

# Recent Developments in Dutch and European Philosophy and Ethics of Technology

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In this brief text, I will sketch developments in the philosophy of technology in the Netherlands and in Europe since Paul Durbin published his extensive study on the state of the field (Durbin, 2006). I have witnessed many of these developments first-hand, as a faculty member at Delft University of Technology and the University of Twente, and as someone who has also been very active on the European scene. I will pay particular attention to developments in the ethics of technology, since this is the area in the philosophy of technology that has undergone the most rapid growth in these parts of the world since Durbin published his manuscript.

## The Netherlands 2006-2019

Since the late 1990s, the Netherlands has been the scene of what has been called the empirical turn in the philosophy of technology (Kroes and Meijers, 2000; Brey, 2010a). This is the turn away from abstract philosophizing about Technology and its implications for Society towards empirically informed philosophical analysis of concrete technologies and technological practices and their consequences. This empirical turn was in particular instantiated in three departments of philosophy, at the three predominantly technical universities in the Netherlands: Delft University of Technology (TU Delft), University of Twente and Eindhoven University of Technology (TU Eindhoven). All three departments started focusing exclusively on the philosophy of technology in their research in the late 1990s, a lucky congruence that was in part the result of a national requirement that came into being in the mid-1990s in the Netherlands that disciplinary and multidisciplinary research programs at universities should have a well-defined focus. All three universities, independently of each other, chose a focus on philosophy of technology.

Probably the first Dutch scholar to propose an empirical turn in the field was Prof. Peter Kroes, who joined TU Delft in 1995. I was there at the time, as a young assistant professor at his first job after his PhD, and I remember Kroes coming in as new full professor and proposing a research program in the field that would focus not so much on the consequences of technology, but on technology itself. How, he said, can we properly understand the consequences of technology if we do not understand technology itself? Philosophers of technology, he claimed, had neglected technology and engineering, and he proposed a research program in which these topics were made the topic of systematic philosophical reflection. He moreover proposed an “empirical turn”: we should not just study technology in an abstract way, but based on knowledge of actual developments in the field, with an eye for empirical detail. The department was incredibly small at the time: it consisted of Kroes, myself, and one other (Henk Zandvoort, who specialized in engineering ethics). Since then, however, the department has grown in size, now comprising more than 40 people, and including a large successful research program in the philosophy of technology that still has much attention for technology itself, but now also for its consequences, and still contains the orientation of the empirical turn. Current full professors are Jeroen van den Hoven, Sabine Roeser and Ibo van de Poel.

The University of Twente, at the time, was also developing a new research program with a focus on philosophy of technology. This was happening when I joined, in 1996. The then full professor and chair, Hans Achterhuis, was developing this new program at a time when the old program had just received a poor research evaluation, and he was looking for new ideas in a department that consisted of faculty in their late 50s and 60s, with me as the first new member in a long time. Achterhuis ended up also proposing an “empirical turn” in the field, albeit one that had some differences with Kroes’s turn (Achterhuis, 2001).<sup>1</sup>

The empirical turn at University of Twente had in common with the Delft empirical turn that it did philosophy in an empirically informed way, and avoided generic references to technology and its impact on society, to discuss specific technologies and specific practices and impacts. It differed from the Delft program by still having its primary focus on the consequences of technology, for human beings, society and the environment, and for having a somewhat more continental philosophical orientation, with social and political philosophy, philosophical anthropology and ethics as its core philosophical orientations, whereas the Delft program was more rooted in epistemology, ontology and philosophy of science. In the Twente program, as in the Delft program, there was a particular interest in engineering design, which in Delft was studied to understand the practice itself, and in Twente in order to better understand the consequences of technology for society.

TU Eindhoven also created a philosophy of technology program at the time, which ended up also instituting an empirical turn, which was inspired in part by the Delft program, where the professor and chair of the Eindhoven philosophy department, Anthonie Meyers, had had a part-time appointment. The Eindhoven program had, like the Delft program, a predominantly analytic orientation, with a focus on technology and engineering, and less so the social consequences of technology. The main differences between the Eindhoven and Delft programs were that the Eindhoven program had a stronger orientation on engineering knowledge, and the Delft program more on engineering design, and this program also had stronger roots in the philosophy of science.

