APPENDIX A

No.	Project	Cost of Project (RM M)		Savings (%)	Remarks
		Before VM	After VM		
1	Development of Institut Aminuddin Baki, Sarawak	237.5	161.1	32.2	More effective design and delivery.
2	Pakej 3/1A: Jalan Simpang Pulai – Lojing – Gua Musang – Kuala Berang	112.8	108.5	3.8	More effective design (Better safety, environmental & maintenance features)
3	Klinik Kesihatan Jenis 3	6.8	6.5	5.1	More effective design and planning.
4	Education Faculty for UTM	35.0	7.0	80.0	Effective planning of space and layout to owner's requirement.
5	Library for USM, Penang	24.9	11.9	52.2	Effective planning of space and layout to owner's requirements.
6	Darul Ridzuan Islamic College, Perak	120.0	57.0	52.5	Effective planning of layout and design to owner's requirements.
7	High End Apartment Project	42.9	38.5	10.2	Improve ROI of 14.7% from 4.81% to 19.5% and gross profit of the project from RM 2.2M to RM 9.3M.
8	Projek Jalan Raya	92.0	74.0	19.6	Identified many areas in

	Simpang Pulai – Lojing – Gua Musang – Kuala Berang (Pakej 8)				the existing solutions where values can be improved without sacrificing the functions.
9	Utilities Mapping Department	2.5	1.7	30.4	Scrutinise and optimise the proposed project cost through identifying critical areas only.

Table A-1: Summary of Pilot Value Management Projects in Malaysia

APPENDIX B

History of Value Management

The brainchild of Lawrence Miles, Value Management was first conceived as Value Analysis, a technique to overcome the scarcity of raw materials through specifying the materials needed according to its intended functions and criteria. During the World War II, the manufacturing industry in the USA placed high priority in the production of military supplies to the Allied Forces. Mr. Miles, an engineer with General Electric who was responsible with manufacturing comparatively low priority products constantly faced shortages of raw materials as materials were acquired for military grade production. It was necessary to seek substitutes to the materials and processes to ensure that the production of these low priority products at General Electric was not disrupted. Hence, he revolutionized the procurement processes by specifying the materials required according to its intended functions and criteria rather than by the necessity of having specific materials. He focused specifically on the intended functions that the materials are supposed to perform without sacrificing the required quality although cost reduction was not an important factor then (Che Mat, n.d.).

The hallmark of these efforts is function analysis, the fundamental analysis of materials, processes, parts and other resources that are essential for the assembly of the final product. This conceptual analysis has served as the foundation for the development of Value Engineering, an enhanced version of Value Analysis which emphasized structured problem solving based on function analysis. Value Engineering subsequently made its way into the construction industry in the 1960s through the US Navy and the Army Corps of Engineers and rapidly established itself as the trend to follow (Dell'Isora, Value Engineering in the Construction Industry, 1982). The benefits of Value Engineering to the construction industry were sufficiently significant that the US

General Services Administration (GSA) and the Department of Transportation provided the inclusion of Value Engineering incentives in its construction contracts back in 1972 (Ting & Cheah, 2004).

Value Engineering subsequently took a more rigorous transformation into the present Value Management. It took the form of function-based team approach to enhance the value of the project through analysis of the necessary functions of the product or system, identifying and remove unnecessary costs associated with the project and eventually achieve the intended performance at the lowest costs possible. The stance effectively migrate this concept from being confined to specific technical tool to a comprehensive company-wide management method. Though some academicians tend to distinguish these three concepts (Value Analysis, Value Engineering and Value Management) through rigorous definition, the leading organisation for Value Management, SAVE International, considers all these concepts as synonymous. The intention of this is to avoid further confusion about these terms as well as to consolidate the methodologies under a single standard. The application of Value Management were widely adopted that in 1993, the US Congress passed two bills to make Value Management a mandatory application in all government programmes, projects, systems and products. This comprised 80% of the total governmental budget for all the agencies (Fang & Rogerson, 1999).

Value Management was introduced in Malaysia in 1986 by Associate Professor Roy Barton from the Canberra University, Australia through the Quantity Surveying Department of Universiti Teknologi Malaysia (UTM). Associate Professor Roy Barton made another visit to Malaysia in 1990 and together with Sr. Dr. Mohd. Mazlan Che Mat, they attempted to propagate the concept of Value Management to various government agencies as well as other private companies (Che Mat, n.d.). Despite the efforts, Value Management did not make marked inroads in Malaysia (Jaapar & Torrance, n.d.). Jaapar and Torrance (n.d.) observed that although there were some successful implementations of Value Management within the construction industry, Malaysians remained lukewarm about the concept of Value Management and the potential benefits that it bears. Sensing the importance and potential benefits of Value Management to the implementation of governmental projects and programmes, Value Management practices was made a mandatory measure for all government-based projects and programmes above RM50 million in 2010 (The Star, 2010).

APPENDIX C

The Concept of Value

It is imperative to understand what value stands for before delving into the notion of Value Management. Parker (1985) and Hamilton (2002) identified principal value types, namely:-

a) Price value (price) - price that one pays for an item
b) Cost value (cost) - the cost associated with the process of conducting the function effectively
c) Esteem value (want) - appraise the function associated with pleasing someone
d) Exchange value (worth) - measure of resources that one specific item can be traded
e) Utility value (need) - assessment of the functions that an item is required to perform to the standards

Value generally refers to the relationship between satisfying the differing needs of clients (function) and the necessary resources (cost) required in performing it (Abidin & Pasquire, 2007; Liu & Leung, 2002). Differing needs of clients can be broad, as one client will have different needs from another. To simplify the relationship, the relationship can be expressed as the figure below:-

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

Figure C-1: The Common Value Equation

From the relationship above, value can be favourably enhanced by increasing the function of the item and / or by decreasing the cost of the item concerned. Alternately, the value of an item is lowered if the function of the item is reduced and / or the cost for producing the item is increased (Alwerfalli & Schaaf, 2010; Hamilton, 2002).

Dell'Isora (1997) took a more bold approach to definition of value. He expounded that value is also directly related to quality apart from factors like function and cost. Therefore, value is interpreted as the most effective and efficient way to perform functions that will satisfy the specific needs and wants of users. The value equation proposed by Dell'Isora is:-

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

Figure C-2: The Dell'Isora Value Equation

Hence, value approach is primarily concerned with substituting materials with distinctive attributes that would enhance the life-cycle of a product by taking advantages of the attributes. This approach evolved to include the performance of the materials and final products while at the same time reducing the costs required. It requires examining the function of the elements and final products to which they are supposed to serve. Therefore, there are two elements of functions which must be addressed, what something must do as well as how something must do it (Hamilton, 2002).

In the fraternity of engineering where public interest is of paramount importance, maximising value is the primary focus of project delivery. However, value has been perceived directly as lower costs or financial benefits rather the notion of value itself (Barima, 2010). More, Hamilton (2002) further mentioned that it is not uncommon that value is being treated as an alternative mean to measure financial feat. He instead proposed that the value should be placed central of the organisation and the strategies, processes and resources be integrated and aligned towards achieving the value. Hamilton further reinforced that value is not rigid but revolving to the needs of parties involved. As such, it is only logical for the organisations to clearly identify the needs and develop values in deliverables according to these needs. The principles behind Value Management are to examining the needs and subsequently develop projects or programmes that will drive the probability of achieving the value.

APPENDIX D

Development of Value Management

Despite the fact that the differences between Value Analysis, Value Engineering and Value Management are not significant and even treated as the same entity by SAVE International, it would be essential in this study to seek out what each of the concept means and how it has evolved to the current Value Management.

