

E3 VALUE CONCEPT FOR A NEW DESIGN PARADIGM

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ABSTRACT

In this paper, a value concept composed of economical, ecological, and experience values, called the *E3 value concept*, is proposed. Every stakeholder involved in products and services has their own E3 values. Economical values include cost reduction and income enhancement which can be achieved by differentiation, market creation, customer acquisition and retention. Ecological values address the issues such as energy and water saving, dematerialization, reducing hazardous materials, reuse and recycling. Experience values deal with more people-oriented viewpoints including utilitarian and hedonic aspects. With combined adoption and modification of consumer value frameworks, a comprehensive experience value framework is proposed. Adopting Holbrook's consumer value aspects, extrinsic and intrinsic value dimension is used as the first classifier of experience value. Borrowing from Sheth et al, functional, social, emotional, and epistemic classes are also considered. Furthermore, emotional values are classified into active and reactive emotional values using Holbrook's classification again. The E3 value concept can be used in describing stakeholder requirements and design strategy. We introduce briefly an example case to confirm and clarify the proposed E3 value concept.

Keywords: Economical value, Ecological value, Experience value, E3 value concept, Service-Dominant Logic

1 INTRODUCTION

1.1 Background

As market competition is getting more intense and technological differentiation becomes difficult, design for new value paradigm is recognized as the emerging paradigm and received attention in research. With the increased attention on human-centeredness, the integrated viewpoint of products and services rather than product-service dichotomy is emphasized. Whatever users want should be fulfilled with product or service elements together in the way of total solution or functional offering. Technological progress such as information and communication technology (ICT) and ecological recognition on sustainability accelerate the integration of products and services as well [1].

Value is considered as the complex and ambiguous concept in various research fields. The evolving service centered logic [22] for marketing puts an emphasis on value, especially the value perceived by the customer or market. According to Khalifa [5], value research efforts can be classified into component model, benefit/cost ratio model, and means-ends model and he emphasized that dynamics over time and complexity for each stakeholder should be considered. During the design process of products, services, or product-service systems, value research can help in identifying customer wants and needs early in the ideation or fuzzy front end, identifying factors or attributes that influence customer judgments, determining the relative importance of value-related attributes, and determining how offerings are viewed on each of these attributes relative to the customer's alternatives [6]. Ueda et al. [3] described three kinds of value models with respect to the incompleteness of information about the environment and/or specification. When producer has full information about environment and customer specification, it can be described as providing value model. If there is not sufficient information about the environment while customer specification is complete, it is addressed as adaptive value model. Lastly, similar to the present market situation, if we do not have complete information about environment and customer specification, then it is regarded as co-creative value model and this kind of model situation is our main concern. Thus, when producer, customer and

environment have to cooperate for value creation, a new value concept can be conceived to reflect the requirements and needs of customer. Also, Lusch and Vargo [22] introduced service-dominant logic which means that co-creation of value with customers and other stakeholders of the firm through service experiences and relationships is critical.

In this paper, based on literature survey about previous value research, a new value concept which composed of *economical, ecological and experience values*, called *E3 value concept*, is described in detail at section 1.2. In section 2, we explain the experience value more in detail and address the value themes which belong to the experience value. To confirm and evaluate proposed E3 value concept, we introduce briefly an example case at section 3. Finally we make a brief conclusion at section 4.

1.2 Economical, Ecological and Experience Values

Goedkoop et al. [2] indicated economical and ecological factors as the main drivers of product-service systems (PSS) design. In the report for Netherland government, they proposed E2 vector as an evaluation framework for PSS, which consist of ecological burden and economic potential as well [2]. In consistent with E2 vector, MEPSS introduced triple winning concept with three Ps, which are people, profit, and planet, as main benefits of introducing PSS [7]. MEPSS emphasized on decoupling value creation and environmental impact by balancing the dimensions of people, planet and profit. In the same context, authors of this paper would like to propose the E3 value concept, which are composed of economic, ecological, and experience value. For the viewpoint of stakeholders, economic values tend to be more related with product or service providers, experience values are more related with product users or service receivers. In E3 value concept, experience value for customer of PSS, which includes both of utilitarian and hedonic dimensions, is more emphasized. Cho et al. [21] developed the procedure of product-service system design which integrated E3 values. E3 values were used by mapping onto life cycle steps to identify various stakeholders' requirements. Also, E3 values were used to compare PSS concept with alternative. The E3 value concept is shown in Figure 1.

