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Bos-de Vos, M.

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A framework for designing for divergent values

Marina BOS-DE VOS

Faculty of Industrial Design Engineering, Delft University of Technology, The Netherlands
m.bos-devos@tudelft.nl
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Abstract: Designers increasingly collaborate with other actors to deliver designs that address diverse stakeholder needs. Such multidisciplinary design processes revolve around integrating various, often divergent values, including the ideals that collaborating actors have, and the different kinds of worth that they attempt to realize. As values are multidimensional and continuously in flux, the process of designing for divergent values requires conscious action. Existing theories of values and methods for integrating diverse, possibly competing values are still scattered across disciplines, leaving designers with little overview and handles for what they have to deal with. Synthesizing insights from workshops with architects and literature from a wide range of scholarly domains, this paper presents a first step towards an integrative framework that can help designers and design students to effectively discuss and reconcile divergent values in multidisciplinary settings.

Keywords: values; value co-creation; value framework; multidisciplinary collaboration

1. Introduction

To successfully co-create value for clients, users, government, society and other stakeholders, divergent values need to be integrated in the design process. On the one hand, a design needs to generate different kinds of worth to stakeholders who may have differing values (Boradkar, 2010). On the other hand, collaborating actors will bring various underlying ideals and motivations to the table that have to be reconciled (Bergema, Kleinsmann, & Valkenburg, 2011). Actors often refrain from identifying, explicating and discussing the values that play a role in their design process, or only focus on specific types of values, thereby overlooking others that may also be important (Van Onselen & Valkenburg, 2015). This may lead to tensions in the process or a result that is less desirable to certain stakeholders.

Designers could play an important role in opening up discussions about values, as they are able to analyse and visualize complex phenomena and processes, and connect different disciplines through their designs (e.g. Dorst, 2011; Manzini, 2009). Although designers are trained to operate in increasingly collaborative and multidisciplinary processes, and to

design solutions that satisfy diverse stakeholder needs (Bergema, Valkenburg, Kleinsmann, & de Bont, 2012; Calabretta & Kleinsmann, 2017); they have limited knowledge and tools to oversee and handle the multiple, possibly competing values that underlie these design processes. An understanding of the plethora of divergent values that can play a role in multidisciplinary design processes can be highly beneficial to designers. It could assist them in opening up discussions about actors' values and motivations, to avoid or mitigate conflicts and collectively work towards a successful design process and end result from the perspective of all actors and stakeholders involved.

Existing research on how to design for values has either predominantly focused on the human values at stake, such as work on Value Sensitive Design (Friedman, Kahn, & Borning, 2013); or the worth that is co-created, such as in value-centred design (Cockton, 2006) and Bocken, Short, Rana, and Evans (2013)'s value mapping tool. Even though authors have argued that human values and worth are both present in design processes and continuously influence each other (e.g. Den Ouden, 2012), work that departs from and integrates multiple perspectives towards value into one overarching framework, such as the work of Den Ouden (2012), is rather complex and can be challenging to use in daily work settings or design education (Bocken et al., 2013).

In this paper, empirical insights from 24 workshops with architects and theory from different strands of literature are synthesized with the aim to provide a simple, integrative overview of values that designers can easily employ in their projects. The following research question was answered: Which types of value play a role in multidisciplinary design processes? The resulting framework distinguishes between 'values as guiding principles' and 'values as qualities with worth', and presents three degrees of value specificity. It raises awareness of and understanding for the different value perspectives and values that can play a role in multidisciplinary collaborations, thereby enabling designers and design students to become more receptive to potential value conflicts and opportunities for enhanced value creation.

2. Theoretical background

As Den Ouden pointed out in her book *Innovation design: Creating Value for People, Organizations and Society* the term value is "widely used but barely understood" (2012, p. v). Definitions of value are numerous and differ across domains. While it is evident that differences between actors' perspectives on values exist, these differences are also quite often overlooked in a design process. Value is rarely explicitly discussed, or discussions are either very abstract or overly specific (Van de Poel, 2013). As a consequence, actors may think that they speak the same language and have the same goals, while they actually pursue different things. This can lead to submerged and sustained value conflicts that can quickly escalate when the collaboration process is subjected to a sudden change, such as the departure of one of the actors or a change in design requirements (Van Onselen & Valkenburg, 2015). To prevent this from happening, actors need to be aware of, and discuss the values that play a role in their collaborative design process.

According to literature, two core perspectives towards value can be distinguished: 1) considering value as guiding principles, and 2) considering value as qualities with worth. A detailed understanding of these two perspectives and how they relate to each other, can be instrumental for designers when working in multidisciplinary contexts, as both perspectives will be present and continuously influence each other. The two perspectives – which have also been described as 'values as ideals' versus 'values as worth' (Martinsuo, Klakegg, & van Marrewijk, 2019) or the plural form 'values' (i.e. ideals) versus the singular form 'value' (i.e. worth) (e.g. Boradkar, 2010) – are presented in more detail below. By adopting both perspectives towards value, this study aims to embrace the different perspectives with which one can look at the theoretical construct of value, rather than searching for consensus regarding its definition.

