

Robust Value Management: An approach towards satisfying current and future end-users of a building

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Abstract

Value management is a service that is sought by construction clients in pursuit of value for money on their investments. Within some influential policy documents related to the UK built environment, satisfying current and future end-users' needs appears to be emphasised as the essence of achieving value for money. This paper argues that the quest to satisfy current and future end-users comes with implications, including; addressing needs in the face of uncertainty of the future; dealing with conflicting end-user needs; and addressing evolving, poorly articulated, and latent needs that are implicit until they emerge, often following use and experience. Consequently *Robust Value Management* is proposed as a pragmatic approach to value management that addresses the above mentioned implications. This is through the approach facilitating an emphasis on: keeping options to allow modifications, as necessary, of yet to be implemented parts of a plan; user participation and consensus building; and reflection and iteration to enhance learning. These measures are built into a generic method of implementation.

Keywords

Flexibility, robustness, uncertainty, value for money, value management

1. Introduction

Satisfying current and future end-users of a building through design has been emphasised in a number of influential policy documents in the UK as a measure to achieving good value for money (DCMS 2000, OGC 2003, Bourn et al 2004, Saxon 2005). The ambition is, therefore, to satisfy end users for the entire duration of the life of the building. A building is designed based on a brief prepared by the Client. Ideally, the brief spells out “all” the requirements of the Client and the architect attempts to satisfy the same through the design that is consequently developed. However, the building, once built, will over the long term be used by different users with different preferences and tastes, different needs, and will use the building for different purposes. Further, with time, needs shift. What could have satisfied a particular user today may not necessarily satisfy the same user in the future. This paper proposes a value management (VM) approach that facilitates measures that endeavour to overcome challenges that come with attempts to satisfy current and future end-users of a building.

2. Satisfying current and future end-user needs: challenges at design stage

The following is a discussion of the challenges that would inevitably be faced at design stage in attempting to satisfy current and future end users needs.

2.1 Managing uncertainty of the future

Changing circumstances and unexpected events often render a solution previously thought to be satisfactory, unsatisfactory. Dallas (2006:63), for example, highlights a case where decisions were changed due to changes in technology. This was in a project initially designed based on face-to-face stock trading in an open hall. Just as the designs were put in place, electronic trading emerged and therefore the plans for building the new centre were no longer necessary.

Uncertainty of the future is therefore a concern to a construction client as designs are developed.

2.2 Dealing with conflicting needs

Gray et al (1994:4) wrote that *'[b]uilding design is a problem solving process which cannot always be stated comprehensively at the outset because of the many different interests which have to be satisfied'*. A building is used by different groups of people for different purposes. Different stakeholders will therefore push for their own vested interests to be addressed. Attempting to balance these conflicting needs is clearly problematic. Designers therefore have the option of seeking trade-offs and compromises by involving users in the decision making process. Levin (1972) argues that by having the end users participate in the decisions and in the negotiations for trade-offs and compromises, it *'...will generate commitment to the specification arrived at'* (Levin 1972:36).

Therefore, at design stage, there is need to allow stakeholder participation to facilitate consensus based on negotiated needs.

2.3 Managing shifting human tastes

With the ambition to satisfy end users comes the problem of shifting human tastes. Humans are often influenced by external factors that surround them. As Green (1996:22) put it, *'[...]it is clear that human needs are not static, they are in a continual state of re-adjustment in accordance with the ongoing change in an individual's environment'*. Hence, even as a plan begins to be implemented, decisions made that may have been believed to be the best at the time of making them may turn out to be highly unsatisfactory, following the emergence of new information or unexpected events happening.

Apart from shifting tastes, identifying explicitly the needs of the end users in the first place is often problematic. End users may not be able to verbally articulate their needs effectively at the time of design. In addition they may have some needs that are latent, that only manifest themselves upon facing a problem or experiencing an event. These may consequently cause a shift in priorities. As Kreiner (1995: 339) put it *'...the needs, desires, and requirements that the project is meant to meet, may change in response to experience'*. Kreiner gives an example of a housing project which was developed by government authorities in Greenland, the designs of which were based on years of research into the specific needs of the community. However, a private developer ventured into the market with designs that were simpler and that ignored some of the aspects that were considered important. The design, nevertheless, had incorporated a 'special window' that allowed the growing of flowers. This feature destabilized the demand for the homes built by the government in favour of those by the private developer. *'Nobody had ever expressed a wish for such a window, and nobody probably knew that they harboured such a longing until they saw it in the alternative house'* (ibid: 339).

