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Addressing the Subjective View of Value Delivery

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Abstract

The construction industry has a limited understanding of its role in creating and delivering customer value. Existing responses to requests for value delivery focus on Value Management and Value Engineering. These approaches do not necessarily consider the subjective nature of the value judgements made by individuals as they experience their built environment. This paper suggests that designers and stakeholders should address the personal, organisational and societal values against which value judgements are formed. A continuous dialogue of value delivery is proposed.

The Managing Value Delivery in Design project at Loughborough University is seeking to help both designers and stakeholders express and communicate their values so that subjective value judgements can be anticipated in design development. A "Framework of Value" is presented to illustrate the issues that value delivery should address. The Framework has been synthesised from review of literature and current industrial practice and has been validated by industrial partners. The future work required to broaden the construction industry's approach to value delivery is outlined.

Keywords

Dialogue, Management, Stakeholders, Value Delivery, Values

1. Introduction

1.1. Predominance of the Objective View of Value

The value delivery activities of the construction industry can be characterised by the prominence of an objective view of value and the use of predominantly quantitative methods, such as Value Management. The industry's current understanding of value is such that it routinely fails to consider the relationships between buildings and the people who will provide, use and be influenced by them. Because its understanding of value is currently biased towards an objective view, the industry tends to fail to account for the subjective value judgements formed by individuals, organisations and societies as they interact with the built environment. As a result, design decisions tend to be made without considering their impact on the making of value judgements of the resulting product. Further, the industry's understanding of the judgement aspect of value is limited and, because of this, it does not routinely examine the values of the individuals, organisations and societies which frame value judgements. Hence, not only do design decisions seldom anticipate the judgement (rather than measurement) of their value, but when this is attempted, judgements can not be pre-empted due to a lack of understanding of the environment in which these judgements will be made.

It is proposed that the construction industry could deliver value more effectively by improving its ability to address the subjective nature of value. To do this, it must understand the values of individuals, organisations and societies so that their subjective value judgements (which are formed in the context of these values) can be pre-empted in its design solutions. This paper derives an understanding of value that incorporates both subjective and objective views. This understanding is forwarded for industry use, as it will allow the subjective value judgements of individuals, organisations and societies to be anticipated in design development while also accommodating established means of delivering objective value, such as Value Management.

A Framework of Value is outlined and its development by the Department of Civil and Building Engineering, Loughborough University described. This work is being conducted by the Managing Value in Design (MVDD) research project and is funded by the EPSRC, DTI and ten industrial project partners.

1.2 Industry Recognition of the Need for Improved Understanding of Value

The shortcomings of Value Management are beginning to emerge as construction industry members', customers' and stakeholders' understanding of value is becoming more sophisticated. To date, value management has provided an effective way to deliver objective value, given its focus on quantitative definitions of required function of cost. However, as the industry and its customers are broadening their interpretation of value, they are also beginning to appreciate its subjective nature. This is exposing shortcomings in the current approach to value delivery, and its reliance on value management in particular.

In addition to their need to procure and operate buildings as capital assets, customers are becoming more aware that their buildings can deliver value to their surrounding society. CABE (2002) illustrated the positive impact of good design on the quality of life in schools, businesses, housing and urban settings. The contribution that 'good' architecture can make to the sense of place and the quality of life has also been recognised (Loe, 2000; Worpole, 2000).

Spencer and Winch (2002) commented that the "creation of new value is two-dimensional, beginning with the actual design and construction of the asset itself, and resulting in the production of an asset that is exploited as a medium for an organisation to create its own value." In making the latter observation, they identified the context in which value is *perceived* and *judged*: as people interact with the products of the construction industry. Evidence of the improvements that well-designed buildings can make to the quality of life of their occupants is emerging. For example, Luxton (2002) found a 120% reduction in staff turnover in a call centre occupying a building specifically designed to create a sense of community and place through informal meeting places and an innovative building structure.

