

Green Lean TQM Leadership Management Practices in Malaysian Food Companies

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ABSTRACT

Green Lean TQM Islamic Leadership Management System is a system whereby Leadership Management Practices are integrated to Lean Manufacturing (LM), Total Quality Management (TQM), Environmental Management System (EMS) and Islamic Manufacturing Practices' (IMP) principles. IMP leadership management has been integrated in the existing Green Lean TQM model which is established based on adaptation of Malaysian Prime Minister Award Model, Malcolm Baldrige National Quality Award, European Quality Foundation Award, Toyota Production System, ISO16949, SAEJ4001 and MAJAICO Lean Production System. 30 selected food companies from Selangor have been participated in this survey. The reliability of the questionnaire and the data was tested and analyzed both by using Minitab Statistical Software (Minitab 17). The implementation status of TQM, LM, EMS and IMP in the food companies has been revealed in this study. From the data collected, Green Lean TQM Islamic Leadership framework has been proposed. To come out with a framework model, the implementation practices were divided into 4 categories which are Foundation Level, Level 1, Level 2 and Level 3. The level of the practices is sorted out based on the percentage of the implementation level. Hopefully the output for this study may be beneficial

to the food industries, mostly Small and Medium Enterprise (SMEs). Further research is needed in order to cover the flaws in this research.

Keywords: *Total Quality Management, Lean Manufacturing, Environmental Management System, Islamic Manufacturing Practices, Malaysian food industry*

Introduction

Malaysia is one of the 17 mega diverse countries on earth. Interestingly, biological and cultural are not the only things that are diverse but Malaysian food are also on the list. The food industry in Malaysia is dominated by small and medium scale companies (SMEs) and also outstanding foreign and Multinationals (MNCs) companies. In 2017, there are 66 new foods processing projects worth RM 2.3 billion of investments and expected to contribute employment opportunities for around 4644 people. This involves more than 8000 companies in the food processing sub sectors who are doing value added activities in exploiting agricultural and horticultural products such as cocoa and chocolate products, fishery products, cereals and cereal products, processed fruits and vegetables [1].

Total Quality Management (TQM), Lean manufacturing (LM) and Environmental Management System (EMS) has been implemented in various industries in Malaysia such as automotive, food and construction industry [2-10]. TQM is methodology and techniques intent to diminish the impact of a product, service or process in order to enhance the quality and productivity by sustaining the continuous improvement and satisfying the customer's demands. Lean Manufacturing is an extended version of the Toyota Production System (TPS) with the objectives of waste eliminations. An EMS is a fundamental component to help firms in assessing, managing, organizing and checking organizations environmental activities. These systems are believed not only can enhance the organization level of achievement but also can reduce waste and assist in pollution prevention [5-8].

However, TQM, LM and EMS systems are mostly implemented separately. The Islamic Manufacturing Practice (IMP) is established in order to provide a guideline to food manufacturers in order to meet the requirement for quality, efficacy and purity towards 'halalan toyyiban' products [2] which has the similar objective Malaysian Halal Food Standard called MS1500. This leads to the practice of Integrated Management System (IMS) is proposed in a prior study that combines all the systems mentioned to enhance the productivity [11]. Yet, another factor is perceived to contribute highly on the implementation of the IMS is the effective leadership capability demonstrated by the top management of an organization can somehow influence the implementation of the systems in accordance to system's objective and company's strategic directions [12].

Methodology

IMP leadership management has been integrated in the existing Green Lean TQM model which is established based on adaptation of Malaysian Prime Minister Award Model, Malcolm Baldrige National Quality Award, European Quality Foundation Award, Toyota Production System, ISO16949, SAEJ4001 and MAJAICO Lean Production System. 30 companies from Selangor have been participated in this survey. The selection of the companies is based on the SMEs list provided by SME Corp Malaysia, companies listed under Makanan Selamat Tanggungjawab Industri (MeSTI), or the "Food Safety is the Responsibility of the Industry", and the companies who are joining Selangor International Expo 2016. The survey response collection method varies. Some of the data collected via email, some through the walk into the company's booth during the exhibition and the rest of the data are collected through phone calls. The respondent group mostly the personnel's from the Top Management Unit, Managers, Executives and Quality divisions. The data gained from the survey was analyzed by SPSS software before the result was documented. Figure 1 illustrates the research methodology.

