

**EMPLOYEE ENGAGEMENT FOR HIGH FIRM PERFORMANCE:  
THE CASE OF LEAN SIX SIGMA AT A MALAYSIA TRADING COMPANY**

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### **Abstract**

Lean Six Sigma (LSS) is a method that helps an organization to maximize profit and minimize cost. One of the essential factors for a successful LSS project is the availability of employees who are willing to engage. Employee engagement brings about a strong sense of belonging and high productivity. Consequently, engaged employees will work harder to achieve the mission of the organization. This paper discusses a case of LSS project with a low level of employee engagement. As a result, LSS was less likely helpful in sustaining company's performance. The purpose of this study is to identify factors that contribute to employee engagement in LSS practices. Review of the relevant literature suggests four variables, which include goal clarity, management support and trust, knowledge sharing and transfer, and teamwork. The questionnaire survey applied census in collecting feedback from 80 respondents. Statistical analysis results indicate that goal clarity, management support, and trust are significant to employee engagement. However, knowledge sharing and transfer as well as teamwork are not substantial. It is recommended for the organization to give attention to all the four factors. This paper extended understandings on critical inputs to a successful implementation of LSS for sustainable company's performance and growth.

**Keywords:** *Lean Six Sigma, Employee Engagement, Goal Clarity, Management Support and Trust, Teamwork, Knowledge Sharing.*

## **1.0 INTRODUCTION**

Lean Six Sigma (LSS) combines two most significant improvements either for business or organization; focuses on operational excellence for customer satisfaction, reduces the cost of quality, speeds up the process and obtains competitive advantage (Habidin et al., 2012). Production cost does not always include monetary value but may come from many different aspects. According to Womack and Jones (1996), overproduction, waiting, transportation, over-processing, inventory, motion, and defects are the seven deadly wastes. Eliminating any waste that adds to the cost of the product and services is one of the main principles in implementing the LSS (Womack & Jones, 1996). Successful elimination of waste can give the organisation an advantage in having a more productive daily task. LSS is the latest of the managerial practices where it helps in creating value by eliminating waste from the process and removing the causes of a defect in the product (Kumar et al., 2006). The key input to the LSS process is employee

engagement, which assures that necessary actions are taken for the betterment of the organization. Employee engagement is defined as the level of commitment and involvement employees have towards their organization and its values. Subsequently, with a high degree of employee engagement in the LSS project, good productivity may result in project success. Furthermore, when employees are engaged in the LSS project, they will perform better and make continuous improvements.

This paper discusses a case of the LSS project at GTM, one of Malaysia's most significant trading companies in Kuala Lumpur. GTM is responsible for the sales and marketing of bulk and packed products (palm based as well as other oils and fats) from refineries (food) to the global market. GTM functions as the midstream, which is the connector between the upstream business and downstream business. GTM consists of five central units, which are Finance, Global Supply Chain, Trading, Compliance and Risk Unit (CORU), and Market Intelligence. GTM plays a significant role in the Supply Chain of Palm Oil. The process of buying third party fresh fruit bunches (FFB) until the shipment to the customer is under GTM's responsibility. The total number of employees in the GTM department is 80 people. GTM has introduced the LSS project since 2015.

Initially, the main idea of the LSS project is to help the company to cope with the dynamic global business environment. The purpose of LSS is to minimize cost and improve the process. The fluctuation of commodity prices in the industry has a direct effect on company's performance. When the price of a commodity is unstable, management needs to control by optimizing and minimizing the production cost and realigning the administrative cost incurred. At the early stage of implementation, the GTM department faced challenges concerning employees' readiness to change. GTM managed to overcome the issues with training and learning about the LSS project. Based on the interviews and observations, most of the employees have shown their support and engagement during the beginning phase of LSS. However, in 2019, after four years of smooth implementation, findings showed a different outcome where the company started to report the non-achievement of some departments' targets. Based on preliminary interviews, this study found issues related to employee engagement in maintaining the LSS project. The GTM management must identify factors that influence employee engagement in the LSS project, which determine the success and failure of the organization in aligning cost reduction and optimization of resources.