In part, the UK government has stimulated the need for a broader definition of value. The Accelerating Change agenda is "for the UK construction industry to realise maximum value for all clients, end users and stakeholders and exceed their expectation through the consistent delivery of world class products and services." Further, the report (Strategic Forum for Construction, 2002) states that construction must:

"exploit the economic and social value of good design to improve both the functionality and enjoyment for its end users of the environments it creates (for example, hospitals where patients recover more quickly, schools and work places which are more productive and more enjoyable to work in, and housing which raises the spirits and enhances the sense of self worth)."

Given the fundamental influence that design has over future value judgements (by defining the key product qualities such as shape, form, materials, location and functional performance that inform such judgement), the need for subjective value to be discussed in design is particularly pertinent.

Lipton (2001) summarised this by stating:

Design represents a minute proportion of the lifetime cost of a building – less than 1 per cent – but done well it has a disproportionate impact on how well the building, and its surroundings, perform.

Saxon (2002a) expanded the ratio of whole life office operating costs proposed by Evans, Haryott, Haste and Jones, (1998) to demonstrate the impact that design decisions can have on these costs and, more significantly, on business performance. Presenting at the launch of the 'Be' construction industry body, Saxon highlighted the critical influence of the built environment on employees and, consequentially, business performance (Table 1).

Table 1 about here

Despite this need to address value during design in a broad sense, Saxon (2002b) commented that the “industry knows little of how it adds value to customers or society” and that “good ‘people policies’ will drive thinking on how things are to be done. The key to the set, in our view, is to create and capture far more customer value thus providing, the resources for all other improvements.” Hence, he supports the need for a broader, more developed understanding of value in construction.

The construction industry is responding by attempting to address the subjective nature of value while continuing to use existing means of measuring and demonstrating objective value delivery. Further, it is recognising its need to broaden its methods of evaluating building worth to account for the intangible, “soft” aspects of value, such as the relationships between buildings and the people that use them, and the contribution they make to their local community (Rouse, 2000; Macmillan, in press).

To understand how subjective value could be addressed, it is first necessary to understand how the construction industry currently delivers objective value so that links between existing and new methods can be defined. This will determine the extent to which a broader definition of value will require construction industry value delivery practices to be revised and

1.3 Current Value Delivery Practice

The construction industry typically cites Value Management and Value Engineering as its value delivery methods. These approaches consider value to be delivered when a building design solution offers an effective response to stakeholders’ functional needs. Typically, value is considered in a series of planned interventions to an ongoing design process (Kelly and Male, 1993; Institution of Civil Engineers, 1996; Austin and Thomson, 1999). Early process (often labelled “Value Management”) interventions seek to initially determine the functional requirements (as expressions of customer need) that the whole project must fulfil. Later interventions (often labelled “Value Engineering”) tend to be more focused on defining the functional performance of building systems so that the most effective technical solutions can be selected. The industry also has a tendency to label its cost-cutting and de-specification activities “Value Engineering” but, without consideration of functional performance, this activity can not be considered to be related to value, even in an objective form.

Distinguishing between Value Management and Value Engineering by the timing of their process intervention is purely arbitrary, however, as both methods apply function analysis in a workshop setting. Male, Kelly, Fernie, Grönqvist and Bowles (1998) commented that any term can describe value delivery activities and noted that “Value Management” is prominent in the UK. Bone and Law (2000) identified ten mandatory characteristics of Value Management practice:

1. It is visibly supported by senior management.
2. It generates a clear programme of work.

3. It involves structured team-based workshops.
4. It employs a range of analytical tools.
5. It involves creative brainstorming.
6. It is led by a qualified value practitioner.
7. It follows a structured 'Job Plan.'
8. It involves customers.
9. It involves suppliers.
10. It causes study teams to achieve sustained improvements.

Value Management continues to use Function Analysis which, in turn, embodies a definition of value (Figure 1) directly descended from Miles' original method of overcoming the materials and component shortages following the Second World War (Miles, 1972). In such an approach, the treatment of value is purely objective, as it seeks to analyse functional needs so that design solutions can be developed that fulfil "needs" rather than (necessarily) "wants" (Macedo, Dobrow and O'Rourke, 1978). Although this approach promotes efficient and potentially innovative design solutions, it fails to adequately address the subjective nature of value.

