

Examine ethical and social implications of emerging technologies in organisation general management – a review

Gibson Muridzi^{1,*}, Shepherd Dhliwayo²

¹ Business Management, University of Johannesburg, Johannesburg, South Africa, Orcid: 0000-0002-2362-8496

² Business Management, University of Johannesburg, Johannesburg, South Africa, Orcid: 0000-0001-7653-2466

Keywords

Artificial intelligence;
Automation;
Organisational
management; Corporate
digital responsibility.

Abstract

The purpose of this study is to examine and identify ethical and social challenges arising from the adoption and utilisation of emerging technologies such as artificial intelligence, automation, and big data analytics in organisational general management. The main objective of this study is to develop a framework for promoting ethical and social behaviour and responsible technology adoption in organisational management. Traditional literature review approach was therefore used for this study. A total of 58 articles were included in this review, and their findings were synthesized thematically. Major findings of this study were that privacy and security-related concerns to technologies are increasing with the widespread use of artificial intelligence. The contribution of this review is therefore to provide actionable insights which guides organisations seeking to navigate the complex landscape of emerging technologies while upholding ethical and socially responsible principles. Managerial practical implications of this study highlight the importance of corporate digital responsibility (CDR) practices which should be adopted by managers in managing organisations to address the ethical and social implications of emerging technologies

¹*Corresponding Author

* E-mail address: gmuridzi@uj.ac.za

² E-mail address: sdhliwayo@uj.ac.za

1. Introduction

1.1. Background

The purpose of this study is to examine and identify the ethical and social challenges arising from the adoption and utilisation of emerging technologies such as artificial intelligence (AI), automation, and big data analytics in organisational general management. Ethical technology, also known as responsible technology, is the practice of using technology with good intention to empower employees and businesses, and fairly impact customers and society. Responsible technology enables organisations to engender trust and scale technology with confidence (Eitel-Porter, 2021). Emerging technologies such as artificial intelligence, automation, and big data analytics, have become interwoven in various aspects of society, including in our practices for ethical deliberation and decision-making (Sleigh, Hubbs, Blasimme, & Vayena, 2024), is now considered as a game changer enabling improved business efficiency and effectiveness because of its high operational and strategic potential. Lobschat, Mueller, Eggers, Brandimarte, Diefenbach, Kroschke, and Wirtz (2021) affirms the importance of corporate digital responsibility in this digital era. This was supported by Rosenbaum, Walters, Edwards, and Gonzalez-Arcos (2022) who express that organisations should have an ethical and social responsibilities concerning their commercial digital technologies

Several large technology-based companies such as Google, Microsoft, and International Business Machines (IBM) have expressed their concerns about the possession of data. Emerging technology systems harm human rights and moral business ethics (Goodman & Flaxman, 2017; Bertino, Kundu, & Sura, 2019). Thus, technologies like blockchain and AI machines must adhere to sustainability and corporate social responsibility (CSR) principles to fulfil human beings' necessities for good living conditions (Upadhyay, Mukhuty, Kumar, & Kazancoglu, 2021).

The contribution of this review is therefore to provide actionable insights which guides organisations seeking to navigate the complex landscape of emerging technologies while upholding ethical and socially responsible principles as part of organisation general management. This study therefore offers a high-level framework of the emerging advantages for taking an ethical approach that promotes ethical, social behaviour and responsible technology adoption in organisational general management for emerging economies in developing and deploying new technologies.

1.2. Problem Statement

Despite its massive popularity, evidence from past studies has revealed the challenges that AI led thinking systems face. They result in genuine social uncertainties, chances of errors, biased algorithms and miscalculations, thereby leading to unanticipated and damaging effects on humanity (Yu et al., 2018; Bertino et al., 2019; Jobin et al., 2020) and organisations at large. Moreover, we still know very

little on the role of ethics and the social implications of emerging technologies in organisation management. The one sentence problem statement for this study is therefore;

Organisations face AI-based ethical issues related to privacy, security and integrity of systems by not complying with regulatory guidelines and environmental standards (Ferrell & Fraedrich, 2015; Trevino & Nelson, 2021).

1.3. Research objectives

The main objective of this study is to develop a framework for promoting ethical and social behavior and responsible technology adoption in organisational general management.

1.3.1. Sub-objective

The sub-objective of this review is to conduct a comprehensive literature review in identifying and cataloguing the specific ethical and social challenges posed by the adoption and use of emerging technologies in emerging economies.

The remainder of this review paper is structured as follows: Each topic of interest is presented individually in the following section. Literature review which provides some insights on the area of this study, methodology used, results, managerial and practical implications are discussed separately. The last section sums up the article by providing the conclusions, limitations and future research.

2. Literature Review

Around the world, a growing number of organisations are working on ethical AI principles and frameworks. These include academia-led programmes, such as The Institute for Ethical AI and Machine Learning, trade union-led schemes, such as UNI Global Union, and business-led initiatives, such as Microsoft's responsible AI guidelines (UNI Global Union, 2017). In the ever-evolving landscape of digital technologies, the market continues to witness the introduction of advanced and efficient digital products and services. This progress stems from integrating sensors, tags, and software into various objects, devices, machines, and buildings (Vo Thai, Hue, Chen, & Tran, 2023). There has been an ongoing debate on technology-related ethical concerns in the past few years, which challenges current norms and existing systems (Urquhart, 2019; Malkin, Deatrick, Tong, Wijesekera, Egelman, & Wagner, 2019; Webster & Ivanov, 2020).

Technology ethics is the set of guidelines that work as a "code of conduct" to think, solve, design, implement and run a technology system inclusively and ethically to handle given situations (McLaren, 2003; McGrath & Gupta, 2018; Rogerson, Miller, Winter, & Larson, 2019). It refers to the principles involved in addressing individual, interpersonal, community and societal concerns arising from the response of technology systems (Aradau & Blanke, 2018; Boddington, 2017). Ethics, broadly defined as "abstract and theoretical reflection on moral statements" that "asks for the grounds on which moral statements are made." (Stahl, 2021:641).