2.1 Considering values as guiding principles

A first core perspective towards value in a design process, is to consider the values of actors as guiding principles. Scholars of psychology (e.g. Rokeach, 1973; Schwartz & Bilsky, 1987), sociology (e.g. Williams Jr, 1968), anthropology (e.g. Kluckhohn, 1951) and philosophy (e.g. Griffin, 1986), use the notion of value to refer to the ideals that people have. They argue that values represent criteria or guiding principles that people use to evaluate and select their behaviour and give meaning to what they consider important in life (Cheng & Fleischmann, 2010; Friedman et al., 2013; Schwartz & Bilsky, 1987).

In their seminal work, Schwartz and Bilsky (1987) distinguished several motivationally distinct values that people use as guiding principles for their actions and activities, such as enjoyment, security, achievement, self-direction, social power and maturity. They used the term 'human values' to refer to these universal types of values, which stem from people's individual biological needs, the requirements for interaction with other people, and the needs of groups to survive and be well (Schwartz, 2006a; Schwartz & Bilsky, 1987).

Values that are used by people as guiding principles do not only stem from human needs, they can also originate in the social relations of individuals. 'Cultural values' are values that nations, regions, but also professions, organizations and teams may share, such as autonomy or embeddedness, egalitarianism or hierarchy, and harmony or mastery (Schwartz, 2006b). According to Schwartz, emphases on certain cultural values shape and justify the beliefs, actions and goals of individuals and groups, making them part of a certain culture. The fact that certain values share the same underlying assumptions, makes it easier to affirm and act on them simultaneously (Schwartz, 2006b).

Rokeach (1973) argued that human and cultural values can be categorized into two sets of values: 'terminal values' and 'instrumental values'. Terminal values are desired end-states that individuals or groups of people wish to achieve. Instrumental values are defined as the preferable modes of behaviour, or means to achieve a desired end-state (Rokeach, 1973).

2.2 Considering values as qualities with worth

In contrast to conceptualizing values as guiding principles, value can also be considered a certain quality with worth that is or could be realized by means of a design. Economists (e.g. Smith, 1776), management scholars (e.g. Bowman & Ambrosini, 2000; Laursen & Svejvig, 2016; Lepak, Smith, & Taylor, 2007; Vargo, Maglio, & Akaka, 2008); and certain design scholars (e.g. Boradkar, 2010; Den Ouden, 2012) view values as qualities inherent in objects, projects, or ideas that represent a certain amount of worth. Extending on classical works from economy and management, this worthiness can not only be monetary – which will be referred to in this paper as economic value – , but also non-monetary, including values such as use value, social value and ecological value. Worthiness is perceived differently by each individual, as people value different things. The common consensus nowadays is that this worthiness is also fluid. It is the effect of multiple, constantly changing factors in the interaction between diverse actors (Boradkar, 2010; Ramirez, 1999; Vargo, Akaka, & Vaughan, 2017).

'Economic value' is the worthiness of a certain product, service, or idea in monetary terms. Boztepe (2007) uses the similar term 'economy value' to refer to the economic benefits something has. Economists and management scholars often use the term 'exchange value' to refer to the price that a customer pays at the moment of exchange for a quality or set of qualities inherent in a purchased product or service (Bowman & Ambrosini, 2000). While these scholars specifically focus on the pursuit of monetary worth by commercial firms through the exchange of goods or services; economic value is also important at the individual level (i.e. pursuing a good salary), group and societal level.

The term 'use value' is employed by classical economists and strategic management scholars to refer to a customer's subjective perception of the qualities or utility that the activities, products or services of a firm generate (Bowman & Ambrosini, 2000). It has been widely acknowledged that this focus is too narrow to represent everyday reality, as use value is not only created for a customer (e.g. Vargo et al., 2008). Each design or design process may also represent qualities with worth for others, such as citizens, organizations, or society at large. It is important to acknowledge the broad range of values that underlie the concept of use value. By referring to perceived quality and utility, the use value of a design should not be seen as narrow as mere 'utility value' (i.e. being appropriate for a certain use), which is expressed in values such as functionality, convenience, efficiency or durability (Boztepe, 2007; Den Ouden, 2012; Ramirez, 1999). A design also results in benefits that can be derived from its quality. For example, it can contribute to well-being or have symbolic meaning, because it expresses identity, signals social status or has certain historic or aesthetic qualities (Boztepe, 2007). Designs can also lead to emotional meaning. Referring to Desmet and Hekkert (2007), Boztepe (2007, p. 60) describes 'emotional value' as the affective benefits that may be generated through sensory experience, meaning that comes from personality or character related experiences, and provoked emotions.