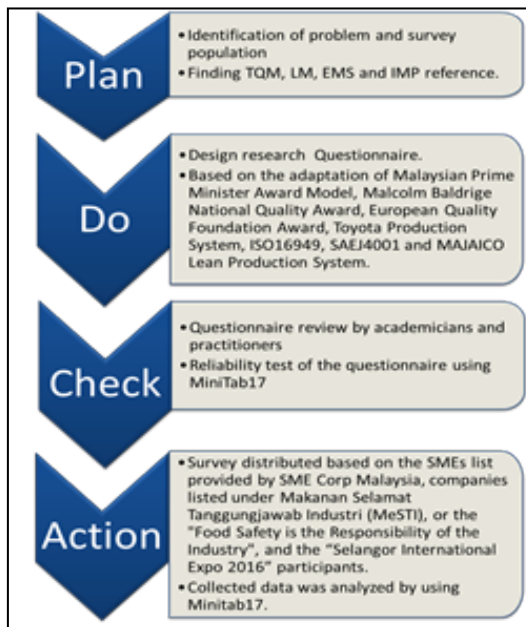


Figure 1: Research work layout

Results and Discussions

Reliability Test of the Questionnaire

As the set of the questionnaire in this study consisted of multiple Likert questions, Cronbach's alpha is a common measure of internal consistency ("reliability"). The Minitab output provides some useful descriptive statistics, including the sample size for each item, as well as the mean and standard deviation. The system also provided with the Cronbach's alpha (α) score. The documented result gained from the survey was gone through the Minitab 17 for reliability test.

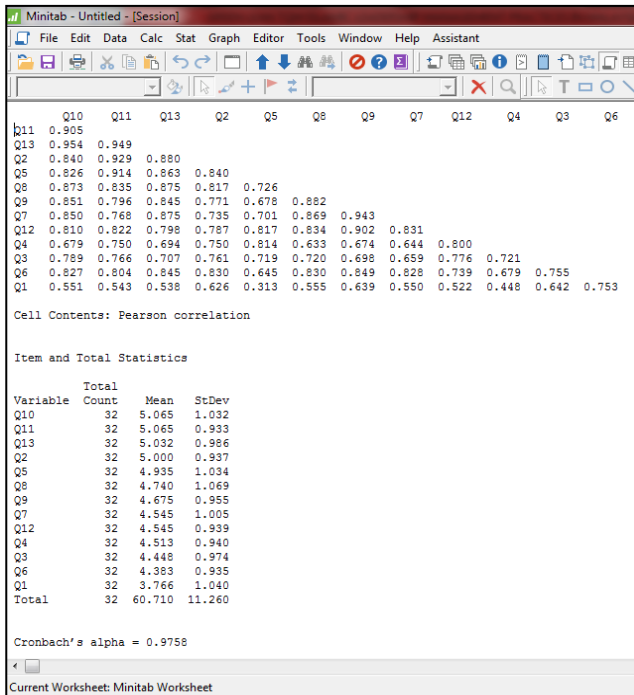


Figure 2: The value of Cronbach's alpha for reliability test of the questionnaire.

A questionnaire was employed to measure the construct, Green Lean TQM Islamic Leadership Management Practices in Food Companies', which consisted of 17 questions. The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.9708.

