RESPONSIBLE TECHNOLOGY: THINKING ON THIS VITAL CONCEPT

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ABSTRACT

Responsible use of technology is increasingly a business and social carefulness, motivated by diverse economics and people's living issues. Deploying responsible technology has become critical as the technology presence is unprecedented in our society and business operations. There is a global agreement that business needs to consider technology responsibly. There are businesses in which responsible technology is a core part of their mission, and some businesses use technology responsibly in explicit financial terms, such as returns on investment, talent acquisition, or improving attractiveness to investors. Technology may bring substantial cultural shifts in organisations and society. Therefore, responsible technology use is not merely to comply with regulations or manage risks. This work is a reflection paper about using technology ethically and sustainably, considering the potential impacts on society and the environment.

KEYWORDS

Responsible Technology, Ethics, Social Justice, Business Sustainability

1. INTRODUCTION

Technology has become an integral part of people's lives. Several "smart things" exist, from smartphones to smart homes and cities. In addition, technological advancements in artificial intelligence and virtual reality have brought people closer and helped people's lives to become more straightforward and efficient. Responsible technology has become critical with all companies' increasing reliance on technology, not just tech companies. Currently, every company use some technology.

Responsible technology is the development and use of technology ethically and sustainably, prioritising the well-being of individuals and society. Moreover, it considers the consequences of technological advancements and that technology is accessible to all (Davis, 2014; Jirotka & Stahl, 2020; Ocone, 2020).

Ethical technology is another term that also refers to technology development. This term considers the well-being of individuals. Ethical technology focuses on the moral principles that should guide the development and use of technology; it is grounded in humanistic principles and values (Buckley et al., 2017; Kiran et al., 2015; Palm & Hansson, 2006).

Both terms, responsible technology and ethical technology, can be appropriate for technology development, depending on the context and the specific aspects of technology being discussed. For example, it may be more appropriate to use responsible technology when discussing the practical implications of technology. In contrast, ethical technology may be more appropriate when discussing moral and philosophical considerations.

This reflection paper uses responsible technology to address companies' approach to deploying and driving business strategy and operations responsibly, integrating technology into people's everyday lives. Our reflection considers the technology's impact on individuals, society, and the environment, dealing with challenges such as privacy, environmental sustainability, social inequalities, and ethical implications. This paper deals with responsible technology as a socio-technical system, considering the complex interactions between social and technical factors.

The paper is structured as follows: this section, introduction, briefly present the responsible technology concept. Section 2 presents technology in the business context; section 3 is about our reflection on responsible technology; section 4 summarises the key point of our reflection, emphasising their significance, and the references follow it.

2. TECHNOLOGY IN THE BUSINESS CONTEXT

Technology in the business context is changing fundamentally. A few decades ago, technology for business was limited to supporting business operations with information systems. It was easier in many ways to know whether systems were working as intended. Responsible use of technology was related to software systems functioning properly, and Information Technology was concerned with issues such as business requirements, compliance, security, and user experience. Ethical concerns were related to the code of ethics as one of the IEEE Computer Society (1999).

Nowadays, businesses are supported by technology on dimensions beyond companies' offices, offering technological products and services embedded in people's lives. Artificial intelligence, machine learning, blockchain, and digital reality are technologies that are integrating into our lives. Moreover, the business landscape is changing at an unprecedented speed, and technology has become essential for companies to remain competitive and achieve their goals. However, using technology in business raises several ethical and social concerns, including privacy, security, and sustainability.

As technology becomes fundamental to business, the concept of responsible technology becomes critical to business, as there are consequences of technology misuse. It is necessary to ensure that technology is designed, developed, and used to benefit society as a whole, minimising its negative impacts. Unfortunately, it is not always clear how to apply technology responsibly. For many years tech people believed technology could solve the world's problems (Huesemann & Huesemann, 2011); it was usual to say that there is no bad technology; what exists is the bad use of technology.

Technology may be a business's invisible enemy. Even in systems constructed with the best intentions, there are ways in which technology may present unwanted consequences, as happens with artificial intelligence bias (Centre for Data Ethics and Innovation, 2020).

