Ekonomi Digital e-ISSN :2828-3740
Vol. 3 No. 2 Oktober 2024 : hal : 127-136
Doi : https://doi.org/10.55837/ed.v3i2.172

Implementation of Kanban Visualization Using JIRA Software to Optimize Project Bid Monitoring at PT Catur Manunggal Pratama

Astri Julia R[1*], Hafizh Irfan S[2], Putri Maharani[3], Tamiko Fernanda T[4] Hesti Maheswari[5]
[1,2,3,4,5]School of Business and Management, Universitas Prasetiya Mulya, Jakarta, Indonesia

[*]Corresponding author : [1],15112410001@student.prasetiyamulya.ac.id

[2,3,4,5]Author email : 15112410015@student.prasetiyamulya.ac.id;
15112410014@student.prasetiyamulya.ac.id;
15112410003@student.prasetiyamulya.ac.id;
hesti.maheswari@prasetiyamulya.ac.id

ABSTRACT

This paper aims to reduce the risk of failure in monitoring project bids that hinder operational management effectiveness at PT Catur Manunggal Pratama. The company faces inefficiencies due to traditional, paper-based systems that cause workflow delays, errors, and potential business losses. A quantitative approach was employed by implementing a Kanban system using JIRA Software to improve transparency, structure, and operational efficiency. Data were collected through interviews with the operations manager and analysis of related documents. The findings reveal that inadequate bid monitoring contributes to reduced tender success rates, workload accumulation, and difficulties in resource planning. The application of a digital Kanban system enhances project visibility, streamlines workflows, and supports better decision-making in managing bids. This study shows that improving monitoring processes can lead to increased efficiency and reduced operational risk. The implication for management is the need to adopt structured digital tools that support competitiveness and performance in the bidding process. Enhanced transparency and real-time tracking are crucial for minimizing errors and maintaining control over ongoing tenders. This paper contributes to the literature by demonstrating the practical application of Kanban methodology combined with JIRA Software in the context of project bid management, offering an effective digital solution for addressing inefficiencies in construction-related business operations.

Keywords: *Operations Management, Project Proposals, Project Monitoring, Operational Efficiency, Kanban*

***JEL Classification*:** M11, L74, O32

Submission date: 05 Mei 2024 *Accepted date: 5 Agustus 2024*

Introduction

In the construction industry, risk monitoring and control often do not function optimally due to ineffective risk management and oversight. One critical stage that is heavily influenced by effective risk management is the project bidding process, which plays a vital role in determining a company's

competitiveness and business sustainability. Therefore, effective monitoring of project proposals is essential to ensure operational efficiency and increase the chances of winning projects. When the bidding process is not properly monitored, risks such as delayed follow-ups, internal miscommunication, and loss of critical information may arise. These risks can ultimately lead to lost project opportunities, commonly referred to as opportunity loss.

According to (Borges et al., 2024) inadequately controlled risks in construction projects can result in cost overruns, delays in completion, reduced project performance quality, and even total project failure. Thus, an accurate and efficient monitoring and tracking system is necessary, especially in the early stages such as the bidding process.

PT Catur Manunggal Pratama is a construction company specializing in flooring, based in Tangerang, and has been operating since 1992. The company is led by Mr. Yonantha as President Director and Mr. Jose Christoven Yonantha as Operations Manager. Despite its extensive experience in the construction industry, PT Catur Manunggal Pratama faces significant challenges in the project bidding process, particularly in the effectiveness of monitoring and tracking proposals.

Currently, PT Catur Manunggal Pratama is experiencing difficulties in managing and monitoring the project bidding process effectively. These challenges stem from inefficiencies in human resource allocation and the lack of automation systems in the bidding process. Based on interviews and internal document analysis, it was found that the use of a traditional system during the bidding process in January to February 2025 led to delays in decision-making and a lack of structured documentation.