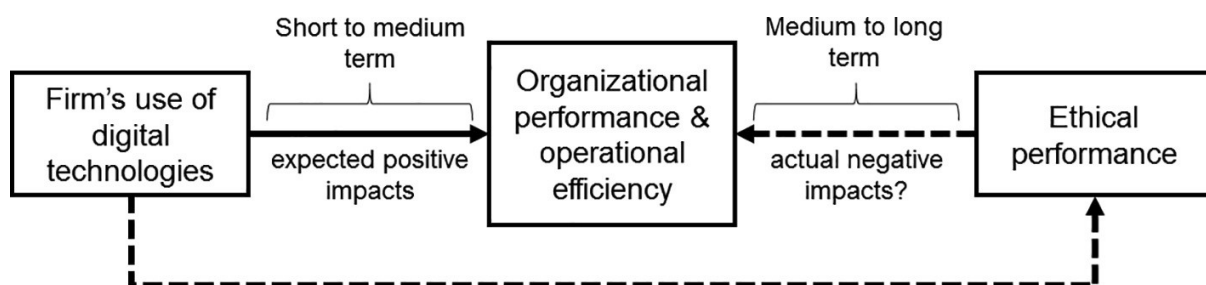
2.1. Conceptualising corporate digital responsibility (CDR)

Pelters (2021) defined CDR as the voluntary incorporation of social and environmental considerations into a company's digital strategy, going beyond legal compliance to promote ethical and sustainable practices that generate broader societal, environmental, and economic benefits. Drawing on these perspectives, this review focused on Pelters (2021) definition which emphasised on promotion of ethical and sustainable practices that generate broader societal, environmental, and economic benefits as this review have established that CDR entails considering the ethical implications of information technology, safeguarding data privacy and security, addressing algorithmic biases, promoting digital inclusivity, and mitigating the environmental footprint of digital operations (Vo Thai et al., 2023).

CDR which is a subset of corporate social responsibility (CSR) for business organisations and its potential for creating social entrepreneurship and supporting organizational resilience has not been examined empirically (Al-Omouh, Ribeiro-Navarrete, & McDowell, 2023). Mason (1986) aptly captures the essence of CDR by highlighting the moral imperative of using information technology to enhance human dignity. However, multiple competing definitions have surfaced in recent years, focusing on different aspects such as the involvement of artificial actors (Lobschat et al., 2021), the identification of distinct responsibility branches (Herden et al., 2021), and the integration of sustainability and digitalization (Mueller, 2022). According to the literature, no prior research focuses on the impact made by implementing digital CSR initiatives on competitive intelligence. Furthermore, the literature on social entrepreneurship lacks empirical investigation of its relationships with competitive intelligence and organizational resilience during unprecedented crises in the context of digital CSR (Al-Omouh, Ribeiro-Navarrete, & McDowell, 2023).

2.2. Contribution of ethics to long term organizational performance

This review considers ethics as particularly relevant because they can contribute to the design as well as use of digital technologies to ensure that the achievement of short-term goals does not compromise a firm's ability to sustain their performance over time, as illustrated in Figure 1. Below



Note: Solid arrows represent the current focus of DT literature. Dashed arrows are unexplored aspects of DT.

Figure 1: Contribution of ethics to long-term organisation performance

Source: (Vial, 2019).

2.3. Theoretical underpinning

Corporate social responsibility is a critical strategic issue for organisations to gain societal legitimacy. It is described as the process of voluntarily integrating social and environmental issues in an organization's interaction with its stakeholders and in its business operations (Runhaar & Lafferty, 2009; Servaes et al., 2022). According to McWilliams & Siegel (2001), CSR is an organization's ethical and social obligations to its society beyond profits and revenues. It is a strategic business commitment to behave ethically and enhance the life of society and the workforce while contributing to economic development at large (Gromis diTrana et al., 2022), which had therefore triggered the need to examine the ethical and social implications of emerging technologies in organisation management and come up with a framework for promoting ethical and social behavior and responsible technology adoption in organisational management.

Digital CSR has a broad spectrum of practices and applications, such as communicating information on the role of a firm in satisfying society's needs and expectations (Al-Omouh, Ribeiro-Navarrete, & McDowell, 2023). It also promotes social, ethical, and environmental initiatives and activities of firms more widely than any other tool of traditional CSR. Digital CSR practices cover various online behaviors such as launching online social and environmental activities, supporting voluntary online actions and sponsoring or participating in digital charitable and donation societal initiatives on social media platforms (Brooks et al., 2023).

Digital CSR offers firms a platform to communicate its values, code of ethics, social and environmental missions as well as traditional CSR-related practices and initiatives. Unlike traditional CSR, digital platforms have empowered businesses to form consumer-centric CSR agendas by allowing society members to contribute to these initiatives, which shifts the role of society members from receiver to co-creator (Vitellaro et al., 2021). Prior research emphasizes that social media platforms encourage members to collaborate, share, support and interact with CSR activities and initiatives of firms (De Crescenzo et al., 2022). Digital CSR tools provide multidirectional communication platforms, enabling firms to launch dialogue with their stakeholders that can be transformed into innovative ideas and practices. It can also enable firms to receive feedback about current and future trends of society members in different issues (Khattak & Yousaf, 2021).

Despite its massive popularity, evidence from past studies has revealed the challenges that emerging technologies face. They result in genuine social uncertainties, chances of errors, biased algorithms, and miscalculations, thereby leading to unanticipated and damaging effects on humanity (Yu, Shen, Miao, Leung, Lesser, & Yang, 2018; Bertino et al., 2019; Jobin et al., 2020). Organisations face the challenge of ensuring responsible and ethical utilization of data and digital technologies in the rapidly evolving digital landscape (Vo Thai et al., 2023). Digital responsibility focuses on establishing ethical and responsible practices surrounding developing, deploying, and using digital technologies and data (Al-Omouh, Ribeiro-Navarrete, & McDowell, 2023). It offers a comprehensive approach

that extends beyond isolated concerns such as data privacy or access, aiming to holistically address the responsibilities that arise within the digital context (Vo Thai et al., 2023). There are currently no regulations governing the functioning of AI and ensuring that it does not violate ethical rules (Dignum, 2018; Hooker & Kim Tae, 2019; Pwc, 2018).