Figure 1 about here

A series of exploratory interviews was conducted with representatives of typical, industry-based design team members, drawn from the Architecture, Building Management and Value Management disciplines. These interviews sought to characterise the distribution of current practices associated with value delivery across the project process. A summary of the current industry approaches to value delivery in different types of organisation was compiled (Figure 2). It was evident that, where practiced on a project, existing value management methods provides a continuous address of value, albeit structured around the objective view identified above.

Figure 2 about here

Comparison of the approaches to value delivery observed within the Architecture and Building Management practices (independently of any use of value management) identified a desire of the building manager to become more involved in early design activity, specifically with the intention to contribute to design development to improve the ability of a building to deliver value in use. Further comparison of the architect's and building manager's value delivery processes could be said to support the thesis that a subjective view of value is particularly prominent in architects' practice during early project stages when design is focused on the formatting of the overall projects. Further, building managers view of value may be said to address subjective issues associated with building users' experience of building use. Hence, building managers' desire to offer design input

during the early project stages could be seen as a reflection of their recognition of the need consider users' through-life subjective value judgements in design. If achieved, together with architect's focus on initial consideration of subjective value during the delivery process and upon building handover, this would result in continuous address of the subjective view of value.

Taking a philosophical view of value, Dent (1995) noted three aspects of a full definition of value by stating:

“first, on what sort of property or characteristic ‘having value’ or ‘being of value’ is; second, on whether having value is an objective or subjective matter, whether value reposes in the object or is a matter of how we feel towards it; third, on trying to say what things have value.”

In construction, understanding is required which responds to each of Dent's aspects of value and which, once defined, can underpin an approach that:

- helps designers understand the social context in which their products will exist and the influence of values of the people present in that setting over their judgements of value; and
- helps designers establish objectives for value delivery and set metrics for their attainment. This corresponds with a prominent industry perception that value delivery is associated with the recording and demonstration of delivery performance (Thomson, 2003).

1.4 Broadening Industry Understanding of Value

Dent (op. cit.) identified the dual nature of value. To date, Value Management practice has focused on the delivery of value in its objective form. Its objective approach is reflected in its use of measures and analysis to facilitate value delivery. It is not a measurable product attribute, unless the outcome of a value judgement is measured and attributed to a product as one of its qualities.

Miles (1961) characterised the difficulty in defining value by suggesting that the definition of value should vary with the purpose, viewpoint and intent of the person defining it by commenting “value means a great many things to a great many people.” Despite this, industry remains biased towards the delivery of objective value. BS EN 1325-1 (BSI, 1997), for example, defined value as “the relationship between the contribution of the function to the satisfaction of the need and the cost of the function implying that value can be measured.” Hence, current practice (including its embodiment in standards) reflects a predominately objective view of value.

Figure 3 about here

With reference to construction, Dell'Isola (1997) defined value with an objective view (Figure 3). In one of the earliest investigations into value in construction, Burt (1978) suggested that “maximum value is ... obtained from a required level of quality at least cost, the highest level of quality for a given cost, or from an optimum compromise between the two,” reflecting a more subjective view. More recently, CABE (2001) integrated both subjective and objective views by defining value as “a measure of the worth of something to its owner or any other person who derives benefit from it, this

being the amount at which it can be exchanged.” Focusing on the worth aspect, rather than the exchange value, of CABA’s definition reflects that of Vickers (1968), who noted that subjective value judgements are intertwined with individuals’ cognition of their surroundings and stimulate their actions and are, hence, the result of perception.

Figure 4 about here

Thomson, Austin, Devine-Wright and Mills (accepted) provided a sufficiently broad definition of value that can accommodate both subjective and objective interpretations of value in the form of a basic “benefits vs. sacrifices” relationship (Figure 4). This relationship is also reflected in European Standard 12973 (BSI, 2000), which states:

“The concept of value relies on the relationship between the satisfaction of many differing needs and the resources used in doing so.”

