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A Study on Top Management Commitment and ISO 9000 Certification

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Abstract

The research aims to determine the level of top management commitment towards quality management and whether there is significant difference on top management commitment towards quality management implementation between construction organisations with and without ISO 9000 certification. The research methodology of questionnaire survey is applied in data collection for the research, the data is analysed with the descriptive statistics and hypothesis testing. Research findings indicate that the top management of a construction organisation is generally committed to the implementation of quality management from the perspectives of quality goals, efforts, involvement, attitude to change and resources allocation. However, it is also found that the top management does not place quality as the priority against the factor of cost and time. In addition, there is no conclusive finding indicating differences on top management commitment towards quality management implementation between ISO 9000 certified and non-ISO 9000 certified organisations.

Keywords: Quality management; ISO 9000 system; top management commitment.

1. Introduction

ISO 9000 system is a formal and structured quality management system. Although it still lacks of concrete evidences on the positive impacts brought by the system to the quality of construction works, the system is generally perceived as a mean to improve the construction process especially on the areas such as the specification of roles and responsibilities of people involved in the project, documentation, etc. The government of Malaysia strongly encourages the Malaysian contractors to obtain ISO 9001 certification. It is to produce contractors who practice standards that are recognized not only in Malaysia but also abroad. Among the efforts taken is the proposal that G7 class contractors be required to obtain ISO 9001 certification if they want to vie for government and foreign contracts (The Star, 1 December 2006)[1]. Nevertheless, the number of ISO 9000 certified construction organizations in Malaysia is still relatively low. Currently, there are only about ten percent (10%) of the Grade G7 (the highest grade in the registration system of the Construction Industry Development Board of Malaysia) construction organizations are ISO 9000 certified.

The commitment of top management towards quality management has been considered as an important factor in quality management. Among others, Chin et al. (2003)[2] suggested that top management commitment is the most critical factor for the successful ISO 9000 implementation. Das et al. (2006)[3] purported that top management are significantly and positively related to product quality of an organization. Rad (2006)[4] emphasized that TQM requires a quality-oriented organizational culture supported by senior management commitment. Sila et al. (2003)[5] observed that top management commitment as one of the most commonly extracted factors across seventy-six studies on the TQM factors and their impact on varios performance measures across countries. Similarly, Taylor et al. (2003)[6] found that senior managers' involvement as one of the essential antecedents of TQM success. Chin et al. (2002)[7] advocated that top management commitment is one of the most important sub-factors in TQM.

Looking at the fact that few ISO 9000 certified construction organizations as mentioned and the importance of top management commitment towards quality management implementation, one may wonder whether the low level of top management commitment of the construction organizations has resulted the scenarios. Another query is whether there is significant difference on top management commitment towards quality management implementation between construction organizations with and without ISO 9000 certification.

2. Objectives

The objectives of this research are to determine the following in the context of Malaysian construction industry:

1. The level of top management commitment towards quality management, and
2. If there is significant difference on top management commitment towards quality management implementation between construction organizations with and without ISO 9000 certification.

3. Literature Review

Literatures on management commitment were reviewed to ascertain the constructs of commitment. Fottler (1977)[8] emphasized on putting something as priority compared to other considerations, and effort put, as the indication of management commitment on it. Juran (1988, 89)[9] referred commitment to quality management as leadership, participation, resources allocation, monitoring, and recognition as regard to it. Feigenbaum (1989)[10] related involvement with management commitment.

Biggar (1990)[11] found understand and support, and active participation as the constructs for management commitment. Rodgers et al. (1993) [12] were of the opinion that goal setting, feedback, and participation to be the roles to be played by the management. Low (1994)[13] explained that the support shown by management in quality management indicate the level of its commitment. Crosby (1996)[14] stated that participation, and having the right attitude reflect the commitment of management in quality management.

On the same matter, Goffin et al. (1996)[15] highlighted the constructs of time and effort spent, clear goals, expertise, and focus on employees. Arditi et al. (1997)[16] were more concerned in putting quality management as the priority, and to lead in its implementation. Goetsch et al. (1997) [17] stressed on the involvement, and resources allocation. Similarly, Ahire et al. (1998)[18] highlighted priority, involvement, goals, and resources allocation. Howard et al. (1999)[19] mentioned having quality strategy as the construct for management commitment towards quality management. On the other hand, Samson et al. (1999)[20] put leadership and involvement as the constructs, whereas, Jaafari (2000)[21] highlighted only leadership.