Worth can also be realized in the form of social value. Den Ouden (2012, p. 42) refers to the Oxford Dictionary of Environment and Conservation in defining social value 'as the

non-economic value that society puts on a resource and that is recognized by most, if not all, people, such as the benefits to human health of clean air and water'. Thompson and MacMillan's study (2010) was one of the first works in the field of management that discussed the role of businesses in the generation of societal wealth improvement. They argued that visionary businesses could open up new markets through the creation of social value, such as addressing challenges of poverty and human suffering. The idea that organizations can gain economic value by creating value for society has also been echoed in other works (e.g. Porter & Kramer, 2011; Yunus, Moingeon, & Lehmann-Ortega, 2010).

Finally, 'ecological value' and the broader term 'environmental value' refer to worthiness that is created for the physical environment. Ecological value is typically seen from a holistic perspective, covering also the social relationships of people. However, to avoid confusion, ecological value is here defined as the value that is created for the planet (cf. Den Ouden, 2012). Ecological value is often driven by motivational goals of environmental prosperity or preservation of the planet. Values that may play a role are emission reduction, re-use of existing materials and sustainability.

2.3 Dealing with divergent values

When collaboratively creating qualities with worth in a multidisciplinary design project, actors may have different opinions of which worthiness should or could be created (and eventually captured), and how to do this. The ideas, decisions and actions of actors are also heavily influenced by their guiding principles, which may differ from one person to the next (Rindova & Martins, 2017). This all leads to a plethora of divergent and possibly competing values that are of importance at the same time, and that actors somehow have to reconcile.

Working towards a 'value hierarchy' can support actors in developing an approach for the situation they are in. Scholars propose two different ways in which a value hierarchy can be employed. These are not mutually exclusive and can, especially when used together, build a strong value framework to support decision-making. First, a value hierarchy can be used to prioritize certain values over others, such as placing instrumental business values below values of the individual, society, and economic system (e.g. Bernthal, 1962; Friedman et al., 2013). Second, a value hierarchy helps to translate abstract, general values into concrete design requirements. Van de Poel (2013) uses the term value hierarchy to discuss how overarching values (top of the hierarchy), via norms (middle), can be operationalized into design requirements (bottom of the hierarchy) and vice versa. He argues that constructing a value hierarchy requires systematic discussion and reflection of values and related judgements, which allows actors to collectively establish clear links between the values they pursue and the design decisions they make (Van de Poel, 2013).

Some scholars argue that overarching values should not be specified with concrete examples, as each situation is different and involves different values. Over-specification may limit actors' creativity in the design process (Friedman, 2020). Yet, others have shown that difficulties in design projects can often be brought back to values that have not

been explicated or discussed; and that designers frequently struggle to engage in such conversations due to a lack of overview and experience with this (Bos-de Vos, 2018). This paper therefore aims to provide a simple, integrative overview that designers can use as a theoretical backbone and inspiration for their projects, while encouraging them to tailor it to their own specific situation.

3. Methodology

To arrive at an integrative framework, it was chosen to study both literature and design practice, so that different theories of value could be connected to designers' daily work. In this section, the methodology for the development of the framework is described, paying attention to the collection of literature, the collection of empirical data, the analytical procedures that were followed to synthesize insights from both types of sources, and the development and validation of the framework. The different parts of the methodology are described separately for the purposes of clarity, but in reality coincided.

3.1 Collection of literature

Value-related literature sources were gathered during three consecutive phases. In phase 1, a previous research on value co-creation in the creative industry was revisited by re-reading all relevant sources and the notes that were taken during interactions with other researchers, students and practitioners. In phase 2, additional readings were gained in multiple iterations by checking the sources that authors had used in their discussions of value. In phase 3, conversations with researchers from other academic disciplines were organized. These researchers were asked to provide what they considered to be key sources of value literature in their respective fields. These were then studied and used as a way to find additional literature. The three phases of literature collection resulted in an overview of scholarly work from a variety of academic fields, including philosophy, psychology, anthropology, ethics, sociology, economics, strategic management, project management, marketing, service science, engineering and design.

3.2 Collection of empirical data

During phase 2 of the literature review, also empirical data were collected in 24 workshops with architects from diverse types of firms (17 in-company workshops and 7 workshops as part of a professional training program). In each workshop, which lasted approximately three hours, participants were asked to jointly fill in the Project Value Modelling Blueprint (Bos-de Vos, 2020) for one of their ongoing projects (see Figure 1). This method, which consists of an ordered set of questions, helped participants to identify and discuss which values could or should be created in their project, and come up with concrete steps for how to do that (Bos-de Vos, 2020).

Participants were given post-its or erasable cards to fill in the blueprint, encouraged to engage in continuous discussion about their answers, and change or further specify answers

over the course of the workshop. The in-company workshops were moderated jointly by an external facilitator and the author. The other workshops were moderated by the author. Over the course of the workshop, several pictures were taken of the filled-in Blueprint (see Figure 2) and the discussion was documented with video-recording (expect for the professional training workshops) and an event log. In each workshop, the moderator(s) followed the proposed order and questions of the Project Value Modelling Blueprint closely, which led to a robust empirical data set with a high level of comparability.

