INTEGRATING CULTURAL VALUE IN VALUE ANALYSIS

MANUEL TELES FERNANDES

Abstract

Value Analysis (VA), as it was originally conceived, was defined and applied mainly as a cost cutting tool, in order to make products more competitive in the market place.

Many different and alternative applications of the value concept and of its original methodology have taken many professional practitioners and scholars to theorize and apply new and derived concepts and methods. We can find many different application tools and some theoretical evolution from that work, but that has not yet answered some aspirations regarding the concept of value and value analysis.

This paper introduces a new and more comprehensive understanding to professional practitioners, scholars, trainers and students, about some major concepts and applied methodologies in the discipline of Value Analysis (VA). In that regard, a revision of the literature about the concept of value will be made, in relation to the tangible and intangible dimensions of value, namely “use value” and “economic value”, and “cultural value” and “perception value”, respectively. However, more important is the presented redefinition of the current understanding of value, function, and their applications. New concepts and terminology will be introduced and explained by this paper; such as “emotional attributes” and “utility attributes”, “esteem service functions” and “use service functions”, and “soft-product cultural functions” and “hard-product technical functions”. As a result of this new concepts application in value analysis exercises, the process of function analysis needs to be revised.

Therefore, this paper brings a new perspective of “value” and “Value Analysis” to professional practitioners, scholars, trainers and students in VA, VE and VM.

Keywords - Attributes, Cultural Value, Functions, Intangible Value, Value.

Introduction

Value Analysis (VA), and Value Engineering (VE) for the same matter, is deeply tied to Function Analysis (FA). The former does not exist without the last. The concept of “function” has to be part and soul of any “value subject”. As a consequence, a product (good or service) has no need to exist if there is no “use” or “utility” in it, that being, if there is no function.

VA, and VE, also considers the effort made to deliver the product function or functions as fundamental in its evaluation of any value subject. That effort, covering the utilization of all applied resources to deliver the functions, is commonly referred as “cost”, leading to the need to evaluate the cost of functions. The costing exercise is related to the “economic” or “exchange” dimension of a product. VA is, as a consequence of those two views of the same product and in a very narrow perspective, defining “value” as a result of the “use” dimension and of the “economic” dimension in products.

It is common knowledge that the “value” of a product does not end at the “use” and “economic” dimensions of products, very much tangible for the purpose of evaluation. Since the very beginning of VA, and of its application in the industry, theorists and professionals have been searching into the more intangible side of the value of products. The “esteem” side involved in the evaluation of the value of a product is frequently connected to the emotional and the singled individual appreciation.

This approach leads to the research of the “meaning and sign” that a product might have to a certain group of people, uncovering the “cultural” dimension of it, and to the “experience” that the same product might have allowed to an individual user, than uncovering the “perception” dimension. By this reasoning, we may find that value not only covers the use and economic side of products, as tangible dimensions, but also includes culture and perception, as intangible dimensions of it. This last conclusion opens a new field for discussion, as Function Analysis and Function Cost only covers the tangible dimensions of the evaluation (use and economic) of a value subject (product: good or service).

During the past decade, some experimental applications have been made in order to integrate the intangible dimensions of value in VA. Departing from the conceptual view that defines four types of value (use value; economic value; cultural value; and, perception value), and also departing from users perspective that products have attributes (which are answered by functions), I have developed a method and a process to integrate all those in VA.

This paper will first cover the introduction of the four types of value, using a simple example of a common product (pencil) to illustrate such concepts, and second will explain the method and demonstrate how to integrate the intangible side of value in the VA process.

Value and types of value

According to the European Norm EN 1325:2014 [1] value is the “measure which expresses how well an organization, project, or product satisfies stakeholders’ needs in relation to the resources consumed”. On the other hand, according to the SAVE International Value Standard [2] value is “defined as a fair return or equivalent in goods, services or money for something exchanged. Value is commonly represented by the relationship: Value ≈ Function/Resources”. Both versions of the same concept of value were initially mostly based on the satisfaction of the user’s needs, but it has been developing into the concept that value also speaks to all other stakeholders (interested parties) in the same manner, as expressed in the Value Management Handbook [3] and the European Norm EN 12973:2000 [4].

If we consider that all stakeholders have some kind of interest in a product and in its life cycle, that opens an opportunity to determine who out of the same stakeholders will be affected positively (positive value) and who may be impacted negatively (negative value) by the value subject. In the same fashion, different stakeholders may take advantages and benefits from some attributes or functions of the product and its life cycle in utility (tangible/use value) or emotional terms (intangible/esteem value).

