RI and VSD: adapting HCI methods for responsibility and human values

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ABSTRACT

In this workshop, we would like to explore and better understand the connections between Responsible Innovation (RI) and value sensitive design (VSD). We offer VSD's approach of adapting existing methods to account for human values as a useful strategy for incorporating the concerns if RI into human computer interaction.

KEYWORDS

design, methods, responsible innovation, value sensitive design,

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Why we want to come. As researchers working in human values and design, we are always interested in learning more about approaches to system design that share an interest in accounting for wider societal and ethical concerns. We are very interested to learn more about responsible innovation, how it could be taken up by the CHI community, and to better understand the relationship between RI and VSD.

What we bring to the conversation. As a group we bring over 35 years of experience developing, applying, and teaching about value sensitive design in academic, research, industry, and civil society settings, locally and globally.

Who will participate. All of the authors of the workshop paper are interesting in participating, should funding and resources allow. At a minimum, two of the co-authors–Friedman and Hendry–will participate.

INTRODUCTION

The things we build shape society for better and for worse (e.g., wind farms, driverless cars, smart meters, Amazon, the list goes on). Responsible innovation (RI) recognizes the impact systems can and do have in the world, and asks how researchers, engineers, policy makers, and designers of all kinds can address the uncertainty, risk, and moral questions that accompany emerging technologies. Van den Hoven [12, 13] identifies value sensitive design (VSD) as one means for putting RI values (e.g., accountability to stakeholders, recognition of values in systems, a concern for the future) into practice, particularly as a means by which engineers might have "anticipated or pre-empted moral concerns and accommodated them into its design" [13, p. 75]. Both RI and VSD ask how designers, engineers, and researchers can build and innovate in ways that recognize the broad societal impacts and embeddedness of the emerging theories, systems, ideas, devices, and knowledge. With this workshop submission, we hope to advance our understanding of RI and, specifically, to better understand the relationship between RI and VSD. We believe we can contribute potential strategies learned from VSD for foregrounding RI in HCI across computing education, practice, innovation, and research.

RESPONSIBLE INNOVATION

RI is focused primarily on governance [6, 9, 11, 13]. Specifically, on how frameworks and governance structures can lead to more responsible research and innovation, which for RI, means inviting more groups (i.e., direct and indirect stakeholders) into a process of inclusive and democratic decision making about innovation and emerging technology. Scholars working on RI have proposed different frameworks for practicing RI. Though these definitions of responsibility vary amongst RI researchers, they share an emphasis on the importance of governance, a concern for the long-term future, and belief in collective stewardship of research and innovation [9, 11]. They argue that a sense of stewardship and democratic discourse between researchers and stakeholders leads to the opening up of possibilities, rather than a constraint on innovation [9].

The AREA framework [11] is one popular approach for integrating RI practices into projects. It has been adopted by EU policy and research and the UK Engineering and Physical Science Research Council [6, 9, 11]. AREA offers tools and methods to assist researchers in: anticipating outcomes; reflecting on motivations, processes, and outcome; engaging with relevant stakeholders; and acting accordingly to address revealed issues [6, 9, 11, 13]. The AREA framework, and RI in general, aims to couple scientific research with a concern for supporting and strengthening the public interest.

VALUE SENSITIVE DESIGN

VSD is a theoretically grounded approach to the design of technology that accounts for human values in a principled and systematic manner throughout the design process. VSD offers engineers

Table 1: Adapting HCI Methods to Foreground Values

HCI Method	Description	Adapted Method	Description
Scenarios	Scenario-based design uses descriptions of individuals and groups interacting with technology to stimulate and guide the design process. [1].	*Value Scenarios*	Value Scenarios are narratives to support thinking around environmental, psychological, and ethical problems that might result from technology [8] .
Personas	Personas are fictional characters representing users motivations, aspirations, needs and goals. They help designers see different vantage points and motivations for a technology [10].	*Value Personas*	Value personas include indirect stakeholders (those affected by a technology, but who do not interact with it directly) as well as direct stakeholders, and are written to expose value tensions [7].
Method Cards	Card-based toolkits are a design tool where ideas for design activities and methods are represented on a physical format. [5].	*Envisioning Cards*	A card-based toolkit to attend to human values during the design process. [4].

and designers of all kinds methods to answer questions such as: How do I identify stakeholders? How do I elicit their values? How do I deal with value tensions? And perhaps most importantly, how do I translate values into design decisions [3]. These methods are based on several qualities. First, VSD methods provide guidance on a particular sort of research or design inquiry. Methods are described broadly in the literature [2, 3], but deployed differently by designers, engineers, and researchers based on their context and experience. Second, VSD methods are informed by VSD's theoretical constructs and commitments. For example, no VSD style investigation or inquiry would be complete without a thorough stakeholder analysis. Finally, VSD methods are intended to be practical, easily integrated into existing design processes, and adaptable to specific contexts. VSD seeks to offer designers and engineers an approach to incorporate a concern for stakeholders and human values in the very methods used to develop and design technology.

EVOLVING METHODS; ADAPTING VALUES

RI frames the design situation in terms of such values as participation and governance, responsibility, and concerns for the future. How might methods in HCI be adapted to the design situations with these values? To address this question, we can examine how researchers in VSD have adapted common methods in HCI to foreground human values. For example, VSD researchers developed value scenarios

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to assist engineers and designers in imagining different ethical, environmental, and psychological problems related to their systems [2, 8].

Integrating values into existing methods through a VSD framework can help address some of RI's aforementioned concerns (e.g., responding to stakeholders, building a better world), challenges (e.g., unpredictable social uptake, varying definitions of public good), and tensions (e.g., the certainty of regulation vs. the uncertainty of new technology). We propose surfacing more methods in technology design (and elsewhere) and inviting conversation on how we might center human values in these methods. We offer a brief table (Table 1) demonstrating established methods from HCI adapted to the theoretical commitments of VSD: value scenarios, value personas, and envisioning cards.

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