Chan et al. (2000)[22] were other researchers who referred priority and resources allocation as the constructs of management commitment. On the same issue, Harris et al. (2001)[23] were more concerned on initiative whereas Taylor et al. (2003) [24] were looking at involvement. Chin et al. (2003)[25] stressed that for the management to be considered as committed towards quality management, they ought to have common goals on it, review and continuous improvement, involvement and leadership, and attitude to change as far as quality management is concerned.

Haupt et al. (2004)[26] considered initiatives, and support to be the constructs for management commitment. Low et al. (2004)[27] had their attention on allocation of budget, planning for change, and providing methods of monitoring process. On the same issue, Thevnin (2004)[28] used willingness to change for quality improvement, and participation shown to measure management commitment whereas Dadzie (2004) [29] focused on initiatives, resources allocation, communication, and recognition/reward.

The review of literatures reveals that the constructs of commitment are quality goals, priority, efforts, involvement, attitude to change and resources allocation.

4. Methodology

4.1. Questionnaire Survey

This research applies the methodology of questionnaire survey for data collection. A total of 800 sets of questionnaire were distributed to Grade 7 (highest grade) construction organizations randomly selected from the Construction Industry Development Board (CIDB) directory. Each respondent was requested to indicate the extent of his/her agreement that the top management of his/her organization is performing certain tasks of showing certain attitudes (according to the questions) in construction project (building) management based on Likert scales (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

4.2. Hypothesis Testing

The research applies nonparametric tests for hypothesis testing. The reason is that the scales of measurement for most questions in the questionnaire are either nominal or ordinal which do not fulfil the requirement of at least interval scale of measurement for parametric tests.

Mann (2004)[30] commented that nonparametric tests have several advantages over parametric tests, namely: they are easier to use and understand; they can be applied to situations in which parametric tests cannot be used; and they do not require that the population being sampled is normally distributed. In addition, nonparametric tests are allowed even if the sample size is so small and no assumption can be made about the shape of population distribution (Sanders et al., 2000)[31]. Due to the similar reasons, the nonparametric tests had been used by Brookshaw et al. (1997)[32], Lee (1998)[33], Atkinson (1998)[34], Romano (2002)

[35], Bhuiyan et al. (2004)[36], and Rad (2006)[37] in their respective researches.

The analysis of data for this research is conducted using the Statistical Package for Social Sciences (SPSS) 13.0 for Windows. The nonparametric tests that available for two independent samples tests are Mann-Whitney U Test and Kolmogorov-Smirnov Z test. Mann-Whitney U Test is to test the null hypothesis that the medians of the populations of the two samples (obtained from a grouping variable) on a testing variable are equal. (Note: A grouping variable divides all observations into separate groups (samples). For example, if gender is a grouping variable, male is considered as one sample, and female is another sample; both samples are divided by the grouping variable. A testing variable determines particular behaviour, practice, or etc. to be tested.) In addition, Kolmogorov-Smirnov Z test is to test the null hypothesis that the functions of the two samples (obtained from a grouping variable) are equal (Daniel, 1990)[38].

Hypothesis of the research:

H0: There is not difference on top management commitment towards quality management implementation between ISO 9000 certified and bon-ISO 9000 certified construction organizations.

H1: There is difference on top management commitment towards quality management implementation between ISO 9000 certified and non-ISO 9000 certified construction organizations.

5. Results and Findings

There were 78 responses received by the stipulated date by when the questionnaire ought to be returned which is equivalent to 9.75% of 800 (the number of total sent out). Twenty-one (26.92%) respondents are from ISO 9000 certified organizations, forty-six (58.98%) respondents are from non-ISO 9000 certified organizations, and eleven (14.10%) respondents are at organizations currently working towards getting ISO 9000 certification.

Survey results indicate that majority (more than 50%) of respondents are either agreed or strongly agreed on the questions asked for the constructs of quality goals, efforts, involvement, attitude to change and resources allocation. However, it is not the case on the questions for the construct of priority. The two questions (Question 3 and Question 4) for the construct of priority are only agreed or strongly agreed by 43.6% and 35.9% of respondents respectively.

