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Challenges in Management Accounting Innovation Adoption: Evidence from Malaysian Companies

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Abstract The purpose of this paper is to highlight the main challenges or issues in the adoption of Value Engineering (VE) viewed as a management accounting innovative technique within Malaysian companies. VE relates to a systematic and multi-disciplinary team approach adopted by companies which analyze the functional requirements of new and existing products, projects or services. The aim is to achieve the essential function at the lowest overall cost while maintaining customers' optimum value assurance. A survey was conducted to determine VE issues faced by companies within each of the Malaysian automotive and construction industries. The survey findings showed that time and attitude related issues encountered by both the industries were the main challenges that were holding up VE application. The paper contributes to the literature in management accounting innovation domain specifically in relation to VE by highlighting VE adoption critical challenges, as opposed to presenting critical success factors. The findings of the study will provide important insights for companies on possible challenges faced when contemplating how to introduce innovative technique such as VE into their social system. An understanding of the challenges in innovation adoption will bring greater confidence of success when implementing management accounting techniques such as VE.

Keywords Management Accounting Techniques, Value Engineering, Innovation, Survey Method

1. Introduction

Innovation defined as a new idea by individual or other unit of adoption[1] is perceived as an important research area as it is expected to aid organizations to successfully adapt to and continue to exist in volatile business environments ([2],[1]). While management and organizational literature has long studied innovation[3], management accounting innovation research only began to emerge after the 1990's following criticisms about a lack of management accounting innovation[4]. As such, there has been keen interest and a great deal of literature on management accounting organizational innovation. However, management accounting studies on explanatory factors (e.g., organization size and structure, industry competitiveness and customers preferences) have often produced mixed results ([5],[6]). These mixed results have subsequently led to several other observations on management accounting innovation, and these have served to motivate this study, which focuses on Value Engineering (VE).

VE has been viewed as an innovative tool by researchers in both engineering ([7],[8]) and management accounting disciplines[9]. VE is defined as[10], p.74) "a philosophy or organized approach to identifying and eliminating unnecessary cost, to provide the necessary function at the least cost." VE becomes a useful tool in resolving issues in an organization and this can be achieved by identifying the main function of design, product, project or service and subsequently eliminating unnecessary cost[11]. As a result, existing designs or decisions could be improved.

Research showed that organizations in the local automotive and construction industries are experiencing increase product and project complexity, intense pressures to lower costs and tight budgets. In order to survive or ensure continued success it is essential that organizations continuously manage their costs, increase their profit position, and maintain better quality products that meet the customers changing needs and desires. VE, which focuses on creating value for customers, is one of the tools to meet these challenges. In a sense, this provides an interesting opportunity to study the mechanism of a management accounting innovation such as VE.

The work of[7] further showed that a clear effort is needed to educate industrial practitioners on VE. According to[12], VE tool has been in use for half a century but there is a mixed public opinion of the usefulness of the tool. Reference[13] had pointed out also about the misconception and resistance towards VE among practitioners. Increasing competitive pressures and the gaps revealed above provide an

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opportunity for such a study within the Malaysian automotive and construction industries to be carried out. Thus, the objective of the paper is to determine the main challenges in VE adoption within Malaysian automotive and construction industries. The paper also explores the characteristics of organizations that used VE within both the industries.

The remainder of the paper is organized into four sections. Section 2 draws on previous research on challenges in VE. The use of survey method is explained in Section 3. While, the survey findings on the automotive and construction industries are presented in Section 4. Finally, Section 5 concludes by presenting the contributions and limitations of the present study, and suggestions for future research.

2. Challenges in Value Engineering (VE)

Despite a variety of critical factors identified for VE success in the literature, organizations have faced many challenges or issues when trying to realize the benefits of VE. One of the major hindrances facing VE within both manufacturing and construction industries are time related, insufficient knowledge and information and attitude related issues. Reference[14] showed that manufacturing companies experienced VE challenges such as limited internal resources to implement VE, lack of commitment for VE workshop, difficult to obtain customer approval and inability to understand customers' priorities. Other attitude issues faced by manufacturing companies included resistance to change, territoriality, and sensitivity to criticism of work (Fisher, 1999). It was also apparent that construction companies experienced behavioral issues in VE exercises. Examples of these behavioral issues are lack of support from authority[7], lack of support from client[15], and lack of commitment from VE participants[13].

