Chapter 1
Introduction to Hyperautomation

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ABSTRACT

Hyperautomation refers to the comprehensive automation of all possible processes within an organization. Organizations that embrace hyperautomation seek to optimize their business operations by leveraging artificial intelligence (AI), robotic process automation (RPA), and other technologies to automate tasks without human involvement. Hyperautomation refers to a systematic method of automating business and IT activities throughout a whole organization to achieve more precise and faster workflows. Automation refers to the process of digitizing a repetitive operation without any manual involvement. On the other hand, hyperautomation comprises the integration of several automation techniques and platforms to achieve a high level of error-free efficiency at a larger scale. It encompasses the utilization of technologies such as artificial intelligence (AI), robotic process automation (RPA), and machine learning (ML). This chapter discusses concepts related to hyperautomation, as well as its advantages and applications in business and predicts the future of hyperautomation.

INTRODUCTION

RPA, or Robotic Process Automation, is a type of technology that speeds up decision making based on rules in a highly efficient manner. It operates with structured data and requires minimal human supervision in business process management. This technology is enabled by robots, chatbots, or software agents (Coombs et al., 2020; Lacity and Willcoks, 2017; Syed et al. 2020; Lacity et al., 2016). RPA is a mature technology, with multiple commercial products available that aim to replicate normal duties performed by people in business process management. This enhances agility and simplifies compliance management, as well as reducing the time required for administrative processes within an organization (Syed et al. 2020 ; Coombs et al., 2020; Santos et al., 2019). Some common examples of Robotic Process Automation applications are help desk support, sales process assistance, managing schedules for several systems, processing forms, and operating contact centers. The duties require a high level of organization, and the decision-making process is usually based on rules and involves repetitive steps with specific instructions. Organizations reap the advantages of Robotic Process Automation that may

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automate certain aspects of the business process and liberate additional labor from monotonous and tedious commercial operations. The primary function of the human worker is to actively participate in critical thinking and cognitive processes. Routine and repetitive work can be automated by RPA without any human involvement (Santos et al., 2019; Flechsig et al., 2019; Gao et al., 2019). By implementing advanced technologies, such as robotics, organizations can optimize their business operations and transition into a future workplace where humans and robots work together harmoniously, resulting in increased productivity. The progress of artificial intelligence has propelled the development of robotic process automation to a higher degree, necessitating its integration with many other technologies in practical scenarios. Automated cognitive activities are challenging, yet they cannot be easily automated using conventional methods. The implementation of emerging Artificial Intelligence and Machine Learning technologies enhances the efficiency and effectiveness of industry and business operations, equipping them with intelligent capabilities. AI facilitates decision-making by allowing for the perception, analysis, and adaptation to the current environment. Intelligent Automation (IA) solutions utilizing computer vision, natural language processing (NLP), and fuzzy logic are particularly suitable for handling intricate tasks involving judgmental activities in business processes and human perceptual capacity. This use of advanced technologies in IA goes beyond being a mere buzzword and instead provides valuable practical knowledge (Coito et al. 2019). The enhanced cognitive capabilities of artificial intelligence, including as advanced judgement and perception, have expanded its usefulness in a wide range of study fields and practical applications. As previously said, IA is a technology that is driven by applications. The solution designs of IA are evaluated based on multiple criteria, including the procedure/workflow of the business process, the way of integration with the existing IT system, and the effort and scale required for implementation.

In Customer relationship management (Pantano and Pizzi, 2020), Intelligent Process Automation (IPA) adoption strategies for retailers main contributions to cognitive technologies; human language mimicking and conversations are using chatbot to provide customer services. In Finance (Pramanik et al., 2019), Virtual bot executes without the risk of human error. In banks, they are used to optimize client-servicing channels to generate predictive recommendations. In Healthcare, they are used to classify secure messaging through patient portals. In Industrial engineering, they develop a cutting parameters tuning algorithm using support vector machines (SVM) and genetic algorithms, implement real-time control of machine processes using an open architecture motion controller, and utilize fuzzy logic for interpretation and decision making based on machine performance and workflow. In Knowledge management, it is needed to automate search queries for a community question-answering system. Sentiment analysis is performed on linguistic attributes and the corpus is annotated using various algorithms such as automatic List-Net, ListMLE, RankNet, Ranking SVM, and LambdaRank. The service industry is studied in terms of the genetic framework of IPA. A real-time view of customer profiles, product search, and customer queries is achieved through the use of a service robot. A theoretical framework is proposed to determine the level of automation, substitution, and cooperation between service robotics and human labor. Additionally, the distinction between routine and non-routine tasks and the coordination of humans and robots is achieved through the use of software agents.