These wider visions of what value is or may be take us to a new journey into the discipline of value analysis, as we need to contemplate all of those variations of value in our analytical process.

Value is generally understood as the result of a transaction between two parties, where the equation "value=benefit/sacrifice" is mostly taken into account. Benefits may respond to requirements (needs or wants). Benefits can be positive, subjected to being expressed as gain, or negative, therefore expressed as a loss or damage, and, consequently, linked to risk. Benefits are what consumers and users take out of product attributes, and attributes are representations of functions. Functions deliver value, which can be tangible or intangible.

As mentioned before, according to Jensen, 2005 [5], we may find four types of value in a product, as following: (i) economic value – or value as exchange; (ii) use value – or value as utility; (iii) cultural value – or value as meaning and sign; and, (iv) perception value – or value as experience.

The four types of value in a pencil

Any simple pencil has, as its main function, the purpose of "leaving a marc on a surface" (that is what we call writing). This function is of use or utility to any user, therefore we can say that a pencil has "use value", or value as utility, as in figure 1- A.

To benefit from that function, "leaving a marc on a surface", users are prepared to give away some sacrifice to acquire any pencil, normally expressing that sacrifice in monetary terms, therefore, that pencil has "economic value" or value as exchange, as in figure 1- B.

But a pencil may have some "add-ons", that being extra functions that add extra utility to it, which might increase the "use value" of the same pencil, and, therefore, its "economic value", resulting in extra value added, as in figure 1- C.

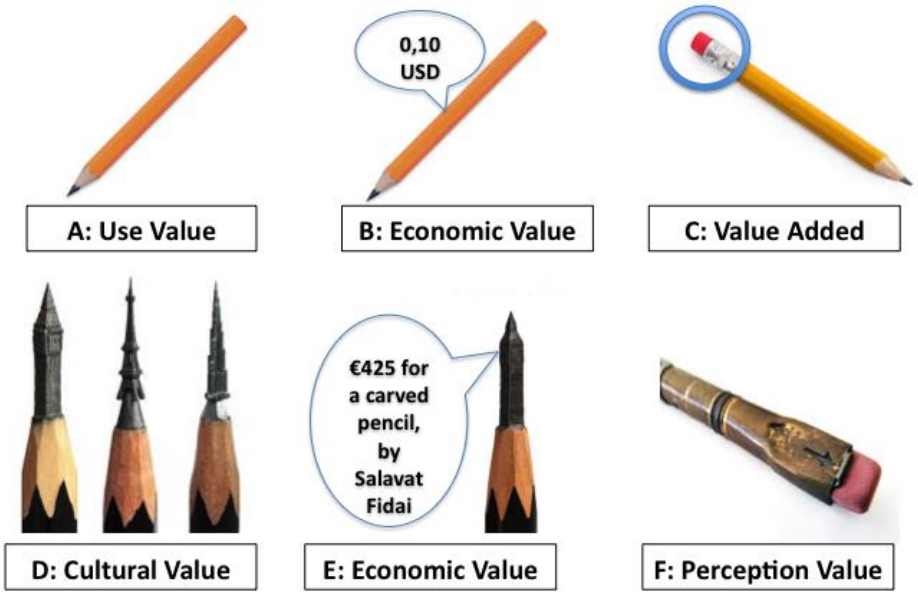

FIGURE 1: Value types in a pencil

Some brand names, limited editions or artistic versions might add extra value to some pencils, at an emotional dimension. Esteem value exists in the collective cultural realm, being understood as "cultural value", or value as meaning and sign, intangible by nature, as in figure 1- D.

When buyers accept the "cultural value" as worthy, the economic value of those pencils may increase tremendously, as in figure 1- E.

An old or special pencil or some special add-on, given to us by someone close or acquired at a special moment, may have a tremendous emotional significance. Esteem value only exists at the individual level, and is understood as "perception value", or value as experience. Due to the difficulty of turning one's

“perception value” worthy to other people, due to its individual nature, the economic value of those pencils may be not important to others, but only at the eyes of the beholder, as in figure 1- F.

Redefining “value”

If one needs to understand what value is, one has to go back to nature to under the phenomenon. If we consider that in the universe the total quantity of existing energy is a constant, despite the various forms that energy may have, the total “value” of that same energy also remains constant. Therefore, any mutation in the energy form, like solid changing into liquid, does not affect the total value, as there is no loss of energy in such mutation. Consequently, the universe and nature in its basic form do not use or apply the concept of value, at least not as implicitly defined by the equation “value=benefits/sacrifice”.

