A Value Sensitive Design Toolkit for Agile Project Management

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Since the early 1990's the value sensitive design (VSD) approach has been a continually burgeoning design methodology for technological innovation. VSD is commonly described as a "principled approach" to technology design, given that it is explicitly orientated towards designing technologies *for* human values, rather than sidelining them to *ad hoc* and/or *ex post facto* design. However, in much of its near three-decades-long development, the VSD approach has mostly been adopted as a conceptual framework to assess existing technologies and to explore how the consequences of the technology's development could have been influenced positively *if* VSD was adopted early on and throughout the design process (Friedman et al. 2002). Similarly, VSD has been adopted as a conceptual framework for analysing how future speculative technologies like molecular manufacturing (Umbrello 2019) and advanced artificial intelligence systems can be directed towards positive futures (Umbrello and van de Poel 2021). Yet, despite the benefits of these endeavours and VSD being an approach that can be adapted to any given design domain, it has yet to be widely appropriated in existing design spaces as a primary design approach. In this short paper, we aim to fill this lacuna by framing VSD as a toolkit that can be adopted by existing design teams rather than a wholesale approach. In particular, we describe how VSD maps seamlessly onto agile workflows, an approach to project management that is widely adopted globally. By doing so, we hope that the VSD approach will likewise be more attractive and thus adopted more broadly. As a consequence, a more explicit orientation towards designing technologies *for* human values will follow.

Introduction

The primary aim of this short paper is to propose VSD as a 'toolkit' of sorts, rather than a wholesale methodology, to existing design teams. As such, it is framed as an adoptable set of methods that design teams that employ Agile workflows can integrate into their existing processes, thus making VSD more adoptable and consequentially orientating their current practices of technology design towards designing *for* human values. Notwithstanding, this paper does not aim to flush out in detail how this can be done; instead, it serves as an abstract of sorts to two other more comprehensive projects.

The first project is a forthcoming full-length paper that lays out the VSD methodology, the ontology underlying the method, how Agile workflows have a similar ontology and, consequentially, how the two can be coupled. Ultimately, we show that Agile provides a solid starting point as a vehicle for designing *for* human values through a seamless adoption and integration of VSD tools.

The second project is less theoretical and more practical. We created a VSD for the Agile toolkit or field manual. The manual is intended to be a 15-minute digestible guide for Agile users to quickly understand the benefits of the VSD tools and where/how to put such tools into their existing workflows. This paper here is meant to be a similarly digestible precis of these works.

VSD and Agile

The VSD approach, as mentioned above, is often described as a principled approach to technology design (Friedman et al., 2008). This is on account of the approach's self-described tripartite methodology composed of conceptual, empirical, and technical phases or investigations [see Fig. 1].
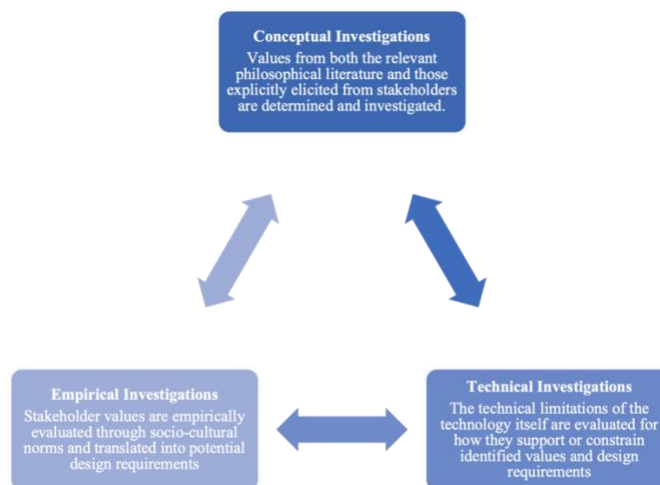

Figure 1. The tripartite VSD approach (Source: Umbrello, 2020).

Each of the three investigations has its own methods and means of being accomplished. Over

the past three decades of VSD's development, 17 different methods have been accounted for stakeholder identification, legitimation, validation, and elicitation, as well as value elicitation, analysis, and representation (Friedman and Hendry 2019). These are the methods, or tools, that Agile users can likewise employ already within their existing Agile workflows.