Table 1. Number of Projects at PT. Catur Manunggal Pratama

No	Month	System	Project Status			Amount of Project
			Deal	Waiting	Lost	
1	January	Traditional	20	21	10	51
2	February		23	32	4	59
3	March	JIRA	8	53	0	61
	Total		**51**	**106**	**14**	**171**

Source: Data Processed by the Researcher

Based on the data above, it can be seen that from January to March, a total of 171 project bids were recorded, consisting of 51 successful deals, 106 projects still awaiting decisions, and 14 failed bids indicating that approximately 15%-25% of total bids did not result in secured projects. From a financial perspective, the use of a traditional system led to a significant opportunity loss. Over the three-month period, as shown in Table 2, a total of 171 projects were processed, with 51 deals closed, 106 still in waiting status, and 14 classified as lost. In February alone, the total loss due to unmonitored and unsuccessful bids from four tenders amounted to IDR 3,373,723,100. Since the JIRA software was only implemented in March, comparisons were made using data from the previous month, February, when the traditional system was still in use. According to the Operations Manager of PT Catur Manunggal Pratama, the main cause of this opportunity loss was

the slow project monitoring process, which caused the company to lose valuable time. Through the implementation of a Kanban-based system using JIRA software, the potential loss of revenue could be reduced to zero, as the entire bidding process can be properly monitored and documented.

Table 2. Project Loss Data at PT. Catur Manunggal Pratama

No	Losses from Project Tendering in February (Traditional System)		
	Client	**Status**	**Offer Amount**
1	PT. UP	*Lost*	Rp 986.519.900
2	PT. M	*Lost*	Rp 376.183.200
3	PT. D	*Lost*	Rp 1.560.189.600
4	PT. MA	*Lost*	Rp 450.830.400
	Total Losses		**Rp3.373.723.100**
No	**Losses from Project Tendering in March (*Software* JIRA)**		
	Client	**Status**	**Offer Amount**
1.	-	-	**-**
	Total Losses		**Rp0**

Source: Data Processed by the Researcher

The motivation for this research stems from the principle of operational management, which states that managers must collaborate across functions to ensure organizational effectiveness (Nigel Slack et al., 2022). At PT Catur Manunggal Pratama, the responsibility for the tendering process is divided between the company leadership and operational managers. However, without a system that supports integrated and well-documented tracking, this collaboration becomes suboptimal. Therefore, a deeper analysis is needed regarding the impact of inadequate monitoring in the tendering process, as well as efforts to formulate strategies for optimizing project proposal management with a data-driven and technology-based approach.

The aim of this study is to analyze the impact of weak monitoring on the project tender outcomes at PT Catur Manunggal Pratama and to develop strategies that can enhance the effectiveness and efficiency of project proposal management. This research is expected to provide practical and academic contributions in the fields of operational management and risk management, particularly within the context of a construction company undergoing a digital transformation in its business processes. The findings of this study can serve as a reference for similar companies in optimizing the tendering process through technology integration and effective risk management.

Methods

This study employs a quantitative approach using a case study method to obtain an in-depth understanding of the challenges within the project tender monitoring process at PT Catur Manunggal Pratama. A case study is considered appropriate as it allows the researcher to explore complex real-world organizational dynamics with a focus on a single case: the tendering process conducted from January to March. Research subjects included internal stakeholders directly involved in the tender process, primarily the operational management team. The object of study was the project tender monitoring system, both the traditional model and the newly implemented JIRA-based Kanban system.

Data were collected through semi-structured interviews with the operational manager and direct observation of the team's workflow. Supplementary secondary data were gathered from internal company documents such as tender reports, success/failure recaps, and system usage logs. All data were systematically documented and coded before being analyzed. Visualization through the Kanban method was used to identify bottlenecks and workflow inefficiencies.

Equations

The study measured key indicators of operational efficiency, including tender failure rates, monitoring time, workload volume, transparency of information, and resource planning effectiveness. To evaluate the effectiveness of the JIRA-based Kanban system, efficiency improvement was calculated using the formula proposed by (Taifa & Vhora, 2019)

Efficiency improvement (%) = 1-New timeOld Time x 100%

This formula compares the time consumed in the tender monitoring process before and after system implementation. Thematic analysis was used to extract patterns from the qualitative data, conducted through data reduction, narrative and visual presentation, and triangulated conclusion drawing from interviews, documents, and observation data sources.

Results And Discussion

The findings indicate that the use of a traditional document-based system at PT Catur Manunggal Pratama caused significant inefficiencies, with an average tender cycle time of 217 hours and a revenue loss of IDR 3,373,723,100 per month. The implementation of a Kanban system on JIRA reduced the cycle time to 145 hours, improving time efficiency by 33% and eliminating project losses due to monitoring delays. These results support the visual management concept, showing that Kanban can accelerate workflows and improve transparency. However, the success of this system depends not only on the digital platform but also on team commitment, the company's readiness for digital transformation, and ongoing training efforts.