Value Analysis (VA)

The initiation concept of Value Management, Value Analysis is a specific, creative and organised approach to function analysis, embodying the use of techniques, skills and knowledge to focus on the specific functions of the process and eliminating unnecessary costs which do not contribute to the function of process (Liu, 2003).

Value Engineering (VE)

Value Engineering is a more comprehensive and improvised technique where it embodies a systematic approach to seek out the best efficient balance between performance, cost and quality of a product or even a project. It can be differentiated that Value Engineering is a wider approach to maximise value as compared to Value Analysis considering that Value Engineering requires broader consideration of the entire project or process rather than specific function required in Value Analysis (Liu, 2003).

Value Management (VM)

Value Management is a broad, proactive and inventive approach to deliver value to the requirements of the clients through capitalising on the functional values central to the clients. The Value Management method emphasizes on decisions appraisal based on values promulgated by the clients from the conception stage to occupancy stage through an orderly and team-oriented approach (Kelly & Male, 1993; Thiry, 2002).

It is clearly distinctive from the above statement the fundamental concept has shifted from cost-based to value-based, giving project stakeholders a greater and central role in project development and delivery. It means that value for money can only be achieved when design alternatives generated must not only strike the balance of cost, performance and quality but also satisfy the objectives of the project.

The Evolution of VM

While Value Engineering and Value Analysis are commonly viewed as synonymous to Value Management in the present set-up, both Value Engineering and Value Analysis are indeed subsets of Value Management in strict definition. Value Engineering and Value Analysis focus primarily on tactically convalescing values in specific stages of the project, commonly during the design and construction stages (Male, Kelly, Fernie, Gronqvist, & Bowles, 1998). Value Management effectively migrated from the traditional hard and static notion of Value Engineering and Value Analysis through strategic level focus on dynamic, three-hundred-sixty degrees problem solving approach intended to maximise values right from the inception stage to the delivery stage (Liu, 2003). The evolution of Value Management is depicted as the Figure D-1:

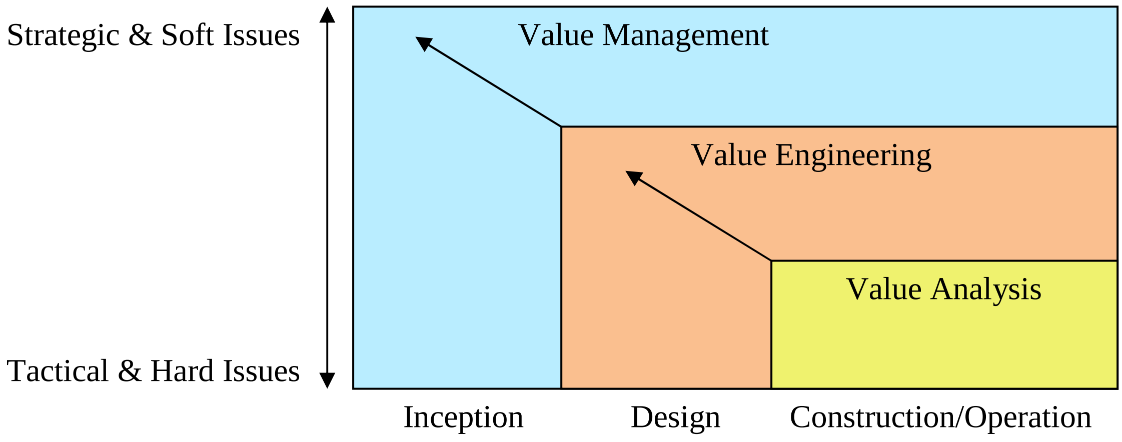

Figure D-1: The Evolution of Value Management

Dawson (2001) in his presentation to the Hong Kong Institute of Value Management International Conference in 2000 highlighted five (5) major changes that distinguish the evolution from traditional forms of Value Engineering and Value Analysis to the contemporary form of Value Management.

Change 1 - The migration from "process-centred" to "people-centred". While the traditional concept of value revolves around unravelling the option with the lowest cost for performing a function, the contemporary concept emphasizes the needs to source a balance between quality, function and cost to satisfy the owner's needs. Therefore, it is only complete to attain value through the performance of a process or a system with the lowest cost and at the same time satisfying the needs and wants of the owner.

Change 2 - The migration from remedial to preventive. Value Analysis and Value Engineering specifically focus on the dealing with the current processes or designs. On the contrary, Value Management stressed on proactive approach right from the conception stage to seek the best possible processes or designs using creative means. The model for VM has effectively shifted from remedial mode to preventive mode.

Change 3 - Broader appliance of VM. The application of Value Management is no longer confined to just addressing technical issues. Value Management is now a more robust and complete management technique extending beyond technical issues, which covers every aspect of the project implementation and project delivery.

Change 4 - From one workshop to several workshops. The practice of Value Management has moved from being a one-off activity devise to address a specific technical issue to a full-fledged managerial concept aimed at maximising values which are central to the clients. Therefore, the Value Management activities will inevitably extend beyond a single workshop and transform into a continuous process where optimum balance between cost, function and quality is sought after.

Change 5 - From technical participants to managerial participants. In congruent with the shift of Value Management practice from technical-centred to management-centred, the participants of Value Management have also broaden to include every members of the project delivery team. This is contributed by the fact that Value Management involved not only tactical issues but also strategic issues which are the prime factors for the success of a project.

Dawson (2001) further summarizes the comparison between Value Analysis, Value Engineering and Value Management to further improve the simplicity of distinguishing the three concepts. The summary is tabled as Table D-1.

Items	Value Analysis	Value Engineering	Value Management
Objective	To realise the desired functions with minimum costs of process involved.	To realise the desired functions with minimum costs to the project.	To capitalise value of the entire project as expounded by the clients.
Subjects	Existing designs or processes.	Existing designs or processes.	Existing designs, processes.
Timing	Upon completion of the design stage.	In the design and construction stages of the project.	From the conception stage until the delivery stage of the project.
Nature	Remedial action.	A combination of remedial, auditing and preventive approach.	Proactive approach intended at preventive actions.
Levels	Process level.	Process and element level.	Each and every level of the project development and delivery stage.

Items	**Value Analysis**	**Value Engineering**	**Value Management**
Value Improving Approach	Value is achieved by driving down costs.	Value is achieved by improvisation of designs	Value is achieved by integrating owner's requirements into design criteria.
Techniques	Focus on functional analysis.	Implementation of workshop and functional analysis.	Involvement of all stakeholders within the project, consensus development and multi-attribute rating techniques.
Outputs	Remedial offers for cost reduction.	Remedial offers and development of alternative designs.	Project objectives, specifications, delivery methods and designs based on owner's requirements.
Participants	Only technical personnel who are directly involved.	Technical personnel and clients' representative.	Each and every relevant stakeholder in the project.

Table D-1: The Evolution of Value Management

APPENDIX E

Job Plan of Value Management

While there are numerous approaches to conducting Value Management like the standard 40-hour workshop, the VM audit, contractor's change proposal and other approaches which are customized to suit the needs of the projects, these studies generally follows the criteria and plan proposed by SAVE International (Liu & Leung, 2002; Luo, Shen, Fan, & Xue, 2010; Zhang, Mao, & AbouRizk, 2009). The systematic job plan being promoted SAVE International consists of three (3) stages namely, pre-study stage, value study stage and post study stage. The pre-study stage consists of one (1) phase, while the value study stage and post study stage consist of seven (7) phases and one (1) phase respectively (Perera, Hayles, & Kerlin, 2011; Gupta, 2009; Davis, 2004). The various phases are detailed as below.