Figure 1 Workshop

Figure 2 Intermediate result

3.3 Synthesis of theoretical and empirical insights

The analysis of the literature and empirical data was executed in three iterative steps that were performed while data collection was still ongoing. To enhance qualitative rigour in the analysis and synthesis process, a qualitative coding procedure inspired by the Gioia methodology was used (Gioia, Corley, & Hamilton, 2013). Although the Gioia methodology is specifically designed for developing interpretive theory from interviews (Gehman et al., 2018), it proved particularly helpful for the purposes of this study, as it helped to cluster values mentioned in literature or the workshops into overarching categories.

For the literature, a first step consisted of close readings of the sources and filtering out parts in which authors mentioned or discussed specific types of values. Based on these parts, a list of 'informant-centric 1st-order' values was generated, including the sources and scholarly domains in which the respective values were mentioned, and how they were defined. In phase 2, a similar list of informant-centric values was deducted from the end results of the workshops. The event logs were used to play back specific parts of the video recordings and gain more detail of how participants had exactly described the values.

Next, the analysis focused on searching for similarities and differences between the values in both lists to arrive at 'researcher-centric 2nd-order' themes (see Gioia et al., 2013). This led to a categorization into three 'degrees of value-specificity' (cf. Van de Poel, 2013): 1) overarching value dimensions, 2) underlying motivational goals, and 3) specific value examples. Examples of values that participants or authors gave were clustered when it appeared that they shared the same motivational goal. For example, several architects mentioned that 'developing new tools' or 'establishing a commercial relationship' allowed

them to generate a different type of economic value than money. This was labelled as the motivational goal 'other economic value'. Together with the motivational goal 'money', it was captured within the overarching dimension 'economic value', which described the type of value it actually concerned.

Finally, the analysis focused on finding aggregate dimensions that could, on a higher level of abstraction, explain differences between the values, and why certain values seemed to belong together (cf. Gioia et al., 2013). The empirical data clearly indicated that actors not only considered the values that could be realized for the stakeholders of their project, but also values that served as a compass to guide their decisions and activities in the project. For example, participants often described trying to do 'what is best for the client', thereby expressing altruistic motives. Values such as 'conforming to what is expected of designers', 'happiness at work', or 'an equal relationship with partners' were also frequently mentioned. On the one hand, the emergence of idealistic values was surprising as the Project Value Modelling Blueprint only focuses on the value that actors wish to co-create and capture (Bos-de Vos, 2020). On the other hand, it is not that unexpected as architects and designers work on the basis of professional code-of-conduct, which translates into all their work-related activities and decisions. It clearly indicated the importance of integrating both perspectives towards value in the framework.

3.4 Framework development and validation

The process of framework development was executed concurrently with data collection and analysis and consisted of several iterations in which draft versions were evaluated with researchers, students and practitioners and further developed. A first draft version was developed during phase 1 of the literature review on the basis of a previous research in which literature and empirical data were studied from a value co-creation (i.e. qualities with worth) perspective (Bos-de Vos, 2018). The aim of this conceptual framework was to raise awareness of the different values and potential value conflicts involved in value co-creation in design projects to offer practising designers and design students handles to identify and deal with these conflicts. It visualized three crucial phases in generating qualities with worth: the value proposition, value co-creation, and value capture phase (e.g. Clauss, 2016), as well as the important types of values that these phases concerned. The existing theoretical concepts 'use value' – which according to the empirical data should also refer to other stakeholders than the paying customer, such as users, government and society –, and 'exchange value' were complemented with an additional concept 'professional value', which emerged from the analysis of empirical data. Participants mentioned reputation, professional development and work pleasure as underlying motivational goals (see Bos-de Vos, Wamelink, & Volker, 2016). Draft version 1 is shown in Figure 3.