This study has limitations, as the findings are specific to PT Catur Manunggal Pratama and may not be generalizable to other companies. Additionally, the study focused on a single system implementation and did not explore the potential impact of other management methods that could yield different results.

Basic Model of the Kanban Board

This study was conducted to analyze the impact of implementing a Kanban visualization system using JIRA software on the efficiency of the project bidding process at PT Catur Manunggal Pratama. The collected data were analyzed both descriptively and inferentially to identify significant differences between the workflow before and after the system's implementation. The use of Kanban visualization aimed to optimize project bid monitoring at PT Catur Manunggal Pratama. Kanban visualizes the workflow, identifies bottlenecks, and enhances transparency through its implementation in JIRA software. The system consists of three main stages: To Do, referring to tasks that are yet to be started; In Progress, referring to tasks currently being worked on; and Done, referring to completed tasks. This visualization helps the team monitor project status in real-time, accelerates work cycles, reduces human error, and supports more effective decision-making, replacing the previously used paper-based manual method. The following is the basic model of the Kanban Board as described by (Nigel Slack et al., 2022)

Table 3. Basic Model of the Kanban Board

To Do	In Progress	Done
Activities that have not yet started and need to be initiated immediately	Activities that are currently in progress	Activities that have been completed

Source: (Nigel Slack et al., 2022)

Kanban Visualization with JIRA Software

To understand how Kanban visualization relates to project bid monitoring at PT Catur Manunggal Pratama as a case study, the following is a real-life visualization of Kanban implementation using JIRA software as of March 2025.

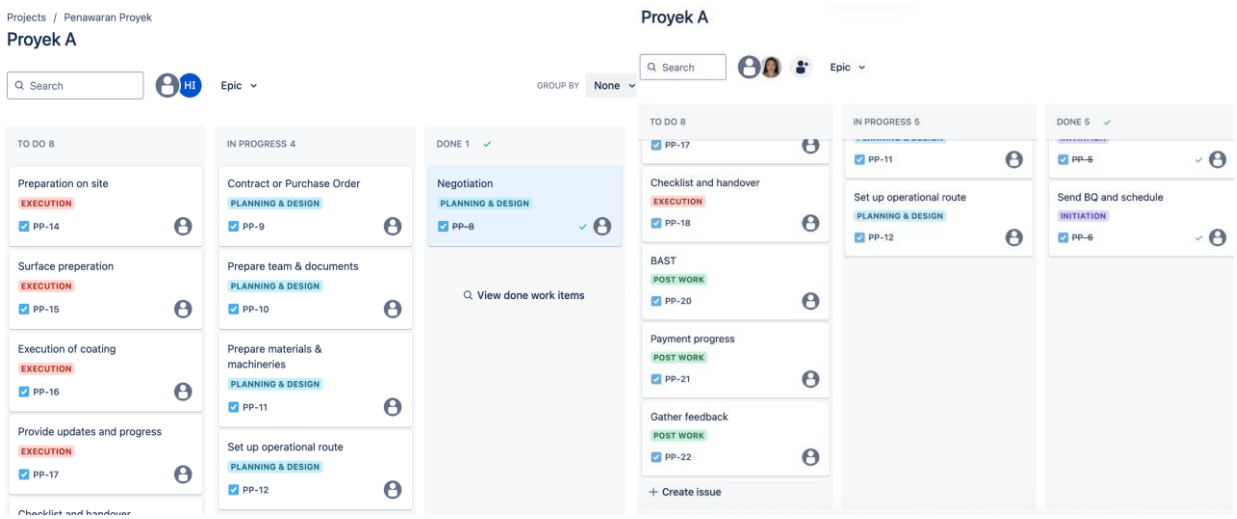


Figure 1. Kanban Visualization with JIRA Software at PT Catur Manunggal Pratama – March 2025
Source: Visualization with *software* JIRA by the Researcher

