Validation of a Value Management Approach Developed for the Saudi Public Sector

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Abstract: A VM (value management) approach was developed that better suits the culture and the context of the SPS (Saudi Public Sector). This approach provided a comprehensive assessment of VM at institutional, organizational and project levels. This paper illustrates the procedures that were used to validate the developed VM approach. For the institutional and organizational levels, the VM approach was validated by conducting telephone interviews with three experts from three organizations that use VM and with two senior managers from the MOF (Ministry of Finance). Mainly, it was found that the MOF should be supported by experts to set up a centre of excellence that can set VM policy, guidelines and standards for the promotion of VM in the SPS, in order to ensure achieving value for money spent in SPS projects. The developed VM approach, as it would be applied at the project level, was presented to 11 experts, all of whom completed a validation questionnaire and presented their comments. Subsequently, the questionnaires were analyzed and the VM approach was amended to reflect the inputs provided by these experts. It was concluded that VM should be applied at least twice on SPS projects. Firstly, it is to review and structure strategic and project briefs to sort out soft issues, and secondly, it is to optimize project designs and sort out hard issues.

Key words: Value management, value engineering, project management, Saudi public sector, Saudi Arabia.

1. Introduction

VM (value management) is defined as “a structured approach carried out by a multidisciplinary team, which aims at achieving consensus on project objectives among the project’s stakeholders and uses function analysis and the team’s creativity to create and compare alternatives and derive a design that achieves these objectives effectively” [1]. Therefore, in this paper, the term VM (value management) will be used as an umbrella which covers all techniques, and VE (value engineering) as a part of the VM which is used to optimize and compare design alternatives (technical issues).

This paper is a part of a research that was carried out to develop a VM (value management) approach for the SPS (Saudi public sector). It aims at illustrating the validation exercise of the VM approach developed. Mixed methods research was used to conduct the research. Qualitative data were mixed concurrently with quantitative data in this research, but the research was led predominantly by qualitative data. This was achieved, firstly by including closed questions as part of the interviews. And then four case studies (project-based) and three case studies (department based) were investigated qualitatively in depth. Second, twenty-five case studies (VM study reports) were analyzed quantitatively, in order to investigate the techniques used in the VM workshops and the characteristics of the VM approach used in the SPS, and to test statistically the relationships between variables. This combination gives a complete picture of the problem in hand.

Moreover, each approach supported and strengthened the other and provided both descriptive and interpretive data. The rationale for this approach is the complexity of the research problem, which calls for answers beyond simple numbers in a quantitative sense, or words in a qualitative sense. A combination
of both forms of data can provide the most complete analysis of the problem, achieve accurate results and cross-validate findings.

The sample aimed at including VM practitioners in Saudi Arabia and the number of whom was no more than eight, a limited sample. The VM practitioners used in this study were chosen because they had the best VM backgrounds. Additionally, as there were only four organizations using VM in the SPS, a qualitative approach fitted the research requirements, and was therefore used to lead this study. Furthermore, the research adopted a holistic appraisal approach, measuring the duration of VM workshops, the number of techniques used and the savings achieved by VM studies and other variables, as well as testing the relationships between these variables.

The starting point involved carrying out an intensive literature review to build a conceptualized VM approach, which was necessary in order to focus fieldwork on the main aspects that should be covered during the data collection. Next, the VM approach used in the SPS was investigated by using three methods. First of all, twelve semi-structured interviews were conducted with VM practitioners accredited by SAVE (Society of American Value Engineers) International as CVSs (certified value specialists) and with senior managers in the SPS. The interviews consisted of both closed and open-ended questions, and were conducted in order to discuss the VM approach, the interviewees’ attitudes and opinions towards VM development under the current situation, and to discuss obstacles that hinder the adoption of VM in the SPS. Secondly, three of the SPS organizations were taken as case studies to investigate institutional and organizational aspects relevant to VM implementation. Additionally, four in-depth case studies at project level were analyzed to understand the relevant approach comprehensively and to investigate the implementation of VM proposals. Finally, twenty-five project-level case studies, in the form of VM study reports for public projects, were compared and analyzed quantitatively to give an indication about the average time that VM workshops take, savings, the techniques used, team size and affiliation, stages of intervention and other related issues. The utilization of these data collection methods facilitated the collection of holistic data for their eventual triangulation.