The purpose of this study is to identify factors that significantly affect employee engagement in the LSS project. This study consists of five sections, which are the introduction, literature review, research methodology, results and discussion, and conclusion. The following subsection discusses relevant literature. The third section explains the research methodology. The fourth section presents the results and discusses the outcome in line with related studies. In the final section, a conclusion is presented with attention given on the understanding of the variation of possible measures in strengthening the LSS project.

## **2.0 LITERATURE REVIEW**

### **2.1 Employee Engagement in Lean Six Sigma**

Employee engagement is considered one of the critical factors in the success of an organization. Engagement is a way to increase employees' productivity. When an employee is engaged, he is aware of his responsibility and motivates his colleagues alongside, in achieving organizational goals (Anitha, 2014). Engaged employees may feel a central commitment to be socio-emotionally attached to the source of such engagement, namely, their work and employer (Biswas & Bhatnagar, 2013). Prior research has found that an individual seeks more meaning in his day-to-day work than he does in his personal life (Mishra et al., 2014; Ugwu et al., 2014). According to Sowath (2014), engaged employees are committed, dedicated, and invested in their work roles cognitively, psychologically, and behaviourally. Employees

who are involved at work will focus on striving more when they receive reward or recognition, which makes them feel obligated to do a good thing to return favours. Employee engagement is a critical factor in the practical, innovative, competitive, and sustainable organization, and due to this, top executives around the world have given attention to this notion (Welch, 2011). Employee's performance is commonly referred to as job performance, which is based on achievements that meet the expectation of assigned tasks. Employees who are engaged with their work will show better job performance in their duties. Although the performance evaluation is considered as the heart of performance management (Cardy, 2004), the performance of an individual or an organization depends heavily on organizational policies, practices, and design features of an organization. Although LSS is derived from two different points of view, cost reduction and operational excellence, it is evident that the role of employees is crucial in both concepts especially in the implementation of LSS (Spasojevic & Tomic, 2016).

## 2.2 Goal Clarity

Clear goals help set the expectations for employees. A research states that goal clarity gives essential motivational purposes in an organization. Organizational goals are meant to direct the attention, effort, and action of employees to achieve their target within a period of work duration (Cheng, 2012). Linderman et al. (2003) presented a roadmap for linking organizational goals and performance through Six Sigma adoption. Goals are set according to a top-down cascading procedure from top management to the individual level, with the possibility of adding department-specific or personal purposes (Bipp & Kleingeld, 2011). Setting clear goals must be followed by commitments to do the work required to achieve them (McKenzie & Hodge, 2000). However, when employees face inconsistent purposes, they frequently find it more challenging in understanding their roles within an organization, as well as how their work-related tasks connect to an organization's broader mission and objectives (Stazyk & Goerdel, 2011). When employees sense that a change is being made and allowing them to improve their performance, they will support it and understand clearly what it is and why it is being conducted. According to Bipp and Kleingeld (2011), the critical predictor of goal commitment and job satisfaction is a company with a goal-setting procedure that has been in use for over ten years, and content-related problems with goals (such as lacking of goal clarity or conflicting goals). Lack of goal clarity as well as contradiction between goal clarity and personal values may result in poor job performance. However, this can be avoided by paying attention to the design of a goal-setting system in the organization. Therefore, once employees start their project in LSS, then only they can see their goal clearly, which brings the meaning of goal clarity.

## 2.3 Management Support and Trust

Active top management involvement and commitment are the most cited success factors in Six Sigma literature. The leader's attitude towards employee engagement in LSS is essential (Pamfilie, Petcu & Draghici, 2012). According to the study, leaders who have faith in LSS, embrace it, champion it, and appropriately apply it, can influence employee engagement in LSS as they provide management attitude, commitment, and involvement. A good relationship between management and employee is also one of the determinants of employee engagement in implementing the LSS project. By having a good relationship with the manager, the employees will have their freedom to express themselves in their daily tasks. As a result, management will be able to gain trust and encourage employee empowerment (Psychogios et al., 2012). According to Lamsa and Pucetaite (2006), the existence of confidence in the workplace is essential to organizational performance in an increasingly global economy. Daley and Vasu (1998) concluded that the efficiency of work does not only depend on the training and payment levels of the company; however, the relationship within the organization will result in reduced productivity and performance of the individual as well the organization. Management support would have a significant impact on the LSS program, where management is held responsible in providing support for continuous improvement effort. Studies also noted the issue of lack of leadership support as part of the reasons which hinder Six Sigma