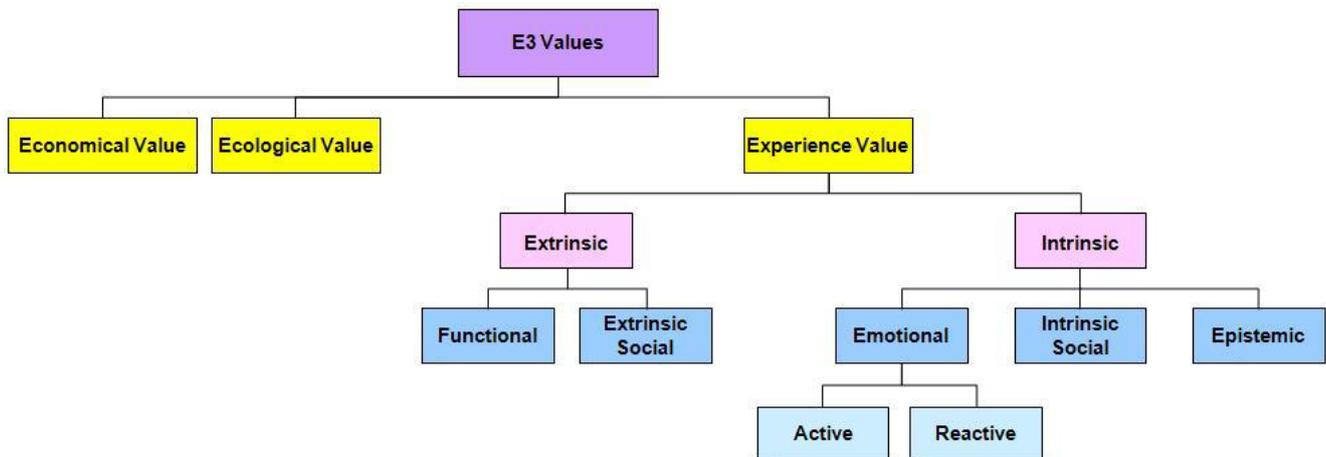


Figure 1. E3 Value Concept

Economical value

Economical value tends to be more related to the product manufacturer and service provider. As shown in Figure 2, it contains cost reduction and income enhancement. Also, income enhancement can be achieved by differentiation, market creation and customer acquisition and retention. By adding service or product elements respectively, product-oriented or service-oriented companies can attain differentiation from their competitors, enhanced relationship with their customers, and creation of new market. Examples of economical value can be found in Korean market. Samsung differentiated their cell phone by providing anycalland.com services from their competitors. Woongjin Coway, one of Korean home appliance manufacturer, could attain more than one million subscribers during first five years by introducing rental and home-visiting maintenance services in water purifier market. SK telecom provided phone upgrade services for free in order for customer retention. With the revenue or profit pool concept, economic values can be transformed into monetary value in general and compared with each other quantitatively. In addition to the viewpoint of product manufacturer or service provider, economic value for various stakeholders can be found as well. For example, users might seek

economic value such as mileage earning or more discounts from PSS consumption. Economic value for employee as a service provider also should be considered carefully for better service quality.