Each set of data was analyzed autonomously, using the techniques traditionally associated with each data type. The findings for each set were compared and merged together into one overall interpretation to develop the VM approach. The findings were then combined with the literature to develop a VM approach at the project level. Additionally, because of the scarceness of VM literature for the development of a VM approach at the institutional and organizational levels, grounded theory was employed to construct potential appropriate models at this level. The combined approach enabled an interdependent and comprehensive framework for the continued development of VM in the SPS.

2. Research Validity

Validity within the context of mixed-methods research, or meta-inference quality, is defined as: “the ability of the researcher to draw meaningful and accurate conclusions from all of the data in the study [2]”. There are three standards to use in assessing the quality of inferences (validity) in mixed-methods research: (1) employing quantitative standards to evaluate the inferences derived from the analysis of quantitative data; (2) assessing inferences elicited from the qualitative data according to the qualitative standards; (3) evaluating the extent to which the inferences that are made from the two previous inferences are credible [3]. Additionally, two main criteria for assessing the quality of inferences in the mixed-methods research are as follows: design quality and interpretive rigor [4]. Design quality was described as “the degree to which the investigators have utilized the most appropriate procedures for
answering the research question(s), an implementing them effectively”, while interpretive rigor is “the degree to which credible interpretations have been made on the bases of obtained results” [3]. Therefore, the first three mentioned above steps will be followed and then the design quality and interpretive rigor should be satisfied by this research, in order to achieve validity.

The mixed-methods approach that was utilized in this study was described and justified in the previous section. Additionally, the strategy of triangulation is suggested as a way to improve overall quality, especially in mixed-methods research [4], as it evaluates and controls bias while establishing valid propositions [5]. Therefore, triangulating quantitative with qualitative data enhances this study’s validity. The triangulation was achieved by conducting twelve interviews, seven in-depth case studies, and then comparing and analyzing twenty-five VM case studies quantitatively. Additionally, to avoid validity threats to the mixed-methods approach, the samples for the qualitative and quantitative research were selected from the same population and addressed the same question [2].

Moreover, in order to achieve quality inferences, several criteria for design were considered [4]. Firstly, an appropriate design for answering the research questions was prepared, as illustrated and justified in the previous section. Secondly, adequate qualitative and quantitative design components were implemented by using data collection methods suitable to each one. Finally, the author used suitable data analysis procedures for each type of data.

To achieve interpretive rigor, the author took several measures [4]. Firstly, quantitative and qualitative findings were compared, in order to check consistency. Then, each conclusion was drawn closely from the findings, in order to achieve interpretive consistency. Secondly, the inferences were compared with current theories developed by other authors, in order to satisfy theoretical consistency. Thirdly, conclusions drawn from quantitative and qualitative data were compared with each other and then integrated to make meaningful conclusions. Finally, the used mixed-methods design in this study achieved its purpose by triangulating quantitative and qualitative data, and provided a comprehensive picture of the use of VM in the SPS.

An author can deliberately use purposeful sampling to select those cases in qualitative research that are crucial to the theories that one applies at the start of one’s study, or that one has subsequently developed [6]. For the qualitative part of this research, the sample was chosen purposefully because the number of VM practitioners in KSA (Kingdom of Saudi Arabia) is small, and the number of organizations that apply VM is equally small. Nonetheless, this research covered all VM practitioners and SPS organizations that conduct major projects. The interviewees have suitable experience and qualifications to satisfy the purpose of this research and to obtain the most accurate information to depict the real situation.

The templates used to collect data were designed carefully by the author before carrying out the fieldwork. In order to avoid misinterpretation, a wide literature review was conducted to support the construction of the interview template that was used to collect the necessary data. Furthermore, to improve the instrument quality, questions were tested in a pilot study and then modified to ensure that they were clear and incapable of being misunderstood. This strategy strengthens transferability in the qualitative method, and it enhances validity and credibility for both quantitative and qualitative methods. Next, interviews were tape-recorded and transcribed. Member checking is one of the primary strategies used for checking the accuracy of findings, and it can be conducted by sharing the final report or specific descriptions or themes with the participants, and determining whether the participants feel they are accurate [7]. The author adopted this strategy by emailing transcripts of the interviews and the final report to the participants.
Additionally, as suggested in the literature [8], the author emailed case study reports to key informants, who reviewed them to help construct the case studies’ validity. This strategy increases the credibility of the findings. The data were coded, assembled and systematically and rigorously analyzed. This strategy, in addition to triangulation, satisfies dependability. Furthermore, quotations from the raw materials were presented in the data analysis chapter to satisfy confirmability.