When Durbin published his manuscript, in 2006, the empirical turn at the three department was still in its early stages, and the Dutch school in the philosophy of technology was still establishing itself. Now, in 2019, one could say that it has fully established itself, and its empirical turn has been carried out in full, and is still a defining characteristic of the Dutch approach. Since the 1990s, there have been many new generations of PhD students that have finished their degree within this paradigm, and who now have appointments throughout the Netherlands and in other parts of the world. The full professor torch has also been passed to new generations. Achterhuis retired in 2007 and was initially succeeded by me, and a couple of years also by Peter-Paul Verbeek, who became a second full professor in Twente. Kroes retired in 2016, and Meijers retired in 2019, and has Vincent Müller as his successor.

Since the late 1990s, there has been increasing convergence and collaboration between the three philosophy departments. This has been facilitated by the fact that there has been circulation between them. Besides myself moving from Delft to Twente, and Meijers having been appointed at Delft before becoming full professor in Eindhoven, Verbeek has also had a part-time appointment in Delft, and Ibo van de Poel had received his PhD from Twente before moving to Delft. More important, still, was the

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<sup>1</sup> Some of its inspiration came from me: Achterhuis had asked me for my ideas about the new research program, and I had said that I felt the philosophy of technology should be done in a more empirically informed way than it had been done until that time. Achterhuis later credited me as one of the inspirations behind the new program.

establishment of the 3TU.Center of Excellence for Ethics and Technology in 2007. This was the year when the three technical universities in the Netherlands started a federation, called 3TU, and there was an opportunity for research groups to submit proposals for federation-wide centers of excellence. The three departments in philosophy of technology seized this opportunity, having all three just received excellent evaluations on their periodic external research reviews.

The center, 3TU.Ethics in short, was initially founded by Peter Kroes, Jeroen van den Hoven, Anthonie Meijers and myself, with Van den Hoven as first director. It has continued to flourish since then. I succeeded Van den Hoven to become second director, after which Anthonie Meijers, the current director (post-retirement), succeeded me. The center currently includes more than seventy researchers with a focus on ethics of technology. Since 2008, it also includes a joint PhD program in Ethics of Technology. In 2018, the 3TU federation became the 4TU federation, when Wageningen University joined, and 3TU.Ethics became 4TU.Ethics, with the philosophy department of Wageningen joining. Wageningen has a partial focus on philosophy of technology, with a particular focus on public health, biotechnology and environmental philosophy.

The success of the center illustrates a major development in Dutch philosophy of technology since Durbin's book was published: the rapid growth of the ethics of technology. Ethics of technology has acquired a very dominant role in the research programs of the departments, often comprising as much as 80% of research activity. This is due in part to the availability of funding, with there being many more funding opportunities in ethics of technology than in other areas of philosophy of technology – both nationally in the Netherlands, and at the European level. It is also stimulated by the great demand since the late 1990s of ethics teaching at the technical universities, and it has been stimulated by strategic choices, amongst others the founding of the 4TU.Ethics center.

Dutch ethics of technology, as practiced by members of 4TU.Ethics, is characterized by:

- a focus on contemporary and emerging technologies and their interactions with society
- particular attention to methods and conditions for responsible innovation
- early anticipation and evaluation of ethical and social implications of emerging technologies
- specialized focus on a broad range of technologies, including information and communication technology, medical technology, biotechnology, sustainable and environmental technologies, robotics and high-tech systems, industrial design, transportation technology, nanotechnology and others.
- attention to stakeholders, including their agency, interests, roles, responsibilities and mutual relations
- close collaboration with scientists and engineers
- the performance of normative assessments that rest on a combination of conceptual, normative and empirical investigations
- philosophically grounded applied ethics: integration of theoretical and applied work in ethics/political philosophy and of ethical approaches with other philosophical approaches, including epistemology, philosophy of mind, ontology and philosophical anthropology
- interdisciplinarity: integration into philosophy of methods, concepts and results from science and engineering, the social and behavioral sciences, science and technology studies, foresight, technology assessment, and other fields

- methodological pluralism: the use of a diversity of philosophical and interdisciplinary approaches, drawing amongst others from analytic philosophy, (post)phenomenology, critical theory, and science and technology studies
- outreach: attention to the valorization and knowledge transfer of research results, especially for engineers, policy makers and the general public. This includes a focus on making innovation processes more responsible, including development of reflective and ethical tools for those engaged in innovation and the making of policy recommendations

Particular focal areas include, amongst others, the relation between values and technology and design for values (Van den Hoven, Vermaas, and Van de Poel, 2015; Brey, 2010b), responsible research and innovation (Van den Hoven et al., 2014), risks (Roeser, 2017), and ethical aspects of human-technology relations (Verbeek, 2011).

