Chapter 5
Is the Idea of Human Replacement too Far-Fetched?
Artificial Intelligence as a Partner for the Public Sector

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ABSTRACT

Public sector organizations are increasingly adopting artificial intelligence (AI). However, its implementation is creating controversy regarding its impact on the labor market (technological unemployment). The purpose of this chapter is to determine whether the idea that AI will replace human labor within the public sector is realistic, or it is too exaggerated. A systematic review of the literature and an analysis of cases in three different contexts were developed. The results show a framework that foresees positive future scenarios, and it is glimpsed that the relationship between humans and AI will be perfected over time to ensure that the benefits of this relationship are legitimate for public organizations.

INTRODUCTION

"The unknown future rolls towards us. I face it for the first time with a sense of hope. Because if a machine can learn the value of human life, maybe we can too."-Sarah Connors, Terminator 2: Judgement Day (Cameron, 1991).

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The First Industrial Revolution is one of the most important turning points of the human era. During this stage the technology of human and animal work, until then developed, was replaced by machinery (Mohajan, 2019). The result of this change allowed the division of labor, specialization and work with greater strength, continuity, reliability, and efficiency (Marengo, 2019).

All the industrial revolutions that have occurred throughout human history have as their main feature the sufficient accumulation of technologies and innovations to produce goods and services. Each of these evolutionary processes presented and present challenges for the economy, governments, industries, and society; ranging from the need to improve and adapt the infrastructure, to the increase in the skills specialization (Popkova et al., 2019). As of the 21st century, an unprecedented technological revolution was presented due to events such as globalization and the emergence of the Internet. The so-called Fourth Industrial Revolution is a process of technological and industrial development that aims to fully automate and digitize production processes through the use of disruptive technologies such as: Internet of Things (IoT), robotics, Big Data Analytics, artificial intelligence (AI), smart data, cloud technologies, and digital networks (Paba & Solinas, 2018; Pozdnyakova et al., 2019; Radziwill, 2018).

AI is one of the technologies that has gained the most ground and importance during the current Industrial Revolution (Philbeck & Davis, 2018). Its impact has been studied in a large part of the productive areas: high technology, automotive industry, financial services, commerce, media, health, and education (Sun & Medaglia, 2019). Similarly, it has opened the debate on the challenges to consider and has generated many questions that must be resolved if the promise of well-being offered by smart technologies is to be legitimized. Indeed, it is possible to place the debate in three scenarios: (1) An optimistic (utopian) vision with the premise that AI can solve the limitations in the processing and analysis of information to achieve better results than those obtained only by humans (Boyd & Holton, 2017; Agrawal et al., 2019); (2) A pessimistic (dystopian) vision that exposes the doubt about whether everyone benefits from the complete automation of production processes, and if this happens, what will happen to the labor market and employment opportunities (Paba & Solinas, 2018; Mutascu, 2021), and (3) A successive view (from dystopian to utopian) that recognizes that new technologies initially will not benefit everyone, but will produce superior offsetting effects in the long run (Marengo, 2019). For example, according to a study carried out, 53% of people stated that the deployment of AI has had a positive effect, while 33% consider it a negative impact (Malik et al., 2021).

As well as in the private sector, AI technologies have dramatically expanded government capabilities and their application has shown substantial results in efficient management, decision-making, and improving public services (Valle-Cruz et al., 2019; Wirtz et al., 2019; Ahn & Chen, 2020). However, the study of AI in the public sphere is still incipient and is still in full development (Reis et al., 2019; Sun & Medaglia, 2019; Wirtz et al., 2019). Consequently, the debate on the three scenarios has reached the actors and organizations of the public sector. In this regard, one of the main concerns that has aroused the interest of academics and observers on the subject is the possibility that AI, machine learning and autonomous systems will replace humans in an unknown future; take up their jobs and perform the physical human tasks as well as the intelligent and cognitive activities that are required in the workplace (Paba & Solinas, 2018; Haefner et al., 2021; Mutascu, 2021; Jaiswal et al., 2022). This allows us to understand the hypothesis that public sector jobs are probably at risk of being completely replaced by robots or algorithms (Wirtz et al., 2020).

Although rapid advances in AI and automation technologies are likely to disrupt labor markets (technological unemployment) and could replace work done by humans, or reshape occupations as they are now known (Frank et al., 2019); it is necessary to focus on positive or balanced scenarios in search of

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