Therefore as end users learn through experience, their latent needs may eventually emerge.

3. The drama of satisfying current and future end users

Green (1999, 2001) and Green and Liu (2007) relate VM to the enactment of a drama. Drawing from Goffman's (1959) dramaturgical metaphor, Green and Liu (2007) argue that VM practitioners do not undertake VM but rather 'enact' a drama of 'value management' based on a 'script' that the client who commissions him/her would relate to. This *enactment* is in a manner that inspires confidence to the client that *value* has duly been *managed* (Green and Liu 2007). They put forward that, at the outset, a VM facilitator would '*...act out the role of appearing authoritative and would confidently describe the services that they have to offer*' (Green 2001:55). If the client was suggesting that the design needs to provide for 'all' their functional needs, then the VM facilitator would emphasise that they would undertake a 'function analysis' during a VM workshop. The consultant would attempt to inspire confidence in the client that, through function analysis - perhaps using function analysis system technique (FAST) diagrams or some other technique - they would be able to capture 'all' the functions necessary and come up with a design that would meet those functions.

Therefore, the way practitioners go about selling their services and perform or conduct their 'trade' is influenced by an individual client's expectations and constructed understanding of how results can be derived. It can therefore be argued that the success of a consultancy service may depend on how well the consultant plays a role in accordance to an appropriate script and the end product will more likely be accepted by the client if the *performance* was according to his expectations (Green 2001).

The relevance of this dramaturgical metaphor idea, as invoked by Green, relates to the importance of having *theory* in place to serve as *scripts* that can be used by practitioners to provide their services. Therefore, given the need to satisfy current and future end-users as a requisite to achieving value for money in a design, there needs to be suitable 'script' that can be used by the VM participants during a VM study to inspire confidence that the design indeed satisfies current and future end users. Such a script should be seen to address the challenges that come with the need to satisfy current and future end users, as per the discussion in the preceding section 2 above.

4. A VM script for satisfying current and future end users

A new VM methodology dubbed Robust Value Management (Alkizim 2008) (hereafter RVM) is proposed as a suitable script to guide action, in the quest to satisfying current and future end users. A generic method of implementing RVM is put forward as the recommended *modus operandi*.

RVM draws from the thinking behind robustness analysis (Rosenhead 2001), Last Responsible Moment (LRM) (Lane and Woodward 2000, and Lane et al 2002) and Robustness Analysis Methodology (RAM) (Wong 1998). It also borrows from SMART VM (Green 1996) and the soft methodology as proposed by Barton (2000). A framework that illustrates the generic method of implementation is as Figure 1 below.

The framework consists of a 'main VM study' plus a number of other follow-up 'review workshop studies' as deemed appropriate. These review workshop studies are held at the LRM of each commitment node to re-evaluate decisions made during the main VM session. They therefore provide the opportunity for a final re-adjustment of decisions just before commitments towards specific actions have to be taken. This is mainly to improve on the chances of accommodating any new information and changes that may have taken place between the time that the decision was made and just before the actual operation has to be undertaken.

The same labels as with RAM are used in the proposed RVM methodology, with the addition of the '*Re-evaluate at LRM*' phase. However, the activities within each phase are substantively different from RAM, in order to suit value management and construction.

The phases are described below.

4.1 Screening phase

In Wong's RAM methodology, the screening process is intended to establish whether robustness analysis is suitable in dealing with the problem at hand. However, with RVM methodology, the screening process is proposed as the phase in which VM participants engage in a debate on what the project objectives are. In other words, assessing the problem and establishing whether or not a construction project is needed in the first place. This stage can be related to stage 3 of VM1 in SMART VM, 'Find out' stage of Barton's (2000) soft methodology approach, and the information stage in the classical/hard VM model.