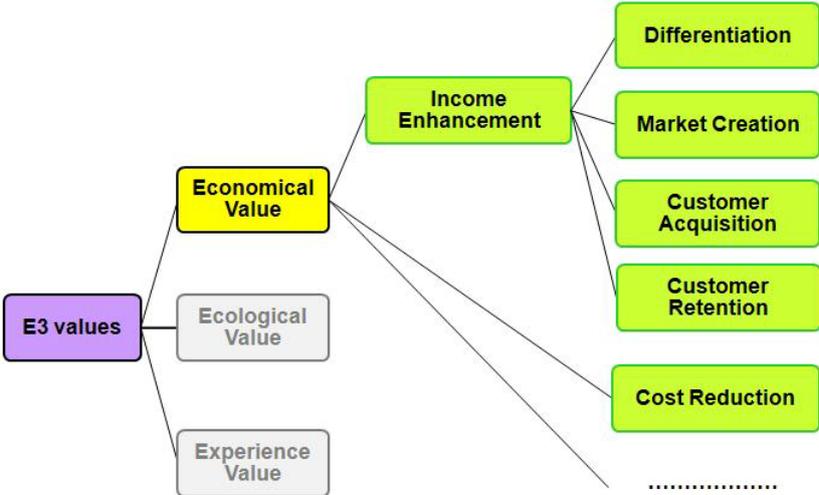


Figure 2. Economical values

Ecological value

As shown in Figure 3, ecological value includes value themes such as water and energy saving, dematerialization, reuse and recycling and reducing hazardous materials. To establish the sustainable development and sustainable consumption, most governments gave the guidance to company or consumer by enforcing regulation or campaign. United Nation Environments Programme (www.unep.org) has been active in promoting sustainable consumption and production by introducing eco-design, green procurement, and product-service system as options of sustainable consumption patterns. Sustainability is now considered as must option for innovation. Several companies utilize compliances as opportunities and continue to change their value chain more sustainable [8]. By designing product and services more sustainable and developing new business model, ecological values can be attained.

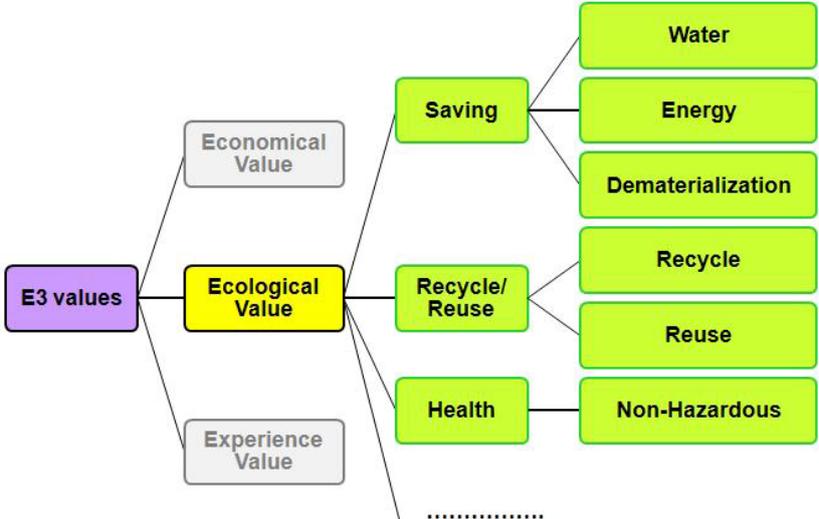


Figure 3. Ecological values

Experience value

Experience value which is our main concern is related to more people-oriented viewpoints with utilitarian and hedonic aspects. As shown in Figure 4, experience values are classified into extrinsic and intrinsic at the first level with the adoption of Holbrook’s framework [15]. Now taking from Sheth et al [12], excluding conditional value, the next level classification of experience value is composed of functional, social, emotional and epistemic. Function values are extrinsic while emotional and epistemic values are regarded intrinsic. Social values may take either extrinsic nature or intrinsic one.

Emotional value can be classified into active and reactive emotional value with the adoption of Holbrook's framework. We will discuss more in detail about experience value at next section.