Responsible technology in a business context involves considering the ethical, social, and environmental implications of technology use and ensuring that these considerations are integrated into the business strategy and operations, which includes developing technologies that are accessible, inclusive, and transparent, as well as ensuring that technology is used in a way that respects privacy, promotes security, and supports sustainability.

Adopting a responsible technology approach can bring significant benefits for businesses, including enhanced reputation, increased customer loyalty, and improved employee satisfaction. It can also contribute to achieving the United Nations Sustainable Development Goals (United Nations, 2019, 2023), which provide a framework for sustainable development and address some of the world's social and environmental challenges.

It is essential for businesses to engage in dialogue with stakeholders, including customers, employees, civil society organisations, and policymakers, to ensure that technology is used in a way that meets the needs and expectations of all relevant actors. This engagement requires a collaborative and interdisciplinary approach that combines expertise from different fields, including science, engineering, social sciences, and humanities. Responsible technology is a critical aspect of modern business. Companies must adopt a responsible technology approach to succeed in a rapidly changing and socially and environmentally conscious world.

3. RESPONSIBLE TECHNOLOGY

Despite technology becoming increasingly central to what companies do, it is not always clear how to approach and apply technology with responsibility. Business leaders must acknowledge that they are responsible for offering technology to their customers. The assumption that technology can solve the world's problems and that there is no bad technology is utopic.

One of the primary concerns with technology is its impact on privacy and security. As personal data are being stored and processed by companies, there is the risk of data breaches, cyber-attacks, and the mismanagement of personal information. In order to ensure responsible technology, it is necessary to have adequate privacy and security measures in place, as well as regulations and policies that hold companies accountable for protecting personal data.

Another aspect of responsible technology is accessibility. Although technology has made life easier for many, there is still a significant part of the population that is unable to access and use technology; age, income, or location are some of the barriers to making digital inclusion (Chadwick et al., 2022; Pérez-Escobar & Canet, 2022; United Nations, n.d.). Companies need to ensure that their technological products and services are accessible to everyone, regardless of their background or circumstances, which will help to develop a more egalitarian society, as less than thirty per cent of the population uses the Internet, according to a 2021 work, developed by International Telecommunication Union (ITU, 2023).

Additionally, responsible technology also involves considering the environmental impact of technology (Cardinali & De Giovanni, 2022). There is a significant environmental impact, from the production of electronics to the disposal of outdated technology. Therefore, companies are responsible for reducing their carbon footprint, using sustainable materials in their products, and implementing environmentally friendly practices throughout their operations.

Responsible technology considerations must be present in business strategies and decisions, as financial considerations are present when companies make decisions about technology adoption. However, responsible technology investments are not tangible; their effect on business relates to brand reputation, customer and employee retention, and prevention of unintended negative consequences and associated brand risk.

Several responsible technology practices need to be focused on and prioritised, such as security, data privacy, inclusive design, data privacy, environmental impact, elimination of bias, and workforce diversification. Understanding the broader societal context of technology is becoming ever more critical as technology advances show no signs of slowing. Considering the complex problems involving people and society impacted by technology is necessary. Furthermore, business responsibility is as important as the technology used or developed by business demand. Businesses need to ask questions beyond the features of their products or services and understand that adoption of technology has consequences on their customers, society and even their ability to attract and retain future talent.

The business imperative of revenue as their measure of success needs to change. Currently, it is no longer possible for the business imperative to deploy technology in a not responsible way, focusing on revenue. Instead, companies need to measure value in other ways.

4. CONCLUSION

Technology has become necessary to people's lives and has changed how we live, work, and communicate. Therefore, business use of technology must go beyond the problem solutions. It is necessary to offer solutions with responsibility, ensuring that tech products and services are developed and used ethically and responsibly.

Getting something wrong, or even when there is a bad intention in using technology, is difficult to define. Likewise, some responsibilities are difficult to define, especially when it is necessary to define what is wrong. It is essential to understand that technology is not neutral and can have unintended consequences if not developed and used responsibly. For example, the rise of social media has led to increased cyberbullying, mental health issues, and misinformation.