Integrated TQM, LM, EMS and IMP in Malaysia Food Companies

The data collected from the survey were analyzed by using SPSS. In order to get the level of the practices, the percentage of the implementation is obtained by using the mean results calculation. To come out with a framework model, the implementation practices were divided into 4 categories which are Foundation Level, Level 1, Level 2 and Level 3. The level of the practices is sorted out based on the percentage of the implementation level. The percentage of the foundation level is in between 90.5% to 96.5%. While the range of percentage practices for Level I, II and III is in between “85 - 89.9%, 80 – 84.9% and 70 – 79%” respectively. The analyzed data are listed in Table 1, 2, 3 and 4 below which is arranged from highest to lowest percentage of the implementation level. As for the implementation level, if the percentage is greater than 85%, then level is high, while moderate level is in between 80.0% to 85.5% and the rest is low. In this study, total 6 leadership practices have been highly implemented in the companies.

Table 1: Leadership management practices of integrated TQM, LM, EMS and IMP for Foundation level

GLTQMI Leadership Practices	Mean	% Implementation Level
GLTQMI-LSHIP (1)		
Committed to meeting customer, statutory, regulatory and environment	5.43	91.0 (High)

Notes: Mean Value Scale: 5.1 – 6 (High Implementation), 4.8 – 5.1 (Moderate Implementation), 4.2 - 4.8 (Low Implementation) and 0 – 4.2 (Very Low), Percentage Scale: 85– 100: High Implementation, 80-84: Moderate Implementation, 70-79: Low Implementation, 0 – 69: Very Low Implementation

Of all the practices listed in the questionnaire, the respondent chose commitment in meeting customer, statutory, regulatory and environment (GLTQM-LSHIP1) as their most practices among others in the organization. This can be proven by the practice is the only listed on the foundation level and the highest percentage of all which is 91%. The (GLTQM-LSHIP1) is crucial in the food industry as customer plays the most important role in this business nature. By meeting with the statutory, regulatory and environment of the Halal, GMP or HACCP for the example the finish products are surely produced at its finest quality and customer satisfaction follows. Consequently, the practices in foundation level are the pivotal in the integrated Green Lean TQM Islamic System. Once the company successfully implemented the practices in the foundation level, then they can proceed to implement the practice for the next level.

Table 2: Leadership management practices of integrated TQM, LM, EMS and IMP for Level 1

GLTQMI Leadership Practices	Mean	%Implementation Level
GLTQMI-LSHIP (2)		
Committed in meeting the requirement of Tawheed and Sharia for halalan toyyiban goods	5.3	88.0(High)
GLTQMI-LSHIP (3)		
Establishing vision.	5.27	88.0(High)
GLTQMI-LSHIP (4)		
Reviewing and monitoring need of additional resources	5.23	87.0(High)
GLTQMI-LSHIP (5)		
Establishing mission statement.	5.17	86.0(High)
GLTQMI-LSHIP (6)		
Employees free from diseases/infections	5.17	86.0(High)
GLTQMI-LSHIP (7)		
Monitoring and reviewing the reccomendation for improvements	5.13	85.50(High)
GLTQMI-LSHIP (8)		
All items must be deployed, communicated, reviewed and monitored for improvement.	5.13	85.50(High)
GLTQMI-LSHIP (9)		
The company must have nonblaming, performance oriented and process driven environment in the organization.	5.13	85.50(High)

Notes: Mean Value Scale: 5.1 – 6 (High Implementation), 4.8 – 5.1 (Moderate Implementation), 4.2 - 4.8 (Low Implementation) and 0 – 4.2 (Very Low), Percentage Scale: 85– 100: High Implementation, 80-84: Moderate Implementation, 70-79: Low Implementation, 0 – 69: Very Low Implementation

The main objective of the food industry is providing and ensuring its products quality and safety.