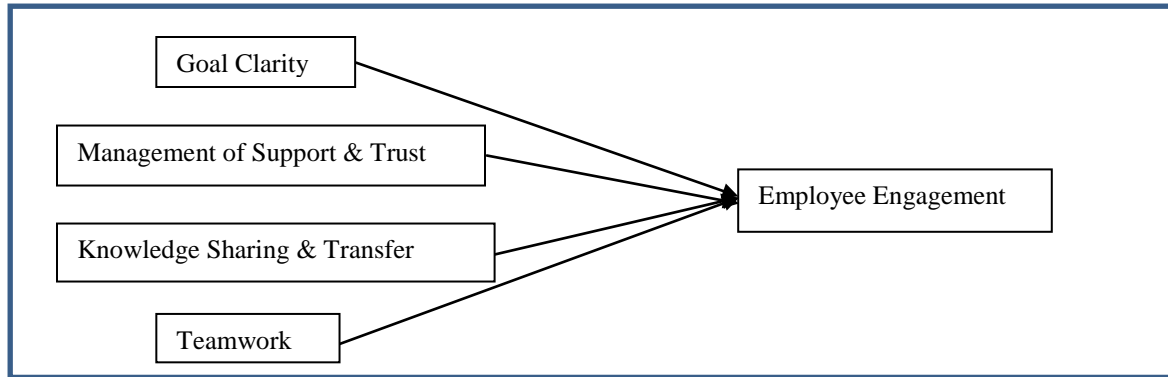
implementation in an organization. It shows that LSS is closely related to support and trust, whereby understanding, direction, and commitment from management are essential.

## 2.4 Knowledge Sharing and Transfer

Knowledge is the central resource of many organizations. Nya-Ling and Ramayah (2014) stated that knowledge-sharing, as a social interaction culture, helps employees to exchange their new and existing knowledge among them to ensure sustainability and competitiveness. In fact, according to Baum and Ingran (1998), education is essential and need to be possessed by employees for successive firm or organization to sustain its competitiveness. Lack of knowledge is the most common barrier from various literatures. As confirmed by Aboelmaged (2011), lack of knowledge on Six Sigma was considered as the most influential barrier encountered by organizations. Several companies are having the same issue of lack of understanding where they failed to select the appropriate strategy. Consequently, this leads to a waste of money and time, including production time, workers' time, and also the manager's time (Al Amin & Karim, 2013). Knowledge transfer consists of two categories. The first one is appropriate job training, often where most of the knowledge gained in a classroom with supportive off-the-job coaching. The other type of knowledge transfer is more on-the-job training (McConnell & Carey, 2000). Relevant literature discusses the knowledge transfer and sharing through training is vital to ensure that employees could gain knowledge and establish clear understandings. According to Psychogios et al. (2012), the need for additional education for all employees is essential to create awareness that LSS will make routine work easier for all of them. Training should be implemented at all levels starting from the top management to the shop floor level (Arnheiter & Maleyeff, 2005). As a result, training would increase the understanding of LSS and the employees will be able to improve the quality of work and reduce the waste in their daily working operations.

## 2.5 Teamwork

The team is a derived unit of a small group and constitutes a target formed or association of people united for the performance of a particular task exceeding their abilities (Usheva, 2016). Teamwork is also defined as a process that undergoes various stages of development and requiring substantial management efforts. According to Kelton (2013), teamwork has become the standard of today's workplace and the hiring process often cited teamwork as essential criteria skill. According to Staggers et al. (2008), the most successful collaboration occurs after team building which will increase the skill of working in a team. According to Matthews and McLees (2015), the project leader has to understand the aspect of team leadership and the crucial skills in the group to build effective project teams. Project leaders must take charge whenever he leads the team. There are four stages which are forming, storming, norming, and performing. Teamwork will ensure meaningful tasks being accomplished together. Thus, reducing the workload of a teammate is necessary so that it could benefit the client and customer to a greater extent (Hu & Liden, 2015). According to Fay et al. (2015), teamwork can be used as a job design practice as it will make the employee innovative. In short, teamwork is an important issue linked to the employee productivity and organizational performance (Young, 2012).



