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EVOLUTION OF INFORMATION TECHNOLOGY IN INDUSTRY: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Aim/Purpose	This study addresses the research question: "What are the developmental phases of Information Technology in the industry?" Existing research has explored the impact of Information Technology (IT) on specific industries. However, it is essential to understand the evolution of IT within industries, its influence on the workforce, and technological advancements. Addressing this knowledge gap will enhance future workforce development and IT integration across diverse sectors.
Background	IT can significantly transform industries and drive innovation to meet client demands. Understanding IT phases in industry through literature helps governments and businesses worldwide recognize its importance. This knowledge can guide strategies to address the shortage of highly skilled workers by prioritizing education and training programs to meet future demands.
Methodology	The methodology involved a systematic literature review of 110 IEEE Xplore, ACM Digital Library, and Google Scholar articles. Thematic analysis was used to understand the development of IT in distinct phases since the 1990s. This development has resulted in a continuous demand for new workforce skills and evolving customer expectations.
Contribution	This study aims to fill the knowledge gap by enhancing our understanding of how evolving IT influences the industry and shapes IT jobs and skills. It

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	provides a historical perspective, illustrating how IT advancements have led to new applications to meet changing needs. Additionally, the study identifies patterns in the evolving IT skill requirements due to technological advancements and discusses implications for curriculum development and higher education.
Findings	The study identified three significant phases through a systematic literature review and thematic analysis. The first phase, "Advent of Industry IT" (1990-2000), established the digital framework and built essential systems and infrastructure. The second phase, "Connectivity & Information Revolution" (2000-2010), saw exponential internet growth, transforming information access and communication. The third phase, "Emerging Industry IT" (2010-present), focuses on artificial intelligence, automation, and data-driven insights, continuing to disrupt and transform industries.
Recommendations for Practitioners	The changing phases of IT within the industry should inform the development of innovative programs. These programs should address diverse skill sets across eras, preparing the workforce for evolving job roles in various sectors, such as healthcare in North America, automotive manufacturing in Japan, telecommunications in Africa, and innovations in other parts of the world.
Recommendations for Researchers	Researchers can conduct longitudinal studies to explore the ongoing evolution of IT, tracking its trajectory beyond current delineated phases to understand future trends. Comparative studies across various industries can assess how IT evolution varies among sectors and delve deeper into its practical implications. Researchers can also conduct impact assessment studies to determine how various IT phases directly affect organizational strategy, worker dynamics, and organizational structures across industries. Examples include logistics in the Netherlands, retail in the United Kingdom, and agriculture in Brazil.
Impact on Society	Policymakers and planners can use knowledge of these phases to predict technological shifts and industry trends. This knowledge helps develop strategies and policies supporting entrepreneurship, education and training alignment, technical innovation, economic growth, and job creation in line with the changing IT landscape. Examples of policies include Singapore's Smart Nation initiative, Germany's Industry 4.0 strategy, Ghana's digitization efforts, and India's Digital India campaign.
Future Research	Future research can provide a thorough understanding of the evolutionary patterns of IT within sectors by validating the study through various datasets and conducting in-depth examinations of individual industries. This will contribute to a deeper understanding of sector-specific IT evolution and their varying impact on societal interactions and industry dynamics. Comparative studies across various sectors, such as logistics in the Netherlands, retail in the United Kingdom, and agriculture in Brazil, can assess how IT evolution varies.

Keywords: information technology, evolution of information technology, industry and information technology, phases of information technology

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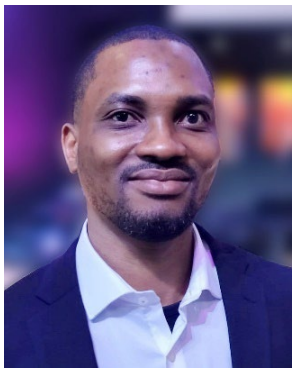

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