However, any form of existing life on Earth seems to understand and apply the above principle of value. Any tree, being placed between dry and wet soil, directs its roots mainly towards where the water is, reducing the effort of sending roots all around in full length. Animals only fight for food when the reward is higher than the effort (sacrifice) spent to get it. Humans do the same, even at the sub-conscious level, when making the least important decision in their lives. It seems that “value” is in any decision making process.

I argue that, based on such evidences, “value is the absolute criteria used in any decision making process, based on the relationship between expected benefits versus potential sacrifice to be made”. Therefore, in terms of the disciplines of Value Management and Value Analysis, “Value is the relationship between the output(s) and/or outcome(s) [expected benefits] provided by a thing or event, to an individual person or group of people, and the effort [potential sacrifice] consumed to acquire, use or make it happen” (Fernandes, 2014) [6]. This conceptualization still maintains value as the result or expression of a measurement, staying in accordance with existing accepted definitions.

The Value Analysis Process

In order to advance into the proposed new VA process, we need to revisit some concepts and redefine some understandings based on those.

Attributes

An attribute is a permanent or timely condition of a solution (product) to some consumer need. An attribute is not defined by any action in particular, like functions, but rather by a given *status quo* that is intrinsic to the solution/product. Attributes are properties, predicates, features, dimensions, characteristics or even independent variables, depending on the context that defines the product. An attribute is not necessarily defined by a verb, but if so, it is likely to be a passive one such as to be, to have, to cost, to give, to enhance, or to seem.

Starting from the concept that consumers or users understand value as represented by the equation “value=benefits/sacrifice”, we may accept that attributes can be related to benefits and to sacrifices. Attributes that are benefits may be “resistance”, “duration”, “design”, “accessibility”, “taste”, “sound” or “pleasure”. Attributes that are sacrifices may be “cost”, “assemblage”, “transportation”, “storage”, “disposure”, or “displeasure”. However, some of these attributes, depending on the context, can transform from benefit into sacrifice, like sound that becomes loud noise, or from sacrifice into benefit, like making the assemblage of a product that becomes pleasant entertainment. A color, like (being) blue, is an attribute. This can be a benefit to some or a sacrifice to others, depending on the context and of what one does with that attribute.

We also need to bring into play other conditional factors of value to understand attributes. Before, we identified four types of value: economic value; use value; cultural value; and perception value. Economic value is mostly related to (monetary) costs, therefore a sacrifice, from a purchaser point of view, but it can be seen as a benefit if the cost, or price, represents accumulation of value of some kind to the holder. Economic value can also be a benefit to the seller if a thing is sold at a profit. Therefore, economic value is related to different and almost all attributes, being at the same time a benefit and a sacrifice, depending on the standing point of each interested party. Perception value, like economic value, also very much depends on the standing point of each interested party and can be simultaneously a benefit or a sacrifice

to different interested parties. These two types of value are very much diffused in any set of attributes of a solution (product) and they can transform into any of the next types of value that we will see next, as they lose their own independent definition in the context of attributes.

Use value is connected to most attributes in a solution (product). Consumers or users, and any other interested party, perceive the value of a solution based on the use value that it may deliver. In other words, the utility of the solution is fundamental for the existence of value in it. A product with no utility has no use value or no "value" at all, for this matter. The level of use of a product, expressed in its set of "utility attributes", may affect the economical value or the perception value of the whole product. The utilities of a product are, most of the time, benefits to some interested parties, mainly consumers or users, but can also be a sacrifice in some contexts to other interested parties. Therefore, we may find that utility attributes can be benefits or sacrifice, and that must be clearly identified in any value analysis exercise.

Cultural value may be connected to some attributes of a solution (product). Consumers and users, or any other interested party, may find cultural value in some attributes of a product. A given design style applied to a product may provide it with cultural value. The cultural value is mostly felt at the emotional level or sphere of any consumer or user, or of any other interested party. The level of cultural value in a product, expressed by "emotional attributes", may affect the economic value or the perception value of the same product.

In conclusion, we may find some attributes in a product that are benefits to someone, and other attributes that are sacrifices to the same person or to somebody else. At the same time, those attributes can be of "utility" or "emotional". Attributes are what the consumer or user, or any other interested party, sees in a solution (product) to solve a need. In order to deliver the desired solution to a need, the product must perform some functions. This logical path connects attributes to functions.

Functions

Starting from the attribute side of a solution (product), and taking for good that there are some direct connections between attributes and functions, we can rapidly arrive at the functions that are representations of the former.