The results of hypothesis testing show that the null hypothesis is rejected at the significance level of 0.05 (95% confidence) for items of identify quality goals, ensure quality goals known and source new ideas respectively in the Mann-Whitney U Test. However, the null hypothesis of every item is not rejected in the hypothesis testing using the method of Kolmogorov-Smirnov Test.

6. Conclusions

Based on the findings of the research, it can be concluded that the top management of a construction organization is generally committed to the implementation of quality management from perspectives of quality goals, efforts, involvement, attitude to change and resources allocation. However, it is also found that the top management does not place quality as the priority against the factors of cost and time. Perhaps, some attitudinal changes need to be taken place to rectify such mentality of the top management of construction organizations. Without strong commitment in placing quality as the priority, quality of construction works might be easily neglected should there be any pressing conditions in terms of time and cost encountered by construction organizations.

On the other aspect, there is not conclusive finding indicating difference between top management of ISO 9000 certified and non-ISO 9000 certified organizations towards quality management implementation. This finding can be interpreted that the top management of ISO 9000 certified organizations are not necessarily more committed in quality management implementation than their counterparts from non-ISO 9000 certified organizations. Probably, the fact that the organizations do not obtain the certification is not due to the level of commitment of their top management is low, but is actually caused by other factors which require our investigation.

References

1. The Star (1 December 2006). Samy: Itemise Safety and Health in Tenders.

2. Chin, K.S. & Choi, T.W. (2003). Construction in Hong Kong: Success Factors for ISO 9000 Implementation. Journal of Construction Engineering and Management, November/December, pp. 599-609.

3. Das, A., Paul, H., Swierczek, F.W. & Laosirihongthong, T. (2006). A Measurement Instrument for TQM Implementation in the Thai Manufacturing Industry. International Journal of Innovation & Technology Management, 3(4), pp. 361-377.

4. Rad, Ali Mohammad Mosadegh (2006). The Impact of Organizational Culture on the Successful Implementation of Total Quality Management. The TQM Magazine, 18 (6), pp. 606-625.

5. Sila, Ismail & Ebrahimpour, M. (2003). Examination and Comparison of the Critical Factors of Total Quality Management (TQM) Across Countries. International Journal of Production Research, 41(2), pp. 235-268.

6. Taylor, W.A. & Wright, G.H. (2003). The Impact of Senior Managers' Commitment on The Success of TQM Programmes – An Empirical Study. International Journal of Manpower, 24 (5), pp. 535-550.

7. Chin, K.S., Pun, K.F., Xu, Y. & Chan, J.S.F. (2002). An AHP Based Study of Critical Factors for TQM Implementation in Shanghai Manufacturing Industries. Technovation, 22(11), pp. 707-715.

8. Fottler, Myron D. (1977). Management Commitment and Manpower Program Success. California Management Review, Spring 1977, 19, pp. 71-77.

9. Juran, J.M. (1988). Juran on Planning for Quality. New York: The Free Press. pp. 244-271. Juran, J.M. (1989). Juran on Leadership for Quality. New York: The Free Press. pp. 176-218.

10. Feigenbaum, Armand V. (1989). How to Implement Total Quality Control. Executive Excellence, Nov. 1989, 6 (11), pp. 15-16.

11. Biggar J.L. (1990). Total Quality Management in Construction. Transactions of the American Association of Cost Engineers, pp. Q.1.1-Q.1.4.

12. Rodgers, R., Hunter J.E. & Rogers, D.L. (1993). Influence of Top Management on Management Program Success. Journal of Applied Psychology, 78 (1), pp. 151-155.

13. Low, S.P. (1994). ISO 9000: Implementation Problems in the Construction Industry. Quality World, April 1994, pp. 228-234.

14. Crosby, Philip B. (1996). Quality is Still Free. New York: McGraw-Hill Companies. pp. 14-15.

15. Goffin, K. & Szwejczewski, M. (1996). Is Management Commitment to Quality Just "A Given"? The TQM Magazine, 8 (2), pp. 26-31.

16. Arditi, D. & Gunaydin, H.M. (1997). Total Quality Management in the Construction Process. International Journal of Project Management, 15 (4), pp. 235-243.