There is no standardized framework to guide organisations in terms of ethical computing (Smuts & Weilbach, 2023). Hence, the purpose of this paper is to examine ethical and social implications of emerging technologies in organisational management with the objective of 1) conducting a comprehensive literature review in identifying and cataloging the specific ethical and social challenges posed by the adoption and use of emerging technologies in emerging economies, and 2) developing a framework for promoting ethical and social behavior and responsible technology adoption in organisational management.

3. Research Methodology

In this paper, a traditional review was used to identify the most relevant scientific contributions; the related contents are presented and discussed here in a descriptive way. This review allowed the researchers to observe the presence of patterns in the scientific literature, to identify the journals that have published most of the papers on the subject and to observe how the publications have evolved over time (Prasad & Tata, 2005). In order to gain a more in-depth understanding of the literature pertaining to ethical and social implications of emerging technologies in organisation management, a content analysis was also performed; a process that included the complete reading of selected articles, as well as the detection of definitions and other relevant information (Ramos-Rodríguez & Ruíz-Navarro, 2004).

3.1. Database and inclusion criteria

It is important to acknowledge that two steps were taken in conducting a literature review: to set the inclusion criteria and to identify the strategy for selecting potential sources. The documents used to obtain the sample was from Scopus database, which is a comprehensive scientific, technical, and social science database containing all relevant scientific literature, and one that offers a comprehensive suite of dimensions which informs this review. The number of articles yielded by the search was 310, during the period 2002 to 2024. The screening process used a systematic literature review. A total of 58 articles were included in this review, and their findings were synthesized thematically based on unintended ethical consequences with emerging technologies. The identified themes gave birth to a framework for promoting ethical and social behaviour and responsible technology adoption in organisational general management as illustrated in Figure 3. The adopted strategy to search and select the articles included in the review required the definition of specific queries to be inserted into the Scopus database. The following queries were entered: TITLE-ABS-KEY (ethic* AND "digital technologies"). The search string was restricted to title, abstract and

keywords which involves identifying, evaluating, and interpreting all available research relevant to research question for this review.

4. Results and Findings

Figure 2 below illustrates a notable increase in research focused on ethics and digital technologies from 2018 onwards. This surge may have been catalysed by the COVID-19 pandemic, prompting organisations to use emerging technologies in managing their organisations which subsequently had some ethical and social implications.

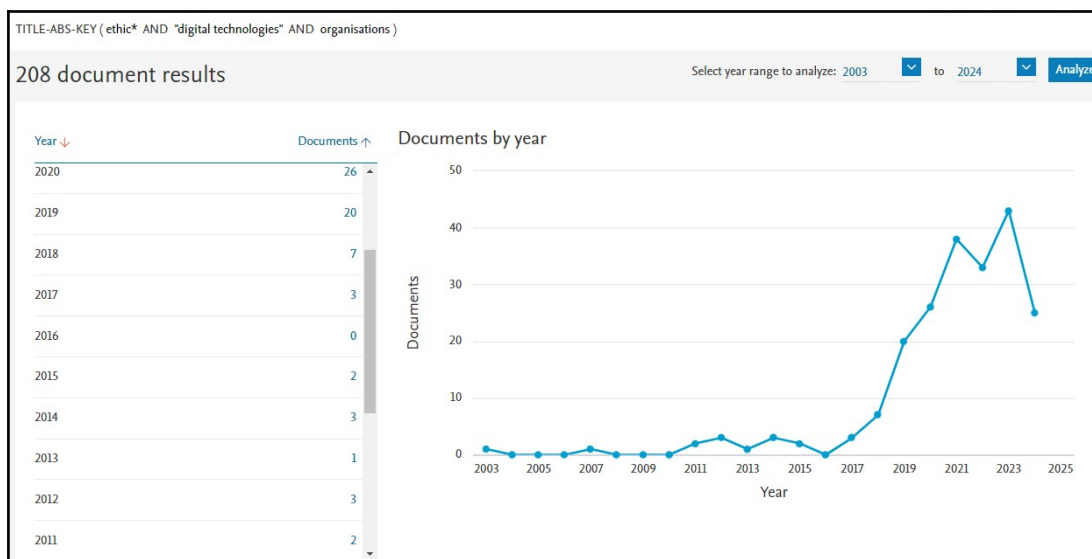


Figure 2: Search results

Source: Own Compilation

Figure 3 below shows the search results by subject area which demonstrates that more research on the topic is dominated by subject area of medicine and Social work, followed by Business, Management and Accounting and Computer Science. Medical area is the one which is mostly affected by ethical issues when it comes to the use of technologies with regards to confidentiality, data protection, bias as they frequently make use of emerging technologies (Ayinde, Wibowo, Ravuri, & Emdad, 2023).