If we consider the utility attributes, then we must find a service function that performs in such a way that the need implicitly connected to the attribute is conveniently answered. I call this the "use related function". The same happens if we consider an emotional attribute, where some service function must provide the required answer to some need. In this case, I call it "esteem service function". However, if on the one hand a utility attribute is answered mostly by a use service function, on the other hand, an emotional attribute can be answered by both types of service function – use service functions and esteem service function. Occasionally, an esteem service function may turn into a utility attribute. The use service function provides some tangible answer, measurable and predictable. The esteem service function provides some intangible answer, very difficult, if not impossible to measure and unpredictable.

Continuing from the service functions point of view of a solution (product), and taking for good what literature refers, we can arrive at another level of functions that answer the first. These are the product related functions, also known as internal or secondary functions.

Following the same rational previously used, a use service function must be connected or answered by one or more product functions, which I call "hard-product/technical function" as most answers are given through a technological solution. An esteem service function, following the same logic, should be answered by one or more product functions, which, in this case, I call "soft-product/cultural function", as the answers are provided through human actions, with or without the support of technology, that induce human behavior as part of a given culture. However, esteem service functions may also be connected to hard-product/technical functions, as used service function may be connected to soft-product/cultural function, and that will affect function cost, as we will discuss later.

Summarizing, we may establish connections between attributes and service functions, and between service functions and product functions, as in figure 2 (Fernandes, 2015)[7].

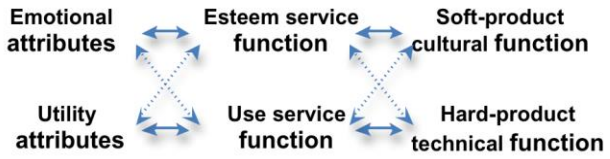

FIGURE 2: Connections between attributes and functions

Function Analysis

I have been using, for a while now, a combination of techniques to execute functional analysis. The first step is defining, with the organization sponsoring the project, the composition of the working team in such a manner that the team includes someone representing each and every interested parties, taking into special consideration the consumer's voice, who must represent the needs and wants of consumers and users. This is, anyway, a step taken by everybody working in functional analysis. Then, I start, with the project team, by identifying all potential interested parties in the value subject under study, even if not represented in the project team. That covers all entities, internal and external to the organization or holder of the value subject, under study. To find all interested parties, we ask four questions: (i) who interacts directly with the value subject?; (ii) who reaps benefits from the value subject?; (iii) who can be affected negatively by the value subject?; and, (iv) who has to provide effort (sacrifice) for the value subject to exist? For that purpose, I use an adaptation of Allee's Value Network methodology (Allee, 2000)[8].

Once all the interested parties are identified, the project team identifies the potential transactions that may occur between those entities. Transactions are understood as an exchange, in one or both directions, between two or more entities. Transactions can be tangible if they are measurable, like transacting products, money, services, data or information, or intangible if they are not measurable, like transacting behaviors (i.e. misuse of an equipment, avoidance to use a product, or referring a service to someone else) and feelings (i.e. happiness, trustfulness, or confidence).

The next step is identifying all interactions that the entities (interested parties) may have with the value subject. For this purpose, three questions are asked: (i) what are the direct interactions between each interested party and the value subject?; (ii) what are the interactions between the value subject and any other system or sub-system?; and, (iii) what are the interactions between the value subject and the environment (the whole physical context). This follows the "Roseta" method previously identified. The questions are mainly placed in reference to all identified transactions. Normally, this exercise uncovers other transactions not considered until that point in time. Out of each transaction, tangible or intangible, and related interactions, the project team identifies corresponding attributes that may be considered by each of the interested parties in their own judgment in classifying the value subject (product). After listing all transactions, related interactions, and consequent attributes, the team identifies the needed corresponding service functions that answer those. At the same time and for each service function identified, either use service functions or esteem service functions, the team identifies the needed corresponding product function or functions, hard-product/technical functions or soft-product/cultural functions, respectively.

In order to follow the logic flow, from transactions, at one end, to product functions, at the other end, the team always has to ask the question "how", as following: – (i) Question: how is such transaction solved? Answer: by such interaction; (ii) Question: how is such interaction answered? Answer: by such attribute; (iii) Question: how is such attribute answered? Answer: by such service function; (iv) Question: how is such service function answered? Answer: by such product function. This technique follows the previously mentioned FAST method. We can also use the "why" question to validate the sense and correctness of the answer to the "how" question, but inverting the direction of the flow. We should note that this process of questioning and answering is very dynamic and often we can work with multiple transactions, interactions, attributes, service functions and product functions at one time.

