Abstract

Current design approaches do not focus on value in an explicit manner. Rather they tend to focus upon product features such as functionality, aesthetics, behaviour and costs. The goal of this paper is to add to the design domain an understanding of value in design and to introduce Value Centred Design (VCD) as a philosophy aiming to deliver value to the enterprise, customer and society. Value related design issues and requirements for VCD have been identified on the basis of generic value characteristics. These characteristics were determined through a literature review and interviews of people across different departments within eight companies.

Keywords: design philosophy, need, personal value system, value, Value Centred Design, value characteristics, value in design;

1. Introduction

Creation and management of value has become a major issue in economy. Chief executive officers confirm value as an important parameter for business navigation. Authors claim that “management should focus on value creation”[17] and “companies need to shift from a traditional view of seeing their business as a set of functional activities to an externally-oriented view, concerned with seeing the business as a form of value delivery”[8]. Consequently, value often dominates the agenda of top management. However, investigations in literature and industry highlight that there is neither a common understanding of value across disciplines nor a common understanding of value in design.

What is suggested in this paper is that more attention is given to value coming from product design. Design artefact and process might be understood as resources to deliver value. Current design approaches do not focus on value. Instead, “we cope with value complexity via a common value basis usually represented in product specifications”[5].

Value Centred Design (VCD) is introduced as a design philosophy with the overall aim to deliver value to the enterprise, customer and society. The research work is based on
insights gained from a literature review and an industrial investigation on the current understanding of value.

It is suggested that value does not reside in design artefacts per se, but rather in their interpretation in a given situation with respect to a particular criteria. Design goals are not generally specified in terms of their value. Consequently, there is a risk that design activities do not generate value for the enterprise, customer and society.

2. Value Centred Design

VCD is a design philosophy with the overall aim to deliver value to the enterprise, customer and society. To deliver value might be considered to be the purpose of product design in our current economy. Behind VCD is an assumption similar to what has been said by Andriessen [3]:

We are not in business to design products – we are in business to make use of product design to generate value.

The determination of value within a specific situation is personal. As such, value does not reside in artefacts per se. If people assess a design artefact to determine value, they use different criteria derived from personal value systems (PVSs), thus from personal need. Every design artefact can have more than one value related to it. Because of different criteria derived from PVSs, value of the same design artefact might be different to different people. PVSs and criteria used for assessing value, change dependent on situation. Thus, value of an artefact changes even if the artefact per se has not been changed. Consequently, VCD has to accommodate more than the function, behaviour and structure to deliver value to the enterprise, customer and society.

Due to the significant dependency of value on a person, the discussion of value in product design requires a definition of what enterprise, customer and society need is and consequently, what the criteria are to investigate value. Although design goals specified in current design approaches might deliver value, by no means is there explicit consideration and management of value. VCD requires an analysis of design goals against their value. It is significant that the definition of design goals should be based on the contribution to enterprise, customer and society need.

Humans have a personal value system, understood as a hierarchy of needs. From a design process point of view, personal value is relevant at each stage of the design process where something might be judged or decided. As such, personal value has a relevant impact on the design process. Thus, in early stage design, PVSs might lead to different problem settings; during the design process, different functions, structures and product behaviour might be considered; for design evaluation, different evaluation criteria might be used. Overall, judgement and decision-making processes in design rely on PVSs. Consequently, what is required for VCD is an alignment of PVSs to enterprise, customer and society need. Another point in the context of decision-making is that current decision-making in product design focuses on technological alternatives rather

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1 For this paper, issues on value to society are not considered.
than on value. In this sense, VCD requires decision-making support to be based on value of alternative solutions.

In product design, a balance is required between enterprise, customer and society value. A product developed with a focus on enterprise value only, might not be of interest to a customer. On the other hand, products designed with a focus on customer value only, might generate little if any value to the enterprise. Current design approaches do not balance enterprise, customer and society value in an explicit manner. VCD requires the ability to balance different value types. Thus, “good design” may be thought of as being the pivotal point between value types related to a design artefact.