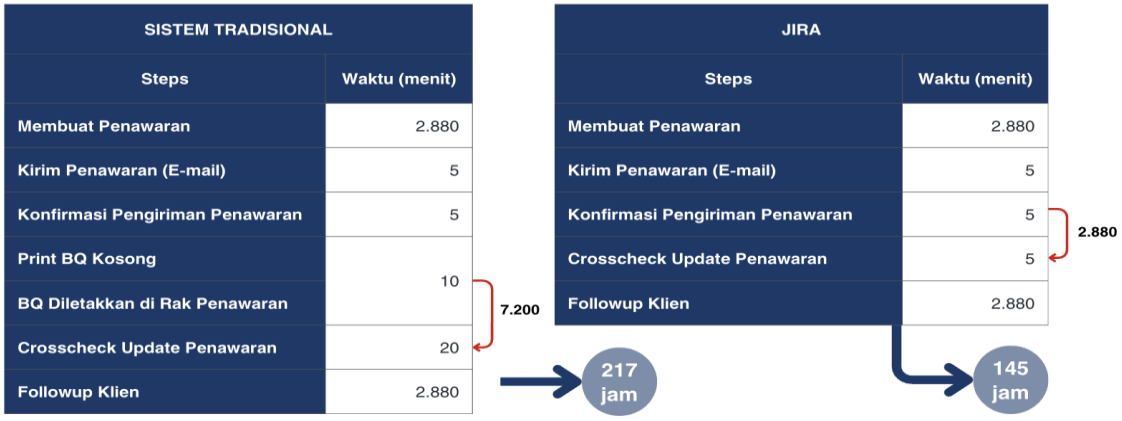
This visualization goes beyond simply presenting task allocations; it serves as a core tool in a complex, real-time, cross-departmental workflow. The Kanban board consists of three main columns: *To Do*, *In Progress*, and *Done*, each representing the task status within the project life cycle. The *To Do* column reflects a backlog of tasks that have been identified but not yet executed. It functions as a task queue and prioritization tool, where within the context of project management this column helps managers and technical teams identify tasks that need to be allocated promptly, based on urgency and interdependency with other tasks. Meanwhile, the *In Progress* column displays all tasks currently underway. The real-time information provided in this column allows the management team to monitor team capacity and anticipate potential overload, so task assignments can be adjusted to maintain process efficiency. The *Done* column records all tasks that have been completed and validated. This column not only functions as an indicator of task completion but also provides critical data for team performance evaluation, such as measurements of lead time, cycle time, and throughput. Together, these three columns foster a high level of workflow transparency and support accurate, data-driven, and sustainable project management.

The implementation of Kanban through JIRA software not only replaces physical boards or manual spreadsheet systems but also profoundly transforms how teams communicate and make decisions. This system replaces the previously used paper-based manual process, which relied on physical documentation, file storage, and separate communication between divisions. With JIRA software, this visualization accelerates cross-functional transparency, allowing all stakeholders from engineering and finance to management to access and monitor the status of every project or task without having to wait for periodic reports. This significantly reduces the information lag that previously hindered the manual system. JIRA's Kanban visualization also supports the management of *Work in Progress (WIP) limits*, which sets boundaries on the number of tasks allowed in the *In Progress* column. This helps teams maintain an optimal workload and avoid multitasking, which can undermine focus. Consequently, this has a direct impact on improving output quality and timely task completion.

Cycle Time Comparison: Traditional vs. JIRA

To measure the effectiveness of the new system, a comparative analysis of the process time or cycle time between the traditional system and the system in the JIRA software was conducted. The results are shown in Table 4 below.

Table 4. System Comparison based on Cycle of Time



Source: Results of Data Processing by Researchers

After implementing the system using JIRA software based on kanban, the total cycle of time can be reduced to 145 hours. This time reduction can be done because several previous stages that were carried out manually such as printing blank BQs and physical placement on the bidding rack which took a total of 72 hours can be eliminated. Then activities such as updating data and cross-checking are carried out digitally and in real time in one application so that they can accelerate decision-making and responses from one division to another to changes in project status

After that, the increase in efficiency is calculated by comparing the total process time before and after the implementation of the improvement system using the formula used according to (Taifa & Vhora, 2019).

Efficiency improvement (%) = 1-New timeOld Time x 100%

In this study, old time refers to the total bidding process time using the traditional system of 217 hours, and new time is the total process time after the implementation of Kanban based JIRA of 145 hours. By using these two variables, the efficiency figures obtained are:

Efficiency improvement (%) = 1-145217 x 100%

Efficiency improvement (%) = 33%

These results indicate that there is a 33% increase in efficiency after the JIRA system is implemented. This figure is proof that the new system has a significant impact on saving time in the project bidding process.