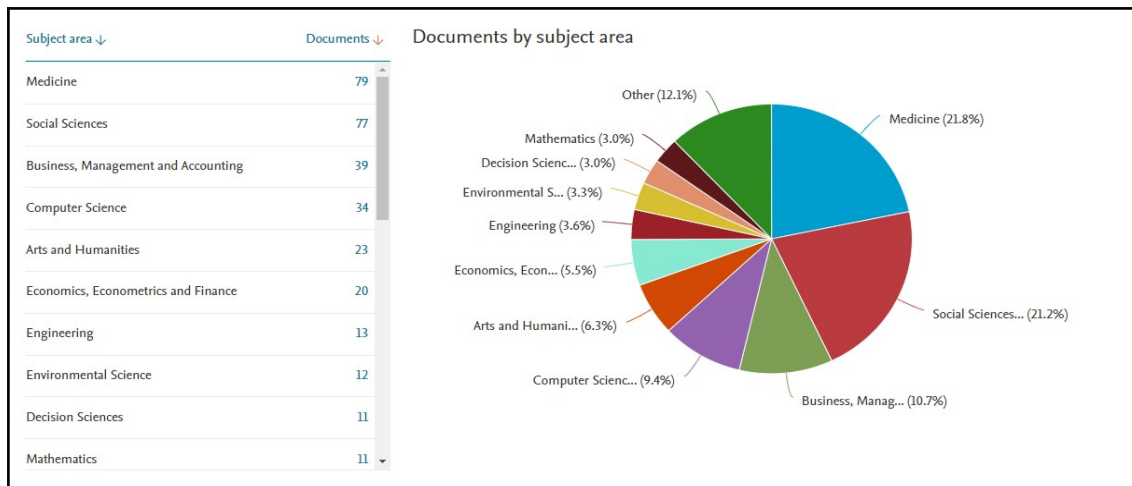


Figure 3: Search results by subject area

Source: Own Compilation

Sensitive fields such as healthcare and business need to keep their data in a protected manner. Privacy and security-related concerns related to AI are increasing with the widespread use of AI. Privacy-related issues are occurring due to the increasing use of data without consent or approval of the leading to privacy catastrophe (Ayinde et al., 2023). Similarly, the security of technologies such as AI is required to be pursued due to the large volume of technology use among users. Users' personalized data needs to be protected. The study also established that the cloud-based machine learning (Jamal & Wimmer, 2023) and federated learning approach (Ovi et al., 2022) created a secure environment for technologies such as AI.

4.1. Unintended ethical consequences with emerging technologies

This review established that ethical AI is part of a wider responsible business agenda, whereby organisations are increasingly prioritizing good governance and a respect for the societal and environmental concerns of customers (Eitel-Porter, 2021). The study also asserts that some challenges faced by most businesses is around limiting those consequences of AI that are unintentionally negative. Broadly speaking, unintended consequences arise when technologies such as AI is deployed without sufficiently robust governance and compliance efforts (Eitel-Porter, 2021). They fall into three categories.

4.1.1. Compliance and governance

This study found out that there is the risk of breaching regulations around, for example, employment, data privacy, financial services and health and safety. In an emerging technologies setting, several data harms threaten the informational privacy of users (Ballantyne, 2020): unauthorized actors may access personal data and use them for various, often mischievous purposes. Such a privacy breach may have serious consequences for an individual since personal data has to be considered as highly sensitive. It could be used to associate an individual with certain groups and sort them into risk

categories, which may lead to social disadvantages like stigmatisation or marginalisation (Eitel-Porter, 2021). For instance, biases in training data can cause recruitment apps to favour one gender over another, which breaches anti-discrimination laws. For this very reason and according to Reuters, Amazon's machine learning team halted the development of its talent evaluation app in 2015, having been trained mostly on data derived from the professional resumes of men, the algorithm taught itself to favour male job applicants over female (Marr, 2020). This risk therefore has some ethical and social implications in technology management as organisations will end up hiring wrong employee especially where there are limited resources, technologies and expertise on handling compliance and governance issues.

4.1.2. Brand damage

This review established that there is the risk of breaching social norms and taboos. This risk comes if technology such as AI threatens to cause outrage or offence, it can damage the reputation of the company that launched it. One example is Microsoft's Tay chatbot, which was programmed to learn from conversations with Twitter users. Some of these users quickly began to use and feed inflammatory and racist language, which was learnt and repeated by the chatbot, and Microsoft shut it down the next day (Hunt, 2020).

4.1.3. Third-party transparency

The study determined that there is a risk stemming from unexplainable, black box AI tools from third-party providers. At Accenture, this review has seen a case where AI used third-party algorithms as black boxes with no detailed understanding of how they work (Ayinde et al., 2023). Usually, AI is considered a 'black box' where the explanation of the algorithm is not described properly. Different approaches such as SHAP, LIME, and attention-based methods provide an ad-hoc, intrinsic, and longitudinal explanation for different AI models with proper feature importance (Ayinde et al., 2023). Independent review has subsequently revealed biases that could have caused brand and compliance issues for this (Ayinde et al., 2023) which has caused some ethical and social implications in AI management.

4.1.4. Biases and ethical concerns

This paper established that transparency, bias, and discrimination are some of the challenges that emerge when developing technologies such as AI systems (Alsheibani, Cheung, Messom, & Alhosni, 2020; Baier, Jöhren & Seebacher, 2019). AI is data-driven, thus it can lead to potentially biased and discriminatory outcomes if the underlying data set is imbalanced or discriminatory (Baier et al., 2019). It can also replicate the biases and preconceptions of the system designer. In fact, there have been several reports on prominent companies such as Apple and Amazon, on misuse of AI which resulted in discrimination and bias (Dastin, 2018; Vigdor, 2019). This review further found that AI systems should not support bias and promote inclusive representation in executing digital operating processes (Aradau & Blanke, 2018).

In addition, this review found that emerging technologies has the potential to reduce the amount of human labor needed for mundane tasks and even create content that is indistinguishable from content created by humans. It can also be used to create unbiased automated decision-making systems, enabling organisations to make more informed decisions without relying solely on human bias (Ayinde et al., 2023). On the other hand, this study found that bias happens due to demographic disparity in population, age, and socioeconomic status. Recent research provides different approaches to mitigate data and algorithm-related biases and ways to create fair AI (Ayinde et al., 2023).