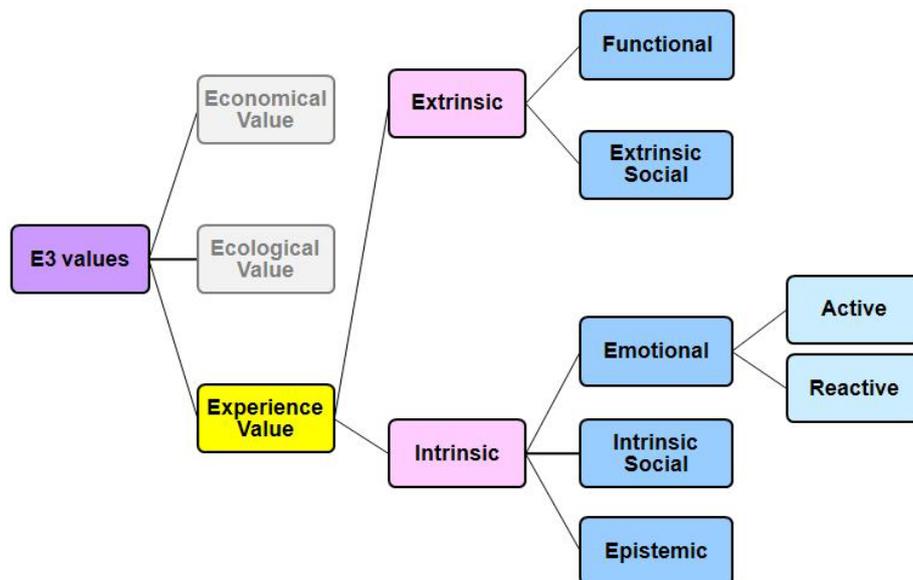


Figure 4. Experience values

2 EXPERIENCE VALUE

Pine and Gilmore [9] argued that experiences represent the step in the evolution of economy as products and services become more commoditized. Creating value in such an environment requires staging memorable experiences that unfold over time. Experience can be characterized by dynamics in use environment, customer participation, and social interaction. And designing the experiences should be focused on how participation and interaction can be enhanced to create successful experience by designing activities, physical layout, and social interaction [10]. Customer perceived values aroused by the use of product or services can be classified into utilitarian value and hedonic value. Batra and Ahtola [11] supported the presence of distinct utilitarian and hedonic components, which have been referred to as thinking and feeling dimensions. Sheth et al. [12] regarded consumer choice as a function of multiple consumption value dimensions and that these dimensions make varying contributions in different choice situations. They suggested five dimensions including social, emotional, functional, epistemic and conditional value, relating specifically to the perceived utility of a choice. Utilitarian values are related more with basic functions and features of product or services. Traditional viewpoint of quality on product or services can be adopted in construction of utilitarian value. ISO software quality model includes functionality, usability, efficiency, maintainability, and portability as sub-attribute of internal and external quality [13]. SERVQUAL model suggested by Zeithalm includes five dimensions of service quality, which are tangibles, reliabilities, responsiveness, assurance, and empathy [14]. Holbrook [15] proposed consumer value framework to distinguish eight types of consumer value. According to his typology of consumer value, there are three dimensions of consumer value which are (1) extrinsic versus intrinsic, (2) self-oriented versus others-oriented, and (3) active versus reactive [15]. Extrinsic value pertains to a means-ends relationship whereas intrinsic value occurs when some consumption experience is appreciated as an end in itself. Fiore and Ogle also used similar distinction between experiential and utilitarian dimensions in describing shopping experience [16].

2.1 Functional value

The definition of functional value in the framework is primarily borrowed from the definition of Sheth et al. [12] as they state:

“The perceived utility acquired from an alternative's capacity for functional, utilitarian, or physical performance. An alternative acquires functional value through the possession of salient functional, utilitarian, or physical attributes. Functional value is measured on a profile of choice attributes.”

Functional value is perceived to consumer when she/he uses the product or receives the service as a means to achieve something. So, functional value is included at extrinsic value at the viewpoint of Holbrook [15]. As shown in Figure 5, value theme of functional value can be addressed as *excellence*, *efficiency*, *reliability* and *convenience*. Also, the value theme which belongs to functional value can list up totally different in each case according the subject.

For example, when we make a decision to purchase a heating apparatus for family use, we will consider the fuel efficiency, heating capacity, convenience to use and reliability against fire accident. These kinds of value can be regarded as functional value.

2.2 Social value

The definition of social value in the framework is primarily borrowed from the definition of Sheth et al. [12] as they state:

“The perceived utility acquired from an alternative’s association with one or more specific social groups. An alternative acquires social value through association with positively or negatively stereotyped demographic, and cultural-ethnic groups. Social value is measured on a profile of choice imagery.”