It is not necessary to conduct exhaustive debate on whether the project needs to go ahead or not, just a tentative decision would suffice. Unlike RAM, RVM's screening phase may be re-visited (hence arrow in both directions) as later stages may decide that the project does not need to proceed. This may happen following a *learning* process (Wieck 1995), where searching for a solution may bring to realisation that the problem is not significant enough to warrant a project, or there may be no problem after all.

4.2 Exploring phase

The VM team may move into the exploring phase, where alternative solutions to the design problem are identified. Upon discussing possible solutions, some overlooked objectives may start to emerge. Therefore, a seamless back-and-forth movement between the screening and the exploring phases is encouraged, as objectives continue to emerge.

In addition to exploring alternative solutions, the valuation criteria need to be selected in this phase before the solution configurations are generated, to avoid bias towards a particular configuration.

4.3 Structuring phase

With RAM, solution configurations are generated in the exploration phase. On the other hand, with RVM, it is recommended that the alternative solution configurations are generated in this structuring phase. 'Configurations' here mean the set of commitments necessary to reach any particular desirable end-state. Therefore, the alternative potential solutions generated in the exploring phase are analysed individually in an attempt to break them down into the sequential commitments that need to be taken.

The various configurations are then assessed to see if they can be inter-linked. In other words, if there are any commitments that are common to a number of different configurations. This stage is therefore largely to establish how the strategic points within the overall plans have the capacity to leave options open and the various possibilities that the said points can lead to, in terms of satisfactory end-results.

4.4 Valuing phase

Again, unlike with RAM where alternative scenarios are generated at the exploring phase, the RVM recommends this is done at the valuing phase. Therefore different future scenarios are generated. It is recommended that between two and four scenarios are considered. Any more than four would be too complicated and counterproductive.

The options identified in the previous phase are then interrogated in terms of how far they can survive alternative future scenarios. It must be stressed that only broad impressionistic assessments should be made based on thoughts, opinions and judgment from the individual participants. In other words, there need not be any scientific formula to work this out, as the scenarios are themselves speculative in nature.

Where the configurations lend themselves to a structure where robustness analysis may be employed, then robustness scores may be computed to aid in decision making. Otherwise a qualitative assessment of the expected performance of each configuration under the different scenarios may suffice.

