accommodate the requirements of the project and the available production capacity. With the implementation of an integrated Make-to-stock system, it is hoped to improve the accuracy of planning, cut down on the amount of time and raw materials that are wasted, and boost overall operational efficiency.

Thus, the implementation of the “Make to Stock” scheduling system has had a significant impact on optimizing productivity for project planners at PT. Gunanusa Utama Fabricators. Through

this approach, companies can improve their operational efficiency, reduce production cycle times, and strengthen their ability to meet market demand in a timely manner. As a result, PT. Gunanusa Utama Fabricators can strengthen its position as an industry leader in handling large and complex projects more efficiently and effectively.

By integrating the "Make to Stock" scheduling system, PT. Gunanusa Utama Fabricators emphasizes their commitment to continue to innovate in facing the challenges of an ever-growing industry. By utilizing the latest technology and methodologies in production management, the company proves its dedication to providing superior service to clients as well as maintaining its reputation as a leading solution provider in the industry. In the research, it was concluded that "Implementation of an effective scheduling system is not only the key to increasing productivity but also to strengthening the company's position in facing increasingly complex market dynamics." (Nurainun, 2019).

This research aims to enhance productivity and efficiency at PT significantly. Gunanusa Utama Fabricators. Furthermore, the findings of this study can serve as a valuable point of reference for other companies operating in comparable sectors that encounter difficulties in managing production schedules. The optimization of the scheduling system will not only be beneficial to the company in terms of time and money, but it will also increase the company's competitiveness in a market that is becoming increasingly competitive. In order to achieve higher levels of productivity and efficiency, this research highlights the significance of implementing appropriate management technologies and management practices. Understanding how to integrate systems in a way that is both intelligent and efficient is essential to gaining a competitive advantage in the fourth industrial revolution due to the extensive experience that PT. Gunanusa Utama Fabricators possesses, there is a significant possibility that the company will become a pioneer in the implementation of innovative and efficient scheduling systems within the heavy industrial sector.

**Make-to-Stock Scheduling System**

The scheduling system known as "make to stock" is a strategy that works toward the goal of producing goods before there is a demand for them in the market. This strategy offers benefits to businesses because it enables them to have stock that is ready to be sold in advance, as stated by Chase et al. (2019). Thus, companies can minimize customer waiting times and increase responsiveness to demand fluctuations. With available stock, companies can respond to market needs more quickly and efficiently, increase customer satisfaction, and optimize the use of production resources. Additionally, the "make to stock" scheduling system assists businesses in lowering risks associated with demand uncertainty and increasing their flexibility in responding to dynamic changes in market conditions. It is a significant benefit for businesses.

### Project Planner Productivity and Performance

Project planner productivity and performance are complex and involve a number of factors that influence individual efficiency and effectiveness in planning and managing projects. According to Turner (2019), these aspects include time management skills, the ability to plan projects effectively, and the flexibility to adapt to changes in the project environment. The ability to manage time effectively ensures that tasks are prioritized appropriately and that projects are completed on time. In order to effectively plan projects, one must be able to plan them with great care and attention to detail, as well as by effectively managing resources. An individual who is responsible for planning projects can achieve optimal levels of performance in the execution of complex projects by combining all of these elements.

### Scheduling System Implementation in an Industrial Context

Integrating new technology into company operations by implementing a scheduling system in an industrial context is a complex task that necessitates the use of appropriate strategies and processes. According to Laudon and Laudon (2020), successful implementation of information systems requires a deep understanding of specific business needs, strong support from all levels of management, as well as adequate training for end users. The implementation of a system that is in accordance with the objectives and requirements of the company can be ensured by having a solid understanding of the business needs. It is essential to have the backing of management in order to guarantee that the implementation will proceed without any problems and will receive adequate financial and organizational support.

## METHOD

### Types of research

A centralized interview method is utilized in this research project in order to collect information through observation and conversation. In order to collect the data that is desired, research subjects are asked questions that have been specifically designed. It was decided to record the findings of the interviews in text format for the purposes of analysis and storage. Researchers are able to acquire a more in-depth understanding of the subject matter of the study by means of direct interaction with respondents when using this method.

### Research subject

For this study, the participants were employees who took part in interviews, discussions, and question-and-answer sessions. They are members of the project planner production team at PT. Gunanusa Utama Fabricators. The data gathered from interactions with the research participants offers a comprehensive understanding of pertinent practices and experiences within the realm of corporate production management.

**Object of research**

The term "research object" is used in the context of research to refer to the entity that serves as the focal point of analysis and additional research, respectively. For this investigation, the research object that was selected was PT. Gunanusa Utama Fabricators. The information obtained from the analysis of the research object will provide a deeper understanding of the practices, processes, and dynamics that occur in the company. In the context of the research that is currently being carried out, the researchers hope that by utilizing this option, they will be able to investigate pertinent insights and useful solutions.

