

In Power Bi Production And Control Utilising By Dashboard

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Abstract:

Manufacturing production and control involves persistent challenges—data mismatches, delays, and coordination gaps. This study investigates how Microsoft Power BI dashboards can bring clarity by providing live data, centralized visuals, and real-time resource monitoring of machines, materials, and workers. Managers can identify bottlenecks early and make consistent decisions without sifting through multiple reports. While dashboards do not eliminate all errors, they significantly reduce reporting delays and improve overall operational control.

Keywords: *Power BI, Production Planning, Control Dashboard, Manufacturing, Data-Driven Decision Making, Real-Time Monitoring, Operational Efficiency, Chi-Square Analysis.*

Introduction

In today's dynamic industrial environment, production planning is increasingly challenging. Many organizations still rely on manual reports and Excel sheets, making real-time monitoring difficult and problem detection slow. Microsoft Power BI addresses this by enabling interactive dashboards that centralize all production data. Teams can spot issues quickly, reduce inter-departmental miscommunication, and empower managers to make faster decisions—freeing them from time-consuming multi-report analysis.

Review of Literature

Various scholars have contributed to this domain.

- Martinus (2010) identified that infrastructure plays a significant role in enabling coordination, knowledge sharing, and productivity within organizations.
- Ansari & Wang (2016) demonstrated that efficient resource management significantly reduces operating costs—applicable to manufacturing monitored via Power BI.
- Anderson (2017) found that accurate and timely data is essential for process control and continuous improvement.
- Tejesh & Neeraja (2018) highlighted difficulties of manual tracking and showed that real-time integration improves inventory accuracy substantially.
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Objectives of the Study

- To develop an effective Production Planning and Control Dashboard using Power BI.

- To enhance inventory and material control through visual monitoring.
- To support data-driven decision-making across departments.
- To reduce manual reporting effort and associated errors.
- To evaluate overall production efficiency and performance trends.

Limitations of the Study

- Limited to a single organization with a small sample size restricting generalizability to other manufacturing sectors.
- Respondent demographics were skewed toward operational staff with minimal representation from supervisors and management.
- Heavy reliance on self-reported Likert-scale data introduces response bias, affecting the credibility of findings.

Findings and Suggestions

Findings:

- Power BI dashboards significantly improve production planning, reporting accuracy, and decision-making efficiency.
- Consistent dashboard usage patterns indicate the system supports communication and uniform operational performance.
- Proper training and simplified dashboard design are essential to maximize user adoption.
- Real-time data updates and department-wise customization reduce reporting delays and improve productivity.

Data Collection Method

Primary Data: Collected through questionnaires, interviews, and direct engagement with production managers, supervisors, and operational personnel.

Secondary Data: Collected from production reports, equipment logs, inventory records, quality control reports, and historical ERP data. The combination ensures accurate and reliable information.

Data Analysis and Interpretation

The collected data is analyzed using percentage analysis, chi-square analysis, and tables. Interpretation focuses on identifying employee perceptions of Power BI usage in production planning. The analysis shows that organizations implementing Power BI dashboards experience better efficiency, improved reporting accuracy, and effective goal achievement.

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Response Category	No. of Responses	Percentage
Strongly Disagree	61	6.1%
Disagree	94	9.4%

Neutral	203	20.3%
Agree	452	45.2%
Strongly Agree	190	19.0%

Chi-Square Analysis

Response	O	E	(O-E) ² /E
Strongly Disagree	61	200	96.61
Disagree	94	200	56.18
Neutral	203	200	0.05
Agree	452	200	317.52
Strongly Agree	190	200	0.50
Total χ^2			470.86

Final Chi-Square Value

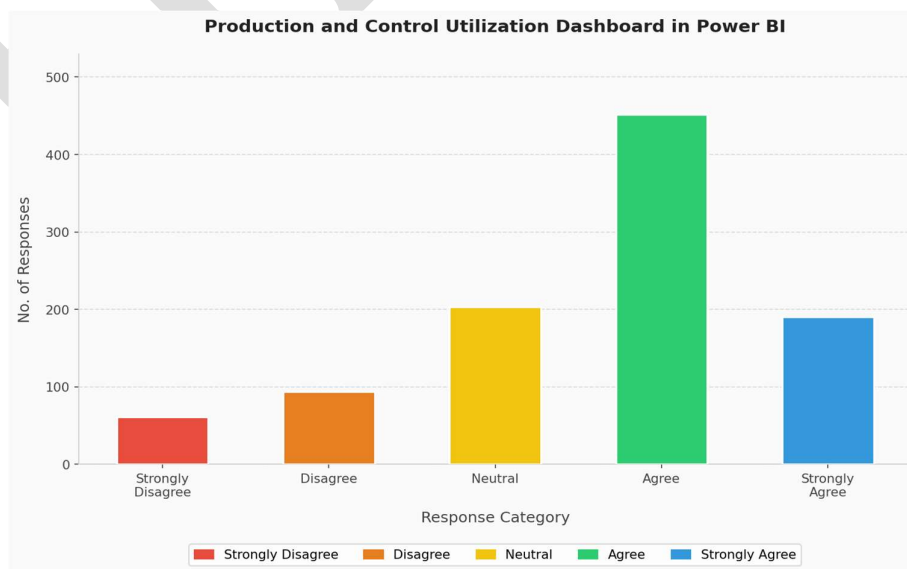
$\chi^2 = 470.86 \approx$ Very Significant

Interpretation

- $\chi^2 = 470.86 \rightarrow$ Very Significant Difference in Response Distribution

Comment: The chi-square value (470.86) far exceeds the critical value 9.488 at $df = 4, \alpha = 0.05$, confirming a strong preference toward agreement on Power BI dashboard usage in production planning.

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