Irrespective of its definition, the subjective aspect of value must be treated as qualitative judgement, rather than the quantitative measurement or assessment of value in its objective form. To anticipate likely judgements during design development, the values of the individual, organisation or society perceiving an object (i.e. a building) and making that judgement must be investigated and understood. If the construction industry is to become better able to address the circumstances in which these judgements are formed then it must improve its awareness of *values* as well as broadening its understanding of *value*.

2. Introducing Consideration of Values into Value Delivery

Our values are the principles by which we live. They are the core beliefs, morals and ideals of individuals and are reflected in their attitudes and behaviours in society. Köhler (1966) identified this guiding, ethical role by stating: “At the bottom of all human activities are values, the conviction that some things ‘ought to be.’ Pirsig (1974) commented: ‘Life would just be living without any values or purpose at all.’ Values also underpin the activities of business organisations (Griseri, 1998). Although values can be complicated and intertwined, they frame the decisions made by people (Keeney, 1988).

Individuals can subscribe to common values shared with others (religious or political beliefs, for example), and which arise from multiple sources. Devine-Wright, Thomson and Austin (2003) noted the difficulty in understanding the influence of values on value judgements by commenting:

“we can observe a nested structure of values, from societal values at the widest level, through construction industry values and more specifically to the values held by specific businesses, projects, stakeholders and individuals. The study of how these values operate, interact and, perhaps conflict at these different levels has yet to be properly addressed.”

Despite this, the influence of values as the background to the judgement of value must be addressed. Woodhead and McCuish (2002) have attempted to introduce the concept of values into the construction industry by suggesting:

“Value is the objective recognition of preferences that are often negotiated. My values are my inner preferences that I have personally and subjectively recognised.”

An individual may not be aware of his or her values, as they often remain tacit until a situation that they influence arises (Rokeach, 1973). In such situations, individuals’ ability to express the rationale of their subjective value judgements is hindered by their lack of appropriate language (Taylor, 2002). Despite this, Vickers (op. cit.) notes that individuals’ value judgements frame their actions and inform their expectations of the future. This observation is significant when considering the implementations of value judgements in building design, given the duration of building life.

Values are also determinants of who we are as people, cultures and societies (Maslow, 1968; Rokeach, op. cit.; Schwartz, 1992). Given that buildings must exist within these contexts, a means of helping project members consider their relationship between buildings and common values in their social setting is required.

The industry body ‘Be’ has begun to interpret value in broader terms. It asked representatives of the construction industry supply chain to identify their key value drivers, as perceived by their organisation in the course of its business, rather than associated with a specific project. This exercise identified 112 statements relevant to organisational activity (“Requests / Negotiations: Our organisation is responsive to customer’s special requirements” and “Accuracy: Our organisation is concerned with the accuracy required to keep waste to a minimum”, for example). Be structured these 112 value drivers into 14 themed categories (“Compliance” and “Waste”, for example), each containing four “enabling” value drivers and four “outcome” value drivers. Be has developed a tool that exposes the strength of these drivers within an organisation and can be used to illustrate the alignment between the values of project team members. By helping the project team understand each other in this way, Be has begun to help the construction industry think about the role of values in defining the general background within which projects take place. As such, the premise for consideration of the values that inform value judgements is beginning to emerge in the industry through its own actions.

To help the industry address broader issues when considering value in design, a Framework of Value has been produced to structure and stimulate design dialogue between designers, customers and stakeholders. By exposing the values of these individuals, this dialogue will build trust by helping project team members understand each other and is intended agree satisficing project objectives (Simon, 1957). The Framework seeks to:

- indicate the required scope of discussion within projects to ensure that full remit of value (and its implications) is considered in design;
- help the project team consider the values of the customer, stakeholders and users; and

- help the project team, in light of the understanding of these values, anticipate judgements of the subjective value delivered.

3. Value Dialogue

A value dialogue seeks to help project team members, customers and project stakeholders engage in the discussion required to expose the values against which project delivery of subjective value is judged. This discussion will inform design development by maintaining designers' awareness of the influences on the judgement of the value of their solutions. The dialogue itself will have both formal and informal forms. Formally, it will comprise a Language and a Framework. Informally, it will comprise a common knowledge and culture shared between individuals and organisations.