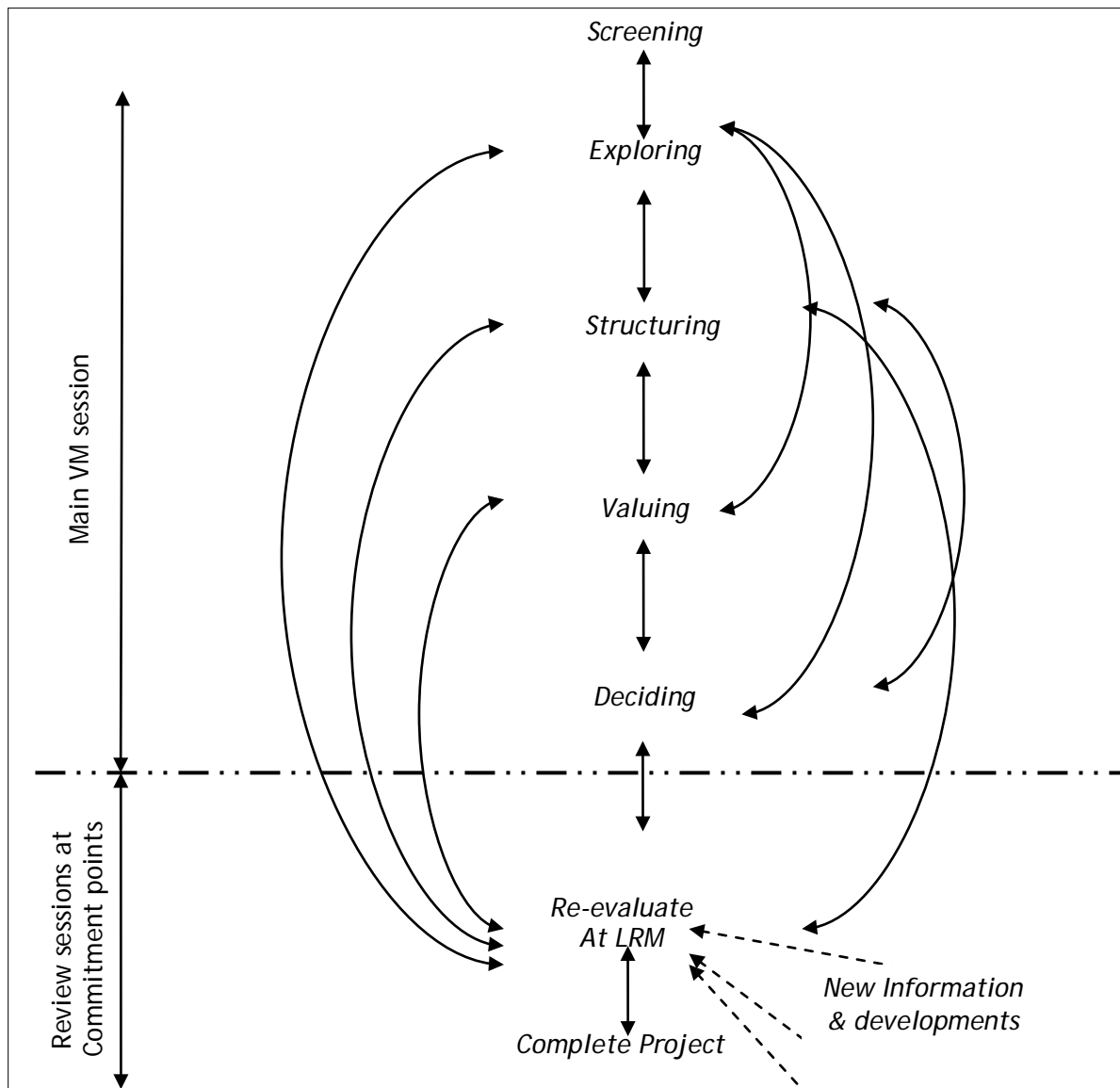


Figure 1: Robust VM methodology Adapted from Rosenhead 2001to include LRM

4.5 Deciding phase

In a VM workshop scenario and faced with attempting to manage a design problem within a dynamic world, the VM participants may re-assess the options that are available based on beliefs or assumptions of the future and agree on which commitment if taken now, could lead to a number of acceptable end results. Where possible, this should be based on constructing a framework and working out robustness scores of the various commitment points. Alternatively, reaching consensus based on discussion and reflection may suffice. The important thing at this stage is that options are interrogated in terms of their capacities to leave options open and therefore the level of relative robustness against alternative future scenarios.

Once a specific option is selected, the commitments within this option are analysed in terms of when (date) they will reach points of no return. In other words, establish the strategic points in time beyond which a decision will no longer be open for modification. Hence the LRM dates are established. These help determine the dates when follow-up review workshops should be held to re-assess the situation and decide whether the decisions made originally remain relevant or need to be modified. Any new information that has been received between the first VM and just before the LRM of the second set of commitments needs to be assessed as to its impact on the result.

4.6 Re-evaluate at LRM phase

When the LRM is reached the decisions made earlier are re-visited to assess whether any modifications need to be made. The original objectives of the main VM session are re-visited, and the overall situation and any changes within the environment or advancements in technology, up to the review workshop, are assessed. Decisions as to whether or not to modify are then made, bearing in mind the consequences of making such modifications. Any modifications are also done with a conscious effort not to foreclose opportunities of further modifications in the future review workshop opportunities.

Depending on the complexity of the project and the number of commitment stages the process of holding review workshops and reassessments will be repeated until the last set of commitments is reached just before the project is completed.

5. How RVM overcomes challenges of satisfying current and future end users

In section 2, challenges that come with the quest to satisfy current and future end users was discussed. The following is a discussion of how RVM addresses the said challenges.

5.1 Managing uncertainty of the future

Since it is difficult to predict the future, it is equally difficult to allow for changes in human needs and their environment. Managing end users' needs, over the duration of the planning and construction process should help. VM can enhance the ability to modify the '*...as yet unimplemented stages of the plan*' (Rosenhead et al 1972:418), but that ability is dependent on the extent to which decisions made at the outset allowed options to be kept open and maintained room for manoeuvre.