Phase 1: Orientation and Diagnostic Phase (Pre-Study Stage)

The initial phase of Value Management, the orientation and diagnostic phase involves commissioning of the Value Management team in preparation for the Value Management study. Project owner along with respective stakeholders would conduct a kick-off meeting to form the Value Management team along the with appointment of the team leader. The Value Management team along with the owner and stakeholders will in turn defined the goals of the project according to the owner's needs and requirements. The boundaries of the project will also be established at this phase (Davis, 2004; Che Mat, n.d.).

Phase 2: Information Phase (Value Study Stage)

The project background, project scope, current concept, designs and its associated costs will be tabled by the designer at this phase. The design development along with the project schedule will also be presented at this stage to ensure that sufficient time will be allocated for the Value Management study. Important data which is vital to the project like design criteria, operation and maintenance requirements, project constructability, project schedule, budget allocation will then be captured for future reference and analysis (Davis, 2004; Liu & Leung, 2002).

Phase 3: Function Phase (Value Study Stage)

The most fundamental and important phase of value study, the function phase utilises a combination of function-logic process to break down the project information into the most simplistic form for analysis. There are two prime objectives that must be fulfilled at this phase; to accentuate developed ideas that are incongruent with the project objectives and laying the platform for creativity phase in the subsequent phase. Project variables will be developed and scrutinised according the specific values that have been spelled out by the owner and stakeholders (Liu & Leung, 2002).

Phase 4: Creative Phase (Value Study Stage)

The creativity phase will employ brainstorming or other similar methods as a mean to generates ideas, processes, methods and designs which are seen as possible alternatives to the pre-defined functions. It must be highlighted that this phase is opened to any and all possible alternatives but comments and judgements will not be taken into consideration at this phase. This phase focus solely on the quantity of the alternatives generated with no emphasis being placed on quality. These alternatives commonly come in the form of substituting materials, revising tolerances, increase standardising instead of customising or altering the construction sequence (Alwerfalli & Schaaf, 2010; Perera, Hayles, & Kerlin, 2011)

Phase 5: Evaluation Phase (Value Study Stage)

The evaluation phase is a succeeding phase of creative phase. In this phase, all alternatives generated in the creative phase will be duly evaluated. First, these alternatives will be screened for viability of implementation in the project. These alternatives will be subsequently scanned for strategic fit with the project objectives and values expounded by the owner. Then, these alternatives will be tested for other minor criteria like economic viability, life-cycle cost, safety, reliability, environmental impact, social impact, aesthetics, maintainability and other factors which are deemed fit (Alwerfalli & Schaaf, 2010; Perera, Hayles, & Kerlin, 2011).

Phase 6: Development Phase (Value Study Stage)

Those viable alternatives that pass the evaluation phase will be developed into workable proposals. These proposals will detail out the description of the recommendation, capital cost and recurrence cost of the recommendation, advantages and disadvantages of the recommendation and other relevant date and supporting information which are critical to the decision making in the later phases (Liu & Leung, 2002; Davis, 2004).

Phase 7: Presentation Phase (Value Study Stage)

In this phase, a written report consist of the various proposals will be submitted to the decision makers and the decision makers will be brief about the recommendations of the Value Management team in an informal briefing. This is mainly to allow decision makers to have an in depth understanding of the findings and raise queries about the recommendations before deciding on the suitable recommendations to be implemented (Alwerfalli & Schaaf, 2010; Davis, 2004).

Phase 8: Implementation Phase (Value Study Stage)

The last phase of the Value Study Stage, the implementation phase requires decision makers to decide of the status of the recommendations. The decision makers can opt to implement any or all of the recommendations being proposed. These recommendations accepted will need to be further developed and transpired to the respective parties involved in its implementation (Alwerfalli & Schaaf, 2010; Gupta, 2009).

Phase 9: Post Value Management Study Activities Phase (Post-Study Stage)

The recommendations implemented will be subsequently captured in the records and the values realised will also be recorded. The progress of implementation will be tracked and monitored for subsequent review by the decision makers, Value Management team and the project implementation team (Alwerfalli & Schaaf, 2010).

APPENDIX F

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GRADUATE SCHOOL OF BUSINESS
FACULTY OF BUSINESS & ACCOUNTANCY

An Exploratory Study on the Implementation of Value Management among Engineering Professionals in the Klang Valley

Dear Respected Respondent,

This survey is conducted as a requirement for the completion of dissertation for the Master of Business Administration, University of Malaya. The purpose of this research is to determine the **factors that motivate the adoption of Value Management (VM) among engineering professionals** in the **Klang Valley**. We would greatly appreciate your assistance in answering the questionnaire. It is only with your generous help that this study can be successful.

Please be assured that your response to each question in this questionnaire will be kept strictly confidential. The strict ethic guidelines of University of Malaya will ensure anonymity is maintained at all times. Individual participants will not be identified in the analysis as only aggregated results will be analyzed and presented.

Brief Description of Value Management

Value Management was made a mandatory exercise for all government projects worth RM50 million or more in 2009. It is a systematic approach directed at identifying the functions of a specific project aimed at achieving the vital functions at the lowest cost possible while at the same time maintaining the required objectives, performance, reliability and maintainability. Value Management includes establishing and verifying project objectives, optimising design solutions, resolving conflicts and improves communication as well as creating a range of viable options for executive consideration.

In making the ratings, please remember the following points

1. There are 2 parts of question in this set of questionnaire. (5 pages including cover page)
   - Part A: Implementation of Value Management (52 Questions)
   - Part B: Demographic Profile of the Respondents (10 Questions)
2. Please answer each of the statements related to the questions by marking ☒ alongside the number that best describes your answer.
3. Be sure to answer all items – do not omit any.
4. Never tick more than one number or box for each scale.

If there are queries about this study, please contact me **Fong Chong Yit (CGA090006)**, MBA Candidate @ **012-2882321** or email me at esprit_04@yahoo.com. Supervised by: Dr. Chan Wai Meng (chanwm@um.edu.my) from Department of Business Policy and Strategy, Faculty of Business and Accountancy, University of Malaya.

Part A: Implementation of Value Management (VM)

(1) Strongly Disagree	(2) Disagree	(3) Somewhat Disagree	(4) Neutral	(5) Somewhat Agree	(6) Agree	(7) Strongly Agree

No.	Statement	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	I have heard of "Value Project, Value Management, Value Analysis, Functional Analysis or Value Control".	☐	☐	☐	☐	☐	☐	☐
2	I have been exposed to VM either through formal education, training, daily work, books, magazines, friends and etc.	☐	☐	☐	☐	☐	☐	☐
3	I have very clear understanding of the term "Value Management".	☐	☐	☐	☐	☐	☐	☐
4	I have applied VM in work.	☐	☐	☐	☐	☐	☐	☐
5	VM will effectively reduce project cost and improve project delivery.	☐	☐	☐	☐	☐	☐	☐
6	VM implementation does not incur high costs.	☐	☐	☐	☐	☐	☐	☐
7	VM is an effective cost control measure.	☐	☐	☐	☐	☐	☐	☐
8	VM could ensure higher profit through elimination of unnecessary costs.	☐	☐	☐	☐	☐	☐	☐
9	VM is a cost reduction measure through innovation and creative alternative designs.	☐	☐	☐	☐	☐	☐	☐
10	Implementation of VM will delay the engineering design stages.	☐	☐	☐	☐	☐	☐	☐
11	Implementation of VM will cause delay in project implementation and delivery.	☐	☐	☐	☐	☐	☐	☐
12	Project schedule does not allocate time for VM implementation.	☐	☐	☐	☐	☐	☐	☐
13	Project team members do not have time to understand VM.	☐	☐	☐	☐	☐	☐	☐
14	Project team members do not have time to implement VM.	☐	☐	☐	☐	☐	☐	☐
15	Participants' past experiences complement the VM implementation	☐	☐	☐	☐	☐	☐	☐
16	Participants' professionalism enhances the VM phases.	☐	☐	☐	☐	☐	☐	☐
17	VM facilitators' experience and quality enables successful VM implementation.	☐	☐	☐	☐	☐	☐	☐
18	Owner initiates VM to be used in project management and development.	☐	☐	☐	☐	☐	☐	☐