3.1 Common Language

The Framework of Value embodies specialised knowledge of value. This may require a common language to simplify conversation between individuals by building on commonalities in their interpretation of value. Despite cultural differences between individuals and professions in construction (Root, 2001), our investigation of the terms currently associated with "value" (Thomson, op. cit.) has shown that there is sufficient commonality in the understanding of value among construction professionals that a common language could be established by building on this commonality.

The Language is also required to help designers express the role that their design solutions will play in delivering project value. The intuitive nature of design problem solving (Jones, 1984) can create difficulty when designers attempt to explain their decisions. A common language between designer and user could help them discuss this and, in doing so, expose their values to help them judge the subjective value of design proposals.

Such a language can not be imposed on individuals nor can it be distinct from their everyday activity. It must grow from existing interactions to ensure that it becomes integrated into everyday practice. For this reason, approaches such as those of Teller (2001), which develop language independent of its application, are limited in their effectiveness.

If the people affected by new actions are involved in the development of the language required to describe them, and the language is developed concurrently with the new actions themselves, the situation of introducing a "new" language never arises. This issue of progressive engagement to encourage take-up is fundamental to the diffusion of innovations and is independent of the potential benefit of the innovations themselves (Rogers, 1995).

3.2 Common Culture

The Language and Framework will help create a culture of value delivery that both:

- frames design decisions to anticipate subjective value judgements; and

- continues to use existing methods, such as Value Management, to structure and demonstrate objective value delivery.

At the industry level, a value delivery culture may form through observation and imitation, the well-recognised cultural propagation mechanism (Blackmore, 1999; Lynch, 1996). In projects, new entrants could build a focused value delivery culture by observing, imitating and, eventually, adopting value delivery principles structured on the Language and Framework. Once formed, members of this culture would share the common value of seeking to deliver project value taking both subjective and objective views into account.

The development and use of the language and framework discussed above will be integrated with the nurturing of a culture of value delivery. Rogers (op. cit.) identified the importance of engaging the individuals who enact a cultural revision in the development of its tools and practices. Development should be a gradual process, building on existing tools and modifying corporate values through example and education to progressively (Griseri, op.cit.; Lebow and Simon, 1997) introduce innovations. Such an approach avoids raising concerns about change (Steele and Murray, 2001).

Lebow and Simon (op. cit.) comment that new working practices are most effective when the values of the organisation into which they are being introduced are gradually revised to align with the values embodied in the new practices. This is a fundamental aspect of ensuring that an organisational culture is managed to remain compatible with new working practices (Elkington, 2001). The Managing Value Delivery in Design research project has elected to use an action research method to support this gradual change, establishing the content of the language and framework as it learns from the ability of construction industry members to use them (Brewerton and Millward, 2001). Despite this approach having been successfully used in construction (Davey, Powell, Powell and Cooper, 2002), Repenning (2000) has observed that step-change, rather than a gradual change process is sometimes required.

4. The Framework of Value

4.1 Framework Purpose

The Framework of Value (Figure 5) provides a structure for design dialogue to address value delivery as discussed above. The Framework will:

1. illustrate the relationship between individual, project, organisational and societal values and the judgement of subjective value;
2. help the project team adopt a set of values as common working principles against which collective subjective value can be judged. Individual still perceive the delivery of subjective value when individuals make their own value judgements, framed by their personal values; and

3. explain the role of common product design methods, such as the setting of objectives and the definition of required product qualities in the delivery of value.

Figure 5 about here

4.2 Framework Development

Framework development is ongoing. To date, interview, observation and the review of formal process documentation has described research partners' current value delivery practice. Commonalties in underlying principles were identified. For example, Value Management practice was found to broadly follow Miles' Function Analysis principles and, therefore, embodied a largely objective understanding of value.