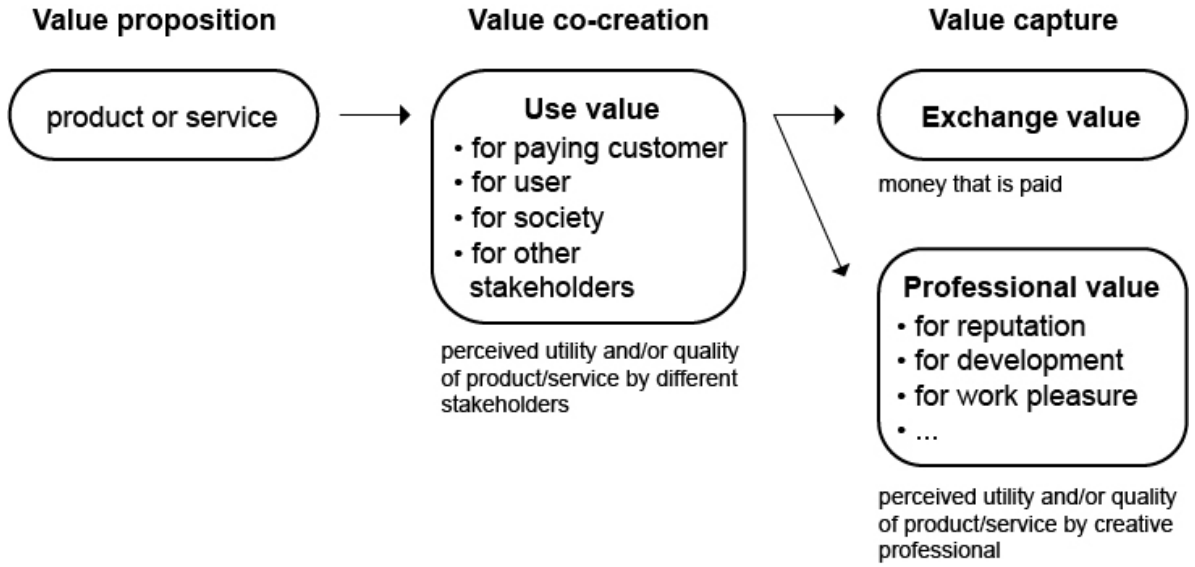

Figure 3 Draft version 1

The conceptual framework was presented and discussed at several meetings with audiences of academics, students and practitioners. Participants referred to the framework as insightful because it captured many struggles present in design projects and allowed practitioners to consider the origins of and potential solutions to these struggles more consciously. Despite this positive feedback, the first draft version of the framework also evoked discussions beyond its original aim. Academics from other disciplines raised questions about the definitions of values and why certain values were or were not included. Many questions seemed to originate from a moral perspective towards values instead of an economic/quality perspective. It became evident that this perspective needed to be included in the framework to avoid confusion or miscommunication in value-related discussions with people from different disciplines. This was also supported by the empirical data, which indicated that designers' actions and decisions related to value creation were strongly influences by their professional beliefs.

In draft version 2, the 'values as ideals' and 'values as worth' perspective that were used by (Martinsuo, Klakegg, & van Marrewijk, 2017) were taken as two distinct perspectives towards values that were both visualized in a separate section of the framework. For the 'values as ideals' section, a distinction was made between human values and cultural values, as two overarching types of values that are commonly represented in scholarly work from multiple domains (see Section 2.1). Also professional values were included, as the workshops in practice had shown that participants were often driven by their professional morals and ideals. For the 'values as worth' section, use value, social value, ecological value, economic value, and professional value (the latter referring to professional worth instead of professional ideals) were included. These values resulted from the comparison of the list of values mentioned in literature and the values that emerged from the empirical data. Since in literature, specific value labels sometimes have different definitions, or different labels

are used for values with the same definition; labels were chosen that best represented the empirical data. Draft version 2 also included a distinction between three degrees of value specificity (see Section 3.3), which appeared to be a helpful way to structure the many values that were mentioned. Draft version 2 is presented in Figure 4.

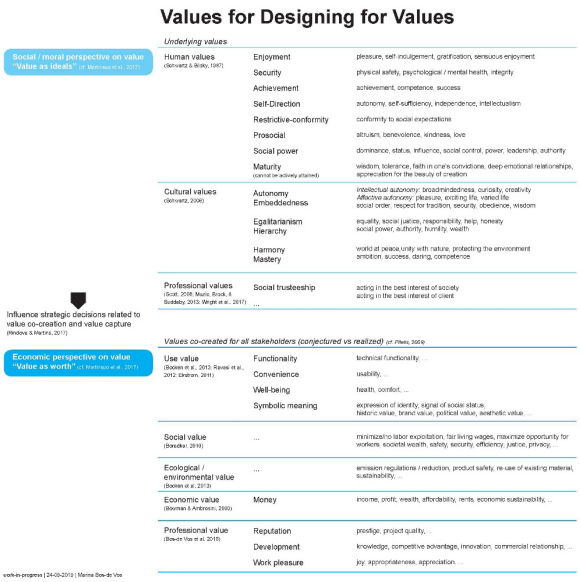

Figure 4 Draft version 2

Figure 5 Feedback session with peers (top) and practitioners (bottom)

Draft version 2 was discussed with peers from multiple domains, who are all working on value-related topics, such as value operationalization, value conflicts, value dynamics, and value assessment. Also teaching staff, students and practitioners were asked for feedback. Over the course of a year, 16 individual meetings and five feedback sessions with larger groups of people were organized to validate the structure and contents of the framework and to explore potential use-scenarios (see Figure 5). People were asked if they missed things, if the framework raised any confusion, and if they would organize the framework differently and why. Participants were also asked which benefits the framework could potentially have for them, if any, and which suggestions they had for working towards these benefits.

Based on the feedback received, a new version of the framework was made. As the distinction between the terms 'values as ideals' and 'values as worth' was often not or not directly clear to people, these were changed into the more descriptive labels 'values as guiding principles' and 'values as qualities with worth'. For the values as guiding principles section, a distinction was made between individual-level values, which are embedded in a single person; and group-level values that are shared by a certain community of people, such as a family, organization, profession, or society. The values as qualities with worth section came to distinguish between people-related and environment-related values.

Finally, the professional values, which were a bit of an odd-duck and confusingly mentioned in both sections of the previous framework, were redistributed and placed in categories that they fitted with.

