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Grass is always dark(*er*) on the other side: Exploring the dark side of artificial intelligence humanitarian supply chain operations

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ABSTRACT

Humanitarian supply chains (HSCs) have undergone significant changes over the years, shifting from traditional systems to more intelligent and, eventually, AI-enabled operations. With technological advancements accelerating across sectors, humanitarian organizations have also begun adopting artificial intelligence (AI) to enhance their workflows, improve efficiency, and reduce losses. While much of the existing research has focused on the benefits of AI in business and logistics, there is still limited understanding of its potential downsides—particularly within humanitarian settings. This study addresses that gap by exploring how AI may negatively affect HSC activities, both at the individual (micro) and organizational (macro) levels. To guide our analysis, we draw on the Belief-Action-Outcome (BAO) framework, which helps connect personal and institutional beliefs to actions and resulting outcomes. Humanitarian supply chains operate in complex environments where technology use intersects with human behavior, organizational culture, and social values. To better understand these dynamics, we conducted qualitative interviews with professionals working in humanitarian organizations. These insights allowed us to identify and map various challenges—what we refer to as the "dark side" of AI—onto specific functions within HSC operations. Our findings not only highlight areas of concern but also contribute to the broader application of the BAO model in the humanitarian field.

1. Introduction

The use of Artificial Intelligence (AI) in supply chain management has been a topic of interest for researchers and practitioners in recent years, primarily due to the fact that AI has the potential to influence operational effectiveness as well as organizational competencies (Min, 2010; Samadhiya et al., 2023). AI-powered tools are increasingly being utilized to forecast risk, justify resources, enhance logistics, and create supply chain resilience. But supply chain operations driven by AI present complicated ethical, contextual, and cultural challenges, notably for humanitarian supply chains (HSCs). Unlike traditional supply chains, which operate in structured and predictable environments (Toorajipour et al., 2021), HSCs operate to address timely emergencies and minimize human suffering in events such as pandemics and natural disasters. The very nature of the mission of HSCs is to serve and protect vulnerable groups, making their alignment with AI an issue of opportunity and contention (Dash et al., 2019; Pournader et al., 2021).

Although past research has extensively studied the "bright side" of AI for consumers, more and more research now indicates its "dark side" (Barari et al., 2024). When defining the dark side, AI can acquire in-depth knowledge about customers without them knowing (Modgil et al., 2022; Ivanov and Dolgui, 2020). Consequently, the emotional and psychological expenses of AI can be felt by customers to a large extent, given that AI may not be regarded as trustworthy (Papagiannidis et al., 2023). Additionally, Longoni et al. (2019) posit that customers feel neglected by AI, in that they believe it does not consider their uniqueness, thus influencing their responses. Also, Esmaeilzadeh (2020) studied the impact of factors such as communication and social difficulties

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