Further to that, according to[16], advanced technological development and intense market conditions have resulted in clients demanding shorter and more focused VE studies. However, the size and complexity of the projects that are subject to VE studies are continually increasing. The application of VE may delay the design process as some recommendation will involve some major or minor re-design work. Hence, it seems that lack of time to apply VE appeared to be a common impediment in VE application which users perceived could compromise quality. Another point to note is that the attitude barriers encountered in VE application can be related to the stakeholders, VE workshop participants, owners and developers. Reference[17] found that lack of proper planning for the VE workshop and insufficient education of the stakeholders and participants were among the attitude barriers encountered during the VE exercise. Meanwhile, the owners believed that VE provides a short-term economic investment environment[18] and the developers, who are profit oriented and shortsighted seemed to be more concerned with getting the investment return instead of value improvement[19]. It is also apparent that insufficient VE education would lead to poor understanding about VE methodology, which appears to be common amongst users. Lack of information (e.g., project information) could also lead to several issues, such as difficulty in completing the VE study and understanding customers' priorities.

Reference[20] emphasized that many potential adopters in the construction field are unwilling to use VE due to the lack of tools that can measure the effectiveness of VE studies. They also assert that there is limited performance measurement of VE studies in the literature because of the lack of a rigorous model. Hence, without a reasonable and accurate evaluation of the effectiveness of VE studies in achieving users' targets, it can be difficult to determine possible and relevant changes which can in fact contribute to more benefits.

3. Survey Method

A survey was each conducted on the automotive industry and the construction industry. A study of the literature aided the development of both questionnaires used in the survey. As suggested by[21], the questionnaire was customized according to the two different industry types. The survey instrument was developed to collect specific information about company characteristics, VE application and VE performance. However, only findings relating to organizational characteristics and VE issues are discussed in this paper. The measure for level of agreement with various issues was based on 18 items. The measure of possible issues relating to VE was based on several prior studies ([7],[14],[13],[15],[17]). A 5-point scale was used and it ranged from 'strongly disagreed' (1) to 'strongly agree' (5).

National Automotive Vendors Association (NAVA), the sample for the automotive industry represents the national car manufacturer's fraternity, which was launched in 1992. The 133 registered members are among the main suppliers and manufacturers of automotive parts and components in the country. The latest NAVA Directory provided the members list. The sample for the construction industry comprised of ordinary members of the Master Builders Association Malaysia (MBAM) that practise the trade of contracting and/or construction in this country. The MBAM was founded in 1954 by a group of pioneer Malaysian Master Builders. It plays an important role in the development and advancement of the construction industry in Malaysia. There are 403 ordinary members registered with the MBAM. The list of registered organizations was obtained from the association's website. Respondents in both industries were from different management levels. CEOs and MDs were examples of respondents from the highest level of management, while managers represented the lowest level of management. However, there were also responses from non-management staff such as the executives. The variation provided views on VE from different perspectives. The entire population of NAVA was selected for Survey 1, while

only 39.7% of MBAM agreed to participate in Survey 2 (based on the Dillman Method[21]. The response rate for the survey on the automotive industry was 31.6% (42/133), while 26.3% (42/160) was generated for the construction industry.

4. Discussions of Findings

This sub-section delves into the descriptive analysis on adopters of VE and issues in VE adoption within the automotive industry and the construction industry.

4.1. Adopters of VE

As shown in Table 1, the distinct characteristics of the majority of VE adopters within the automotive industry demonstrated that they were mature companies, since the majority of them had been established for more than 20 years, were involved in manufacturing metal components, had low to high product variance and mixed production process complexity. In terms of size of the organizations, there were a considerable spread in the number of employees. This shows size does not probably matter whether organization used or not used VE. 54.1% were First Tier indicating that they supplied their products directly to Original Equipment Manufacturers (OEM) and that they were position high up in this industry's supply chain. The mixed product variance and the production process complexity suggested that VE was adopted irrespective of the different types of production processes. Similarly, a substantial number of the constructio n companies were mature companies and well-established, because over a third (34.3%) had been incorporated for more than 20 years. They were generally small sized companies, since a relatively low number of employees employed (< 50 employees). A higher number of companies (62%) had undertaken construction of buildings compared to civil, mechanical and electrical engineering types of projects. In addition, 70% of the construction companies had completed fewer than 10 projects over the previous five years (2002-2006), suggesting low product variance. A possible explanation for this is the nature of construction activities, in which a project normally takes a considerable length of time to complete, compared to the production of products in the manufacturing industry.