Finally, the 25 VM reports were chosen randomly from the SPS to satisfy external validity. A template was designed for voiding information from the VM reports. This template was reviewed to ensure its suitability for the intended purpose. Then suitable statistical tests were used to compare and contrast these data. To analyze the data, the analytical software SPSS (statistical package for the social sciences) was employed.

The strategies above ensure the validity and credibility of the data collected by both methods, quantitative and qualitative. It is stated that, “if the qualitative and quantitative data are credible and valid, then the mixed-methods study has high-data quality [4]”. Therefore, it can be concluded that these procedures achieved validity for this study.

In addition to the strategies mentioned above, a validation exercise was conducted. The developed approach can be validated by exposing it to a validation group for criticism [9]. The literature was combined with the data to develop a VM approach at the project level. A questionnaire was designed and tested for the purpose of a validation exercise. Then it was given to eleven VM experts and SPS senior managers. Meanwhile, the VM approach at the institutional and organizational levels was elicited from the data and developed by utilizing grounded theory. This approach was validated through telephone interviews with three VM experts working for the three SPS organizations that utilize VM and two senior managers from the MOF. The results of the validation exercise will be presented in the following sections.

3. The VM Approach at the Project Level

The VM approach at project level was published in separate papers [10, 11]. A structured questionnaire was designed to test the VM approach at project level developed for the SPS to check its validity. It was written into a validation sheet that includes the approach itself and structured questions covering all the aspects of the developed approach, such as the importance of VM study objectives, participants, activities and workshop phases for each VM/VE study. Furthermore, questions were dedicated to assessing each of the VM/VE studies. Additionally, there were two questions to assess the practicality and quality of the developed approach. Finally, space was given for participants to give their opinion about how to improve this approach.

The validating group should be chosen carefully to ensure that they look at the work with cautious and critical eyes [9]. The validation group consisted of five VM experts, with experience varying from 8 years to 22 years in VM, and who had conducted many VM studies for the SPS. Additionally, the sample included one VM trainer, one VM academic and four Saudi public sector VM clients, with experience varying from 14 years to 34 years in construction and from one to 17 years in VM.

About the validation findings, having collected the questionnaires, the SPSS (statistical package for the social sciences) software was employed to analyze the data. The mean was calculated to compare and rank categories. Additionally, standard deviation and variance were calculated to describe the spread of values about the mean. The results are analyzed, presented and discussed in the following sections.

3.1 Assessment of the Quality of the VM Approach Developed

The participants assessed the practicality of the VM
approach developed from very good (Scored 5) to very poor (Scored 1). Table 1 shows the analysis of the quality of the developed approach, which indicates that the mean is 4.18, meaning that the VM developed approach is “Good”.

3.2 Participants and the Objectives of VM/VE Studies

The objectives of the VM/VE studies were assessed by the participants from very important (Scored 5) to unimportant (Scored 1). The means of all of these objectives were either important or very important.

Furthermore, the same scale was used to assess the importance of the participants to VM/VE studies. All of the means were either very important or important, except the contribution of the general contractor to VE3, where the mean was 3.36 (moderately important).

3.3 Interviewee Comments

The last question of the questionnaire asked the participants: how do you think this VM approach can be improved to suit the SPS? Most participants suggested reducing VM/VE studies to the least possible number to reduce project interruption. One of the practitioners stated that: “the number of VM/VE studies should be reduced. In the optimum situation, the following studies are suggested to be carried out: VME1+2+3, VE4 and a VE5 (at 90% of design stage). In the average situation, the following studies are suggested to be carried out: VME1+2+3 and VE4. Finally, at the minimum VE4 only should be carried out”. This reflects that there is still a preference to conduct the VM at a late stage of the project lifecycle. The reason is that the traditional SAVE VM approach has been embedded in the SPS for a long time. Enough time is required to gradually change the views of some of the VM practitioners about the suitable time for conducting the VM study. Additionally, it is crucial to sort out soft issues first of all, before transferring to design optimization. Furthermore, if the VM study is conducted at a late stage, the change resistance and design reworks costs increase, as illustrated by the literature and supported by the data analysis.

Another practitioner stated that: “Objectives and activities of VM1 & VM2 should evaluate and develop the strategic and project brief rather than produce them”. He attributed this statement to the fact that conducting the project brief takes months and cannot be created in a VM study. However, for complex projects, the pre-workshop stage can be allocated a longer amount of time to prepare all the needed data for the preparation of the project brief, while the workshop can be used for structuring and approving the brief.