**Figure 1: Conceptual Framework of Employee Engagement**

The study investigates to what degree do goal clarity, management support and trust, knowledge sharing and transfer as well as teamwork may be significant factors to employee engagement in LSS. Figure 1 illustrates the conceptual framework.

The relationship between the independent variables and dependent variable are hypothesized as below:

H<sub>1</sub>: There is a significant relationship between goals clarity and employee engagement in LSS.

H<sub>2</sub>: There is a significant relationship between management support and trust and employee engagement in LSS.

H<sub>3</sub>: There is a significant relationship between knowledge sharing and transfer and employee engagement in LSS.

H<sub>4</sub>: There is a significant relationship between teamwork and employee engagement in LSS.

### 3.0 Data Collection Method

This correlational study was designed to assess significant relationships between identified variables, which eventually resulted in employee engagement in LSS. The primary data was collected using observations and a self-administered questionnaire survey at the site. The study adopted a census on 80 employees who have participated in the implementation of LSS. The census technique is appropriate because of the small number of population and controllable factors (Singh & Masuku, 2013). The self-administered questionnaire was distributed and collected within a month. The questionnaire was designed into seven sections, which included demographic profile, goals clarity, management support and trust, knowledge sharing, and teamwork on employee engagement. The scale of response is 5 Likert Scale and the survey items were designed to ask respondents on employee engagement. The survey was adopted from Biswas and Bhatnagar (2013), Merry (2013), and Hewitt Associates LLC (2013). The secondary data was referred to as employee records and internal documents on company performance. This study used statistical data analysis techniques to explore the hypothesized relationships. Apart from that, a series of interview was conducted. A total of three managers were selected. They are the Head of Global Supply Chain with 20 years' experience who coordinates the LSS project in GTM department, the Head of Market Intelligence who has been working in the department for 15 years, and the Assistant Manager who is also the project leader of LSS with seven years of experience in the department. Feedbacks from semi-structured face to face and one-hour session were then analyzed using content analysis. The study is a cross-sectional investigation conducted in 2019.

### 4.0 RESULT AND DISCUSSION

This study presents the results of analysis by assessing the characteristics of the members of the organization and examining the possible factors through descriptive and inferential analysis.

This census study has obtained the exact characteristics of the organization. Feedbacks from a total of 80 employees were collected with the intention to capture the issue based on employees' experiences in LSS. The details for frequency analysis are listed in Table 1. Table 1 illustrates the demographic information of the respondents. More than half of the respondents were male (58.8%), which is slightly higher than the female respondents (41.3%). This can be justified since GTM is a company which involves many traders, a sector dominated by males. It appears that there were 19 respondents aged between 21 to 30 years old (23.8%) who are fresh graduates and interns. The group age of 31 to 40 years old has the highest number in the department, with a total frequency of 26 (32.5%). Other than that, the age range in the department is from 41 to 50 years old, with a frequency of 18 respondents (22.5%). This is followed by the age range of 50 and above, with a frequency of 17 respondents (21.3%). Most of these employees have been working for more than five years. In terms of job level, the data shows an equal number between executives and managers. Respondents who marked others are interns and 1 Malaysia Training Scheme (SL1M) trainee. In terms of length of services, more than half of the employees have been working for over seven years. The profile reflects mature and stable employment. Interestingly, the record of education background of the employees shows that most of them hold Degree certificates (63.8%). In sum, the company is dominated by young male staff with stable employment policy and highly educated personnel.

**Table 1: Demographic Profile**

Demographic		Frequency	Percentages %
Gender	Male	47	58.8
	Female	33	41.3
Age	21-30	19	23.8
	31-40	26	32.5
	41-50	18	22.5
	50 and above	17	21.3
Job Level	Clerk	7	8.8
	Officer	8	10.0
	Executive	28	35.0
	Assistant	11	13.8
	Manager		
	Manager	22	27.5
Year of Services	Others	4	5.0
	Less than one year	7	8.8
	1-3 years	8	10.0
	4-6 years	10	12.5
	7-9 years	24	30.0
Education Level	More than nine years	31	38.8
	SPM	7	8.8
	Diploma	12	15.0
	Degree	51	63.8
	Postgraduate	10	12.5