**Data Collection Techniques**

1. **Interview**

   Interviews are a form of communication that is conducted with the purpose of gathering information through conversation between researchers and the people who are being researched. It is now possible to conduct interviews virtually through the use of telecommunications media, eliminating the need for direct face-to-face meetings (Rahardjo, 2011). It is made possible by advancements in technology. The interview process can be structured or unstructured, where the researcher has the freedom to ask the interviewee any questions related to the research (Sahir, 2021). In this research, unstructured interviews were conducted directly with employees in the PPIC section at PT. Gunanusa Utama Fabricators.

2. **Literature Study Techniques**

   Literature study techniques, or literature review, are an important research method in academic research. The aim is to develop an understanding of certain aspects of the subject under study. This research is classified as library research because it is based on either library studies or literature, and therefore, it falls under that category. The literature, which included journal articles and other document sources, was combed through in order to collect and analyze both primary and secondary data (Habibatullah et al., 2021). When conducting this research, the method of literature study was utilized in order to collect data that was pertinent to the research title. The most important source of data for this investigation is the information that was gathered through the use of internet searches, literature studies, and other sources.

3. **Data analysis technique**

   Methods that are used to process and interpret descriptive data, such as text, interviews, and other material that is not in numerical form, are referred to as qualitative data analysis techniques (Zaenal, 2019). According to Kuncie (2023), the objective is to discover meaning, patterns, and relationships hidden within the data. Apart from that, this technique is also useful for evaluating,

formulating, and concluding research data that has been collected. The results of the analysis are then used to describe and explain research findings so that others more easily understand them. In addition to that, the techniques of data analysis are required in order to generate solutions to the problems that are the primary focus of research (Azeharie, 2022). However, it is important to note that this method of data analysis can only be carried out after all aspects of the research have been completed, including the collection of data that is pertinent to the research focus that has been determined.

## RESULTS AND DISCUSSION

The purpose of this study is to determine whether or not the Make-to-Stock scheduling system that PT implemented. Gunanusa Utama Fabricators is effective in maximizing the productivity of project planners within the organization. For data collection, this study employed a number of different approaches, such as conducting interviews with project planners and directly observing the scheduling system that was being utilized. In addition, historical production data is analyzed in order to acquire a comprehensive understanding of the performance of the scheduling system. The following are the results of relevant research and discussion:

### 1. Effectiveness of the Make-to-Stock Scheduling System

Implementation of the Make-to-stock scheduling system at PT. Gunanusa Utama Fabricators has had a positive impact in increasing the company's production efficiency. With this strategy, companies can maintain stock that is ready to sell before market demand appears, reduce customer waiting time, and increase responsibility for demand fluctuations. It is in line with research conducted by Nurainun (2019), which shows that an effective scheduling system is the key to increasing company productivity and strengthening its position in facing a dynamic market.

However, implementing the Make-to-stock system also poses several challenges. One of them is efficient stock management. Companies must ensure that previously produced stock is within actual demand, so that there is no accumulation of unsold goods and wasting resources. Apart from that, complex production scheduling also requires careful planning and careful management to ensure that existing resources are used optimally.

Manual versus automated scheduling approaches need to be considered. As highlighted by Azeharie (2022), the use of technology in scheduling can provide greater efficiency and consistency in the long term, especially for companies with larger operational scales or more complex scheduling needs; however, in special situations such as those faced by PT. Main Use of Fabricators, where the need for personal adjustments and responsiveness to changing demand is important, manual scheduling may still be a more effective solution.

Thus, companies must conduct a thorough evaluation of the scheduling systems they implement, considering the advantages and disadvantages of each approach. The selection of the most appropriate scheduling method must take into account the context and unique characteristics

of the company. Even though challenges in implementing the Make to Stock system may exist, focusing on increasing productivity and efficiency remains the main goal in supply chain management for manufacturing companies such as PT. Gunanusa Utama Fabricators.

## 2. Challenges in Production Scheduling

Although the Make-to-stock system is theoretically designed to increase production efficiency, PT. Gunanusa Utama Fabricators faces challenges in implementing it. One of the main problems faced is the slow movement of product stock that is almost at the end of its useful life, indicating that there are imperfections in the system implemented. Difficulties in maintaining a balance between inventory and actual demand, which in turn can disrupt production operations and lead to waste of resources.

Relevant Indonesian research supports this understanding. For example, in research by Santoso (2020), it was highlighted that inefficient stock management can hinder a company's performance in meeting market demand in a timely manner. It shows that the challenges faced by PT. Gunanusa Utama Fabricators in stock management and production scheduling is a common problem faced by manufacturing companies.

