The need for responsible technology

Human beings are sometimes described as tool-using animals. Homo faber, the tool-maker, uses tools to shape the human environment and thereby the way humans live. The interplay between humans and tools and technology is so close that entire civilizations are characterised by them (Arendt, 1958). Tools and technologies are not objective, neutral and external facts for humans, but they shape our outlook on the world, our capability to act, the very nature of our society (Weizenbaum, 1977). Technology forms a part of who and what we are as humans; it shapes the "human essence" (Ellul, 1973). This is a way of thinking about humans that is highly pertinent today when we live in an environment that is visibly steeped in a plethora of technologies that dominate all aspects of our lives.

It raises the question how we think about technology, how we shape it and how we use it. The ancient Greek philosophers suggested that humans seek happiness and that the point of ethics and virtue is to promote human flourishing and happiness (Annas, 1993). If we follow this thought, it leads to the question how technology can promote human flourishing (Bynum, 2006). The Journal of Responsible Technology seeks to make a contribution to the discussion of this question.

We do not presume a particular ethical, social or political position as a starting point, but we realise that ethical, social and political positions can have important contributions to make. The concept of responsible technology does not imply that technology can be responsible *per se*, even though it is an interesting question whether and under which conditions technology such as artificial general intelligence might ever be able to be responsible, to count as the subject of responsibility. While interesting, this is currently a marginal question, not least because existing technology is nowhere near having the capabilities that would be required.

More interesting from a practical perspective are questions around how technologies can be conceptualised, designed, deployed or used in ways that are conducive or detrimental to human happiness. These are questions that have been front page material for years. Edward Snowden's revelations of large-scale state surveillance of personal data may count as the biggest watershed in recent years. But there are many other examples. Facebook and Cambridge Analytica showed that social media data can be used for unintended purposes with significant impact on political processes. The discussion of big data, artificial intelligence (AI) and their ethical components has inspired far-reaching policy developments and led to the creation of numerous bodies, groups and institutions. We are writing this during the Covid-19 pandemic, where the use of technology for tracking and tracing infected individuals has led to high-level interventions and the UK government has just withdrawn its own technology in favour of solutions developed by large internet companies, a decision that is sure to be contested.

These highly visible examples of the interaction between humans and technology are worthy of deeper investigation. The Journal of Responsible Technology is interested in unpacking and understanding these phenomena in more detail. Which roles do human beings, technologies and maybe other actors, such as social institutions or the environment have in shaping socio-technical realities and which consequences arise from this? We have previously suggested that responsibility can be thought of as a network of closely intertwined relationships of existing, novel and emerging responsibilities (Timmermans, Yaghmaei, Stahl & Brem, 2017). This may be a good starting point to think about the subject matter. How and where do technologies and humans interact in shaping moral obligations, social conventions or shared views of reality? How can we answer such questions and how can we evaluate the answers?

These are the types of questions we invite authors of the journal to consider. We are open to all types of contributions that promise new insights, be they conceptual or empirical. The scope of the questions to be asked continues to rise in parallel with the technologies that are being developed. Digital technologies continue to develop quickly and understanding their capabilities and assessing possible consequences of these capabilities is a demanding task. Digital technologies are characterised by their 'logical malleability' (Moor, 1985) which means that their eventual uses are even more difficult to predict than is usually the case for new technologies. The current discussion of AI can serve as a good example, where new techniques, such as machine learning-based facial recognition, has innumerable potential applications ranging from universally welcome support for disabled persons to highly contested ones in commerce or warfare. Add to this the fact that the very nature of computing changes rapidly, for example through developments such as neuromorphic computing or quantum computing with consequences that are impossible to predict. Furthermore, digital technologies now pervade all aspects of science, innovation and technology developments and people sometimes speak of converging technologies, for example where neuro, bio, cognitive and digital technologies come together (van Est et al., 2014).

Overall this indicates that there will be plenty of scope for a new journal dedicated to these questions. The Journal of Responsible Technology is of course not the first journal in this space. Other journals with similar topic coverage include the Journal of Responsible Innovation, Ethics and Information Technology, Science and Engineering Ethics, Philosophy and Technology or the Journal of Information, Communication and Ethics in Society. We believe that the growing importance of the subject area and ever-increasing speed of innovation call for a rich and varied ecosystem in which to discuss these questions.

We hope that the Journal of Responsible Technology will be the place to publish truly interdisciplinary and even transdisciplinary insights into technology. We strongly encourage submission from authors including scientific and technical disciplines as well as from the reflective disciplines. We are open for novel work taking inspiration, methodologies and backgrounds from many roots, including computing, engineering, social science, philosophy, law and others interested in responsible technology. Due to the interdisciplinary nature of the topics, we hope that the journal will sit at the heart of an interdisciplinary community. This implies that papers should be understandable beyond the confines of narrow sub-specialities, which means that the language should be jargon-free and comprehensible. Concepts need to be spelled out and clearly described. We encourage authors to be explicit about how they have achieved their insights and not rely on implicit assumptions about what constitutes an acceptable academic methodology.

Very importantly, we are interested in practical insights. We agree with the old adage that there is nothing more practical than a good theory. However, that does not imply that every theory is practically relevant. We would be interested to understand how the practical relevance of a theory can be ascertained. We encourage research that looks at practical implications of technology in all areas of application. How can technologies be envisaged, how can they be developed, how are they used? Who or what drives particular agendas? Which trade-offs between different positions and interests shape what we observe? These are all questions that we would like to see discussed in the journal.

The Journal of Responsible Technology, while novel, does not start from scratch. It builds on the work that we have undertaken in the ORBIT project, the Observatory for Responsible Research and Innovation in ICT. This project, funded by the UK's Engineering and Physical Sciences Research Council, has the purpose of fostering a culture of responsible innovation across the ICT research and innovation community. We launched the ORBIT journal as a way of allowing members of this community to exchange ideas. ORBIT is now being put on a permanent footing as a non-profit company owned by the University of Oxford and De Montfort University. As part of this process, it was important for the journal to take the next step. In order for it to remain viable and sustainable, we needed a professional environment that can ensure quality and consistency of outputs. We are therefore delighted that we have managed to launch the journal with Elsevier which ensures that we can now work with a strong and established academic publisher.

One consequence of this move is that we move from a Platinum open access model where authors pay nothing at all to a Gold open access model, where we will ask authors to pay article publishing charges (APCs). We realise that this is contentious, in particular in the responsible innovation community, where open science is one of the European 'keys' or RRI. Our experience with the ORBIT journal has shown, however, that a small team with limited resources struggles in keeping up with the demands of a modern peer review system. We are therefore happy to work with a leading publisher as we find that overall the benefits of being able to draw on the resources now available outweigh the downsides. By using an open access model where authors pay APCs, which is supported by a system of waivers which notably includes researchers based in countries based eligible for the Research4Life program, we hope that our system is clear and open to those who are most disadvantaged.

We also realise that this forms part of a much larger societal discourse which intimately touches on how technologies can be used responsibly and the socio-economic context in which they are employed. We therefore welcome contributions that focus on these questions, including fairness, distribution and justice in the development, deployment and use of technology.

The responsible innovation discourse suggests that it is a sign of responsibility to anticipate, reflect, engage and respond (Stilgoe, Owen & Macnaghten, 2013). We see the Journal of Responsible Technology as a venue where all of these activities can be undertaken in the expectation that this can contribute to the flourishing of humans and their social and natural environment.

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