4. An integrative framework for designing for divergent values

This section presents the framework in which empirical and theoretical insights from different academic disciplines are synthesized. The framework, which is shown in Figure 6, provides a first step towards helping designers successfully facilitate and participate in processes of designing for divergent values, by encouraging conversations and reflections about the values at stake in a project. By providing concrete examples of values that may play a role in the field of design, it provides inspiration and a comprehensive basis for actors to understand which values to discuss. The matrix structure of the framework allows users to focus on specific parts that are relevant to them, while being aware of the bigger context that they leave out.

On the vertical axis, the framework is subdivided into a section 'value as guiding principles' – which distinguishes between guiding principles that stem from human nature and principles related to social interaction –, and a 'values as qualities with worth' section, which includes values to be co-created for people and planet. As discussed in the theoretical background, the two sections of the framework are highly interconnected. Actions and decisions related to co-creating worth (bottom part of the framework) are continuously influenced by actors' guiding principles (top part of the framework) (Rindova & Martins, 2017). In turn, the guiding principles of actors are also shaped by the value creation opportunities and constraints that actors encounter in their work (Wright, Zammuto, & Liesch, 2017).

On the horizontal axis, the framework consists of three degrees of value-specificity, making a distinction between overarching value dimensions (left), underlying motivational goals (middle), and specific value examples (right). In this way, the framework provides designers and other actors with the means to recognize and discuss connections between higher-level value-related issues and the specific design opportunities and constraints of a project. Although some scholars argue that specification of values may not necessarily be needed nor good, the framework helps students and practitioners to oversee what may be important based on concrete examples and then select, develop and customize the parts that are relevant to them.

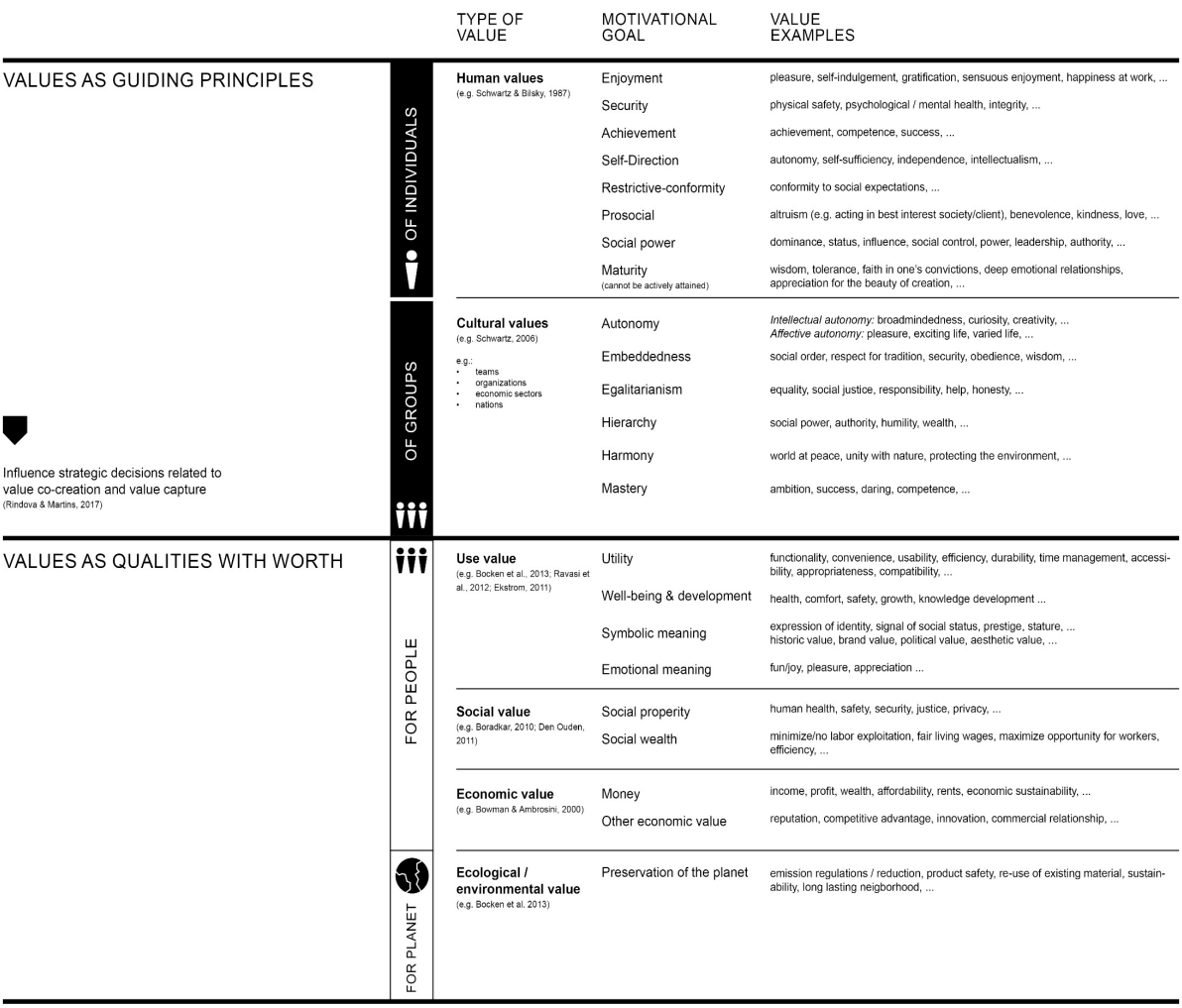

Figure 6 Framework as a basis for designing for divergent values.