Cycle Time Comparison: Traditional vs. JIRA in the form of a Gantt Chart

To strengthen the analysis, a visualization of the work process is carried out in the form of a Gantt Chart. This Gantt Chart is used to visualize the dynamics of time in the company's workflow which shows a significant difference between the traditional system and the JIRA-based system in terms of time efficiency. The comparative data demonstrate a tangible improvement in operational performance following the implementation of the Kanban system via JIRA software. Prior to implementation, the average project bidding process took 217 hours, largely due to redundant manual procedures such as printing documents and storing them physically. These steps were identified as major contributors to delays and inefficiencies. After integrating JIRA's digital Kanban board, the average cycle time was reduced to 145 hours resulting in a 33% improvement in time efficiency. This time savings was primarily achieved by eliminating physical handling of documents and enabling real-time updates and coordination across departments. Furthermore, the most

compelling outcome was the elimination of project losses during March 2025, compared to a recorded opportunity loss of IDR 3.37 billion in February under the traditional system. These results not only quantify the direct gains from digitization but also confirm that Kanban-based visualization tools are effective in increasing transparency, accelerating workflow, and minimizing operational risk in project bidding processes.

Table 5. System Comparison based on cycle of time (Gantt Chart)

Sistem Tradisional														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Create a Bid	■	■												
Send the Bid		■												
Confirm Bid Submission		■												
Print blank Bill of Quantities (BQ)		■												
Place BQ on the bidding rack		■												
Cross-check Bid updates								■						
Follow up with client									■	■				
JIRA														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Create a Bid	■	■												
Send the Bid		■												
Confirm Bid Submission		■												
Cross-check Bid updates					■									
Follow up with client						■	■							

Source: Results of Data Processing by Researchers

The visual comparison in the form of a Gantt Chart clearly illustrates the differences in workflow structure between the two systems. In the traditional system, stages such as printing blank Bill of Quantities (BQ) and storing physical documents caused the process to take longer, with a total duration reaching an average of 217 hours. The workflow appears fragmented with a lot of downtime between one activity and another. In contrast, in the JIRA-based system, the work

process appears more compact and integrated. Activities are carried out digitally and synchronously between teams, including data updates, cross-checks, and client follow-ups, all of which can be done without unproductive downtime. This resulted in a reduction in duration to an average of 145 hours, reflecting a real increase in operational efficiency. In the traditional system, the bidding process was affected by a fairly long time lag between important stages, especially in terms of cross-checking the bid status. The cross-check process for new bids, which should be an important step in updating and validating the bid status, was only carried out at least five days after the initial submission. This time lag creates inefficiencies that hinder the overall smoothness of the process, extending the work cycle, and resulting in a longer completion time of about three days compared to a more structured process.

This condition shows that overall, the traditional system has weaknesses in efficient time management. Time management in the traditional system relies on manual processes that are not well integrated, thus worsening the work cycle by creating a lot of unproductive idle time between processes. Significant time lags between stages in the bidding process create additional burdens in the work cycle, which ultimately increases the total duration of task completion, lengthens the workflow, and causes delays in decision-making that should be done more quickly.

In contrast, by implementing a system with JIRA software, PT Catur Manunggal Pratama was able to optimize the workflow and reduce unproductive time. The system in JIRA software allows important activities such as cross-checking and updating bids to be carried out directly and coordinated between departments within the company. All parties involved can work together in real time, so that the communication and decision-making process becomes faster. The integration and automation features in JIRA software also help eliminate the waiting time that usually occurs between processes, so that the workflow becomes shorter and more efficient. In this way, the entire work cycle can be completed in a shorter time, reducing the duration of bid completion, and overall increasing the efficiency of teamwork.

In addition, the use of JIRA also optimizes the decision-making loop in the company. Decisions taken can be made faster because each stakeholder has more transparent and coordinated access to the status of existing work. Information that is available directly allows for faster and more accurate decision-making, and reduces the risk of delays in the process that often cause losses due to operational delays or delay induced losses. In the long term, the implementation of the system on JIRA software not only increases the speed of business processes but also has a significant impact on the management of time and resources in the company which will ultimately accelerate the achievement of the company's strategic and operational goals.

