

A Comprehensive Review of Computerized Maintenance Management Systems (CMMS)

Rupali Eknath Pandarkar and Prof. Dr. Brijendra Gupta

Department of Information Technology
Siddhant College of Engineering, Pune, India
rupali.pw24@gmail.com

Abstract: *Computerized Maintenance Management Systems (CMMS) are essential for manufacturing industries to transform their maintenance operations into a more digital and automated format. Using basic work order capabilities, inventory, assets, and scheduled preventative maintenance, a CMMS improves operational efficiency, maximizes resource utilization, and minimizes equipment downtime. Various incidents across companies that advance beyond Industry 4.0 have increased CMMS capabilities with new advanced technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), cloud computing, and predictive analytics being added as a means for real-time data capture, better decision making, and predictive-based maintenance schedules for improving equipment reliability and productivity of the plant. Unfortunately, there are ongoing issues, such as interfaceability between systems, lack of formalized standards for data exchange, cybersecurity reliability, and especially predictive output for real-time applicability. This survey examines the literature on CMMS utilization in the manufacturing sector and reviews different technology trends, research approaches, and applications in several key maintenance areas. This study reviews critical research gaps and discusses avenues for establishing intelligent, autonomous, and integrated maintenance management systems aligned with Industry 5.0. Ultimately, this analysis concludes that future CMMS frameworks must develop into adaptive, data-driven, and self-learning maintenance ecosystems capable of supporting proactive decision-making, seamless connections, and sustainability via advanced manufacturing operations*

Keywords: Computerized Maintenance Management System (CMMS), Predictive Maintenance, Internet of Things (IoT), Asset Management, Industry 4.0