(1) Strongly Disagree	(2) Disagree	(3) Somewhat Disagree	(4) Neutral	(5) Somewhat Agree	(6) Agree	(7) Strongly Agree

No.	Statement	(1)	(2)	(3)	(4)	(5)	(6)	(7)
19	There is perfect fit between owner's requirement and project delivery.	☐	☐	☐	☐	☐	☐	☐
20	Owner's requirements and objectives have been clearly defined during the design stages.	☐	☐	☐	☐	☐	☐	☐
21	Perfect fit between owner's requirement and project delivery is essential for project success.	☐	☐	☐	☐	☐	☐	☐
22	Owner's confidence in project team members is essential for project success.	☐	☐	☐	☐	☐	☐	☐
23	Teamwork between project team members is the key factor for project success.	☐	☐	☐	☐	☐	☐	☐
24	Participation of each and every member from various departments is essential for VM implementation success.	☐	☐	☐	☐	☐	☐	☐
25	Participation and support from top management drives successful VM implementation.	☐	☐	☐	☐	☐	☐	☐
26	Competent leader is vital for VM initiative.	☐	☐	☐	☐	☐	☐	☐
27	Communication between project team members ensures VM implementation success.	☐	☐	☐	☐	☐	☐	☐
28	Communication between internal project members and external stakeholders ensures successful VM implementation and project delivery.	☐	☐	☐	☐	☐	☐	☐
29	Providing training to owner will enhance the application of VM.	☐	☐	☐	☐	☐	☐	☐
30	Providing training to project team members will enhance the application of VM.	☐	☐	☐	☐	☐	☐	☐
31	Continuous training will reinforces the quality and implementation of VM.	☐	☐	☐	☐	☐	☐	☐
32	Parties involved in leading the VM initiatives lack the knowledge of VM.	☐	☐	☐	☐	☐	☐	☐
33	There is a lack of VM experts in Malaysia to ensure successful VM implementation.	☐	☐	☐	☐	☐	☐	☐
34	Project team members have low understanding and knowledge of VM implementation.	☐	☐	☐	☐	☐	☐	☐
35	There are limited resources on the project's VM that project team members can request.	☐	☐	☐	☐	☐	☐	☐

(1) Strongly Disagree	(2) Disagree	(3) Somewhat Disagree	(4) Neutral	(5) Somewhat Agree	(6) Agree	(7) Strongly Agree

No.	Statement	(1)	(2)	(3)	(4)	(5)	(6)	(7)
36	The cost, quality and schedules should be clearly defined in the project description.	☐	☐	☐	☐	☐	☐	☐
37	Clear objectives provide project team members with better focus on the project requirements and delivery.	☐	☐	☐	☐	☐	☐	☐
38	VM implementation is an obstacle to project implementation and delivery.	☐	☐	☐	☐	☐	☐	☐
39	VM is just another management fashion.	☐	☐	☐	☐	☐	☐	☐
40	VM should not be implemented in the engineering sector.	☐	☐	☐	☐	☐	☐	☐
41	The traditional form of project delivery is better than VM.	☐	☐	☐	☐	☐	☐	☐
42	VM is time-wasting initiative in project delivery.	☐	☐	☐	☐	☐	☐	☐
43	VM implementation promotes creativity, innovation and aggressiveness in project delivery.	☐	☐	☐	☐	☐	☐	☐
44	VM implementation increases value in the project implementation and delivery.	☐	☐	☐	☐	☐	☐	☐
45	VM implementation ensures effective and efficient engineering design.	☐	☐	☐	☐	☐	☐	☐
46	VM provides means of accurate cost estimation.	☐	☐	☐	☐	☐	☐	☐
47	VM implementation promotes quantitative and qualitative development of project team members.	☐	☐	☐	☐	☐	☐	☐
48	Proper functional analysis and other VM tools like brainstorming, cost benefit analysis and risk analysis promote VM implementation.	☐	☐	☐	☐	☐	☐	☐
49	VM is an effective and easy to apply tool.	☐	☐	☐	☐	☐	☐	☐
50	VM methods generate better suggestions and ideas for project delivery.	☐	☐	☐	☐	☐	☐	☐
51	Clear VM standards and guidelines promote VM implementation.	☐	☐	☐	☐	☐	☐	☐
52	VM methods promote rational selection of alternatives to a problem.	☐	☐	☐	☐	☐	☐	☐

Part B: Demographic Profile of the Respondents

Please select **ONE** answer from each statement that best describes you.

1. Nationality: ☐ Malaysian ☐ Non-Malaysian	**2. Gender** ☐ Male ☐ Female	**3. Age group:** ☐ 25 years and below ☐ 25 – 32 years ☐ 33 – 39 years ☐ 40 – 46 years ☐ 47 – 65 years ☐ 66 years and above
4. Ethnic background: ☐ Malay ☐ Chinese ☐ Indian ☐ Others__________	**5. Monthly income (gross):** ☐ RM2,000 – RM4,000 ☐ RM4,001 – RM6,000 ☐ RM6,001 – RM8,000 ☐ RM8,001 – RM10,000 ☐ More than RM10,000	**6. Highest education level achieved:** ☐ First Degree (Bachelor) ☐ Professional Qualification ☐ Postgraduate Degree (e.g. Master or Doctorate)

7. Current job position: ☐ Director ☐ Senior Manager ☐ Managers ☐ Senior Executive ☐ Junior Executive ☐ Non Executive Others.________________________	**8. Current engineering sector:** ☐ Government Sector ☐ Property Developer ☐ Contractor ☐ Consultant ☐ Supplier ☐ Project Management ☐ Material Testing ☐ Others _______________
9. Current engineering field: ☐ Agricultural Engineering ☐ Civil Engineering ☐ Chemical Engineering ☐ Electrical Engineering ☐ Environment Engineering ☐ Mechanical Engineering ☐ Others ______________________	**10. How many years that have you served your current company.** ☐ < 2 Year ☐ 2 – 5 Years ☐ 5 – 10 Years ☐ 10 – 15 years ☐ > 15 Years

APPENDIX G

Malaysian or Non-Malaysian

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malaysian	105	100.0	100.0	100.0

Male or Female

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	79	75.2	75.2	75.2
	Female	26	24.8	24.8	100.0
	Total	105	100.0	100.0	

Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<25	15	14.3	14.3	14.3
	25-32	42	40.0	40.0	54.3
	33-39	23	21.9	21.9	76.2
	40-46	7	6.7	6.7	82.9
	47-65	17	16.2	16.2	99.0
	>66	1	1.0	1.0	100.0
	Total	105	100.0	100.0	

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	32	30.5	30.5	30.5
	Chinese	67	63.8	63.8	94.3
	Indian	5	4.8	4.8	99.0
	Others	1	1.0	1.0	100.0
	Total	105	100.0	100.0	

Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2,000-4,000	35	33.3	33.3	33.3
	4,001-6,000	19	18.1	18.1	51.4
	6,001-8,000	17	16.2	16.2	67.6
	8,001-10,000	10	9.5	9.5	77.1
	>10,000	24	22.9	22.9	100.0
	Total	105	100.0	100.0	

Highest Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First Degree (Bachelor)	77	73.3	73.3	73.3
	Professional Qualification	9	8.6	8.6	81.9
	Postgraduate Degree	19	18.1	18.1	100.0
	Total	105	100.0	100.0	