Another participant suggested the following to improve VM application in the SPS: “trying to avoid the SPS complexity of rules and regulations through emphasising the role of the private sector in practising VM/VE studies as a consultation contract in different projects phases”. Additionally, another suggested “providing a more flexible governmental bidding system, besides a strong system to control and implement this VM approach”. This confirms that the SPS should pay more attention to developing VM and improving its procedures.

Finally, a client stated “apply lessons learned from previous projects, hence benchmarking is quite significant. Moreover, more feedback is becoming paramount”. Consequently, benchmarking is very important to enhance VM in the SPS and the feedback and lessons learned help to improve the VM as well. Therefore, it is essential to keep working on continuous development and assessment.

Thus, the VM approach at project level developed in this research was validated, and the implications of this exercise will be discussed in this paper.

Table 1  Quality of the developed VM approach.

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<td>Quality</td>
<td>11</td>
<td>3.00</td>
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<td>4.182</td>
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4. The VM Approach at Organizational and Institutional Levels

The following two steps are complementary to the validation of grounded theory. Firstly, literature may help emerging theoretical concepts. Secondly, relationships can be validated against data during all steps of the theory building process [12]. Furthermore, a level of validation is performed implicitly by constant comparison, questioning data from the beginning of the process, which results in a theory that is likely to be empirically valid [13]. The researcher utilized the constant comparative method between incidents and the properties of a category [14]. Additionally, the theoretical concepts and theory elicited were compared with extant literature to ensure that they were rational. Nevertheless, the VM approach at organizational and institutional levels (published in Ref. [15]) was emailed to three experts for the final check for the theory that emerged. The sample of the validation exercise was chosen based on the purposeful sampling approach, from organizations that utilize VM in the SPS. The reason for this course of action was to deliver a practical approach, because those people have a good background in VM and the SPS. The researcher emailed the developed VM approach to them, and asked them to read it through and criticize it. Additionally, he made an appointment to telephone them and discuss it with them. Then the researcher discussed it with every one of them in detail, utilizing the telephone interview. The interviews were tape-recorded, transcribed and analyzed. The average time log for these interviews was forty-seven minutes.

The following issues were raised by the interviewees.

4.1 Measures That Should Be Taken at Institutional Level

Instead of the suggested VM institute, an Arabian Gulf VM Society is being set up now instead of the current chapter, besides the VM branch that already exists in the Saudi Council of Engineers, which will be enough to play the role of the VM institute.

It is good to have a centre of excellence in construction, but it could be supported by the MOF and established in the Saudi Council of Engineers, King Saud University, Institute of Public Administration or King Abdulaziz City for Science and Technology.

The MOF should obligate SPS organisations to set up VM departments and apply VM to SPS projects as a condition of allocating their budgets. A board within the MOF should be employed to follow up the implementation of this resolution. Additionally, the training programmes and qualifications needed for VM jobs should be identified and approved by this board.

4.2 Measures That Should Be Taken at Organizational Level

A VM champion is more crucial at the establishment of a new VM programme, in order to overcome the resistance that it usually faces at this stage. The VM champion should be the deputy minister or general manager in charge of the relevant department, in order to avoid political issues. Additionally, it is crucial to embed VM in the organisation’s system and not to depend only on this champion, who may leave at any time.

A steering committee is not the main issue, it has a complementary or assistant role, but it is not essential for VM. Although there should be a clear strategy in each organisation, it is not essential for VM. It acts an assistant role for VM, but is not a prerequisite.

An excellence unit is considered good to have, but it is not essential for VM. The VM department can stand alone.

It is crucial to put the VM department at the same level or higher than the level of the engineering affairs directorate, and the VM department should not be under it. If the latter’s manager is not interested in VM, he may tend to conduct projects without VM
studies to save time, or alternatively carry out VM superficially to comply with the system, if it is required by the organisation’s system.

In large organisations, it is better to decentralise VM by establishing a VM department in each division.

A VM department can be established by employing a VM consultant for a period of time to carry out VM studies and train the organisation’s employees, in order to qualify them later to conduct VM internally.

A VM board may face political resistance, and if it is to be used it should not assess, monitor or supervise the VM department, to avoid political conflict. It should only receive VM annual reports and presentations, and intervene to solve any problem raised by the VM department.

Apart from the previous point, the interviewees believe that the measures illustrated by this study are suitable for the SPS.