Table 1. Organizational Characteristics and Structure

Organizational Characteristic & Structure	Automotive Industry	Construction Industry
1. Age	> 20 years	> 20 years
2. Organization size (Number of employees)	Different sizes	Small
3. Main Business activity	Metal manufacturer	Building construction
4. Supply chain (Automotive Industry only)	First Tier	Not applicable
5.Production/Project types	Mixed complexity	Low
6. Product/Project diversity	Low to high	Diversified

4.2. Issues in VE

Tables 2 and 3 present descriptive results on all the 18 items that measure issues in VE adoption respectively, in the automotive and construction industries. All the standard deviations were closed to one. The median values ranged from 3 to 4, thus indicates that most organizations were either neutral or in agreement with the 18 issues experienced by them.

4.2.1. Automotive Industry

Table 2 shows that the most common impediments to VE application was the lack of VE knowledge (mean = 3.30), followed by lack of staff commitment (mean = 3.24) and lack of time and budget to implement VE (mean = 3.21). There are other explanations, which could be due to insufficient education of some of the staff involved in VE, which may have resulted into a lack of commitment from them. The application of VE could cause delays or lead to some major or minor re-design work. These could result in more time needed for completion and higher costs. The lack of proper planning for VE workshop could also lead to lack of time to implement VE. This suggests that attitude, time and costs barriers were most common impediments encountered during VE exercise in the automotive industry. This result is similar to the findings from several studies such as[17],[19],[7]. On the other hand, the remaining issues were not perceived as serious impediments by respondents from automotive organizations.

Table 2. VE Issues in the Automotive Industry

Automotive Industry	N	Mean	Med
1. Lacking VE knowledge	33	3.30	3
2. Lacking staff commitment	33	3.24	3
3. Lack of time and budget to implement VE	33	3.21	3
4. Lacking value measures	33	3.18	3
5. Poor facilitation skills	33	3.15	3
6. Lacking resources	33	3.12	3
7.Lack of support from parties who have more authority in a project	34	3.09	3
8.Lacking customers involvement/ ooperation	31	3.06	3
9. Wrong perception on VE from staff	33	3.03	3
10. Lacking creativity and/or innovation	32	3.00	3
11. Poor communication among parties involved	33	3.00	3
12. Resistance to change	32	3.00	3
13. Unclear of conflicting VE objectives	33	2.97	3
14. Poor team working	34	2.91	3
15. Divided authority among various parties	33	2.85	3
16. Conflict of interest among various parties	33	2.76	3
17. No or poor management support	32	2.72	3
18. Longer product/project/process period	32	2.50	3

N: Total responses Med: Medium

4.2.2. Construction Industry

Table 3 revealed that the most serious impediments experienced by construction organizations were the lack of support from parties who have authority in a project (mean = 4.12), followed by the lack of customers' involvement or cooperation (mean = 3.88) and conflict of interest among various parties (mean = 3.74). Government, owners and customers who had more authority in a project were perceived to be the leaders and their support was very much needed for the successful implementation and application of VE, but this was not evidenced in this survey. Thus, the management style for successful VE should focus on the customer. Customer involvement in VE exercises is crucial because customers could contribute to the creation of values of the products. Furthermore, VE is a method to solve problem pertaining to the value of products or services from customer's viewpoint. Therefore, the finding in this survey indicates the important role of parties such as government, owners and customers in contributing towards the success of VE in an organization. For example, besides having the authority to make decisions, the owners being trusted can definitely ease the implementation and application of VE.

Table 3. Summary of Main Issues in the Construction Industries

Construction Industry	N	Mean	Med
1. Lack of support from parties who have more authority in a project (e.g. government, owners, customer)	33	4.12	4
2. Lacking customers involvement/cooperation	34	3.88	4
3. Conflict of interest among various parties (VE may not promote a 'win-win' situation for all parties)	34	3.74	4
4. Divided authority among various parties (e.g. owners, suppliers)	34	3.74	4
5. Lacking VE knowledge	34	3.65	4
6. Lack of time and cost to implement VE	34	3.65	4
7. Longer product/project/process period	33	3.58	3
8. Lacking resources	34	3.56	4
9. Lacking value measures	34	3.50	4
10. Lacking creativity and /or innovation	33	3.45	4
11.Poor communication among parties involved	34	3.29	3
12. Resistance to change	34	3.26	3
13. Poor facilitation skills	34	3.21	3
14. Unclear or conflicting VE objectives	34	3.15	3
15. Lacking staff commitment	34	3.12	3
16. Wrong perception on VE from staff	34	3.12	3
17. No or poor management support	34	3.09	3
18. Poor team working	32	3.09	3

N: Total responses Med: Medium

Both factors 'conflict of interest among various parties' (mean = 3.74) and 'divided authority among various parties' (mean = 3.74) were also key problems identified by adopters. Adopters believed that VE did not promote a 'win-win' situation for all parties and consequently conflicts of interest arose.

