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Business Innovation through Generative Artificial Intelligence: a Patent Analysis

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Abstract

Generative Artificial Intelligence (GenAI) has the potential to contribute to the reconfiguration of processes and to increase the level of innovation in the business environment. However, current research highlights that GenAI-based commercial applications are still in a 'ferment phase', with their impact not yet fully understood. To address this gap, the present study aims to examine the main activities and industries in which GenAI can contribute to enhancing innovation. To achieve this objective, a mixed methodological approach was adopted, starting with a series of quantitative analyses based on data extraction through automated techniques, followed by a content analysis designed to create a framework of innovation opportunities in the business environment. The dataset used for this study consists of 96 patents collected from the Espacenet registry, published between 2023 and 2025 under the G06Q classification. The research findings highlight an extensive framework of GenAI applications, organised into six categories, which can be successfully employed to increase business innovation. A predominant focus of the inventions on personalisation and automation solutions can be observed, but emerging trends can also be noted in industries such as education, healthcare, financial and banking services, and energy. Thus, this study reduces the gap identified by scholars, laying the foundation for future research focused on business innovation through GenAI-driven solutions.

Key words: *Generative Artificial Intelligence (GenAI); innovation; personalisation; business environment; patent data;*

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