At the viewpoint of Holbrook [15], social value has a characteristic both extrinsic and intrinsic value. The value theme such as *status*, *esteem*, *boast*, *rule*, *connectedness* and *privacy* can be included in extrinsic social value while *ethics*, *spirituality*, *ego/other-centric* and *respect* can be contained in intrinsic social.

For example, people who buy a luxury goods or luxury cars may want some social value in addition to functional value. Though she/he can almost satisfy the functional value with regular goods or compact-size cars, she/he buy luxury ones to boast with her/his financial power.

2.3 Emotional value

The definition of emotional value in the framework is borrowed from the definition of Sheth et al. [12] as they state:

“The perceived utility acquired from an alternative’s capacity to arouse feelings or affective states. An alternative acquires emotional value when associated with specific feelings or when precipitating or perpetuating those feelings. Emotional value is measured on a profile of feelings associated with the alternative.”

The present E3 value framework further specifies emotional values into ‘active’ and ‘reactive’ emotions in reference to Holbrook’s classification of active and reactive values [15]. Adopting Holbrook’s [15] framework, the present framework postulates that active emotions can be further divided into such value theme as *happy*, *anger*, *love*, *fun*, *relieved*, *achievement*, *control/power* and *trust* while reactive emotions can be into *aesthetics*, *elegance*, *harmony*, *contentment* and *favor*. Active and reactive emotion concepts are likewise mentioned by Scherer [4], a leading psychologist in the field of emotion study. He described the former ‘proactive’ and the later ‘reactive’ along the concept of ‘utilitarian’ vs. ‘aesthetic’ emotion.

Reactive motional values frequently pertain to products or services, while active emotional values are more related with the subject’s intention and concern. Something that looks good, feels good, or sounds good would provide reactive and aesthetic emotional values. The pride and achievements are active emotional values themes. While both active and reactive emotional values are to be elucidated with some processes involved, reactive ones may come quick and go away quick. On the other hand, active ones may last longer. Thus designing active emotional values would be more desirable and challenging.

2.4 Epistemic value

The definition of epistemic value in the framework is primarily borrowed from the definition of Sheth et al. [12] as they state:

“The perceived utility acquired from an alternative’s capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge. An alternative acquires epistemic value by questionnaire items referring to curiosity, novelty, and knowledge.”

Perfectly new experience such as visiting strange place or operating the innovative electronic device can provide epistemic value. Also, an experience that provides a simple change of pace can be imbued

with epistemic value. The value theme such as *learning, knowledge, evolution, curiosity, novelty* and *diversity* can be included in epistemic value.

When there are newly introduced smart phone in the mobile-phone market, some people want change her/his cellular phone just a curiosity about new smart phone. Also, some people visit other country to learn and experiencing the different culture. These examples can be said as epistemic value.

2.5 Overall of experience values

Value hierarchy can be expanded with value theme respectively. For example, reactive emotional value can be expanded to have value theme of positive emotions associated with consumption such as aesthetic, elegance, contentment, favor, and so on [17]. By the use of similar approaches, social value and epistemic values can be also expanded by adoption of previous value researches. Social value in mobile service design can be found in the way that membership service of mobile operators in Korea incorporated homogeneous experience for their subscribers, and at the same time heterogeneous value can be realized from classified membership, for example VIP membership. In Korea, the ring back tone service made great success, which achieved the social value of considering others [18]. According to the recent special report on service design, people are becoming less interested in stuff alone – products or commodities – and far more interested in an all-embracing experience as they interact with a product or service [19]. The Experience values and its value theme are shown in Figure 5.