There is also still research activity in areas other than ethics in Dutch philosophy of technology, particularly in epistemological and methodological aspects (Vermaas and Vial, 2018) and philosophical anthropology of technology (Verbeek, 2015). Since Durbin's manuscript, however, its turn towards ethics of technology, and its international impact in this area has been the most striking development.

### **Europe 2006-2019**

I can speak less authoritatively about European philosophy of technology than I can about Dutch philosophy of technology, but I can speak about three developments that I have observed in various international roles. The first is that European philosophy of technology has largely taken the same empirical turn as Dutch philosophy of technology has. Young scholars in the field study particular technologies and practices, and are often informed by, and themselves engaging in, empirical studies, and often draw from concepts and methods of neighboring fields like science and technology studies. This European development may have been influenced to some extent by the Dutch school, both by its publications, conferences and workshops and international coordinating roles (many recent presidents of the Society of Philosophy and Technology have been from the Dutch school). But there are likely many other influences as well, including the influence in recent decades of the field of science and technology studies, and changes in national and European funding schemes that emphasize more applied and interdisciplinary research.

The second development is the prominence of ethics of technology on the European scene as well. This is largely also a consequence of funding availability. At the European level, in particular, much of the research funding that philosophers can attain is found under the heading of "responsible research and innovation" (RRI), which for the past ten years has been a European research theme, embedded in the Horizon 2020 program of the European Union. For philosophers, this scheme mainly funds ethics research. RRI is the incarnation of a longstanding goal in EU policies to stimulate greater responsiveness of science and innovation towards society's needs. It is "an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I with the values, needs and expectations of European society." (European Commission, 2012).

The European RRI scheme has been inspired in part by the Dutch national funding program in responsible innovation, which preceded it. This program was itself developed in collaboration between the Dutch national funding organization, NWO, and 4TU.Ethics. So here, also, Dutch philosophers of

technology, have played a significant role in Europeanizing a Dutch approach – especially Jeroen van den Hoven, who has successfully lobbied the European Commission for establishment of an RRI program. RRI is a multidisciplinary endeavor, with ethics as one of the key disciplines. In the current policy alignment in the European Union, ethics research has become part and parcel of the work that needs to be done when a new technology emerges on the scene, in part due to the success of the RRI scheme.

The emergence of RRI as a policy priority for the European Union, and for several of its member states, including the Netherlands, correspond to a third development as well. This is the policy orientation of much work in philosophy and ethics of technology in Europe (including the Netherlands) for the past ten to fifteen years. In part due to efforts of philosophers of technology to be relevant to policy and practice, and in part through a societal interest in ethics and responsible innovation, this practical orientation has come into place. I have recently called this turn towards policy and practical application the societal turn (Brey, 2016). It is a third turn, after the empirical turn and the turn towards ethics of technology. It is a turn from what I have called reflective philosophy of technology, which is the academic study of technology and its relation to society and the human condition, to constructive philosophy of technology, which is philosophical research and intervention, through multidisciplinary and multi-stakeholder collaboration, to develop technologies and technology policies with beneficial implications for society. In the current European landscape, collaborations between philosophers and ethicists on the one hand, and policy makers, industry actors, and other organizations involved in the technology development, use and regulation process have become commonplace. It is in this context that constructive philosophy of technology has emerged.

## Conclusion

In this text, I reviewed developments in Dutch and European philosophy and ethics of technology in the period 2006-2019. I have argued that in both Dutch and European philosophy of technology, the empirical turn in the philosophy of technology has become the dominant force since the late 1990s and early 2000s, and was fully realized after Durbin's 2006 publication. I also argued that since 2006, a strong turn towards ethics of technology has occurred, and, more recently a societal turn from academic research towards research and intervention aimed at developing better technology and technology policy. These fascinating developments, in the context of a significant growth of the field in the Netherlands and Europe since 2006, attest to the current vibrancy and relevance of the field as it exists in the Netherlands and Europe today.

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