Chapter 9
Automation and Robotics: Enhancing Implementation Readiness

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ABSTRACT

There has been a significant rise in the adoption of emerging technologies. Organizations are now re-evaluating their management practices to ensure they maintain a competitive advantage. While upper-level management is often enthusiastic about the transformative power of technologies such as Robotics Process Automation, lower-level employees face concerns about potential job loss. This chapter emphasizes that, amidst the excitement about automation and robotics, it is crucial for organizations to proactively prepare for the implementation of such technologies. To enhance successful adoption, prioritizing implementation readiness and garnering employee buy-in is vital. This chapter aims to contribute in a trifold manner: 1) Uncover the complex socio-technical processes that shape the adoption of automation and robotics technologies, 2) Emphasize the value of fostering an environment where organizations and employees are racing with and not against emerging technologies. 3) Present best practices to bridge the gap between resistance and readiness for adoption.

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1 INTRODUCTION: ROBOTICS AND AUTOMATION

The terms "robotics" and "automation" are often used interchangeably. However, they are two distinct terms with varying meanings. While automation encompasses technology carrying out a task without (or with minimal) human intervention, robotics entails programmable machines carrying out tasks independently. Thus, robotics is a subfield of automation. Automation is a word that has incited fear for many, and it has increasingly become an area of inquiry as organizations have sought to maximize its benefits and minimize the resulting fear of job insecurity. This chapter will address Robotics Process Automation (RPA)—a concept often at play in conversations surrounding robotics and automation.

RPA is defined by Rutaganda et al. (2017, p. 54) as "the use of software as a virtualized workforce to operate applications like a person processing a transaction or completing a process in front of a computer screen". RPA's ease and breadth of use make it increasingly attractive and unique in comparison to prior automation and technological advances. (Cooper et al., 2020). RPA has played an influential role in many fields including management, accounting, and supply chain, amongst others (Fernandez and Aman, 2018; Hartley and Sawaya, 2019; Rosario and Vasarhelyi, 2018). Its ability to take on manual and repetitive tasks like a human would has stirred a lot of curiosity amongst researchers and professionals over the years.

The acceleration of technology is a key player in the disappearance of some jobs. This has made many employees increasingly cautious and apprehensive of technological innovations such as Robotics Process Automation (Brynjolfsson and McAfee, 2011). There is record of a large number of job losses caused by the waves of automation in the 19th and 20th centuries. (Brynjolfsson and McAfee, 2011). These job losses were predominantly in agricultural fields and led to millions of people migrating from agriculture to work in manufacturing and service. The 21st century was accompanied by faster and more pervasive technological change, and the technological innovations became more impressive over the years.

2 JOB CHARACTERISTICS

Jobs with a higher cognitive load, such as HR Managers, Software Developers, and Lead Programmers, are often more difficult to automate (Afriliana & Ramadhan, 2022). On the other hand, jobs with repetitive tasks are more amenable to RPA. An understanding of the impact on job design is highly crucial. With higher cognitive jobs, automation may increase the workload pressure and impede creativity (Jia et al., 2024). In such situations, organizations may be less receptive to automation. Tasks that are dependent on motor memory and include a feedback loop are the