**Table 2: Descriptive Statistics**

Model	Minimum	Maximum	Mean	Std. Deviation
Employee Engagement in LSS	2.38	4.88	3.7313	.53408
Goal Clarity	2.43	5.00	3.6839	.49887
Management Support and Trust	2.50	5.00	3.7542	.58939
Knowledge Sharing and Transfer	1.83	5.00	3.7938	.62824
Teamwork	3.33	5.00	4.1306	.35215

Table 2 illustrates the descriptive analysis of the variables. The result of 3.7313 indicates that the employees in the department have a good and acceptable level of understanding of employee engagement in LSS. The employees agree that the level of employee engagement will determine the level of contribution in completing their work. The minimum value for employee engagement in LSS is 2.38 which indicates that there are employees who do not engage with their work thoroughly. Nevertheless, the maximum for employee engagement in LSS is 4.88, which shows that some employees are highly engaged in doing their job. The highest mean among the independent variables is teamwork which is 4.1306 followed by knowledge transfer, management support and trust, employee engagement in LSS, and goal clarity with the values of 3.7938, 3.7542, 3.7313, and 3.6839 respectively. The lowest mean is goal clarity, with a mean value of 3.6839. The standard deviation defines a quantity calculated to indicate the extent of difference for a group. The result shows that the highest standard deviation is knowledge sharing and transfer with 0.62824 while the lowest is teamwork with 0.35215.

Table 3 shows all the variables have acceptable internal consistency with reliability scale readings of above 0.80. Table 3 demonstrates the Cronbach's Alpha for the independent variables and dependent variables. The results show that the Cronbach's Alpha for all the variables is above .80. Therefore, this result indicates that the reliability test for the questionnaire can be considered as good and acceptable. This study concludes that all elements selected are reliable to explain the variables.

**Table 3: Reliability Analysis**

	Cronbach's Alpha	Remarks
Employee Engagement in LSS	.875	Good
Goal Clarity	.857	Good
Management Support and Trust	.921	Excellent
Knowledge Sharing and Transfer	.880	Good
Teamwork	.833	Good

Subsequently, correlation analysis with a p-value less than 0.05 shows all the variables are positively correlated with the employee engagement in LSS, as in Table 4. The study shows that goal clarity, management support and trust as well as knowledge transfer and sharing have strong relationship with employee engagement in LSS. However, teamwork has a moderate relationship with employee engagement in LSS.

**Table 4: Correlation Analysis**

Employee Engagement in LSS	
Goal Clarity	.618**
Management Support and Trust	.673**
Knowledge Transfer	.600**
Teamwork	.381**

\*\*Note= p-value  $\leq$  0.05

A multiple regression analysis was done to test H1 to H4 and the result is presented in Table 5. The model is significant with the value of R squared of 0.807. This result indicates that employee engagement can be explained by the four independent variables in this study (goal clarity, management support and trust, knowledge transfer, and teamwork). The adjusted R square shows that 80.2 percent of the variance in employee engagement has significantly explained by 1 percent change in the four variables. This value indicates a good model fit. Table 6 presents the results of the ANOVA analysis. F test is significant at .00 and VIF is below 5 which indicate that multicollinearity is not an issue.

**Table 5: Multiple Regressions Analysis**

R	R Square	Adjusted R Square	R Square Change
.898 <sup>a</sup>	.807	.802	.807

**Table 6: Table of ANOVA Analysis**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.883	4	3.221	25.028	.000 <sup>b</sup>
	Residual	9.651	75	.129		
	Total	22.534	79			

**Table 7: Multiple Regressions**

	Beta	Sig
Employee Engagement in LSS		.415
Goal Clarity	.318	.002**
Management Support and Trust	.411	.000**
Knowledge Sharing and Transfer	.148	.216
Teamwork	.026	.788

\*\*Note= p value  $\leq$  0.05

Table 7 shows the coefficients for the model tested. It is noticed that all variables are statistically significant, with a p-value less than .05 ( $p < .05$ ) which indicates that every single predictor variable has contributed to the outcome variable. The results show a significant relationship between goal clarity and management support and trust with employee engagement in LSS. There is no significant influence of knowledge sharing transfer and teamwork on employee engagement even though the descriptive analysis showed a high level of agreement on these elements. Thus, H3 and H4 are not supported while H1 and H2 are supported. Table 8 summarizes the results of the hypothesis testing.