Literature review investigated different interpretations of value in several fields, including those with operationalised treatments of value (such as: quality control, quality assurance, value management, customer value management) and those that treat value in a more theoretical way (such as philosophical views of what value is). Review of the nature of human values (Maslow; Rokeach; Schwartz, op. cit.) identified the nature of values, together with beliefs and attitudes (Najder, 1975; Parker, 1968), as fundamental tenets to the way in which individuals and organisations judge value in a social context.

Consideration of existing construction design and project management methods identified four mechanisms related to the delivery of value. These were:

- **Project Values:** Although not common practice, the setting of common project values, ascribed to by all team members, as informal guiding principles is advantageous as this would provide a background and context for making subjective value judgements as a whole team, to implement the judgements made by individuals.
- **Objectives:** The setting of project objectives and goals is fundamentally linked to the determination of when value had been delivered from a project.
- **Qualities:** The definition of product features, characteristics and attitudes that will be observed and interacted with to inform judgements and measurements of value.
- **Metrics:** While metrics can be more readily assigned to objectives and qualities (using methods such as a needs-metrics matrix, for example (Baxter, 1995)), they can also be assigned to objective value using the "benefits vs. sacrifices" definition presented above. Measuring this metrics can help provided demonstrated when they have delivered sought "levels of value," operationalising their strong association of measurement and demonstration with value (Thomson, op. cit.).

Each of these four aspects of value exist within projects and link the values of the individuals and groups engaged in the project to the delivery of value by the project outcomes.

To begin to understand the terms that would require to be present in a language of value, a free-listing experiment (Bousfield and Barclay, 1950; Henley, 1969) to characterise the terminology currently associated with value in industry. Examining a sample of professional project team members, Thomson (op. cit.) determined that most of the Framework terms (values, objectives, quality, qualities, metrics, value) are already associated by industry members with value. However, they are not yet sufficiently prominent in the industry's current perception of what value is for the Framework to be immediately usable. A moderate degree of industrial advancement will therefore be required to use the Framework.

Within the Managing Value Delivery in Design research study, this advancement will be implemented through the action research phase of the work, implemented within each project partner.

5. Further Work and Preliminary Conclusions

This paper has described the need for the construction industry to broaden its understanding of value in response to growing demands of customers for a value delivery process that adequately addresses both objective and subjective views of value.

We have yet to determine the most effective stage of projects at which the framework could be applied. Similarly to value management, the nature of the issues addressed implies that the greatest opportunity for improving the delivery of value occurs during its earlier stages when key design decisions are made. However, measures and judgements of value delivery can not be concluded until the product is in use and experience of its performance and interaction within its surrounding community has been determined. Hence, there is a likelihood that the Framework will continue to be useful throughout design and construction and, possibly, into use where its application could be associated with post occupancy evaluations.

It is concluded that the construction industry currently possesses well-proven means of delivering value which are compatible with an objective view of the term. However, the industry itself and its customers are broadening their understanding of value to include both subjective and objective value. The existing practice of value management has been identified as an appropriate means of delivering objective value, where value is considered solely to reside in the product and is a matter of product response to a validated need. New understanding and practice is required to help the construction industry address the relationships that are formed between individuals and products.

The Managing Value Delivery in Design research study has provided a Framework to help structure the design dialogue required to consider subjective value during projects. This paper has described the derivation of the term "value" to address current industry needs and has explained its incorporation into this Framework. A survey of a sample of industry professionals has determined that existing understanding of the term "value" is compatible with the use of this Framework, but that development work will be required to increase its prominence and to integrate the Framework

into practice. Action research has been selected for this task, which will be implemented within the MVDD industrial project partners.