Other major impediments were 'lack of VE knowledge' and 'lack of time and cost to implement VE', each with mean score of 3.65. Most importantly, the majority of adopters did not subscribe to the belief that the parties involved had sufficient VE knowledge. Further, one of the responses in the ventilation question suggested that

"*All parties especially the leaders of the nation must be sincere, act professionally and have strong will to change the construction industry from small to large scale projects.*"

This view concurs with three other responses in the ventilation question that mentioned the important role of the government in implementing good governance and transparency. This will hopefully minimize all negative issues such as political involvement, which could lead to unfavourable situation such as, discourage greater commitment to adopt VE in their project operations.

To summmarize, the most critical issues encountered by automotive industries were the lack of VE knowledge, staff commitment, time and budget, while in the construction industry, the lack of support from parties who had more authority in a project, lack of customers' involvement and conflict of interest among various parties were the major issues holding up the implementation of VE. Nevertheless, overall both industries seemed to encounter few serious problems in VE adoption, since few respondents chose the neutral or negative options for the remaining issues.

Most of the respondents within the automotive industry either had neutral views or disagree about most of VE issues given in the question. This means that generally the companies in the automotive industry encountered less of these VE issues. Thus, these findings indicate that the VE issues did not cause significant negative effects to the automotive components manufacturing companies. However, a possible explanation for these VE issues being ranked higher albeit with smaller mean values was the insufficient education of other employees involved in VE and their busy work schedule that subsequently resulted in a lack of commitment to conduct VE exercises. Employees daily work schedule coupled with VE exercise results that entailed a major or a minor redesign work leading to higher costs were possible explanations for the lack of time and budget to carry out VE exercises. The findings on attitude and time barriers are consistent with the findings found in[17], and[14] studies. Reference[17] discovered that many project team members experienced anxiety and problems when trying to fit the VE exercise into the project schedule. The resistance arose from those who felt that they have limited time to conduct VE. This was due to the project team members had other work commitment. Similarly,[14] stated that the three-day time commitment for VE workshop made it difficult to complete VE exercise. However, the lack of VE knowledge in carrying out VE exercises was not evident in both[17] and[14] studies as was the case in the present study within the automotive industry.

However, the main issues agreed by most respondents within the construction industry were lack of support from parties who had authority in a project, lack of customers' involvement or cooperation, conflicts of interest among

various parties and lack of VE knowledge. A similar crucial lack of customers involvement in VE exercises was found in[7] and[19]'s studies. Reference[7] stated that this was one of the dominant factors for limited VE application in construction industry in Southeast Asia. The present survey findings also suggest that the involvement of leaders such as government, owners and customers who have more authority besides being the decision makers for the project would certainly contribute to VE progress. In addition, cooperation amongst project team members was an important contribution to the progress of VE exercises. It was apparent that these issues or impediments experienced within both the industries were also time and attitude related issues which were similar to those found in the literature. Reference[13] discovered that education in VE methodology was one of the constraints for VE application within the Malaysian construction industry. They also perceived that time and cost, hampered the successful implementation of VE.

5. Conclusions

This study has identified some of the factors impeding the adoption of a particular management accounting innovation (VE). The two survey findings managed to identify the key issues (time and attitude related issues) encountered by both the automotive and constructions industries that were holding up VE application. These issues were consistent with the common problems highlighted by previous researchers (e.g.,[7],[13],[20]. However, the study showed that the lack of management support was not a determiner of the extent of VE adoption within the automotive industry. On the other hand, the construction industry normally encountered fewer of these issues and enjoyed higher VE application. In addition, this study indicated the possible crucial role of the government in driving the use of VE in Malaysia.

Despite, a variety of critical factors identified for management accounting techniques adoption success in the literature, organisations have faced many challenges when trying to realise the benefits of the techniques. Thus, the paper contributes to the literature in management accounting innovation domain specifically in relation to VE by highlighting the VE adoption critical challenges or issues, as opposed to presenting critical success factors. The findings of the study will also provide important insights for organizations which are contemplating how to introduce innovative technique such as VE into their social system. An understanding of the challenges in innovation adoption will bring greater confidence of success when implementing management accounting techniques.

