

Chapter 92

Artificial Intelligence and Crisis Management: The Case of COVID-19 in China

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ABSTRACT

The rapid development and implementation of new technologies can be lifesaving and serve to reduce the impact of disasters. When confronted with the unprecedented challenges posed by the COVID-19 viral pandemic, which emerged in China before spreading globally, the country had to mobilize all available resources, including expertise, knowledge, skills, technologies, material resources, and policies, to effectively address the crisis. Innovation plays a pivotal role during emergencies and crises by enabling quick problem-solving and adaptability to changing circumstances. The COVID-19 pandemic underscored the paramount importance of innovation. For example, the creation of drones for search and rescue operations and the utilization of data analytics to track and contain the spread of infectious diseases proved to be instrumental. The study also delved into the challenges China encountered when implementing Artificial Intelligence solutions to navigate the crisis.

1. INTRODUCTION

Innovation is a powerful and ever-changing force that has the ability to revolutionize economies, especially in response to current business and economic obstacles. It serves as a potent driver of competition, compelling enterprises to optimize their operational efficiency, product quality, and cost-efficiency. Innovation not only propels economic expansion but also assumes the role of a transformative catalyst for societal advancement and progress Zhou et al., (2021) by empowering businesses to expand their global presence and establish a competitive advantage in the global market. Cimoli et al., (2009). When businesses introduce groundbreaking products and services, they can not only transform existing markets but also create entirely new ones. Fagerberg et al., (2010); West & Bogers, (2019). This ripple effect of economic growth occurs as businesses broaden their horizons and venture into new avenues for generating Numerous examples of this phenomenon exist, for example, the smartphone industry, which

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has brought about significant changes in traditional business models and triggered extensive economic expansion. Jaffe & Trajtenberg, (2002).

For example, in healthcare, the development of mRNA vaccines, such as those rapidly produced for COVID-19, highlights how advanced biotechnology can save millions of lives. Castells, (2001); Dolgin, (2021). Artificial intelligence (AI) is another revolutionary innovation, with uses ranging from personalized medicine to self-driving cars, greatly improving efficiency and decision-making. Russell & Norvig, (2020).

AI stands out as a transformative force, reshaping industries and societies. For instance, AI algorithms analyze vast datasets to diagnose diseases, predict patient outcomes, and personalize treatment plans, significantly improving patient care and reducing costs. Topol, (2019). For example, AI systems like IBM's Watson have been used to assist in oncology, providing treatment recommendations based on extensive medical data and literature. Ferrucci, (2010).

Governments hold a pivotal role in stimulating innovation and propelling economic growth. By investing in education and research and development, they can establish an ecosystem that fosters innovation and facilitates the growth of businesses. Nambisan, (2019). The case of Finland and South Korea serves as a compelling example, illustrating the substantial effects that such initiatives can have on fostering innovation and driving economic growth. Shin & Lim, (2017); Ketola, (2018); Gustafsson & Nam, (2017).

Subsequently, to unlock the full potential of innovation, it is crucial for governments, academia, and businesses to collaborate and cultivate an environment that supports and nurtures innovation and entrepreneurship. Through investments in research and development, fostering new ideas and ventures, and implementing policies that enhance innovation, governments can harness innovation as a catalyst for sustainable economic growth and prosperity. Chesbrough et al., (2014).

Nonetheless, innovation presents significant challenges for both businesses and governments. The development of new technologies and products entails substantial risk and investment, with no guarantee of success. Additionally, innovation can disrupt established industries, potentially leading to job losses and social and economic issues. Bessant, & Tidd, (2019).

The importance of technology extends beyond normal circumstances, as it proves to be a powerful tool during emergencies and crises. The ability to swiftly develop and implement new technologies can save lives and mitigate the impact of disasters. We have witnessed an increasing number of instances where technological innovation has been utilized to address emergencies. Emerging technologies like (AI), Sun & Medaglia, (2019); blockchain Hao et al., (2020) and the Internet of Things (IoT) Yuan & Wang, (2020) are gaining traction in crisis situations, contributing to improving emergency response times, providing real-time data on critical situations, and facilitating more effective decision-making processes. The continuous advancement of technology ensures its ever-growing significance in emergency and crisis scenarios.

The COVID-19 pandemic exemplified the importance of innovation in responding to global crises. WHO, (2021). For instance, the development of drones for search and rescue operations or the utilization of data analytics to track and contain the spread of infectious diseases were pivotal. Innovations such as the creation of new vaccines, personal protective equipment, and telemedicine helped mitigate the impact of the pandemic and facilitated the adaptation to new ways of work and life. Additionally, numerous businesses and industries shifted their operations to address pandemic-related needs, such as producing hand sanitizers or manufacturing medical equipment. This highlights the significance of fostering a culture of innovation, where businesses and governments can respond quickly and effectively to emergencies and crises. EC, (2020).

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