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Cost/expenditure	Ratio
Design costs	0.1
Construction cost	1
Operations/maintenance cost	5
Business staffing cost	200
Business income	≥250

TABLE 1: Ratio of costs and expenditures during the life of a building, after Saxon (2002a)

$$\text{Value} = \frac{\text{Function}}{\text{Cost}}$$

FIGURE 1: Function Analysis Definition of Value

Process Protocol	Demonstrating the Need	Conception of Need	Outline Feasibility	Substantive Feasibility Study & Outline Financial	Outline Concept Design	Full Concept Design	Production Design, Procurement & Full Financial Authority	Production Information	Construction	Operation & Maintenance	
RIBA Plan of Work	A Appraisal	B Strategic Brief		C Outline Proposals		D Detailed Proposal	E Final Proposals	F - G Production Information & Tender Doc.	H - J Tender Action Mobilisation	K Construction to Practical Completion	L After Practical Completion
Architect	Brief development	Design review Discussion, identifying issues for the future Initial review of key technical influences/ general principles of the design			Design review Design finalisation and presentation to the client. Planning drawings		Design review Most detailed review of the design. Technical review package by package Detailed design, building regs				
Building Management/ FM Organisation					Earlier involvement in design decision making	Consultancy review of design for building management		Set up & initial management		Ongoing management Provision of security POE	
Value Management Consultant	VM workshop Verification of need	VM workshop Project definition	VM workshop Brief development Development of functional areas	VM workshop Value engineering Development of detail design and tender documentation	VM workshop Design and cost review Review and refine detailed design.					VM workshop Review of the project to include lessons learned	
FRAMEWORK OF VALUE	DESIGN								CONSTRUCTION	USE	

FIGURE 2: Comparison of Existing Value Delivery Methods

$$\text{Value} = \frac{\text{Function} + \text{Quality}}{\text{Cost}}$$

FIGURE 3: Objective Definition of Value, after Dell'Isola (1997)

$$\text{Value} = \frac{\text{Benefits (What you get out)}}{\text{Sacrifices (What you put in)}}$$

**FIGURE 4: An Open Definition of Value, after Thomson, Austin, Devine-Wright and Mills
(accepted)**

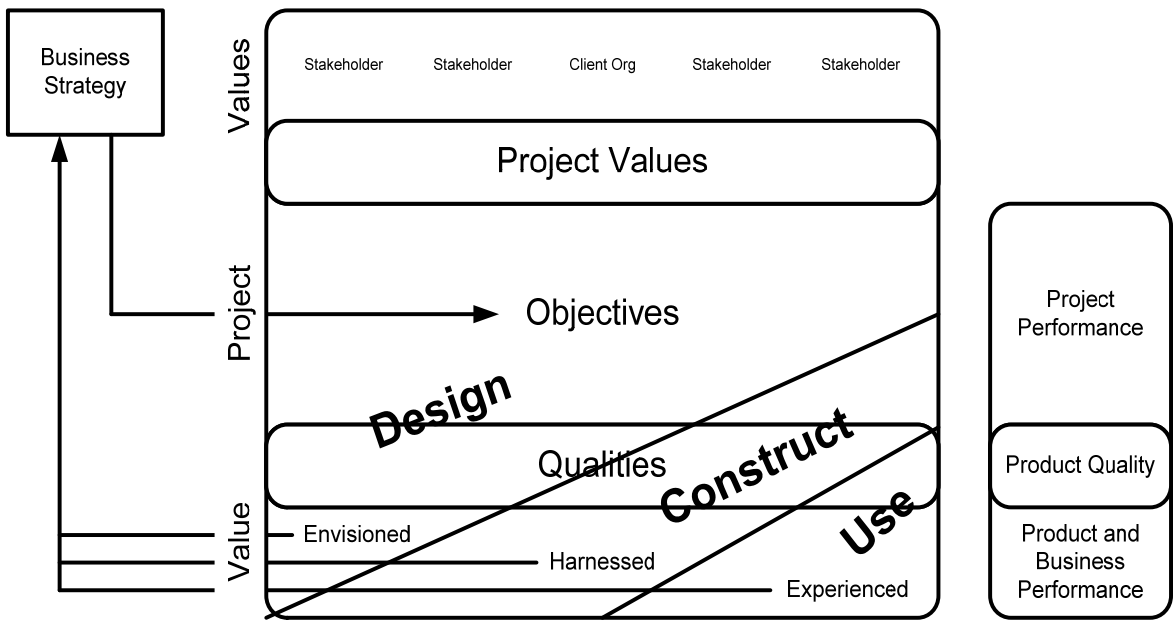


FIGURE 5: The Framework of Value