When the full exercise is completed and all service functions are identified, isolated, and validated, the project team connects them to the identified interested parties, following the value creation stream flow by this order: (i) who has to provide the function; (ii) who is served by the function. This provides a view of

the relevance and level of interest of each interested party. For better visualization of such relevance and level of interest, the team builds a pyramid with all interested parties. At the top of the pyramid is the last interested party or parties to be served by a service function, normally the user. At the bottom of the pyramid are all interested parties that have to provide functions to others, normally the manufacturer or service provider.

Then, two exercises of relative importance evaluation must be performed: (i) an exercise with all the identified service functions, taking into consideration the relevant participation or level of interest of each identified interested party, and (ii) one individual exercise by an interested party, only including the service functions related to the same interested party. As a note of precaution, the team must make sure that only service functions are included in the exercise of measuring the relative importance. The inclusion, in this relative importance evaluation, of attributes or product functions, to be compared with service functions, completely destroys the accuracy of the evaluation.

Revised VA process

The introduction of the concepts of tangible and intangible transactions and utility and emotional attributes are new and unexpected for many professional practitioners and scholars. The introduction of such concepts in my professional practice are due to the necessity of bringing a better understanding of needs to all interested parties, and of expressing functions in a common day-to-day language understandable to most people, mainly for consumers and users.

The tangible and intangible transactions extracted from the value network exercise are the expression of implicit needs of each and all interested parties. This exercise avoids the potential missing of interested parties and needs that normally are not expressed in brainstorming exercises. The utility and emotional attributes are the expression of the use and esteem service functions of any product. The wording of attributes is used to reach consumers and users in clearer and more understandable marketing and communicational activities. The attributes description is mostly used in marketing activities, reaching the target in their language terms, therefore easier to be understood and assimilated. This is one of the most appreciated results that participants take out of value analysis exercises, according to my experience.

The recent work led me to standardize the value study process, as shown in figure 3 [7].

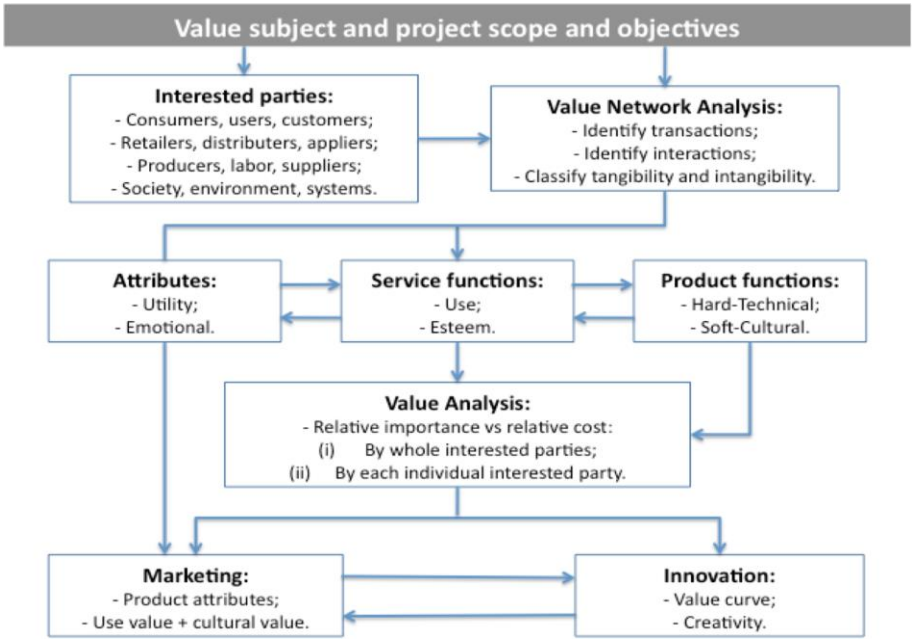

FIGURE 3: Value Analysis Process

Conclusion

Value is strategic to every business: either they produce or sell commodities or premium products. In the first case, even if the importance of costs cutting is unavoidable, there is much more to consider, like identifying the value of the product for each interested party and work improvements from that status quo position. In the case of premium products, their value is based on the intangibilities that are attached to them by many different emotional attributes and esteem functions. And that brings value into a different and further dimension.

This paper, reflecting my professional work, as previously published [7], is part of an ongoing challenge since I was once questioned "if value is so important, why isn't the value management methodology used by everyone in business?"

Despite the work already developed and the conclusions extracted, there is still a great need for further practice in the utilization of the concepts and methods explored in this article. Professional practitioners and scholars must apply, evaluate and discuss this issue further, in the same fashion that I have done, or in any other manner, always keeping in mind that we need to progress in the development of value analysis in order to answer the Miles's initial inevitable question.

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