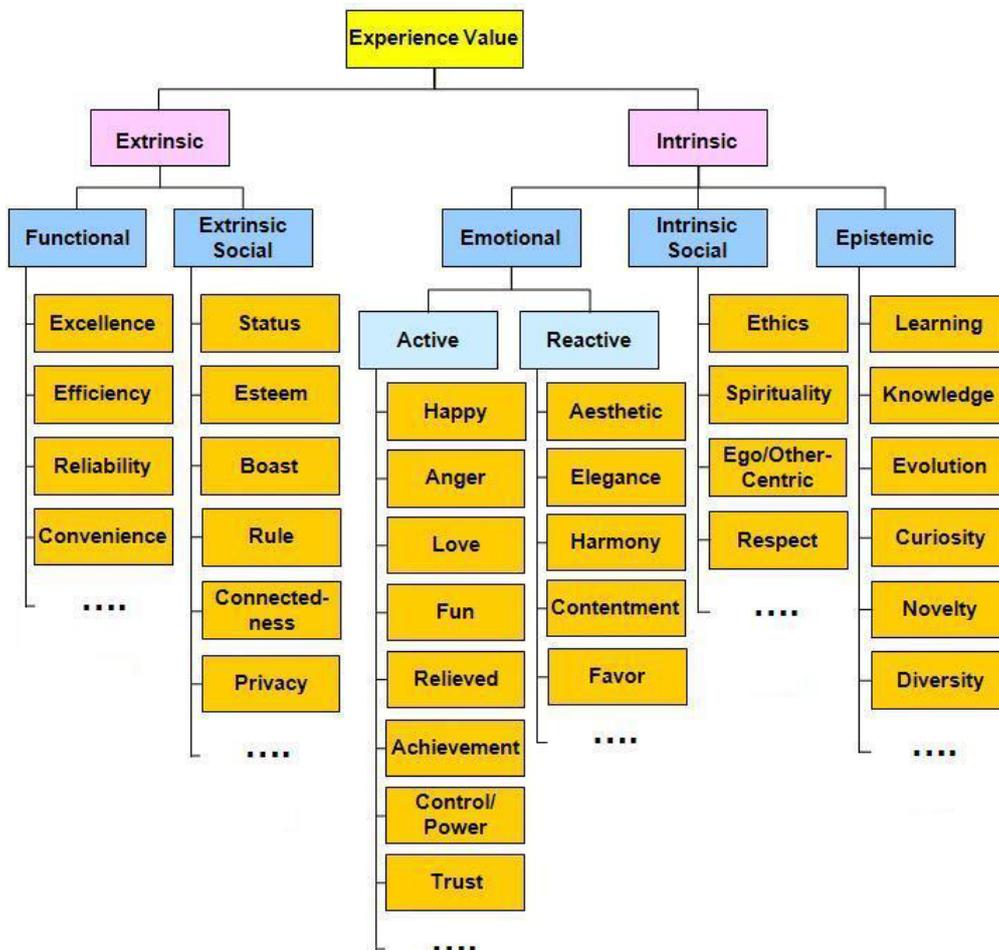


Figure 5. Experience values and its value theme

3 EXAMPLE CASES

In this section, we address the example cases which adopting E3 value concept in real world. In the viewpoint of a commercial home appliance user, we can generate the value themes by questionnaire, interview and so on. And then, we assign each value theme of E3 value concept considering definition

of each value. The classification of value theme related to a commercial home appliance in the E3 value concept is shown in Figure 6.

We focus on the experience value rather than both economical and ecological value because the subject of this analysis is a consumer who can use a commercial home appliance frequently. As mentioned above, the value theme which belongs to functional value such as visibility, hygiene, freshness and storage effectiveness are totally specialized at the case of a commercial home appliance. Based on this result, we can analyze and obtain the consumer emotions or needs toward a commercial home appliance according the functional, extrinsic and intrinsic social, active and reactive emotional and epistemic value.