This study also found that ethical challenges are divided into three stages in organisations: product, consumer, and society. Ethical and fair AI is necessary at a product-based level. Ensuring privacy and security is significant at the consumer-based level. Autonomy and beneficence are highly relevant at the society-based level (Du & Xie, 2021). It is therefore crucial for organisations to consider ethical concerns about data privacy, transparency, and accountability (Ayinde et al., 2023). The ethical sense of “accountability” (as an answer to the question: “who is responsible for the way it works?” (Floridi, Cows, Beltrametti, Chatila, Chazerand, Dignum, Luetge, Madelin, Pagallo, Rossi, Schafer, Valcke, & Vayena, 2018). This review determined that organisations should exercise caution in using technologies such as ChatGPT and ensure that measures are in place to monitor and mitigate potential biases or ethical concerns (Ayinde et al., 2023). On the other side, as AI systems are objective, they can reduce human bias in processes, such as recruitment and customer segmentation (Afiouni, 2019; Toniolo, Masiero, Massaro, & Bagnoli, 2020). Also, employees’ safety and working conditions can be enhanced with the introduction of AI (Enholm, Papagiannidis, Mikalef, & Krogstie, 2022). Additionally, organisations should be transparent about using technologies such as ChatGPT and provide users with clear information about how the data has been used (Ayinde et al., 2023).

4.1.5. Privacy and security

This study established those emerging technologies generates some crucial ethical challenges. How can we protect an individual’s right to informational privacy while at the same time generating benefits of (Racine, 2021) emerging technologies. This review found out that privacy and security-related concerns related to technologies are increasing with the widespread use of AI. Privacy-related issues are occurring due to the increasing use of data without consent or approval of the institutions leading to privacy catastrophe (Ayinde et al., 2023). Moreover, ethical issues exist in relation to data and the technological such AI arena for data control, privacy, integrity, ownership, training, usage, identity theft, archives, personal data secrecy, etc. (Malkin et al., 2019; Aradau & Blanke, 2018; Fuchs, 2011).

Thus, technologies like blockchain and AI machines must therefore adhere to sustainability and corporate social responsibility (CSR) principles to fulfil human beings’ necessities for good living conditions (Upadhyay et al., 2021), organisations face technological challenges such as AI-based ethical issues related to privacy, security, and integrity of systems by not complying with regulatory

guidelines and environmental standards (Ferrell & Fraedrich, 2015; Trevino & Nelson, 2021). Concerns have also been raised about the reliability and safety of systems (Siau & Wang, 2020). This review found out that organisations governed by AI machines must be more fair, explainable, and inclusive and must therefore follow business ethics (Hleg, 2019). AI business ethics influence organisation's business model (moral reasoning, human rights and code of conduct), customer experience (perceived value, privacy and security and integrity) and operational processes (fairness, inclusivity and governance) (Frey & Osborne, 2013).

5. Managerial Implications

This study also provides useful insights for practitioners and managers. Corporate digital responsibility represents a strategic practice that can generate beneficial effects in relationships with stakeholders. By prioritizing ethical and responsible practices in digital technologies through the proposed framework and data management, organisations can position themselves as responsible leaders, enhance their competitive edge, and contribute to a sustainable and inclusive digital future (Vo Thai et al., 2023). Collaborative efforts are therefore required to create comprehensive policies and framework that consider diverse perspectives and address the complex ethical, legal, and social implications associated with these emerging technologies (Ayinde et al., 2023). Driving technology ethics in an organisation through managers or leaders requires thorough engagement efforts. Considering the complexities associated with jobs, it becomes challenging for today's managers to manage and design ethics programmes. In the desired technology ethics programme, managers need to establish the right mix of rational, humanistic, and mechatronic ways.

One crucial ethical implication of emergence technology is the level of data security and privacy protection it provides organisations and personal data is encrypted and shared within a network of known users where each data access and transfer can be traced. The immutability of data blocks prevents nefarious actions like tampering with the data or data theft. Hence, tools such as blockchain technology is an ideal tool to prevent privacy breach (Eitel-Porter, 2021). Data security, privacy protection, and empowerment might also increase trustability, which is an essential requirement for participation in business transactions.

5.1. Recommendations

Organisations governed by technologies such as AI machines must be more fair, explainable, and inclusive and must follow business ethics (Hleg, 2019). Technology business ethics influence organisation's business model (moral reasoning, human rights and code of conduct), customer experience (perceived value, privacy and security and integrity) and operational processes (fairness, inclusivity and governance) (Frey & Osborne, 2013), therefore organisations should develop technology business ethics policies which should guide them when implementing technology driven

systems in their organisations. The constituents of technology ethics led the system to require a well-established framework backed by literature and ethical models (Ayinde et al., 2023). Proposed ethical frameworks to mitigate ethical concerns for this review is following European Commission (EC) ethics guidelines which build trustworthy technology based on six key requirements: robustness and safety, privacy and data governance, transparency, fairness, beneficence, and accountability (Prem, 2023). Foundational element for implementing responsible AI within organisations is to put in place a framework which promotes ethical digital technologies.

Figure 4 below demonstrates that for emerging digital technologies such as AI technologies, automation, big data analytics and other technologies to have a positive outcome of ethical and social implications of enhanced communication and connectivity, improved access to information and services and economic opportunities and innovation, organisations should take cognisance of the six key requirements of robustness and safety, privacy and data governance, transparency, fairness, beneficence, and accountability as advocated by the European Commission (EC). All these six key requirements should be governed by some legislative frameworks such Data Protection Act for a particular country. If these six pillars are followed properly organisations can be able to promote digital corporate social responsibility.