There needs to be a facility to revisit decisions in order to provide the opportunity to modify decisions in the first place. RVM provides a 'structuring phase' where possible solutions generated in the earlier stages are structured in terms of the sequence of decisions and commitments that need to be made over the duration of the process up to delivery of the final product. The solution options are then each assessed in terms of their capacities to adapt to changes at various stages along the process and so keep options open the longest. Indicative dates of critical decision points are also noted.

Therefore, the objective in the subsequent 'valuing phase' is to select solutions that preserve relatively more options that lead to desirable end results. If significant events unfold during the project planning and execution, modifications may be made to make the product more in line with the needs. This is in contrast to selecting a solution that appears to be the best but then has no capacity to be modified during the design and construction processes. This is in the spirit of *survival* rather than maximisation, as proposed by Rosenhead (1980b)

In addition to maintaining flexibility of choice, RVM is iterative. The main decisions are undertaken in the main VM session. However, review workshop sessions are held at strategic points along the trajectory to re-evaluate the decisions made during the main VM sessions against any changes and events that may have taken place in the interim. Where adjustments are necessary they may be undertaken during these

review workshop sessions, which are undertaken at the last responsible moment. This provides maximum time before a commitment has to be undertaken for the execution of a particular part of work. Thus, it takes advantage of as much learning, reflection, new information and technology as possible that may emerge by the time a decision to modify (or not) is taken.

5.2 Dealing with conflicting needs

User participation and consensus building was discussed in section 2 as a measure for dealing with conflicting needs brought about by different stakeholder groups pushing for their individual vested interests and /or by the nature of individual users' preferences.

RVM is recommended as a 'user-participation-friendly' process. It is recommended that a representative of each stakeholder group attend all the VM sessions, including the review workshops. Emphasis is put on reaching a shared understanding and consensus building rather than taking the systematised approach where decisions are based on hard thinking.

5.3 Managing shifting human needs/tastes

Human needs shift according to changes in their environment. These needs are often difficult to express or they are taken for granted, or they are unknown until the users gain experience. Learning, reflection and iteration are an attempt to address shifting and latent needs and so it is proposed that VM should facilitate as much learning, reflection and iteration as possible.

Due to the iterative nature of RVM, where there is an allowance for the different phases to be re-visited within any one session, learning is facilitated. It is often only when considering solutions that a problem may be understood further and so the iteration process of RVM helps to 'tease out' latent needs.

RVM also has review workshop sessions when decisions on some key aspects of the project are revisited at the last responsible moment. By this time, participants would have reflected on the decisions made in earlier sessions and, again, would have possibly learned more. Adjustments and modifications can then be made as necessary, particularly with RVM keeping options open to facilitate adaptation and flexibility.

5 Conclusion

VM, a service that is commonly bought to attempt to obtain 'best' value for money, needs to keep up with the evolving value-for-money storylines so as to remain relevant. This relates to Morgan's (1997:3) assertion that professionals need to be shrewd '*...in the art of "reading" the situations they are attempting to organize or manage*' if they are to be effective. Morgan proposed the use of metaphors as tools to assess and understand the 'situation' in the first place.

Looking at VM using a metaphorical lens of the dramaturgical metaphor as proposed by Green and Liu (2007) is therefore particularly pertinent. This is where a VM practitioner is seen as a performer reading from a script as he plays a kind of drama to his clients to inspire confidence that the problem for which the client commissioned him is being addressed appropriately.

RVM, as proposed in this paper, addresses the challenges that come with the need to satisfy current and future end users. The main thrust behind the methodology is that it may be used to provide psychological comfort that current and future end users' needs are indeed being addressed. This is through providing a script to guide action that would be *seen*, by the VM workshop participants, to satisfy current and future end users, at least within the planning and construction phases of a project.

In conclusion, RVM represents an alternative VM approach that favours adapting the mode of implementation of the VM workshop and adjusting the process as necessary, as progress is made. It rejects the linear, 'predict and prepare' mode, in favour of a non-linear, iterative pattern of activities, with an emphasis on learning, reflection, and leaving options open. It also represents a shift, from focussing on performance maximisation to survival in the face of uncertainty.

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