17. Goetsch, David L. & Davis, Stanley B. (1997). Introduction to Total Quality – Quality Management for Production, Processing and Services, 2nd edition. New Jersey: Prentice-Hall, Inc. pp. 609-648.

18. Ahire, Sanjay L. & O'Shaughnessy, K.C. (1998). The Role of Top Management Commitment in Quality Management: An Empirical Analysis of the Auto Parts Industry. International Journal of Quality Science, 3 (1), pp. 5-37.

19. Howard, Larry W. & Foster, S.T. (1999). The Influence of Human Resource Practices on Empowerment and Employee Perceptions of Management Commitment to Quality. Journal of Quality Management, 4 (1). pp. 5-22.

20. Samson, D. & Terziovski, M. (1999). The Relationship between Total Quality Management Practices and Operational Performance. Journal of Operational Management, 17, pp. 393-409.

21. Jaafari, A. (2000). Construction Business Competitiveness and Global Benchmarking. Journal of Management in Engineering, November/December 2000, pp. 43-53.

22. Chan, A.M.Y., Chu, F.W.W. & Yuen, C.K. (2000). A Successful TQM Project in China. International Journal of Commerce & Management, 10 (2), pp. 75-90.

23. Harris, Frank & McCaffer, Ronald (2001). Modern Construction Management, 5th edition. Oxford: Blackwell Science Ltd. pp. 6-26.

24. Taylor, W.A. & Wright, G.H. (2003). The Impact of Senior Managers' Commitment on The Success of TQM Programmes – An Empirical Study. International Journal of Manpower, 24 (5), pp. 535-550.

25. Chin, K.S. & Choi, T.W. (2003). Construction in Hong Kong: Success Factors for ISO 9000 Implementation. Journal of Construction Engineering and Management, November/December, pp. 599-609.

26. Haupt, Theo C. & Whiteman, Daniel E. (2004). Inhibiting Factors of Implementing Total Quality Management on Construction Sites. The TQM Magazine, 16 (3), pp. 166-173.

27. Low, S.P. & Teo, J.A. (2004). Implementing Total Quality Management in Construction Firms. Journal of Management in Engineering, January 2004, pp. 8-15.

28. Thevnin, C. (2004). Effective Management Commitment Enhances Six Sigma Success. Handbook of Business Strategy, pp. 195-200.

29. Dadzie, Perpetua S. (2004). Quality Management Initiatives in Balme Library: Possibilities, Challenges and Constraints for Top Management Commitment. Library Management, 25 (1/2), pp. 56-61.

30. Mann, Prem S. (2004). Introductory Statistics, 5th edition. New Jersey: John Wiley & Sons, Inc. pp. 643-707.

31. Sanders, Donald H. & Smidt, Robert K. (2000). Statistics – A First Course, 6th edition. Boston: McGraw Hill Companies, Inc. pp. 596-597.

32. Brookshaw, Terry & Terziovski, Mile (1997). The Relationship between Strategic Purchasing and Customer Satisfaction within a Total Quality Management Environment. Benchmarking for Quality Management & Technology, 4 (4), pp. 244-258.

33. Lee, Choong Y. (1998). Quality Management by Small Manufacturers in Korea: An Exploratory Study. Journal of Small Business Management, 36 (4), pp. 61-67.

34. Atkinson, Andrew (1998). Human Error in the Management of Building Projects. Construction Management and Economics, 16, pp. 339-349.

35. Romano, Pietro (2002). Impact of Supply Chain Sensitivity to Quality Certification on Quality Management Practices and Performances. Total Quality Management, 13 (7), pp. 981-1000.

36. Bhuiyan, Nadia & Alam, Nadeem (2004). ISO 9001:2000 Implementation – The North American Experience. International Journal of Productivity and Performance Management, 53 (1), pp. 10-17.

37. Rad, Ali Mohammad Mosadegh (2006). The Impact of Organizational Culture on the Successful Implementation of Total Quality Management. The TQM Magazine, 18 (6), pp. 606-625.

38. Daniel, Wayne W. (1990). Applied Nonparametric Statistics, 2nd edition. Boston: PWS-KENT Publishing Company. pp. 90-95, pp. 330-339.