Current Job Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Director	11	10.5	10.5	10.5
	Senior Manager	7	6.7	6.7	17.1
	Manager	17	16.2	16.2	33.3
	Senior Executive	30	28.6	28.6	61.9
	Junior Executive	33	31.4	31.4	93.3
	Non-Executive	7	6.7	6.7	100.0
	Total	105	100.0	100.0	

Current Engineering Sector

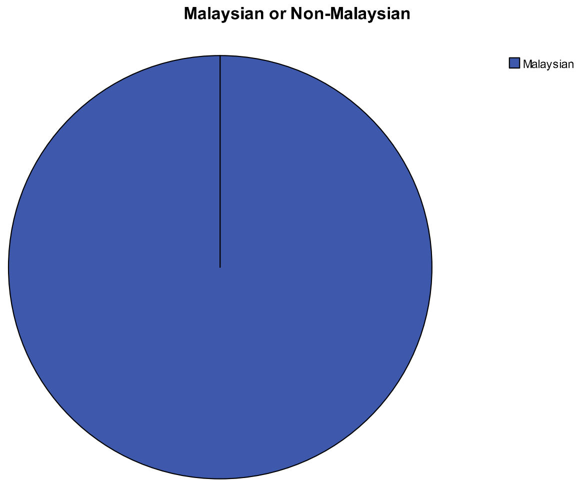
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government Sector	17	16.2	16.2	16.2
	Property Developer	4	3.8	3.8	20.0
	Contractor	9	8.6	8.6	28.6
	Consultant	52	49.5	49.5	78.1
	Supplier	6	5.7	5.7	83.8
	Project Management	8	7.6	7.6	91.4
	Others	9	8.6	8.6	100.0
	Total	105	100.0	100.0	

Current Engineering Field

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Civil Engineering	78	74.3	74.3	74.3
	Chemical Engineering	3	2.9	2.9	77.1
	Electrical Engineering	2	1.9	1.9	79.0
	Environment Engineering	4	3.8	3.8	82.9
	Mechanical Engineering	8	7.6	7.6	90.5
	Others	10	9.5	9.5	100.0
	Total	105	100.0	100.0	

Years of Service in Current Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2	27	25.7	25.7	25.7
	2-5	34	32.4	32.4	58.1
	5-10	20	19.0	19.0	77.1
	10-15	12	11.4	11.4	88.6
	>15	12	11.4	11.4	100.0
	Total	105	100.0	100.0	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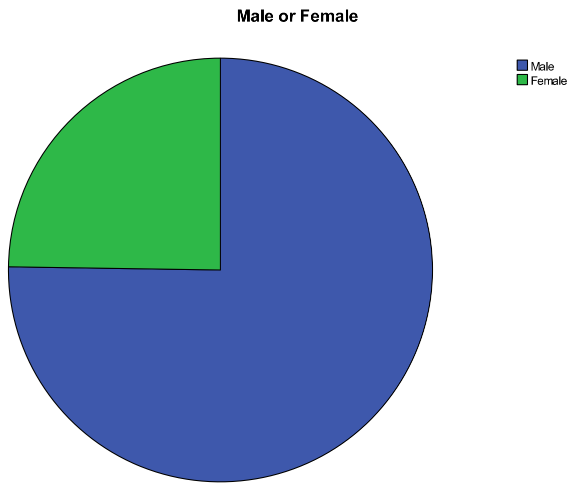
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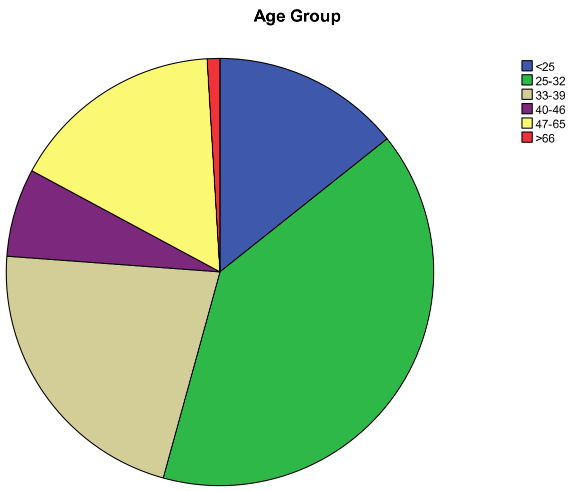
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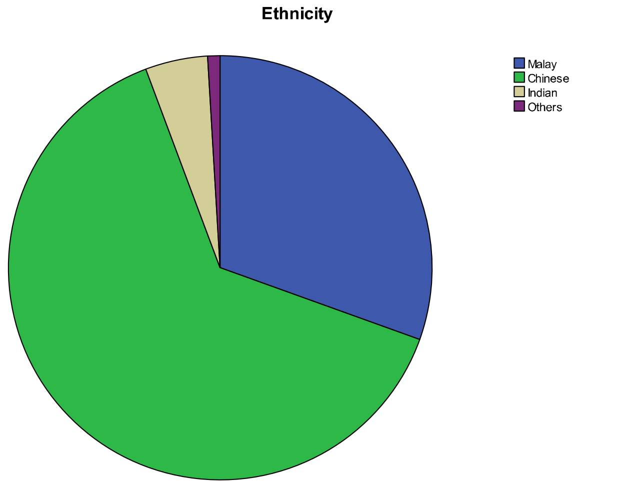
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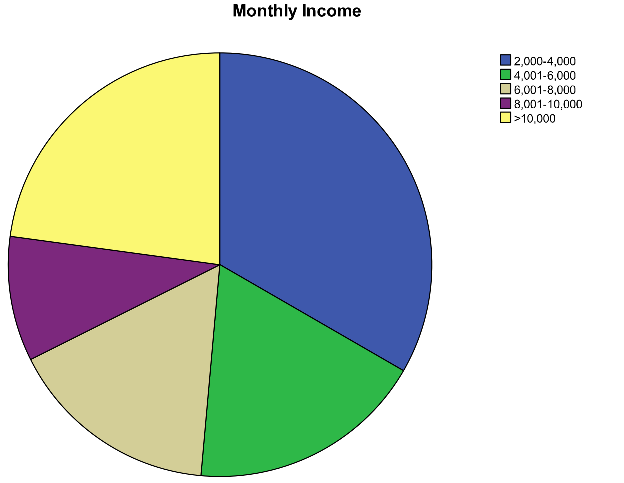
Indian
Others