Table 3: Leadership management practices of integrated TQM, LM, EMS and IMP for level 2 framework

GLTQMI Leadership Practices	Mean	% Implementation Level
GLTQMI-LSHIP (10)		
Reviewing and monitoring the customer feedback.	5.07	84.0 (Moderate)
GLTQMI-LSHIP (11)		
Reviewing and monitoring status of corrective and preventive action	5.03	84.0 (Moderate)
GLTQMI-LSHIP (12)		
A member appointed by top management to uphold the responsibility of being customer representative	5.03	84.0 (Moderate)
GLTQMI-LSHIP (13)		
Reviewing and monitoring any environmental noncompliance.	4.97	83.0 (Moderate)
GLTQMI-LSHIP (14)		
Financial system includes income sources and capital outflow of the organization and employee's account	4.97	83.0 (Moderate)
GLTQMI-LSHIP (15)		
Committed to meeting the environmental and safety requirement	4.93	82.0 (Moderate)
GLTQMI-LSHIP (16)		
Establishing safety and health policy and objectives	4.93	82.0 (Moderate)
GLTQMI-LSHIP (17)		
Reviewing and monitoring Safety and health issues	4.93	82.0 (Moderate)
GLTQMI-LSHIP (18)		
Reviewing and monitoring cost of quality	4.83	81.0 (Moderate)
GLTQMI-LSHIP (19)		
Costing is an activity based and Value Stream activities	4.8	80.0 (Moderate)

Notes: Mean Value Scale: 5.1 – 6 (High Implementation), 4.8 – 5.1 (Moderate Implementation), 4.2 - 4.8 (Low Implementation) And 0 – 4.2 (Very Low), Percentage Scale: 85– 100: High Implementation, 80-84 : Moderate Implementation, 70-79: Low Implementation, 0 – 69: Very Low Implementation

In order to do that, the companies believe that by committed in meeting the requirement of Tawheed and Sharia for ‘halalan toyyiban’ goods (GLTQMI-LSHIP2) are very significant in this industry. Vision and missions determine

the company's direction. The respondents are practically aware on the issues as they establish vision (GLTQMI-LSHIP3) and mission (GLTQMI-LSHIP5) in their companies. To avoid shortage in material and other things issues, reviewing and monitoring needs of additional resources (GLTQMI-LSHIP4) is one of the important practices in the nourishment food manufacturer. The companies are very well aware on the health issues of the workers which can affect the quality and safety of its product as they always make sure their employees are from free disease/infection (GLTQMI-LSHIP6).

The data in table 3 shows most of the reviewing and monitoring activities are listed on the moderate level of the implementation. For example the reviewing and monitoring activities of the customer feedback (GLTQMI-LSHIP 10), status of corrective and preventive action (GLTQMI-LSHIP 11), environmental non compliances (GLTQMI-LSHIP13) and also cost of quality (GLTQMI-LSHIP 17) were listed on the same level. The safety and health policy and objectives are established (GLTQMI-LSHIP16) so the reviewing and monitoring activities of safety and health issues (GLTQMI-LSHIP 18) follows. As there are two ways business operates in the industry, a member appointed by top management to uphold the responsibility of being customer representative (GLTQMI-LSHIP 12). Top management ensures the financial system includes income sources and capital outflow of the organization and employee's account (GLTQMI-LSHIP 14). The respondents also are committed to meet the environmental and safety requirement (GLTQMI-LSHIP15). Last but not least the activity that is rated in the moderate implementation in the framework is the costing; an activity based and Value Stream activities (GLTQMI-LSHIP 19).

Since none of the companies participated in the survey applied or acquire TQM, EMS and IMP, so there are low percentage level of environmental (GLTQMI-LSHIP 20), quality (GLTQMI-LSHIP21), and Islamic (GLTQMI-LSHIP22) policy and objectives establishments in the organization. As shown in Table 4, the activities of reviewing and monitoring audit results (GLTQMI-LSHIP23), Islamic practices awareness (GLTQMI-LSHIP24), and customer feedback (GLTQMI-LSHIP25) are low which is quite disappointing. The implementation of SMART (S=Specific, M=measurable, A=Achievable, R=Result Oriented, T= Timeline/Schedule) based objectives (GLTQMI-LSHIP26) is also not convincing.