5. Discussion & suggestions for further development

This paper presents a first step towards the development of an integrative framework for designing for divergent values. Designing for divergent values can be seen as a temporal and fragile process. Contexts, involved actors, and their perceptions of value continuously evolve over time. As Vargo et al. (2017) argue, value is always multidimensional and emergent. To accommodate actors' different perspectives on values, interests and motivations, as well as the fluidity and interconnectedness of values; an integrative and reflective approach is needed. The research and framework presented in this paper offer a way to better understand and oversee the complexity of multidisciplinary collaboration from a value-perspective, which is currently still underemphasized in literature, education and design practice. This novel contribution has benefits for three areas in which design work is manifested.

First, it can help design researchers to further develop their understanding of multidisciplinary design processes by focusing specifically on the values, linkages between values and potential value conflicts that are involved. It helps researchers to more clearly position their studies in relation to other value-related work, discuss how it connects with other studies and what its core distinctive features are. Second, it allows educators to teach design students a basic understanding of values in design and develop exercises/projects that let students practice with designing for divergent values and reflect on their process. Third, the framework can serve as a theoretically informed, easy-to-use overview, that practising designers can employ in their projects to identify, discuss and translate different notions and priorities of value that people from different disciplines have, thereby avoiding miscommunication and bringing any underlying differences to the surface. It may also support designers in helping multidisciplinary teams deal with the complexity of value co-creation, thereby strengthening their own position as a linking pin in the interaction of these diverse actors (e.g. Bohemia, 2002).

The work presented in this paper is by no means exhaustive nor complete. It is meant to serve as a first stepping stone towards future research and the development of tools or guidelines for designing for divergent values. To further develop the theoretical basis, a more extensive and systematic literature review is needed. It should also be investigated how the framework could exactly be used in design projects. An interesting direction for further development is to build, test and iterate different types of tools, which could, for instance, be dynamic to allow for nuance and overlap between certain values or include different time horizons.

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6. References

Bergema, K., Kleinsmann, M., & Valkenburg, R. (2011). *Exploring collaboration in a networked innovation project in industry.* DS 68-3: Proceedings of the 18th International Conference on Engineering Design (ICED 11), Impacting Society through Engineering Design, Vol. 3: Design Organisation and Management, Lyngby/Copenhagen, Denmark, 15-19 August 2011.

Bergema, K., Valkenburg, R., Kleinsmann, M., & de Bont, C. (2012). *Exploring networked innovation; Results of an exploration and the setup of an empirical study.* Conference Proceedings; ServDes. 2010; Exchanging Knowledge; Linköping; Sweden; 1-3 December 2010.

Bernthal, W. F. (1962). Value perspectives in management decisions. *Academy of Management Journal, 5*(3), 190-196.

Bocken, N., Short, S., Rana, P., & Evans, S. (2013). A value mapping tool for sustainable business modelling. *Corporate Governance, 13*(5), 482-497.

Bohemia, E. (2002). Designer as integrator: reality or rhetoric? *The Design Journal, 5*(2), 23-34.

Boradkar, P. (2010). Valued Possessions: The Worth of Things. In *Designing Things: A Critical Introduction to the Culture of Objects* (pp. 45-74). Oxford: Berg.

Bos-de Vos, M. (2018). *Open for business: Project-specific value capture strategies of architectural firms.* Retrieved from https://journals.open.tudelft.nl/index.php/abe/article/view/2399

Bos-de Vos, M. (2020). Project Value Modelling. In A. G. C. Van Boeijen, Daalhuizen, J.J., & Zijlstra, J.J. (Ed.), *Delft Design Guide. 2nd edition* (pp. 133-134). Amsterdam: BIS Publishers.

Bos-de Vos, M., Wamelink, J. H., & Volker, L. (2016). Trade-offs in the value capture of architectural firms: the significance of professional value. *Construction Management and Economics, 34*(1), 21-34.

Bowman, C., & Ambrosini, V. (2000). Value creation versus value capture: towards a coherent definition of value in strategy. *British Journal of Management, 11*(1), 1-15.

Boztepe, S. (2007). User value: Competing theories and models. *International Journal of Design, 1*(2).

Calabretta, G., & Kleinsmann, M. (2017). Technology-driven evolution of design practices: envisioning the role of design in the digital era. *Journal of Marketing Management, 33*(3-4), 292-304.

Cheng, A.-S., & Fleischmann, K. R. (2010). *Developing a meta-inventory of human values.* Proceedings of the 73rd ASIS&T Annual Meeting on Navigating Streams in an Information Ecosystem-Volume 47.