Monthly Income
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4,001-6,000
6,001-8,000
8,001-10,000
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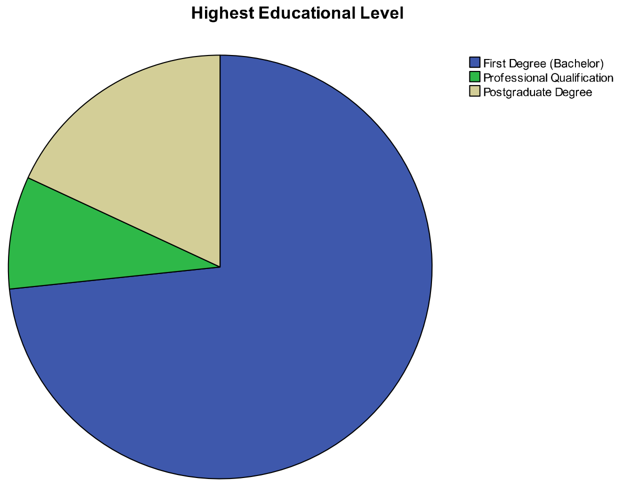
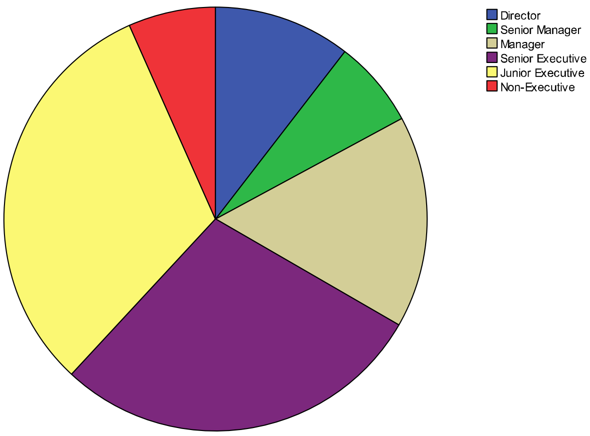
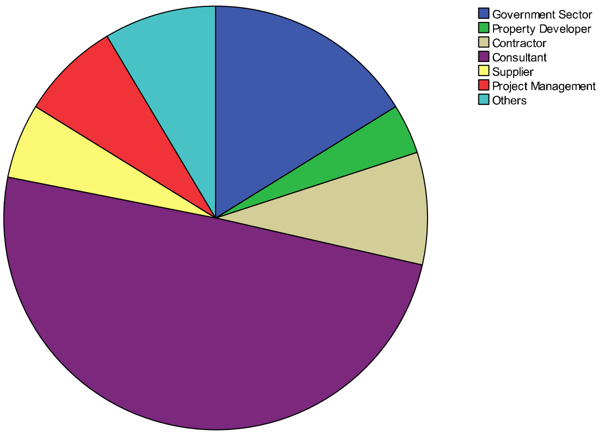

Highest Educational Level
First Degree (Bachelor)
Professional Qualification
Postgraduate Degree

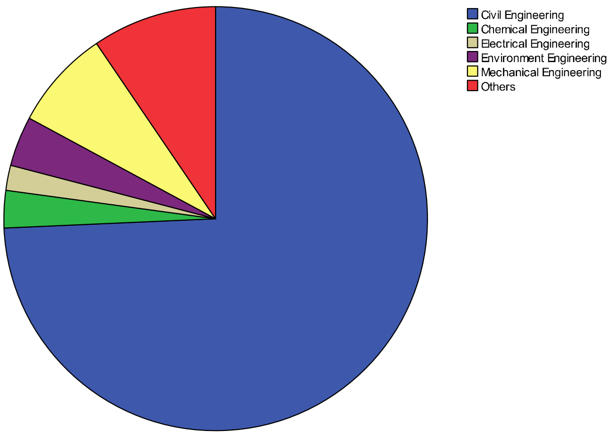
Current Job Position

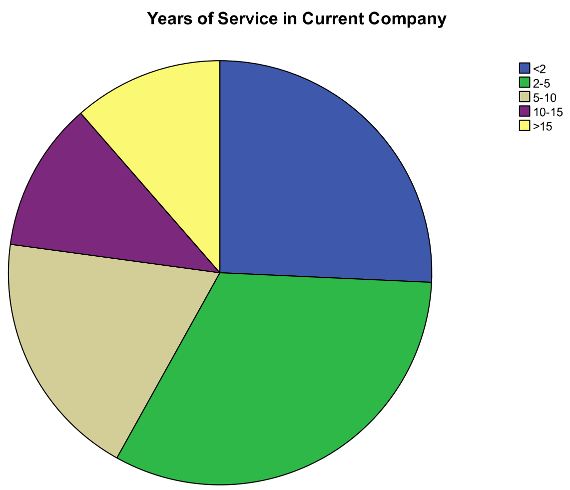


Current Engineering Sector



Current Engineering Field




Years of Service in Current Company
<2
2-5
5-10
10-15
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APPENDIX H

Descriptives

			Statistic	Std. Error
I have heard of "Value Project, Value Management, Value Analysis, Functional Analysis or Value Control".	Mean		5.21	.124
	95% Confidence Interval for Mean	Lower Bound	4.96	
		Upper Bound	5.46	
	5% Trimmed Mean		5.30	
	Median		5.00	
	Variance		1.610	
	Std. Deviation		1.269	
	Skewness		-1.067	.236
	Kurtosis		1.024	.467
I have been exposed to VM either through formal education, training, daily work, books, magazines, friends and etc.	Mean		4.75	.142
	95% Confidence Interval for Mean	Lower Bound	4.47	
		Upper Bound	5.03	
	5% Trimmed Mean		4.81	
	Median		5.00	
	Variance		2.130	
	Std. Deviation		1.460	
	Skewness		-.806	.236
	Kurtosis		-.474	.467
I have very clear understanding of the term "Value Management".	Mean		4.70	.143
	95% Confidence Interval for Mean	Lower Bound	4.42	
		Upper Bound	4.99	
	5% Trimmed Mean		4.77	
	Median		5.00	
	Variance		2.133	
	Std. Deviation		1.461	
	Skewness		-.811	.236
	Kurtosis		-.157	.467
I have applied VM in work.	Mean		4.83	.132
	95% Confidence Interval for Mean	Lower Bound	4.57	
		Upper Bound	5.09	
	5% Trimmed Mean		4.89	
	Median		5.00	
	Variance		1.816	

	Std. Deviation		1.348	
	Skewness		-.834	.236
	Kurtosis		-.002	.467
VM will effectively reduce project cost and improve project delivery.	Mean		5.50	.092
	95% Confidence Interval for Mean	Lower Bound	5.31	
		Upper Bound	5.68	
	5% Trimmed Mean		5.54	
	Median		6.00	
	Variance		.887	
	Std. Deviation		.942	
	Skewness		-.866	.236
	Kurtosis		1.290	.467
VM implementation does not incur high costs.	Mean		4.83	.114
	95% Confidence Interval for Mean	Lower Bound	4.60	
		Upper Bound	5.06	
	5% Trimmed Mean		4.90	
	Median		5.00	
	Variance		1.374	
	Std. Deviation		1.172	
	Skewness		-.681	.236
	Kurtosis		-.003	.467
VM is an effective cost control measure.	Mean		5.29	.095
	95% Confidence Interval for Mean	Lower Bound	5.10	
		Upper Bound	5.47	
	5% Trimmed Mean		5.35	
	Median		5.00	
	Variance		.956	
	Std. Deviation		.978	
	Skewness		-1.045	.236
	Kurtosis		1.375	.467
VM could ensure higher profit through elimination of unnecessary costs.	Mean		5.50	.104
	95% Confidence Interval for Mean	Lower Bound	5.29	
		Upper Bound	5.70	
	5% Trimmed Mean		5.57	
	Median		6.00	

	Variance		1.137	
	Std. Deviation		1.066	
	Skewness		-.909	.236
	Kurtosis		1.217	.467
VM is a cost reduction measure through innovation and creative alternative designs.	Mean		5.44	.091
	95% Confidence Interval for Mean	Lower Bound	5.26	
		Upper Bound	5.62	
	5% Trimmed Mean		5.47	
	Median		6.00	
	Variance		.864	
	Std. Deviation		.929	
	Skewness		-.841	.236
	Kurtosis		1.217	.467
Implementation of VM will delay the engineering design stages.	Mean		4.27	.157
	95% Confidence Interval for Mean	Lower Bound	3.95	
		Upper Bound	4.58	
	5% Trimmed Mean		4.29	
	Median		5.00	
	Variance		2.601	
	Std. Deviation		1.613	
	Skewness		-.193	.236
	Kurtosis		-1.303	.467
Implementation of VM will cause delay in project implementation and delivery.	Mean		4.64	.146
	95% Confidence Interval for Mean	Lower Bound	4.35	
		Upper Bound	4.93	
	5% Trimmed Mean		4.66	
	Median		5.00	
	Variance		2.233	
	Std. Deviation		1.494	
	Skewness		-.449	.236
	Kurtosis		-1.012	.467
Project schedule does not allocate time for VM implementation.	Mean		4.16	.161
	95% Confidence Interval for Mean	Lower Bound	3.84	
		Upper Bound	4.48	
	5% Trimmed Mean		4.18	