**Table 8: Result of Hypothesis Testing**

Hypotheses		Result
H <sub>1</sub>	There is a significant relationship between goal clarity and employee engagement in LSS.	Supported
H <sub>2</sub>	There is a significant relationship between management support and trust and employee engagement in LSS.	Supported
H <sub>3</sub>	There is a significant relationship between knowledge sharing and transfer and employee engagement in LSS.	Not supported
H <sub>4</sub>	There is a significant relationship between teamwork and employee engagement in LSS.	Not supported

Interviews conducted with three key personnel of the LSS project justified the results further. Goal clarity and management support and trust are significant. Based on interviews, goal clarity is considered essential to ensure that employee has the right direction in day-to-day work decision. It also encouraged the employee to perform tasks assigned without compromise. According to the interviewees, throughout implementation, GTM suffers some inconsistency across departments, whereby every unit had a different set of goals in achieving the LSS project. Every department had its session to discuss the goals that they need to achieve. Poor integration of targets across the departments had made it difficult to align with the strategic view of the top management. As a result, the employees were not able to level their action towards the convergent of the LSS concept, which then resulted in poor performance. Failure to see clear goals has brought about an inability to embrace ideas towards reducing waste in the organization. The result concurs with Stazyk and Goerdel's (2011).

On the other hand, knowledge sharing and transfer and teamwork are not significant. The interview conducted with one of the project leaders in LSS agreed that it is vital to have knowledge sharing and transfer in ensuring the success of the LSS project in the GTM department. However, employees at GTM are avoiding themselves from sharing information or experience with others. They feel insecure about giving information, especially the private and confidential one. Knowledge is regarded as individual competence. Unwillingness to share is a barrier to further improvement and an obstacle to organizational performance. This study concurs with Aboelmaged's (2011). Teamwork is an essential element of organizations that could lead to high employee engagement. However, it is not significant in this study. It was found that GTM employees prefer to work alone rather than work in a group. They do not possess a sense of belonging in a team and do collaboration across departments. According to the interview conducted with the managers, support and trust received from the management team is at a minimal level. There are few members of the management team that do not put confidence in the employees especially on their capability in handling tasks. Motivation is an essential factor in ensuring that employees are continuously engaged and have the courage to work in a team to achieve organizational goals (Young, 2012). Thus, to have good employee engagement, teamwork is vital for GTM as it provides a better result in achieving goals, encourages a positive attitude, and provides a high quality of work.

## 5.0 CONCLUSION

The adoption of Lean Six Sigma at GTM is the new way in working style to the employees. The underlying rationale behind this research paper is to know how employee engagement in LSS is implemented through goal clarity, management support and trust, knowledge sharing, and teamwork. It is a job redesigned attempt which is deemed to be a successful project. After three years of implementation, however, it was proven to be lacking in achieving its targets. While related literature suggests that all the

selected variables are critical success factors to a project such as LSS, this study highlights that only two out of four elements are vital. The goal clarity and management support are significant to employee engagement in LSS. On the other hand, there is no meaningful relationship between employee engagement and knowledge transfer and teamwork.

In a nutshell, this study provides implications to practitioners who are concerned about assuring the success of the LSS project. It is important to note that employee engagement is a critical success factor in sustaining organization performance and continuous business growth. The results contribute to an in-depth understanding of relevant literature related to goal clarity, management support and trust, knowledge sharing, and teamwork as factors that have a significant relationship to employee engagement, the LSS project. Even though the subject of study was chosen from a subsidiary of a transnational company at one location in Malaysia, the results are significant to understand employee's behaviour towards a similar type of project. In this case study, to a certain degree, teamwork and knowledge sharing are less likely to affect employee engagement in the LSS project. This is perhaps due to the nature of the business at this trading company which requires less integration between departments and sections. This study suggests some considerations on other extraneous factors such as dynamic business environment and good governance, which may influence employee engagement. The study proposes further exploration of the applicability of the determinants to the Lean Six Sigma project in another type of organization and different industry.

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