BOOK REVIEW

Value sensitive design

A pragmatic approach to ethically guided technology design

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When designing technology, ethical issues should also be considered. This demand is discussed repeatedly in politics, practice and science and is therefore frequently subject in works of technology assessment (TA). Eventually, the question arises as to how ethically reflected technology design can be implemented, meaning how the results of theoretical work can be transferred into practical processes. The value sensitive design approach (VSD) is a proposal to answer this question. In their book "Value Sensitive Design. Shaping Technology with Moral Imagination", VSD pioneer Batya Friedman and David G. Hendry provide a first-hand, concise overview of VSD by conveying the VSD spirit and reconstructing the nearly thirty-year-old history of the approach's development.
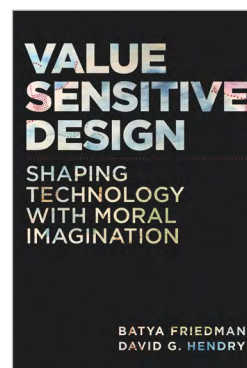
Goals and hard problems

The four overarching goals of VSD are described as "(1) proactive orientation toward influencing design, (2) carrying critical analyses of human values into the design and engineering process, (3) enlarging the scope of human values and (4) broadening and deepening methodological approaches" (pp. 18–19). These ambitious goals do not prevent Friedman and Hendry from being aware of the challenges that prevail in the complex field of ethically guided technology design. Throughout the book, the reader is reminded that critical self-reflection has been and continues to be an important part of VSD's development. The authors refer to the two biggest of these challenges as "two hard problems" (p. 20). The first hard problem is that by applying VSD, design practitioners may already begin to design technology, even while ethical, legal and social questions may still be unresolved. Thus, the authors do not claim to be able to answer

ethical questions with VSD. Rather they would like to enable design practitioners to achieve progress in the design of technology *despite* these unresolved questions. The second hard problem is gaining robustness for VSD. To meet this challenge, they choose not to commit to a certain context of use, value, or technology in or for which VSD can be applied. Instead, they build on existing methods, adapt or invent new methods on that basis and apply these in practice. From this approach, they hope to identify methodological "blind spots" and advance VSD's work on theory (p. 21).

Theoretical core elements

VSD's underlying theory draws mainly on thoughts and discussions that were present in the four scientific communities of applied moral philosophy, social informatics, computer-supported cooperative work, and participatory design in the 1980s and 1990s (pp. 23–24). On the basis of this "intellectual landscape" (p. 24), Friedman and Hendry explain the necessity of defining the term "value" in the context of their approach and reflect on problems and critique that arise by doing so. Unsurprisingly, they provide the pragmatic working definition "what is important to people in their lives, with a focus on ethics and morality" (p. 31) for this purpose. In addition, they also provide working definitions of twelve specific values (e. g. human welfare, privacy and trust) that, in their experience, play an important role in technology design processes. Consistently, the authors explain that values must not be regarded as isolated, but are connected with other values similar to a spider's web, which can lead to "value tensions" (p. 44). Thus, values can sometimes be in competition or contradiction to each other, which is why a balance must often be found between them.

Another important element of VSD theory is also the fundamental attitude of the approach called "interactional stance". This refers to the conception of human beings that comes to bear in VSD and understands people in an interacting duality: On the one hand, human beings design tools and technical artefacts, which on the other hand shape human life (p. 35). A very welcome aspect of the interactional stance from the perspective of TA is the awareness of intended and unintended effects in technology design processes. Those responsible for technology de-

sign should always remain vigilant towards them (p. 36). The theoretical construct "progress, not perfection" is the trademark element of VSD that most clearly highlights the pragmatic character of the approach. Due to the often complex and ambiguous situation surrounding values and their implications for the technology to be designed, it is often unclear what an ethically correct behaviour of those responsible for technology design would have to look like. The authors therefore argue, with reference to the procedures for evaluating technical systems, that enabling action should also be prioritized in technology design and thereby achieve progress "through practice" (p. 51).

Variety of methods

The authors offer no less than seventeen methods that have been developed under the umbrella term VSD so far. These have names such as "value dams and flows", "value scenario" or "multi-lifespan co-design" and all of them are explained and categorized according to their intended purpose. Value dams and flows, for example, fall into the category of value analysis and are intended to help resolve value tensions of design alternatives in a project. Value dams are determined first and represent de-

ment (CTA), which is described as an "approach […] with aims similar to VSD" (p. 128). Readers familiar with CTA will recognize these similarities, but also the differences from VSD throughout the book. What is in sum insightful about these practical examples is to learn which values have been identified as "key values" and how value conflicts have been dealt with in these projects.

Conclusion

With their book, Friedman and Hendry offer a pragmatic proposal for bridging theory and practice of ethically guided technology design. The book functions as an introductory work, explaining the state of the art of the approach and at the same time offering various ways to delve deeper into the subject. VSD methods provide a certain flexibility and adaptability often needed in practice. This can however also lead to some uncertainty as to when which method may be suitable. The authors seem to have had this impression as well, as they provide the reader with a ten-step guide to assist in selecting appropriate methods. Still, reading further literature on the methods (which the book points to) may be necessary. The authors reflect crit-

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Value sensitive design enables design practitioners to achieve progress despite unresolved ethical, legal or social questions.

sign alternatives that are rejected by stakeholders, even if those who reject represent only a small percentage of the stakeholders. The stakeholders then evaluate the remaining design alternatives again. Those design alternatives that receive the strongest approval are then called value flows and receive a higher priority in design activities going forward (p. 73). Value scenarios, as another example, are used for value representation and/or value elicitation. These are narratives, created by stakeholders or practitioners to identify "(1) implications for direct and indirect stakeholders, (2) key values, (3) widespread use, (4) indirect impacts, (5) longer-term use, and (6) systemic effects" (p. 64). It is also very important to both authors that VSD does not claim to be a standalone approach, but that VSD methods can be used "in concert" with other existing (VSD) methods (p. 85).

Application examples

The chapter on application examples greatly expands the reader's understanding of VSD. While reading the theory chapter, I wondered how well VSD can be applied when designing technical artefacts that contain no or only a few IT components. This chapter answers that it can indeed be done. The contributions presented in this chapter span technologies such as pacemakers, humanoid robots, or wastewater treatment plants, and thus tackle topics that also offer interesting insights for TA practitioners. In one example, reference is even made to TA and specifically to the approach of Constructive Technology Assess-

icisms of their approach, but stay true to their core belief – the need for pragmatism. The successes and new insights from the application of VSD described show that VSD can offer viable ways for ethically guided technology design. That said, the book does not answer clearly how well VSD methods can handle tight time and resource schedules that are often encountered in practice. Overall, VSD and TA can learn a lot from each other. VSD can draw on TAs experience and knowledge in dealing with complexity and TA can benefit from VSDs refreshing attitude and creative methods.