At its core, Agile focuses on building a solution through rapid iterative cycles. Complimentary to the tripartite methodology of VSD, the phases of these Agile, iterative cycles can be categorised into planning, executing, and evaluating. During planning, an Agile team determines and designs the features that will be built in the current cycle, creating the environment in which conceptual investigations from VSD can best be explored. This is followed by executing, during which an Agile team envisions building and implementation that again creates the necessary space for the technical investigations of VSD. Finally, to complete the triad, evaluating focuses an Agile team on collecting and incorporating stakeholder feedback, which affords empirical investigations from VSD into those same stakeholders' values and priorities [Fig. 2].
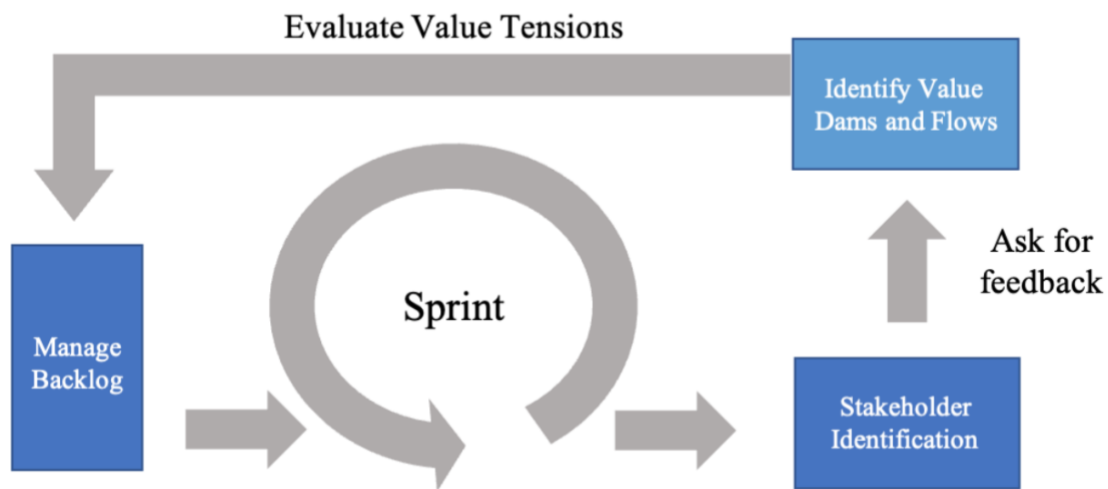

Figure 2. *Value Dams and Flows* Toolkit in the Agile cycle. (Source: Umbrello and Gambelin, 2022).

For these iterative cycles to be most effective, an Agile team must be self-organised and work collaboratively across functions, meaning managerial roles prioritise goals that are then left to designer roles to determine and complete the necessary tasks to reach said goals. This results in co-construction of whatever solution the team is seeking to build, or, in other words, a solution developed by the stakeholders internal to a project. This focus on collaboration brings together the roles necessary for utilising the toolkit of VSD, ensuring that the central vision of the project is understood by all as well as the main guiding values.

In addition to the hallmark iterative cycles and co-construction of a central project vision, the Agile approach places significant importance on gathering external stakeholder input throughout the iterative cycles and the entire project's lifecycle. This input is vital to the workflow, as feedback from one cycle feeds into the next cycle by helping to determine what

will be built during that next cycle. Furthermore, this emphasis on stakeholder input at critical moments in the iterative workflow cycles is essential to coupling Agile and VSD. This emphasis creates the vehicle by which VSD can naturally be integrated into the process.

Conclusion

Agile has been criticised for its potential to create poor decision making and unethical technology due to the fast pace of the iterative cycles and the tendency to lack high-level impact assessments. In practice, seeking, consulting, and incorporating stakeholder feedback can occasionally go neglected for the sake of speed and forward progress. However, if an Agile team were to truly embrace the use of the VSD toolkit and make it an essential element of the project workflow, the implementation of VSD can counterbalance these adverse side effects of Agile project management by ensuring the consideration of stakeholder needs and values.

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