Clauss, T. (2016). Measuring business model innovation: conceptualization, scale development, and proof of performance. *R&D Management, 00*(00), 1-19.

Cockton, G. (2006). *Designing worth is worth designing.* Proceedings of the 4th Nordic conference on Human-computer interaction: changing roles.

Den Ouden, E. (2012). *Innovation Design: Creating Value for People, Organizations and Society*. London: Springer.

Desmet, P., & Hekkert, P. (2007). Framework of product experience. *International Journal of Design, 1*(1), 57-66.

Dorst, K. (2011). The core of 'design thinking' and its application. *Design Studies, 32*(6), 521-532.

Friedman, B. (2020, January). Key note speech during Dies Symposium: Design for Values, Delft.

Friedman, B., Kahn, P. H., & Borning, A. (2013). Value Sensitive Design and Information Systems. In N. Doorn, D. Schuurbiers, I. Van de Poel, & M. Gorman (Eds.), *Early Engagement and New Technologies: Opening up the Laboratory* (Philosophy of Engineering and Technology, Vol. 16, pp. 55-95). Dordrecht: Springer.

Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding theory–method fit: A comparison of three qualitative approaches to theory building. *Journal of Management Inquiry, 27*(3), 284-300.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: notes on the Gioia methodology. *Organizational Research Methods, 16*(1), 15-31.

Griffin, J. (1986). *Well-being: Its meaning, measurement and moral importance*. Oxford: Clarendon Press.

Kluckhohn, C. (1951). Values and Value-orientations in the Theory of Action: An Exploration in Definition and Classification. In T. Parsons & E. Shils (Eds.), *Toward a General Theory of Action* (pp. 388-433). Cambridge, MA: Harvard University Press.

Laursen, M., & Svejvig, P. (2016). Taking stock of project value creation: A structured literature review with future directions for research and practice. *International Journal of Project Management, 34*(4), 736-747.

Lepak, D. P., Smith, K. G., & Taylor, M. S. (2007). Value creation and value capture: a multilevel perspective. *Academy of Management Review, 32*(1), 180-194.

Manzini, E. (2009). New design knowledge. *Design Studies, 30*(1), 4-12.

Martinsuo, M., Klakegg, O.-J., & van Marrewijk, A. (2019). Introduction: delivering value in projects and project-based business. *International Journal of Project Management*.

Martinsuo, M., Klakegg, O. J., & van Marrewijk, A. (2017). Call for papers: Delivering value in projects and project-based business. *International Journal of Project Management, 35*(8), 1655-1657.

Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review, 89*(1/2), 62-77.

Ramirez, R. (1999). Value co-production: intellectual origins and implications for practice and research. *Strategic Management Journal, 20*(1), 49-65.

Rindova, V. P., & Martins, L. L. (2017). From values to value: Value rationality and the creation of great strategies. *Strategy Science, 3*(1), 323-334.

Rokeach, M. (1973). *The Nature of Human Values*. New York: The Free Press.

Schwartz, S. H. (2006a). Basic Human Values: An Overview. *The Hebrew University of Jerusalem*.

Schwartz, S. H. (2006b). A theory of cultural value orientations: Explication and applications. *Comparative Sociology, 5*(2-3), 137-182.

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology, 53*(3), 550-562.

Smith, A. (1776). The Wealth of Nations. *New York: The Modern Library*.

Thompson, J. D., & MacMillan, I. C. (2010). Business models: Creating new markets and societal wealth. *Long Range Planning, 43*(2), 291-307.

Van de Poel, I. (2013). Translating Values into Design Requirements. In D. Michelfelder, N. McCarthy, & D. Goldberg (Eds.), *Philosophy and Engineering: Reflections on Practice, Principles and Process* (Philosophy of Engineering and Technology, Vol. 15, pp. 253-266). Dordrecht: Springer.

Van Onselen, L., & Valkenburg, R. (2015). *Personal values as a catalyst for meaningful innovations: Supporting young designers in collaborative practice.* Proceedings of the 20th International Conference on Engineering Design (ICED15), 27-30 July, Milan, Italy.

Vargo, S. L., Akaka, M. A., & Vaughan, C. M. (2017). Conceptualizing value: a service-ecosystem view. *Journal of Creating Value, 3*(2), 117-124.

Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal, 26*(3), 145-152.

Williams Jr, R. M. (1968). The concept of values. *International Encyclopedia of the Social Sciences, 16*, 283-287.

Wright, A. L., Zammuto, R. F., & Liesch, P. W. (2017). Maintaining the values of a profession: Institutional work and moral emotions in the emergency department. *Academy of Management Journal, 60*(1), 200-237.

Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2010). Building social business models: Lessons from the Grameen experience. *Long Range Planning, 43*(2-3), 308-325.

About the Author:

Marina Bos-de Vos is Assistant Professor of Strategic Design for Ecosystem Innovation at TU Delft. Her work focuses on developing knowledge and tools that facilitate design students and professionals to successfully address value-related tensions and opportunities in complex, inter-organizational design projects.