We cannot deny the existence of transferring problem to other person; since the no blaming, performance oriented and process driven environment exist in the organization, (GLTQMI-LSHIP27) point got less value in scale. Due to no IMP implementation in the organization, the respondents have to disagree with a few points related to IMP system such as top management ensures that Islamic manufacturing practices awareness in IMP is established and practiced (GLTQMI-LSHIP28), employees dress code are completely followed the Islamic Standards (GLTQMI-LSHIP29), and reviewing and monitoring Islamic practice performance progress (GLTQMI-LSHIP34).

Even though almost half of the respondent participated in this survey are implementing 5S activities, but there is minimum number of them establish Lean Policy and Lean objectives (GLTQMI-LSHIP 30). As a result, the reviewing and monitoring lean team progress (GLTQMI-LSHIP 33) is not practiced in the companies. This is different with the high implementation of Lean Policy and Objectives in automotive industries especially for continuous improvement activities [13][14].

Table 4: Leadership management practices of integrated TQM, LM, EMS and IMP for Level 2 framework

GLTQMI Leadership Practices	Mean	% Implementation Level
GLTQMI-LSHIP (20)		
Establishing environmental policy and objectives	4.77	79.5 (Low)
GLTQMI-LSHIP (21)		
Establishing quality policy and objectives	4.73	79.0 (Low)
GLTQMI-LSHIP (22)		
Establishing Islamic policy and objectives	4.73	79.0 (Low)
GLTQMI-LSHIP (23)		
Reviewing and monitoring audit results	4.73	79.0 (Low)
GLTQMI-LSHIP (24)		
Reviewing and monitoring Islamic practice awareness	4.63	77.0 (Low)
GLTQMI-LSHIP (25)		
Reviewing and monitoring customer feedback	4.6	77.0 (Low)
GLTQMI-LSHIP (26)		
Establishment of SMART (S=Specific, M= measurable, A=Achievable, R=Result Oriented, T= Timeline/Schedule) objectives	4.57	76.0 (Low)
GLTQMI-LSHIP (27)		
No blaming, performance oriented and process driven environment exist in the organization.	4.57	76.0 (Low)
GLTQMI-LSHIP (28)		
Top management ensures that Islamic manufacturing practices awareness in IMP are established and practiced	4.57	76.0 (Low)
GLTQMI-LSHIP (29)		
Employees dress code are completely followed the Islamic Standards	4.57	76.0 (Low)
GLTQMI-LSHIP (30)		
Establishment of Lean Policy and Lean objectives	4.53	75.0 (Low)

GLTQMI-LSHIP (31)		
Everyone in the company contributes in all programs conducted by the organizations	4.5	76.0 (Low)
GLTQMI-LSHIP (32)		
Top management ensures financial strategies must reflect total quality, shareholder value, and criteria for financial decision-making support total quality	4.47	74.0 (Low)
GLTQMI-LSHIP (33)		
Reviewing and monitoring lean team progress	4.33	72.0 (Low)
GLTQMI-LSHIP (34)		
Reviewing and monitoring Islamic practice performance progress	4.33	72.0 (Low)

Notes: Mean Value Scale: 5.1 – 6 (High Implementation), 4.8 – 5.1 (Moderate Implementation), 4.2 - 4.8 (Low Implementation) And 0 – 4.2 (Very Low), Percentage Scale: 85– 100: High Implementation, 80-84 : Moderate Implementation, 70-79: Low Implementation, 0 – 69: Very Low Implementation

Conclusion

There are so many researches has been conducted on quality management practices in Malaysia but most of the study were focusing on specific area such as automotive, Electric and Electronic industries. In this study we can conclude that the implementation statuses of TQM, LM and EMS in food industry are terribly low. Same goes to the implementation status of IMP. Malaysia as one of the biggest producers of Halal foods greatly encourage Malaysian food producers especially SMEs to implement and maintain other requirements or standard other than GMP and HACCP in order to meet Halal requirements. One of the initiatives that food manufacturer can consider is the implementation of integrated leadership management system that is proposed in this study. The companies have to realize the impact that can be gain through the synergy of the TQM, LM, EMS and IMP. There would be numerous benefits in one system such as the reduction of environmental damage and also could be the factors of achievement of certain quality standard.

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