Businesses must be aware that regulation of responsible technology is more than the existing laws, such as GDPR. On the other hand, there is a world movement about tech-responsible regulation, which also is a problem, as this scenario may be unstable. Moreover, it demands a consensus among the governments, which takes time and brings instability. Nevertheless, as a positive aspect, all this movement about regulation motivates the adoption of responsible tech practices until the industry develops accurate guidance.

In conclusion, responsible technology is an approach that acknowledges the challenges posed by technology and seeks to address them in a way that benefits individuals, society, and the environment. It involves being transparent about data collection and usage, promoting environmental sustainability, addressing social inequalities, and considering ethical implications. By adopting responsible technology practices, we can ensure that technology continues to enhance our lives in a safe, fair, and sustainable way.

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REFERENCES

Buckley, J. A., Thompson, P. B. & Whyte, K. P. (2017). Collingridge's dilemma and the early ethical assessment of emerging technology: The case of nanotechnology enabled biosensors. *Technology in Society*, 48, 54-63. https://doi.org/10.1016/j.techsoc.2016.12.003

Cardinali, P. G., & De Giovanni, P. (2022). Responsible digitalization through digital technologies and green practices. *Corporate Social Responsibility and Environmental Management*, *29*(4), 984-995. https://doi.org/10.1002/csr.2249

Centre for Data Ethics and Innovation (2020). *Review into bias in algorithmic decision-making*. Retrieved March, 21, 2023, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957259/Review_into_bias_in_algorithmic_decision-making.pdf

Chadwick, D., Ågren, K. A., Caton, S., Chiner, E., Danker, J., Gómez-Puerta, M., ... & Wallén, E. F. (2022). Digital inclusion and participation of people with intellectual disabilities during COVID-19: A rapid review and international bricolage. *Journal of Policy and Practice in Intellectual Disabilities*, *19*(3), 242-256. https://doi.org/10.1111/jppi.12410

Davis, S. (2014). Responsible Technology. *The Serials Librarian*, 67:1, 12-20. http://dx.doi.org/10.1080/0361526X.2014.915607

Huesemann, M., & Huesemann, J. (2011). *Techno-Fix: Why Technology Won't Save Us or the Environment*. New Society Publishers. ISBN: 9780865717046

IEEE Computer Society (1999). *Code of Ethics*. https://www.computer.org/education/code-of-ethics

ITU. (2023). International Telecommunication Union, *Measuring digital development: Facts and figures.* Retrieved March 21, 2023, from: http://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx

Jirotka, M. and Stahl B.C. (2020). The need for responsible technology. *Journal of Responsible Technology*, vol. 1, oct., 10002. http://dx.doi.org/10.1016/j.jrt.2020.100002

Kiran, A. H., Oudshoorn, N. & Verbeek, P. (2015). Beyond checklists: toward an ethical-constructive technology assessment. *Journal of Responsible Innovation*, 2:1, 5-19. http://dx.doi.org/10.1080/23299460.2014.992769

Ocone, R. (2020). Ethics in engineering and the role of responsible technology. *Energy and AI*, vol. 2, Nov., 10019. http://dx.doi.org/10.1016/j.egyai.2020.100019

Palm, E. & Hansson, S. O. (2006). The case for ethical technology assessment (eTA). *Technological Forecasting and Social Change*, 73:5, 543-558. https://doi.org/10.1016/j.techfore.2005.06.002

Pérez-Escolar, M. & Canet, F. (2022). Research on vulnerable people and digital inclusion: toward a consolidated taxonomical framework. *Universal Access in the Information Society*. https://doi.org/10.1007/s10209-022-00867-x

United Nations (2019). Independent Group of Scientists appointed by the Secretary-General (2019). *Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development*. https://sdgs.un.org/sites/default/files/2020-07/24797GSDR_report_2019.pdf

United Nations (n.d.). Round Table on Digital Inclusion. Retrieved March, 21, 2023, from: https://www.un.org/techenvoy/sites/www.un.org.techenvoy/files/general/Definition_Digital-Inclusion.pdf

United Nations (2023.). *The 17 goals.* Retrieved March 21, 2023, from: https://sdgs.un.org/goals