	Median		4.00	
	Variance		2.714	
	Std. Deviation		1.647	
	Skewness		-.146	.236
	Kurtosis		-1.153	.467
Project team members do not have time to understand VM.	Mean		4.23	.154
	95% Confidence Interval for Mean	Lower Bound	3.92	
		Upper Bound	4.53	
	5% Trimmed Mean		4.22	
	Median		4.00	
	Variance		2.505	
	Std. Deviation		1.583	
	Skewness		-.089	.236
	Kurtosis		-1.295	.467
Project team members do not have time to implement VM.	Mean		4.21	.156
	95% Confidence Interval for Mean	Lower Bound	3.90	
		Upper Bound	4.52	
	5% Trimmed Mean		4.23	
	Median		5.00	
	Variance		2.571	
	Std. Deviation		1.603	
	Skewness		-.250	.236
	Kurtosis		-1.293	.467
Participants' past experiences complement the VM implementation	Mean		5.18	.125
	95% Confidence Interval for Mean	Lower Bound	4.93	
		Upper Bound	5.43	
	5% Trimmed Mean		5.26	
	Median		6.00	
	Variance		1.650	
	Std. Deviation		1.284	
	Skewness		-1.179	.236
	Kurtosis		.556	.467
Participants' professionalism enhances the VM phases.	Mean		5.47	.132
	95% Confidence Interval for Mean	Lower Bound	5.20	
		Upper Bound	5.73	

	5% Trimmed Mean		5.60	
	Median		6.00	
	Variance		1.828	
	Std. Deviation		1.352	
	Skewness		-1.356	.236
	Kurtosis		1.915	.467
VM facilitators' experience and quality enables successful VM implementation.	Mean		5.53	.117
	95% Confidence Interval for Mean	Lower Bound	5.30	
		Upper Bound	5.77	
	5% Trimmed Mean		5.63	
	Median		6.00	
	Variance		1.444	
	Std. Deviation		1.201	
	Skewness		-1.165	.236
	Kurtosis		1.873	.467
Owner initiates VM to be used in project management and development.	Mean		5.50	.117
	95% Confidence Interval for Mean	Lower Bound	5.27	
		Upper Bound	5.74	
	5% Trimmed Mean		5.58	
	Median		6.00	
	Variance		1.445	
	Std. Deviation		1.202	
	Skewness		-.994	.236
	Kurtosis		.464	.467
There is perfect fit between owner's requirement and project delivery.	Mean		4.89	.127
	95% Confidence Interval for Mean	Lower Bound	4.63	
		Upper Bound	5.14	
	5% Trimmed Mean		4.95	
	Median		5.00	
	Variance		1.698	
	Std. Deviation		1.303	
	Skewness		-.767	.236
	Kurtosis		-.373	.467
Owner's requirements and objectives have been clearly	Mean		5.22	.117
	95% Confidence Interval for	Lower Bound	4.99	

defined during the design stages.	Mean	Upper Bound	5.45	
	5% Trimmed Mean		5.29	
	Median		5.00	
	Variance		1.442	
	Std. Deviation		1.201	
	Skewness		-1.079	.236
	Kurtosis		1.157	.467
Perfect fit between owner's requirement and project delivery is essential for project success.	Mean		5.72	.089
	95% Confidence Interval for Mean	Lower Bound	5.55	
		Upper Bound	5.90	
	5% Trimmed Mean		5.78	
	Median		6.00	
	Variance		.836	
	Std. Deviation		.915	
	Skewness		-.880	.236
	Kurtosis		.969	.467
Owner's confidence in project team members is essential for project success.	Mean		5.50	.115
	95% Confidence Interval for Mean	Lower Bound	5.28	
		Upper Bound	5.73	
	5% Trimmed Mean		5.57	
	Median		6.00	
	Variance		1.387	
	Std. Deviation		1.178	
	Skewness		-.786	.236
	Kurtosis		.046	.467
Teamwork between project team members is the key factor for project success.	Mean		6.02	.095
	95% Confidence Interval for Mean	Lower Bound	5.83	
		Upper Bound	6.21	
	5% Trimmed Mean		6.12	
	Median		6.00	
	Variance		.942	
	Std. Deviation		.971	
	Skewness		-1.261	.236
	Kurtosis		1.857	.467
Participation of each and	Mean		5.84	.081

every member from various departments is essential for VM implementation success.	95% Confidence Interval for Mean	Lower Bound	5.68	
		Upper Bound	6.00	
	5% Trimmed Mean		5.88	
	Median		6.00	
	Variance		.695	
	Std. Deviation		.833	
	Skewness		-.499	.236
	Kurtosis		-.123	.467
Participation and support from top management drives successful VM implementation.	Mean		5.63	.107
	95% Confidence Interval for Mean	Lower Bound	5.42	
		Upper Bound	5.84	
	5% Trimmed Mean		5.70	
	Median		6.00	
	Variance		1.197	
	Std. Deviation		1.094	
	Skewness		-.785	.236
	Kurtosis		.394	.467
Competent leader is vital for VM initiative.	Mean		6.06	.079
	95% Confidence Interval for Mean	Lower Bound	5.90	
		Upper Bound	6.21	
	5% Trimmed Mean		6.12	
	Median		6.00	
	Variance		.651	
	Std. Deviation		.807	
	Skewness		-.890	.236
	Kurtosis		1.378	.467
Communication between project team members ensures VM implementation success.	Mean		5.78	.098
	95% Confidence Interval for Mean	Lower Bound	5.59	
		Upper Bound	5.97	
	5% Trimmed Mean		5.85	
	Median		6.00	
	Variance		1.000	
	Std. Deviation		1.000	
	Skewness		-1.134	.236
	Kurtosis		1.698	.467

Communication between internal project members and external stakeholders ensures successful VM implementation and project delivery.	Mean		5.69	.086
	95% Confidence Interval for Mean	Lower Bound	5.52	
		Upper Bound	5.86	
	5% Trimmed Mean		5.72	
	Median		6.00	
	Variance		.775	
	Std. Deviation		.880	
	Skewness		-.714	.236
	Kurtosis		.228	.467
Providing training to owner will enhance the application of VM.	Mean		5.48	.077
	95% Confidence Interval for Mean	Lower Bound	5.32	
		Upper Bound	5.63	
	5% Trimmed Mean		5.48	
	Median		6.00	
	Variance		.617	
	Std. Deviation		.786	
	Skewness		-.344	.236
	Kurtosis		.220	.467
Providing training to project team members will enhance the application of VM.	Mean		5.61	.076
	95% Confidence Interval for Mean	Lower Bound	5.46	
		Upper Bound	5.76	
	5% Trimmed Mean		5.63	
	Median		6.00	
	Variance		.606	
	Std. Deviation		.778	
	Skewness		-.561	.236
	Kurtosis		.600	.467
Continuous training will reinforces the quality and implementation of VM.	Mean		5.48	.100
	95% Confidence Interval for Mean	Lower Bound	5.28	
		Upper Bound	5.68	
	5% Trimmed Mean		5.54	
	Median		6.00	
	Variance		1.060	
	Std. Deviation		1.029	
	Skewness		-.906	.236