Project Timeline Visualization with JIRA

The visualization of the results can be seen concretely through Figure 2 which shows how the workflow changes after implementation with JIRA software which reflects improvements in the rhythm and continuity of the process.

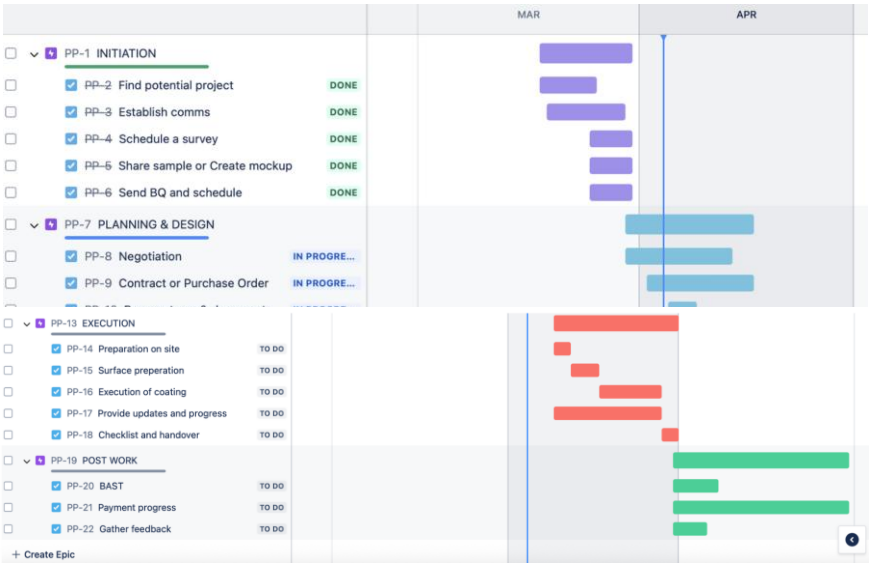


Figure 2. Visualization of Project Monitoring Timeline with JIRA Software at PT Catur Manunggal Pratama March 2025

The image above shows a visualization of a JIRA-based project timeline that shows a denser, more integrated, and continuous workflow compared to traditional systems. In the image, every project activity such as bid creation, cross-check, to follow-up is seen running in parallel and without unnecessary pauses, reflecting a significant reduction in waiting time or idle time. This indicates that the business process has undergone a transformation from a linear work pattern to a real-time synchronous and collaborative system. Information that is updated directly in the platform allows all divisions to interact faster, increase transparency, accelerate response, and shorten the work cycle. Thus, the image above not only shows the speed of execution time, but also serves as visual evidence that the kanban system in JIRA software has succeeded in creating operational efficiency and more accurate decision-making in a complex and dynamic work environment.

Conclusion

From this study, it can be concluded that the lack of monitoring in the project tender process at PT Catur Manunggal Pratama has led to low operational efficiency and the risk of losing business opportunities. The implementation of the Kanban board on the JIRA software system has proven to optimize the tender process by reducing project cycle time, increasing work transparency, and eliminating opportunity loss. However, this success still requires continuous support in the form of management commitment, strengthening a technology-based work culture, and intensive training for all employees to consistently and effectively adopt the new system.

This study also opens opportunities for further research on the long-term impact of implementing a Kanban-based system on project success and business growth. Overall, this research emphasizes the importance of applying operational management visualization through the Kanban Board to support the optimization of company performance, not only in improving internal efficiency but also in strengthening competitive advantage in the construction industry.

References

Borges, D. B., Soares, C. A. P., Najjar, M., Costa, B. B. F. d., Tam, V. W. Y., & Haddad, A. N. (2024). Project success and critical success factors of construction projects from the perspective of a multicultural team: a case study in Guyana. *International Journal of Construction Management*, *0*(0), 1–15. https://doi.org/10.1080/15623599.2024.2397626

Nigel Slack, Alistair Brandon-Jones, & Nicola Burgess -. (2022). *Operations Management-Pearson (2022)*.

Taifa, I. W. R., & Vhora, T. N. (2019). Cycle time reduction for productivity improvement in the manufacturing industry. *Journal of Industrial Engineering and Management Studies*, *6*(2), 147–164. https://doi.org/10.22116/JIEMS.2019.93495