4.3 The Role of the Ministry of Finance

The researcher conducted telephone interviews with two senior managers from the MOF to validate the developed approach and discuss with them the role of the MOF in VM promotion. The following issues were raised by the interviewees:

Although the MOF plays a monitoring role, it cannot follow up and obligate other organisations to apply VM, because of the lack of adequate technical capacity.

The MOF does not have sufficient experienced staff to either establish a policy, guidelines and standards for VM or set up a centre of excellence. One of the interviewees suggested setting up this centre independently in the Saudi Council of Engineers or in another organisation such as MOMRA or GDMW, because they have sufficient technical staff. He added that the recommendations of this centre can be circulated to other organisations by the MOF. He gave the VM resolution as an example, which was suggested by one of the ministries and circulated by the MOF. The another interviewee suggested establishing this centre in the MOF, under the “Deputy Ministry for Budget and Organizational Affairs” by employing experts or consultants to run this centre and giving it power to follow up SPS organisations.

The contractor incentive clause is not acceptable by the SPS regulations. Furthermore, interviewees stated that the SPS environment is not ready for it. The acceptance of changes suggested by the contractor affects the fairness between contractors, as they bid on the basis of the original designs and the acceptance of these changes after the bidding stage influences the trustworthiness of an organisation.

VM departments in SPS organisations can be established by these organisations according to their project size and number. In every fiscal year, job positions for organisations are allocated. Each organisation can prioritise and order their job positions, either for VM or anything else, according to their needs.

There is no need currently for establishing an independent VM society or institute, because the VM branch in the Saudi Council of Engineers is sufficient.

5. Implications of the Validation Exercise

This section presents implications of the validation exercise for the developed VM approach at project, organizational and institutional levels.

5.1 VM Approach at the Project Level

5.1.1 VM Interventions

The validation exercise confirmed that there is a preference and tendency in the SPS towards carrying out VM at the later stages of the project lifecycle. Additionally, there is a need to reduce VM interventions significantly. Therefore, there are two main VM studies that should be conducted, at least to gain the benefits illustrated by the literature and the data from VM interventions. The first intervention
study should sort out soft issues. The validation interviews illustrated that the decision to conduct a project is taken after coordination between the client’s organization and the strategic planning department to ensure that the project is aligned with the organization’s strategy. This study should thus be carried out to structure the strategic brief and project brief. Additionally, it should reconcile project stakeholders’ perspectives about project objectives and prioritize their requirements. The best VM study that can play this role is VM1+2, which is carried out at the brief stage and which covers the issues included in the two VM studies, VM1 and VM2. The main outputs of this combined study will be the strategic and project briefs.

Additionally, there is a crucial need to sort out hard issues, as illustrated by the literature and data, in order to optimize designs and achieve cost effectiveness. VE4 was assessed by the validation sample as the most important study with the highest mean (4.82). This intervention stage is always used by Organization A and sometimes by Organization B, which means that VM practitioners are familiar with this study. However, it is proposed that study VE3+4 be carried out at the same stage to achieve the same objectives, with more focus on reviewing the implications of the concept designs, e.g., spaces, to ensure that they achieve the functions needed.

Thus, at least two VM/VE studies should be carried out, namely, VM1+2 at or before the briefing stage to sort out soft issues and VE3+4 at 30% design to optimize designs.

5.1.2 VM Team
A VM1+2 team should include senior representatives from the client organization (management and operations), the end-user, the project management team and the design team. The design team has a crucial role here, as it should structure the strategic and project briefs. Additionally, this VM study enables the design team to understand the requirements of the stakeholders fully and to discuss the project objectives with them.

Employing an independent team of experts has strengths such as bringing fresher ideas, conveying technology transfer to the value problem, having no preconceived ideas about the value problem and producing a good team dynamic, if appropriately chosen. In contrast, there are weaknesses such as costs being considerably higher, the possibility of resistance to ideas being generated by the independent team, the learning curve being steeper and the study tending to take longer. On the other hand, they mentioned the following advantages of employing the existing team—they will have good knowledge about the value problem under study, the costs are reduced and the implementation rate of VM proposals tends to be higher. However, the existing team may bring very few new ideas to the process, as they may have entrenched ideas [16].