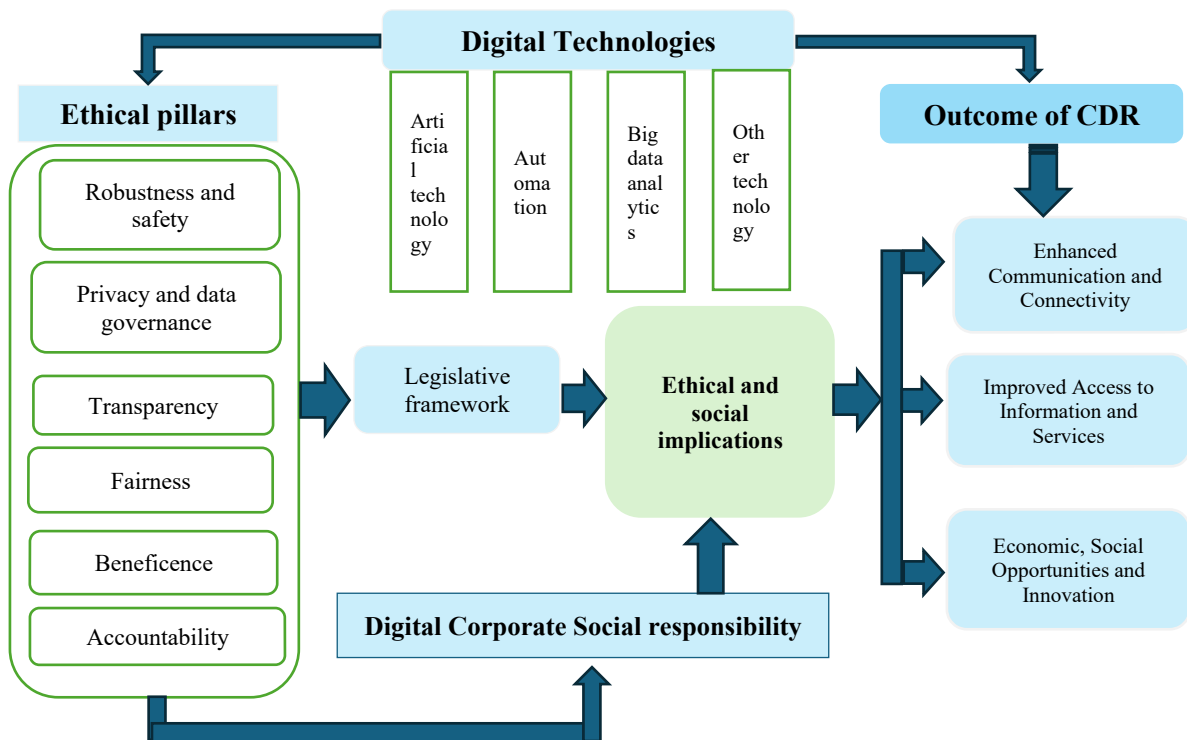


Figure 4: Framework for promoting ethical and social behavior and responsible technology adoption in organisational general management

Source: Own Compilation

6. Conclusions, Limitations and Future Research

The research found that to scale digital technologies effectively, organisations need to have a clear AI strategy, diverse teams and ethical frameworks which is built into their AI, among other things (Eitel-Porter, 2021). Principles for responsible AI are an important starting point but will only deliver what organisations need if they are combined with governance practices that help to shepherd various technologies such as AI application from proof of concept to delivery at scale. This means developing ethical and technical frameworks like the one being proposed in this review can be unambiguously represented in software. This proposed framework therefore need to be rigorously tested and measured continuously to ensure the system remains ethical and effective throughout its lifecycle.

Our work has few limitations associated with the current study. Firstly, our research is based on traditional review in identifying the most relevant scientific contributions. Although care was taken to ensure that the review process was performed with rigor and systematicity, the analysis was performed by two researchers. To help overcome this limitation, we involved other academics who assisted in ensuring the validity of our findings. Secondly, our review was restricted to google scholar database which can limit the generalizability of our findings. In addition, our sample size of literature on the topic was not adequately sufficient and future research could increase the sample size and different results could be obtained.

Future research should empirically test the proposed framework to ensure the system remains ethical and effective throughout its lifecycle. Future research should also be done on similar study using different methodology beside the traditional literature review. Other key area for future research is to research on the role of ethics to account for the multilevel implications of digital transformation. Further research can also be done on the growing need for firms to balance the tension between organisational performance and ethics.

7. Acknowledgments

The authors received no financial support for the research, authorship, and/or publication of this article.

References

- Afiouni, R. (2019). Organisational learning in the rise of machine learning. International Conference on Information Systems, Munich, Germany.
- Al-Omoush, K., Ribeiro-Navarrete, B., & McDowell, W. C. (2023). The impact of digital corporate social responsibility on social entrepreneurship and organisational resilience. *Management Decision*, ahead-of-print. <https://doi.org/10.1108/MD-11:2022-1613>.

- Alsheibani, S., Cheung, Y., Messom, C., & Alhosni, M. (2020). Winning AI strategy: six-steps to create value from artificial intelligence. Americas Conference on Information Systems, Online.
- Aradau, C., & Blanke, T. (2018). Governing others: Anomaly and the algorithmic subject of security. *European Journal of International Security*, 3(1), 1-21.
- Ayinde, L., Wibowo, M. P., Ravuri, B., & Emdad, F. Bin. (2023). ChatGPT as an important tool in organisational management: A review of the literature. *Business Information Review*, 40(3), 137-149. <https://doi.org/10.1177/02663821231187991>.
- Baier, L., Jöhren, F., & Seebacher, S. (2019). Challenges in the deployment and operation of machine learning in practice. In Proceedings of the 27th European Conference on Information Systems (ECIS), Stockholm, Sweden.
- Ballantyne, A. (2020). How should we think about clinical data ownership? *J Med Ethics* 46, 289–294
- Bertino, E., Kundu, A., & Sura, Z. (2019). Data transparency with blockchain and AI ethics. *Journal of Data and Information Quality (Quality)*, 11(4), 1-8.
- Boddington, P. (2017). *Towards a Code of Ethics for Artificial Intelligence*, Springer. Cham: 27-37.
- Brooks, S., Sahaym, A., Datta, A., & Srivastava, S. (2023). Risky combination: the role of managerial perceptions of social media use and entrepreneurial orientation on SME innovation. *Management Decision*, 61(1), 33-56.
- Burton, E., Goldsmith, J., Koenig, S., Kuipers, B., Mattei, N., & Walsh, T. (2017). Ethical considerations in artificial intelligence courses. *AI Magazine*, 38 (2), 22-34.
- Dastin, J. (2018). Amazon scraps secret AI recruiting tool that showed bias against women. Reuters. Retrieved 15/06 from <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-againstwomen-idUSKCN1MK08G>, Accessed: 12 May, 2024.
- De Crescenzo, V., Monfort, A., Felicio, J.A., & Ribeiro-Navarrete, S. (2022). Communication and the role of third-party endorsement in social crowdfunding. *The Service Industries Journal*, 42 (9-10), 770-797.
- Dignum, V. (2018). Ethics in artificial intelligence: introduction to the special issue. *Ethics and Information Technology*, 20 (1),1-3, doi: 10.1007/s10676-018-9450-z.
- Du S., & Xie C. (2021). Paradoxes of artificial intelligence in consumer markets: ethical challenges and opportunities. *Journal of Business Research*, 129, 961-974.
- Eitel-Porter, R. (2021). Beyond the promise: implementing ethical AI. *AI and Ethics*, 1(1), 73-80. <https://doi.org/10.1007/s43681-020-00011-6>.