VCD might expand the design space. In VCD attention is given to an analysis of enterprise, customer and society need. From this, design goals might be derived and value might be determined. Take a design process of a “pen” as an example. In current design approaches, a goal might be to “design a pen”. From this requirements might be derived like ergonomic aspects, colour etc. VCD would not take the design goal as given. Instead, need would be analysed and in our case, we might come up with the result that “people need to write”. However, “to write” is possible with a “pen”, “pencil”, typewriter, etc. Thus, the design space determined via VCD approaches might be broader than in current design approaches.

3. The nature of value

To step towards a more VCD approach, we need to understand the nature of value itself. This chapter presents insights on value gained from a literature review and an industrial investigation. Generic value characteristics have been identified.

3.1. Literature review

Value has been considered in single disciplines from many different perspectives. Economy, Engineering, Marketing, Philosophy, Strategic Management and Social Science are disciplines that have made significant contributions to the value discussion. Accounting, Advertising, Aesthetics, Brand, Ethics, Motivation, Religion, Situatedness are examples of value related domains. Within these studies, there are many differentiations of value. Allingham [1] for example defines value of an asset “as a function of usefulness and availability”. Ashworth [5] states “value is regarded as an entity made of scarcity, utility, const of production, worth of use, value in exchange and marginal utility”. Bailey [6] concludes that “value in its ultimate sense, appears to mean the esteem in which any object is held. It denotes, strictly speaking, an effect produced on the mind”. Burns [9] defines value as a “functional outcome, a goal, purpose or objective that is served directly through product consumption”. Lapierre [15] understands value “as a result of new marketing approaches like new ways to offer products, distinctive product service and innovative product/service delivery”, and Rokeach [18] in the context of human value concludes that “value is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence”.
There is no common understanding of value across disciplines. Current value definitions are specific to particular disciplines and complexity is seen as one of the main reasons for difficulties in using value based business approaches. An investigation was carried out to determine the current understanding of value in industry.

3.2 Industrial investigation

An industrial investigation on the current understanding of value was carried out in Germany (2002), involving market leaders in mechanical engineering. A total of eight companies were involved, and thirty-two open interviews were performed across different departments. Six chief executive officers, seven heads of engineering departments, twelve product designers, three product managers and four sales people were interviewed to express their current understanding of value. Although the interviews were limited to mechanical engineering, there were never less interesting results.

For instance, chief executive officers confirmed value as an important parameter of business navigation, but there was no common understanding of value either among chief executive officers or between departments and individuals. On the one hand, value is seen as being somehow related to economic and financial issues. On the other hand, value is seen as being associated with ethics and moral principles, an emotional issue, and dependent on the experience of people. Overall 50% of the industrialists considered that there was a relation between value and profit. Some of them expressed their understanding of value as a kind of measure, which can be positive or negative. 87% believed that an alignment of personal and company values could be important for company success, would result in satisfaction and stimulate one’s own initiative and motivation. A surprising result was that none of the product designers was able to express their understanding of value in the context of design artefact and process.

From the industrialists’ point of view, to generate value is related to activities. All participants agreed that activities of the production process generate value, but only 25% believed that value might also be generated in other business processes. All participants agreed that goals could not be achieved without generating value. The all focused on business goals rather mentioning personal goals.

3.3 Value characteristics

To investigate value in design, a possible approach would have been to look at the specific characteristics of value in design and add a further value definition to the domain. However, the approach taken in this research work to date is to look for generic value characteristics to develop a generic value definition and new insights into the nature of value before considering the design context. Insights on value characteristics have been gained from the results of a literature review and an industrial investigation.

A common factor across disciplines is that people determine value. This is true for authors defining value specific to certain disciplines (e.g. [1], [3], [5], [6], [9], [15]), economists analysing the value of an enterprise (e.g. [4], [17]), engineers focusing on the creation of value (e.g. [5], [12], [14]) as well as for industrialists trying to express their understanding of value. Thus, value is fundamentally personal in a sense that it cannot be determined without people.
If a person determines *value*, the person is involved in a situation. Clancy [10] states in the context of situated cognition: “Every human thought and action is adapted to the environment, that is, situated”. If *value* is dependent on people, it is dependent on human thought – thus, it is situated and subject to situatedness [7]. *Value* is determined in a certain **situation**.