Apart from the normal limitations associated with survey research, such as low response rate, non-response bias, additional limitations are related to the generalization issue and sample size of the study. However, a mitigating consideration is that the respondents most likely formed a fairly representative sample of the actual population of existing automotive components manufacturing and constructions organizations within the country.

Another important contribution of the present study is to highlight the need for additional in-depth research on issues in management accounting innovation adoption such as VE in the Malaysian automotive and construction industries, as well as in other industries using case study method. This is because case study method embraces interaction and curiosity about the organizational and social worlds of subjects and captures the understanding of the actors from within, thus enabling the researcher to penetrate and capture multiple constructed realities[23]. Future study could replicate the exploratory cross-sectional surveys with a larger sample within the automotive and the construction industries, as well as within other industries to substantiate the present findings, and with different types of management accounting innovations.

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REFERENCES

[1] Rogers, E. M., Diffusion of innovations (Third ed.), Collier Macmillan Publishers, New York, 2003.

[2] Emsley, D, "Restructuring the management accounting function: A note on the effect of role involvement on innovativeness", Management Accounting Research, 1-21, 2005.

[3] Emsley, D., & Chung, L. H. "The mediating effect of role involvement on the relationship between cognitive style and management accounting innovativeness", Proceedings of 5th Conference on new directions in management accounting: innovations in practice and research, Belguim, 2006.

[4] Johnson, H. T., & Kaplan, R. S. (Eds.), Relevance lost: The rise and fall of management accounting, Harvard Business School Press, Boston, 1987.

[5] Bjornenak, T., "Diffusion and accounting: the case of ABC in Norway", Management Accounting Research, 8(3), 3-17, 1997.

[6] Williams, J. J., & Seaman, A. E., "Predicting change in management accounting systems: National culture and industry effects", Accounting, Organizations and Society, 26, 443-460, 2001.

[7] Cheah, C. Y. J., & Ting, S. K., "Appraisal of value engineering in construction in Southeast Asia", International Journal of Project Management, 23, 151-158, 2005

[8] Davis, K. E. L., "Finding value in the value engineering process Cost Engineering, 46(12), 24-27, 2004.

[9] Sulaiman, S., Ramli, A., & Mitchell, F., "What factors drive change in management accounting in Malaysian

organizations? Malaysian Accounting Review, 7(1), 61-76, 2008.

[10] Male, S., & Kelly, J., "The economic management of construction projects: An evolving methodology", Habitat International, 14(2/3), 73-81,1990.

[11] Fong, P. S. W., "Function-oriented creative group problem solving", Creativity and Innovation Management, 8(3), 210-222, 1999.

[12] Mao, X., Zhang, X., & AbouRizk, S. M., "Enhancing value engineering process by incorporating inventive problem-solving technique", Journal of Construction Engineering and Management, 135(5), 416-424, 2009.

[13] Jaapar, A, "The application of value management in the Malaysian construction industry and development of prototype value management guidelines", Ph.D. Thesis, Universiti Teknologi MARA, Malaysia, 2006.

[14] Hartley, J. L, "Collaborative value analysis: Experiences from the automotive industry", Journal of Supply Chain Management, 36(4), 27-32, 2000.

[15] Liu, G, "A framework for implementing value management in China's constructions industry", Ph.D. Thesis, The Hong Kong Polytechnic University, Hong Kong, 2003.

[16] Shen, Q., & Liu, G, "Critical success factors for value management in construction", Journal of Construction Engineering and Management, 129(5), 485-491, 2003.

[17] Fisher, J. M, "The modification of value engineering for application in the petrochemical industry", Master Thesis, University of Calgary, Calgary, 1999.

[18] Fong, P. S. W, "Value engineering in Hong Kong - A powerful tool for a changing society", Computers Industrial Engineers, 35(3/4), 627-630, 1998a.

[19] Fong, P. S. W, "Value management applications in construction", AACE International Transactions. Morgan, 6, 1-5, 1998b.

[20] Lin, G., & Shen, Q, "Measuring the performance of value management studies in construction: critical review" Journal Management In Engineering (January), 2-9, 2007.

[21] Brewerton, P., & Millward, L, Organizational research methods, Sage Publications Ltd., London, 2003.

[22] Dillman, D. A, Mail and telephone surveys: The total design method, John Wiley & Sons New York, 1978.

[23] Parker, L, Interpreting interpretive accounting research. Critical perspectives on accounting, 2007.