GenAI Agents in Product Management: A Case Study from the Manufacturing Sector

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Abstract : Purpose: This study aims to explore the feasibility and effectiveness of utilizing Generative Artificial Intelligence (GenAI) agents as product managers within the manufacturing sector. It seeks to evaluate whether current GenAI capabilities can fulfill the complex requirements of product management and deliver comparable outcomes to human counterparts. Study Design/Methodology/Approach: This research involved the creation of a support application for product managers, utilizing high-quality sources on product management and generative AI technologies. The application was designed to assist in various aspects of product management tasks. To evaluate its effectiveness, a study was conducted involving 10 experienced product managers from the manufacturing sector. These professionals were tasked with using the application and providing feedback on the tool's responses to common questions and challenges they encounter in their daily work. The study employed a mixed-methods approach, combining quantitative assessments of the tool's performance with qualitative interviews to gather detailed insights into the user experience and perceived value of the application. Findings: The findings reveal that GenAI-based product management agents exhibit significant potential in handling routine tasks, data analysis, and predictive modeling. However, there are notable limitations in areas requiring nuanced decision-making, creativity, and complex stakeholder interactions. The case study demonstrates that while GenAI can augment human capabilities, it is not yet fully equipped to independently manage the holistic responsibilities of a product manager in the manufacturing sector. Originality/Value: This research provides an analysis of GenAI's role in product management within the manufacturing industry, contributing to the limited body of literature on the application of GenAI agents in this domain. It offers practical insights into the current capabilities and limitations of GenAI, helping organizations make informed decisions about integrating AI into their product management strategies. Implications for Academic and Practical Fields: For academia, the study suggests new avenues for research in AI-human collaboration and the development of advanced AI systems capable of higher-level managerial functions. Practically, it provides industry professionals with a nuanced understanding of how GenAI can be leveraged to enhance product management, guiding investments in AI technologies and training programs to bridge identified gaps.

Keywords : generative artificial intelligence, GenAI, NPD, new product development, product management, manufacturing
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