The data showed that a hybrid team is employed in Organization A in the SPS, and a high percentage of VE proposals are implemented. This team is composed of the designers and other experts from outside the design team. This mixture is more likely to achieve the advantages of the existing and independent team mentioned above. Additionally, it plays a crucial role in overcoming the disadvantages of the two possibilities. For example, including the design team in the VE study is crucial, because they have good background knowledge of the problem and the designs in hand. Conversely, this may mitigate a resistance to design changes, because the design team has contributed in creating these changes, which may increase the implementation of VM proposals. Nevertheless, including experts from outside the design team adds new ideas to the designs, as illustrated by the literature.

Therefore, a VE team consisting of the client or his representatives (management and operational), the end-user, the project management team and the design team with experts looks to be the best choice for the VE3+4 study.
5.2 VM Approach at the Organizational Level

A VM department should be set up at the senior level of the organization structure to give it the power necessary to carry out VM on projects and to follow up the implementation of its proposals. The establishment of this department in an SPS organization should start by assigning a VM champion at the senior level. This champion should support and follow up the setting up of this department. The establishment of a VM board is vital at this stage, in order to involve senior managers of relevant departments, include their inputs and to gain their buy-in. Employing a VM consultant is imperative, in order to train employees in VM to spread the VM culture in the organization at all levels. Additionally, this consultant should qualify the internal VM team to carry out and to commission VM studies, which should be carried out by this consultant with the contribution of the VM internal team for the purposes of mentoring and coaching.

The VM consultant is required also to help the VM department to set up a VM policy for the organization that includes the process of choosing projects for the VM studies and the feedback and follow up system. This policy should identify the stages at which projects should be sent to the VM department, in order to include VM studies as stages of the project lifecycle.

Having a steering committee and clear organization strategy helps the VM team to understand the organization’s strategic directions and the priority of projects. This may smooth out high VM demands, and help to avoid rushing projects.

The organization management should underpin this department by allocating full-time VM staff and a budget to run training courses, seminars, workshops, VM studies and other relevant exercises. Finally, a clause should be added to the design contract that entails the design consultant contributing to the VM studies and conducting the changes suggested by the VM studies.

5.3 VM Approach at the Institutional Level

The MOF should be supported by experts to follow up and monitor SPS organizations in applying VM to their projects and setting up their own VM departments, which may spread VM culture in these organizations. Additionally, it needs technical support to establish a policy, guidelines and standards for VM. The validation exercise indicated that there is a need for a VM board in the MOF, to follow up VM departments in SPS organizations. This board will play a crucial role in the monitoring process. However, because of the lack of qualified staff, the MOF needs to employ experts or consultants to play this role.

Although some of the validation sample members suggested that the MOF should support and set up “a COE (centre of excellence) in construction” in King Saud University, King Abdulazeez City for Technology and Science, the Institute of Public Administration, MOMRA, GDMW or in the SCE (Saudi Council of Engineers), it would not work in one of these bodies. This is because they do not have the power to affect SPS organizations. Therefore, instead of setting up this centre in one of these bodies, it would be better for it to be established in the MOF. The reason behind this is that the MOF is the only organization that allocates and approves projects’ budgets, therefore, it should play its role effectively by monitoring public sector projects to ensure they achieve value for money. If this centre was set up in another organization, as suggested in the validation exercise, it may not have the power to exert pressure on public sector organizations.

6. Conclusions

The VM approach for the SPS, which was developed at three levels, namely project, organizational and institutional, was validated in this paper. The VM approach at the project level was presented to eleven experts, who filled out a validation questionnaire and introduced their comments. Having analyzed the questionnaires, the
VM approach developed was amended accordingly. It was found that VM interventions should be reduced to a minimum. However, it should be applied twice at least on SPS projects. The first study is VM1+2, which aims at reviewing and structuring strategic and project briefs and sorting out soft issues. The second study is VE3+4, which aims at optimizing project designs and sorting out hard issues. Moreover, a hybrid VM team consists of the design team and experts from outside, so it is the appropriate choice for the SPS.

The VM approach at the organizational and institutional levels was elicited from the data utilizing the grounded theory approach. Nevertheless, it was validated by conducting five telephone interviews with three experts from the SPS that utilize VM, and with two senior managers from the MOF. Mainly, it was found that the MOF should be supported by experts to set up a centre of excellence that can set VM policy, guidelines and standards and promote VM in the SPS. Power should be given to this centre in order for it to play a greater role in monitoring VM departments. Furthermore, this centre can play a crucial role in ensuring value for money in SPS projects. SPS regulations do not accept adding an incentive clause to contracts.

References