In literature, *value* is determined via “asset” [3], “entity” [5], “object” [1], “marketing approaches” [9], etc. In the industrial investigation, all participants determined *value*, consciously or unconsciously, in terms of “image of product”, “quality of product”, and “spirit of the house”. Thus, *value* is determined in relation to an **item**. A result that is confirmed by Feather [11] who argues: “*Values* do not exist independently of person and objects”.

Different criteria such as “health”, “revenue”, and “turnover” are used in literature to determine *value*; in the industrial investigation, the participants used “image”, “quality”, and “spirit” to determine *value*. We might conclude that the determination of *value* requires certain **criteria**. The criteria might be derived from need².

Finally, the determination of *value* involves an activity in the sense of an assessment estimating the contribution of an item to satisfy a certain criteria. In other words, if people determine *value*, they valuate and/or evaluate. As an example we might consider *value* of a car, which might be valuated against the criteria “to get from A to B”, or “to drive 100 miles per hour”. People via an **assessment** determine value of an item.

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2Investigation on need is ongoing.

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**Figure 1: Value determination process**

Based on the generic characteristics of *value*, a model has been derived to outline our current understanding of the *value* determination process (Figure 1). The determination
accommodates a person, situation, item, PVS and an assessment. The model is based on the assumption that each person determining value is involved in a certain situation and has a PVS understood as a hierarchy of needs. In the context of a situation, a person does assess an item against its contribution to satisfy certain criteria. Criteria are derived from a PVS. In the assessment, the contribution of the item to satisfy certain criteria is valued and/or evaluated. Value is determined if the assessment indicates a certain degree of need satisfaction from the item under investigation. The person who determines value has not to be the person who perceives value. An item can be of value to a person although the person who perceives value is not aware of item, need, criteria and assessment.

Investigation on value determination of different people, shared value systems, and shared criteria is ongoing. People determine value based on different situations and different personal value systems (Figure 2). They derive from personal value systems different criteria to assess value. Consequently, the same item might have different value to different people. However, it might be suggested that shared value systems and shared criteria exist.

4. Conclusions

Current design approaches do not focus on value in an explicit manner. Although design goals in current approaches might deliver value, by no means is there explicit consideration and management of value.

*Value Centred Design (VCD)* is a design philosophy with the overall aim to deliver value to the enterprise, customer, and society. To deliver value might be considered to be the purpose of product design in our current economy. Behind VCD there is the assumption
that we are not in business to design products – we are in business to make use of product design to generate value. To deliver value to the enterprise, customer and society, VCD requires an analysis of need to define design goals based on value, decision-making support based on value of alternative solutions and the ability to balance enterprise, customer and society value related to a design artefact. Design goals have to be adjusted to changing need throughout the design process. An alignment of PVSs to enterprise, customer and society need is required, because of the relevant impact of PVSs on decision-making in product design.

Fundamental to VCD is that value is personal and dependent on human thought. Thus, value is situated and subject to situatedness. The determination of value accommodates a person, situation, item, PVS and an assessment. An item is of value to a person, if the assessment done by the person indicates a certain degree of need satisfaction from the item under investigation. Thus, our current understanding of value is that value is the contribution to satisfy need.

Further research work is suggested on VCD requirements like need analysis, value based design goal definition, decision-making support, and the balance of enterprise, customer and society value related to a design artefact. A more detailed analysis is required on the assessment of value of an item, the perception of an item in context to the value determination process, value determination between people, shared value systems and shared criteria to determine value. A further issues is mentioned by Anderson et al. [2] pointing out concern about the validity of results obtained from present value assessment methods: “Respondents may be unwilling or unable to reveal the true value and there is concern of having the “right” individuals as respondents.” This is similar to Griseri [13] arguing, “it might be difficult to identify what values someone really holds”.

Within the scope of this research work, a more detailed model of our current understanding of value in design will be developed, including more detailed considerations on shared value systems. Current design approaches will be analysed against VCD requirements. Insights gained from research work will be tested via case studies in industry.

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References

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