This discussion underlines the need for an in-depth evaluation of the system implemented by the company. Although the Make-to-stock system offers the potential to increase efficiency, companies must pay attention to the problems that may arise in its implementation. By identifying and addressing these challenges, companies can improve their operational performance and ensure timely product availability to customers.

In this case, there needs to be adjustments and improvements in stock management strategies and production scheduling. It may involve implementing more flexible scheduling methods or using more advanced technology to monitor and manage stock more efficiently. In doing so, companies can increase responsiveness to fluctuations in market demand and improve overall efficiency in their supply chain.

## 3. Project Planner Role

In the context of modern manufacturing, the role of the project planner is very important in ensuring smooth production operations. They have a big responsibility to plan and manage projects efficiently, as well as keep the production schedule in line with predetermined targets. However, challenges arise in dealing with complex and dynamic production scheduling.

Research by Susanto (2021) highlights that in a rapidly changing industrial environment, project planners often need help in ensuring the availability of raw materials and labor according to production schedules. It can result in delays in the production process and disrupt the overall efficiency of the supply chain.

This discussion shows that companies need to pay attention to the important role of project planners and provide sufficient support for them in carrying out their duties. By ensuring that project planners have access to timely and accurate information regarding production needs, companies can help them overcome the challenges they face. Apart from that, the use of information technology can be an effective solution in optimizing the role of the project planner. An integrated production management system can assist in real-time production monitoring and planning, allowing project planners to respond quickly to changes in production conditions.

Thus, this discussion emphasizes the important role of the project planner in managing complex production scheduling. Adequate support from the company and the application of appropriate technology can help them overcome the challenges they face and maintain smooth production operations.

**4. Manual vs. Manual Scheduling Automatic**

In the context of modern manufacturing, considerations between manual and automated scheduling become highly relevant. A study by Susanto (2020) highlights that in some special situations, such as those faced by PT. Gunanusa Utama Fabricators, manual scheduling can be a more effective option. Personal involvement in the scheduling process allows for better tailoring to the company's specific needs and resource availability, something that may need to be handled better by automated systems that tend to be rigid. In addition, manual scheduling also shows better responsiveness to changing demand and dynamic market conditions. In an industry that often changes rapidly, the ability to quickly adjust production schedules can provide a company with a significant competitive advantage.

This discussion shows that in choosing between manual and automated scheduling, companies need to consider the unique characteristics of their operations and the business environment they face. Although automated systems can provide efficiencies in some cases, manual scheduling is still relevant in situations where high flexibility and responsiveness are required.

This research emphasizes the importance of considering various factors in making decisions related to scheduling systems. The choice between manual and automatic scheduling should be based on a thorough analysis of the specific needs and conditions of the company.

**5. Implications for Increasing Productivity**

These findings provide valuable insights for PT. Gunanusa Utama Fabricators and similar companies in choosing the scheduling method that best suits their needs. As highlighted by a study by Susanto (2020), it is important to consider the context and unique characteristics of each company in making decisions regarding scheduling. While manual scheduling may be an effective solution in some situations, especially for companies with smaller-scale operations or simpler scheduling needs, the use of automated systems remains relevant for increasing efficiency and consistency in the long term.

In accordance with the findings of research carried out by Handayani (2018), which emphasizes that the decision between manual and automatic scheduling must be based on a comprehensive analysis of the particular requirements and circumstances of the organization By understanding the benefits and limitations of each method, companies can make more informed decisions to improve their operational performance. Therefore, while manual scheduling can provide high flexibility and responsiveness to changes, the use of automated systems is still a relevant option for companies that prioritize efficiency and consistency in the long term. In this context, companies need to carry out a thorough evaluation of their production processes and choose the scheduling method that best suits their goals and needs.

## CONCLUSION

The purpose of this study is to determine how effective the Make-to-stock scheduling system that PT implemented. Gunanusa Utama Fabricators is in terms of optimizing the productivity of project planners. The findings of the research indicate that the implementation of the Make to Stock system has increased the production efficiency of the company. It was determined through the utilization of a variety of methods, including interviews with project planners, direct observation of the scheduling system, and analysis of historical production data.

Nevertheless, the issues of effective inventory control and intricate production planning continue to be significant areas of concern. The findings of this study offer a more profound comprehension of the crucial function of project planners in intricate production management. The challenges posed by dynamic changes in the industrial environment highlight the necessity for sufficient assistance for project planners and the efficient utilization of information technology. A comparison between manual and automated scheduling underscores the importance of considering the unique characteristics of each company in selecting the most appropriate scheduling method.

While manual scheduling can provide great flexibility and responsiveness, automated systems remain relevant for improving long-term efficiency. These findings offer valuable insights for PT. Gunanusa Utama Fabricators and similar companies to enhance their operational performance. Conducting a comprehensive assessment of production processes and choosing suitable scheduling methods can assist companies in attaining their efficiency and consistency objectives in their supply chains.

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