- Enholm, I. M., Papagiannidis, E., Mikalef, P., & Krogstie, J. (n.d.). Artificial Intelligence and Business Value: a Literature Review. <https://doi.org/10.1007/s10796-021-10186-w>/Published.
- Ferrell, O.C., & Fraedrich, J. (2015). *Business Ethics: ethical Decision Making and Cases*, Nelson Education, Toronto.
- Floridi, L., Cows, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Luetge, C., Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke, P., & Vayena, E. (2018). AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations. *Minds and Machines*, 28(4), 689-707. <https://doi.org/10.1007/s11023-018-9482-5>.
- Frey, C.B., & Osborne, M. (2013). *The Future of Employment: how Susceptible Are Jobs to Computerisation*, University of Oxford, Oxford.
- Fuchs, C. (2011). Towards an alternative concept of privacy. *Journal of Information, Communication and Ethics in Society*, 9(4), 220-237.
- Gerdes, A., & Øhrstrøm, P. (2015). Issues in robot ethics seen through the lens of amoral Turing test. *Journal of Information, Communication and Ethics in Society*, 13(2), 98-109.
- Goodman, B., & Flaxman, S. (2017). European union regulations on algorithmic decision-making and a right to explanation, *AI Magazine*, 38 (3), 50-57.
- Gromis di Trana, M., Fiandrino, S., & Yahiaoui, D. (2022). Stakeholder engagement, flexible proactiveness and democratic durability as CSR strategic postures to overcome periods of crisis. *Management Decision*, 60 (10), 2719-2742.
- Herden, C. J., Alliu, E., Cakici, A., Cormier, T., Deguelle, C., Gambhir, S., Griffiths, C., Gupta, S., Kamani, S. R., Kiratli, Y.-S., Kispataki, M., Lange, G., de Matos, L. M., Moreno, L. T., Nunez, H. A. B., Pilla, V., Raj, B., Roe, J., Skoda, M., & Kiratli, Y.-S. (2021). Corporate Digital Responsibility, New corporate responsibilities in the digital age. In *Sustainability Management Forumj Nachhaltigkeits Management Forum 29*, 13-29. Springer.
- Hleg, A.I. (2019). Ethics Guidelines for Trustworthy AI, B-1049 Brussels, available at: <https://42.cx/wpcontent/uploads/2020/04/AI-Definition-EU.pdf>, Accessed: 10 May, 2024.
- Hooker, J., & Kim Tae, W. (2019). Ethical implications of the fourth industrial revolution for business and society. *Business Ethics*, 3, 35-63.
- Hunt, E. (2020). Microsoft's AI chatbot, gets a crash course in racism from Twitter. <https://www.the-guardian.com/technology/2016/mar/24/tay-microsofts-ai-chatbot-gets-a-crash-course-in-racism-from-twitter> (2016), Accessed: 11 May, 2024.

- Jamal, S., & Wimmer, H. (2023). Performance analysis of machine learning algorithm on cloud platforms: AWS vs Azure vs GCP. In: Gibadullin A (ed), Information Technologies and Intelligent Decision Making Systems. Springer Nature Switzerland, 43–60. DOI: 10.1007/978-3-031-31353-0_5.
- Jobin, A., Ienca, M., & Vayena, E. (2020). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1(9), 389-399, doi: 10.1038/s42256-019-0088-2. S2CID 20182764.arXiv:1906.11668.
- Khattak, A., & Yousaf, Z. (2021). Digital social responsibility towards corporate social responsibility and strategic performance of Hi-Tech SMEs: customer engagement as a mediator. *Sustainability*, 14(1), 131.
- Lobschat, L., Mueller, B., Eggers, F., Brandimarte, L., Diefenbach, S., Kroschke, M., & Wirtz, J. (2021). Corporate digital responsibility. *Journal of Business Research*, 122, 875-888.
- Malkin, N., Deatrack, J., Tong, A., Wijesekera, P., Egelman, S., & Wagner, D. (2019). Privacy attitudes of smart speaker users, *Proceedings on Privacy Enhancing Technologies*, 2019 (4), 250-271.
- Marr, B. (2020). Is artificial intelligence dangerous? 6 AI risks everyone should know about. *Forbes*. <https://www.forbes.com/sites/bernardmarr/2018/11/19/is-artificial-intelligence-dangerous-6-ai-risks-everyone-should-know-about/#5920f7dc2404>(2018). Accessed: 12 May, 2024.
- Mason, R. O. (1986). Four ethical issues of the information age. *MIS Quarterly*, 10, 5-12.
- McGrath, J., & Gupta, A. (2018). Writing a moral code: algorithms for ethical reasoning by humans and machines. *Religions*, 9(8), 240-252.
- McLaren, B.M. (2003). Extensionally defining principles and cases in ethics: an AI model, *Artificial Intelligence*, 150 (1/2), 145-181.
- McWilliams, A., & Siegel, D. (2001). Profit maximizing corporate social responsibility. *Academy of Management Review*, 26(4), 504-505.
- Mueller, B. (2022). Corporate digital responsibility. *Business and Information Systems Engineering*, 64(5), 689-700.
- Ovi PR, Dey E., & Roy N (2022). Towards developing a data security aware federated training framework in multi-modal contested environments. *Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications IV* 12113: 189-198. DOI: 10.1117/12.2618904.