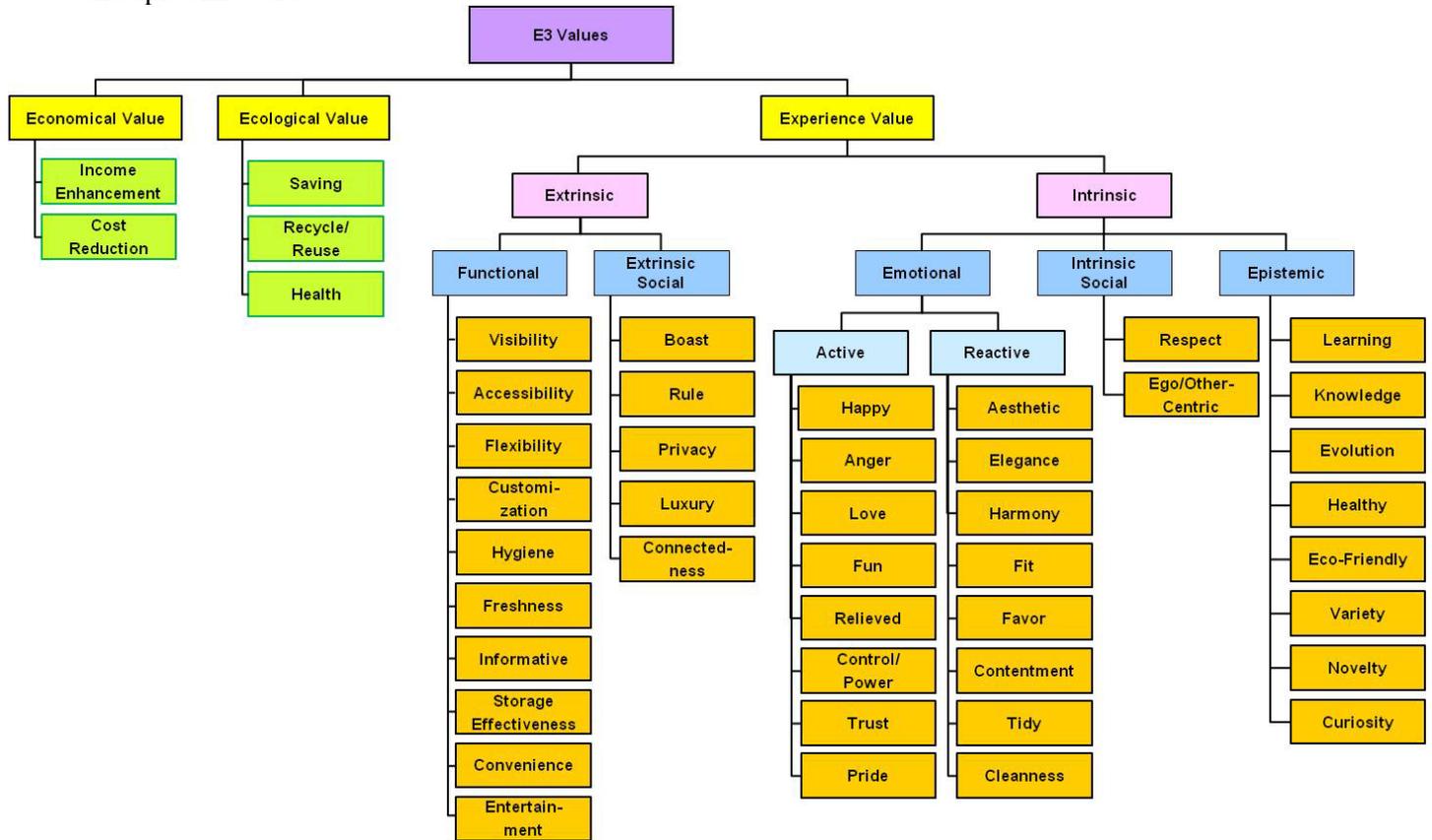


Figure 6. E3 values for a commercial home appliance

4 SUMMARY AND FUTURE RESEARCH

In this paper, E3 value concept of economical, ecological, and experience values is proposed. We further established and confirmed the concept of experience value in detail by referring to several previous value research results. E3 value concept proposed in this paper does not set in stone, and they are adaptable based on individual design cases. Both of top-down and bottom-up approaches should be continued to derive more rich and comprehensive E3 value themes in various design cases. In the top-down approach, a comprehensive value ontology and close association among stakeholders, activities, contexts, and value attributes need to be investigated. In the bottom-up approach, more cases will be designed or surveyed and then analyzed so that the hierarchy of E3 value concept can be enriched for more flexible utilization.

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