	Kurtosis		.964	.467
Parties involved in leading the VM initiatives lack the knowledge of VM.	Mean		3.67	.155
	95% Confidence Interval for Mean	Lower Bound	3.36	
		Upper Bound	3.97	
	5% Trimmed Mean		3.63	
	Median		3.00	
	Variance		2.513	
	Std. Deviation		1.585	
	Skewness		.404	.236
	Kurtosis		-.971	.467
There is a lack of VM experts in Malaysia to ensure successful VM implementation.	Mean		3.49	.146
	95% Confidence Interval for Mean	Lower Bound	3.20	
		Upper Bound	3.77	
	5% Trimmed Mean		3.48	
	Median		3.00	
	Variance		2.233	
	Std. Deviation		1.494	
	Skewness		.389	.236
	Kurtosis		-.929	.467
Project team members have low understanding and knowledge of VM implementation.	Mean		3.50	.148
	95% Confidence Interval for Mean	Lower Bound	3.21	
		Upper Bound	3.80	
	5% Trimmed Mean		3.47	
	Median		3.00	
	Variance		2.291	
	Std. Deviation		1.514	
	Skewness		.500	.236
	Kurtosis		-1.075	.467
There are limited resources on the project's VM that project team members can request.	Mean		3.67	.155
	95% Confidence Interval for Mean	Lower Bound	3.36	
		Upper Bound	3.97	
	5% Trimmed Mean		3.62	
	Median		3.00	
	Variance		2.532	
	Std. Deviation		1.591	

	Skewness		.434	.236
	Kurtosis		-.896	.467
The cost, quality and schedules should be clearly defined in the project description.	Mean		5.78	.093
	95% Confidence Interval for Mean	Lower Bound	5.60	
		Upper Bound	5.96	
	5% Trimmed Mean		5.83	
	Median		6.00	
	Variance		.903	
	Std. Deviation		.951	
	Skewness		-.709	.236
	Kurtosis		.272	.467
Clear objectives provide project team members with better focus on the project requirements and delivery.	Mean		6.06	.066
	95% Confidence Interval for Mean	Lower Bound	5.93	
		Upper Bound	6.19	
	5% Trimmed Mean		6.10	
	Median		6.00	
	Variance		.458	
	Std. Deviation		.677	
	Skewness		-.638	.236
	Kurtosis		1.165	.467
VM is just another management fashion.	Mean		4.97	.150
	95% Confidence Interval for Mean	Lower Bound	4.67	
		Upper Bound	5.27	
	5% Trimmed Mean		5.03	
	Median		6.00	
	Variance		2.355	
	Std. Deviation		1.535	
	Skewness		-.667	.236
	Kurtosis		-.576	.467
The traditional form of project delivery is better than VM.	Mean		5.21	.127
	95% Confidence Interval for Mean	Lower Bound	4.96	
		Upper Bound	5.46	
	5% Trimmed Mean		5.25	
	Median		6.00	
	Variance		1.686	

	Std. Deviation		1.299	
	Skewness		-.426	.236
	Kurtosis		-.734	.467
VM is time-wasting initiative in project delivery.	Mean		5.33	.124
	95% Confidence Interval for Mean	Lower Bound	5.09	
		Upper Bound	5.58	
	5% Trimmed Mean		5.40	
	Median		6.00	
	Variance		1.609	
	Std. Deviation		1.268	
	Skewness		-.827	.236
	Kurtosis		.436	.467
VM implementation promotes creativity, innovation and aggressiveness in project delivery.	Mean		5.41	.092
	95% Confidence Interval for Mean	Lower Bound	5.23	
		Upper Bound	5.59	
	5% Trimmed Mean		5.44	
	Median		6.00	
	Variance		.898	
	Std. Deviation		.948	
	Skewness		-.840	.236
	Kurtosis		.873	.467
VM implementation increases value in the project implementation and delivery.	Mean		5.50	.085
	95% Confidence Interval for Mean	Lower Bound	5.34	
		Upper Bound	5.67	
	5% Trimmed Mean		5.52	
	Median		6.00	
	Variance		.752	
	Std. Deviation		.867	
	Skewness		-.556	.236
	Kurtosis		-.187	.467
VM implementation ensures effective and efficient engineering design.	Mean		5.43	.085
	95% Confidence Interval for Mean	Lower Bound	5.26	
		Upper Bound	5.60	
	5% Trimmed Mean		5.48	
	Median		6.00	

	Variance		.766	
	Std. Deviation		.875	
	Skewness		-1.136	.236
	Kurtosis		1.851	.467
VM provides means of accurate cost estimation.	Mean		5.27	.108
	95% Confidence Interval for Mean	Lower Bound	5.05	
		Upper Bound	5.48	
	5% Trimmed Mean		5.33	
	Median		5.00	
	Variance		1.236	
	Std. Deviation		1.112	
	Skewness		-.805	.236
	Kurtosis		1.453	.467
VM implementation promotes quantitative and qualitative development of project team members.	Mean		5.39	.092
	95% Confidence Interval for Mean	Lower Bound	5.21	
		Upper Bound	5.57	
	5% Trimmed Mean		5.43	
	Median		6.00	
	Variance		.894	
	Std. Deviation		.946	
	Skewness		-1.069	.236
	Kurtosis		1.925	.467
Proper functional analysis and other VM tools like brainstorming, cost benefit analysis and risk analysis promote VM implementation.	Mean		5.53	.089
	95% Confidence Interval for Mean	Lower Bound	5.36	
		Upper Bound	5.71	
	5% Trimmed Mean		5.57	
	Median		6.00	
	Variance		.828	
	Std. Deviation		.910	
	Skewness		-.959	.236
	Kurtosis		1.513	.467
VM is an effective and easy to apply tool.	Mean		4.85	.108
	95% Confidence Interval for Mean	Lower Bound	4.63	
		Upper Bound	5.06	
	5% Trimmed Mean		4.90	

	Median		5.00	
	Variance		1.227	
	Std. Deviation		1.108	
	Skewness		-.471	.236
	Kurtosis		-.324	.467
VM methods generate better suggestions and ideas for project delivery.	Mean		5.32	.089
	95% Confidence Interval for Mean	Lower Bound	5.15	
		Upper Bound	5.50	
	5% Trimmed Mean		5.36	
	Median		5.00	
	Variance		.836	
	Std. Deviation		.915	
	Skewness		-.847	.236
	Kurtosis		1.217	.467
Clear VM standards and guidelines promote VM implementation.	Mean		5.71	.092
	95% Confidence Interval for Mean	Lower Bound	5.53	
		Upper Bound	5.90	
	5% Trimmed Mean		5.76	
	Median		6.00	
	Variance		.898	
	Std. Deviation		.948	
	Skewness		-.708	.236
	Kurtosis		1.118	.467
VM methods promote rational selection of alternatives to a problem.	Mean		5.55	.094
	95% Confidence Interval for Mean	Lower Bound	5.37	
		Upper Bound	5.74	
	5% Trimmed Mean		5.59	
	Median		6.00	
	Variance		.923	
	Std. Deviation		.961	
	Skewness		-.782	.236
	Kurtosis		.965	.467
VM implementation is an obstacle to project implementation and delivery.	Mean		4.71	.156
	95% Confidence Interval for Mean	Lower Bound	4.40	
		Upper Bound	5.02	

	5% Trimmed Mean		4.74	
	Median		5.00	
	Variance		2.571	
	Std. Deviation		1.604	
	Skewness		-.519	.236
	Kurtosis		-1.032	.467
VM should not be implemented in the engineering sector.	Mean		5.32	.145
	95% Confidence Interval for Mean	Lower Bound	5.04	
		Upper Bound	5.61	
	5% Trimmed Mean		5.43	
	Median		6.00	
	Variance		2.221	
	Std. Deviation		1.490	
	Skewness		-.965	.236
	Kurtosis		.211	.467