- Pelters, E. (2021). Corporate digital responsibility -Understanding and applying. In *Digitalization, digital transformation, and sustainability in the global economy: Risks and opportunities*, 71–84. Springer.
- Prasad, S., & Tata, J (2005). Publication patterns concerning the role of teams/groups in the information systems literature from 1990 to 1999. *Info Manag*; 42(8), 1137-1148.
- Prem, E. (2023). From ethical AI frameworks to tools: a review of approaches. *AI and Ethics*. DOI: 10.1007/s43681-023-00258-9.
- Pwc (2018). L'Intelligence artificielle: quelle place pour la morale?, Pwc, Transformation, Pwc, Transformation, available at: <https://www.pwc.fr/fr/decryptages/transformation/ia-quelle-placepour-la-morale.html> . Accessed: 24 May, 2024.
- Racine. V. (2021). Can blockchain solve the dilemma in the ethics of genomic biobanks? *Sci Eng Ethics*, 27(3), 35. <https://doi.org/10.1007/s11948-021-00311-y>.
- Ramos-Rodríguez AR., & Ruíz-Navarro J. (2004). Changes in the intellectual structure of strategic management research: a bibliometric study of the *Strategic Management Journal*, 1980-2000. *Strateg Manag J*, 25, 981–1004.
- Rogerson, S., Miller, K.W., Winter, J.S., & Larson, D. (2019). Information systems ethics—challenges and opportunities. *Journal of Information, Communication and Ethics in Society*, 17 (1), 87-97.
- Rosenbaum, M. S., Walters, G., Edwards, K. L., & Gonzalez-Arcos, C. F. (2022). Commentary: the unintended consequences of digital service technologies. In *Journal of Services Marketing* 6(2), 97–109. Emerald Group Holdings Ltd. <https://doi.org/10.1108/JSM-03-2021-0072>.
- Runhaar, H., & Lafferty, H. (2009). Governing corporate social responsibility: an assessment of the contribution of the UN Global Compact to CSR strategies in the telecommunications industry. *Journal of Business Ethics*, 84(4), 479-495.
- Servaes, M., Nguyen Thi Thu, H., Kluijtmans, T., & Crucke, S. (2022). Don't talk the talk, but walk the walk: the role of authentic CSR in fostering beneficial employee outcomes. *Management Decision*, 61(3), 569-588.
- Singh, H., & Dey, A.K. (2020). Listen to my story: contribution of patients to their healthcare through effective communication with doctors. *Health Services Management Research*, 34(3), 178-192.
- Sleigh, J., Hubbs, S., Blasimme, A., & Vayena, E. (2024). Can digital tools foster ethical deliberation? *Humanities and Social Sciences Communications*, 11(1). <https://doi.org/10.1057/s41599-024-02629-x>.
- Stahl, B.C. (2021). *Artificial Intelligence for a Better Future: An Ecosystem Perspective on the Ethics of AI and Emerging Digital Technologies*, Springer Nature.

- Smuts, H., & Weilbach, L. (2023). Key Principles of Ethics in Technology: An Organisational Technology Ethics Checklist. *Communications in Computer and Information Science*, 1878 CCIS: 241-257. https://doi.org/10.1007/978-3-031-39652-6_16.
- Toniolo, K., Masiero, E., Massaro, M., & Bagnoli, C. (2020). Sustainable business models and artificial intelligence: Opportunities and challenges. In: *In Knowledge, People, and Digital Transformation* 103-117, Springer.
- Trevino, L.K. (1986). Ethical decision making in s: a person-situation interactionist model. *The Academy of Management Review*, 11(3), 601-617.
- Trevino, L.K., & Nelson, K.A. (2021). *Managing Business Ethics: Straight Talk About How to do it Right*, John Wiley and Sons.
- Upadhyay, A., Mukhuty, S., Kumar, V., & Kazancoglu, Y. (2021). Blockchain technology and the circular economy: implications for sustainability and social responsibility. *Journal of Cleaner Production*, 293, 126130.
- Urquhart, L., Reedman-Flint, D., & Leesakul, N. (2019). Responsible domestic robotics: exploring ethical implications of robots in the home. *Journal of Information, Communication and Ethics in Society*, 17(2), 246-272.
- UNI Global Union. Top 10 principles for ethical artificial intelligence. https://www.thefuturework.org/media/35420/uni_ethical_ai.pdf (2017). Accessed 06 May 2024.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, 28, 118-144.
- Vigdor, N. (2019). Apple card investigated after gender discrimination complaints. *The New York Times*. Retrieved 10/05 from <https://www.nytimes.com/2019/11/10/business/Apple-credit-card-investigation.html>.
- Vitellaro, F., Satta, G., Parola, F., & Buratti, N. (2021). Social media and CSR communication in European ports: the case of Twitter at the Port of Rotterdam. *Maritime Business Review*, 7 (1), 2397-3757.
- Vo Thai, H. C., Hue, T. H. H., Chen, P. fen., & Tran, M. L. (2023). Unraveling the influence of human capital and stakeholder engagement on corporate digital responsibility: Implications for firm performance in Southeast Asia enterprises. *Corporate Social Responsibility and Environmental Management*. <https://doi.org/10.1002/csr.2662>.
- Webster, C., & Ivanov, S. (2020). *Robotics, artificial intelligence and the evolving nature of work, Digital Transformation in Business and Society*, Palgrave Macmillan, Cham: 127-143.

Yu, H., Shen, Z., Miao, C., Leung, C., Lesser, V.R., & Yang, Q. (2018). Building ethics into artificial intelligence, Proceedings of the 27th International Joint Conference on Artificial Intelligence (IJCAI'18): 5527-5533.