

The Study of the needs for Accessibility of Production Process Planning Platforms based on the Circular Economy Concept

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The purpose of this research was to study the needs for accessibility of a production process planning platforms based on the Circular Economy concept. The research was conducted by using qualitative methodology with document analysis from the documents reporting the results of the projects for increasing the competitiveness of enterprises with digital technology of the Department of Industrial Promotion, Ministry of Industry, in the Fiscal year 2022 – 2023 (480 enterprises in total).

The Results of the Study are as Follows

1. The overall waste in the production process decreased by an average of 19.62 percent (Mean : $\bar{x} = 19.62$) with a range value of 81.70, which had a value of .00 and a maximum value of 81.70 (Minimum = 0.00, Maximum = 81.70), and the standard deviation of waste in the production process decreased to 20.16 (Standard Deviation: SD = 20.01).
2. The overall cost in the production process decreased by an average of 35.68 percent (Mean : $\bar{x} = 35.68$) with a value equal to 200.00 (Range = 200.00), which had a minimum value equal to .00 and a maximum value equal to 200.00 (Minimum = 0.00, Maximum = 200.00), and the standard deviation of costs in the production process reduced to 35.68 (Standard Deviation: SD = 35.68).
3. Overall sales increased by an average of 25.07 percent (Mean: $\bar{x} = 25.07$) with a value of 123.50 (Range = 123.50), which had a minimum value of 1.82 and a maximum value of 125.32 (Minimum = 1.82, Maximum = 125.32), and the standard deviation of the cost in the production process reduced to 22.51 (Standard Deviation: SD = 22.51).

From the results of the three indicators of the project's productivity, it reflects that the waste in the production process decreased by an average of 19.62 percent, the cost in the production process decreased by an average of 35.68 percent, and sales increased by an average of 25.07 percent. When considering the range value, it can be seen that this is wide, which indicates that the average waste in the production process decreased. The average production cost decreased, and the average of sales increased. This data was highly fragmented. There were many businesses that reduced waste in the production process, but the cost in the production process did not nearly reduce, and the sales hardly increased. In

addition, the study also analyzed the digital technology platforms used in the project, together with the concept of the Circular Economy, including an integrated software system for resource management, real-time data analysis tools, and cloud-based collaboration platforms. These technologies play a key role in the observed productivity gains. Additionally, economic value analysis showed that cost savings and revenue growth contributed to the overall economic benefits for participating enterprises that were involved in the project. This study emphasizes the needs to develop and provide a platform that can apply the Circular Economy concept to production process planning in order to reduce waste and costs in the production process. This aims to increase sales and promote effective production process management in the industry sustainably.

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