

# LEAN MANAGEMENT PRACTICES AND ITS EFFECT ON MALAYSIAN LOCAL GOVERNMENT PERFORMANCE

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## ABSTRACT

The application of Lean Management practice in the public sector, specifically in local government, has gained attention for overcoming the criticism received regarding the poor performance of organisations and poor service delivery offered. Lean Management practices have become among one of the approaches taken to increase performance and have been gaining more attention from public sectors. The purpose of this study is to examine the effect of Lean Management practices in local government on its productivity and service delivery performance to the public. This study focuses on three Lean Management practices, which are 5-S, kaizen, and Value Stream Mapping. It is important to assess the Lean Management practice encompassing each of these three elements in the relation to organizational performance, as it is one of the operational stability quality movement tools in the service sector. Data is collected from the local government. i.e., city councils located in Peninsular Malaysia. The data were obtained from the questionnaire survey distributed to employees in various city council in Peninsular Malaysia. Results showed that 5-s is the most common practice in local government followed by value stream mapping and kaizen. Regression analysis showed that, lean management practices in local government significantly affect service delivery performance of the organization. This indicates that the implementation of lean management as one of the quality improvement applications in the public sector, significant effect in improving their productivity and service delivery.

**Keywords:** lean management, 5-S, kaizen, value stream mapping, productivity, service delivery, local government.

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## **INTRODUCTION**

Quality has become a crucial tool for organizations in both private and public sectors in maintaining their position in the global market. The implementation of quality improvement program has become an argument from the perspective of its contribution to their organisational performance. There are various techniques for quality improvement, such as total quality management (TQM) for quality control; six sigma for processes' improvement; and Lean Management for elimination of waste. Various research work such as that from Marhani, Jaapar, and Bari (2012); Suárez-Barraza and Ramis-Pujol (2010); and Salaheldin (2009) agreed that in order to improve quality in organizations which directly increase organizations performance, the elimination of waste or non-value added activity and systematic workflows are pivotal practices. Such approaches are aligned with the Lean philosophy.

In Malaysia, the local government or local authority is the lowest level in the structure of government in Malaysia after the federal and state government. Even though it stays at the bottom level it has many vital roles for the public. The major roles of Malaysian local authorities can be summarized as environmental, public, social, and developmental, inclusive of providing services to the public in related areas (Said, Omran, Yaacob, & Abas, 2009). Local government is among the government entities that provide services to the residential public, and thus their assessment of organisational productivity and service delivery has become important in measuring their organisational performance.

The local government is an important agency in developing and fostering growth of particular area and residents, since they are divided by geographical structures (Said, Hui, Othman & Taylor, 2010; Ibrahim, Ghani, & Embat, 2013; Said, Alam & Khalid, 2016). It holds responsibility under the jurisdiction of state government to collect taxes, and for the creation of laws and trade in their respective area, such as application for permits and licenses. Often, local government gets criticism from the public for being ineffective and inefficient in providing and delivering services to the public. In a study done by Abdullah and Kalianan (2009), it was mentioned that criticism received by local government included poor service delivery, being inefficient, wasteful, bureaucratic, unresponsive, and not citizen friendly.

In regards to the high number of complaints received regarding local government performance, Lean Management practices have become among one of the approaches taken to increase performance (Pepper & Sense, 2014). Practices such as Lean thinking, kaizen, value stream mapping and 5-S have been embedded into government entities in the U.K and Spanish governments as a part of transforming organizations under NPM reformation (Radnor & Johnston (2013); Barraza, Smith, & Dahlgaard-Park (2009). The role of public organization nowadays is no longer to supply a product, as it emphasises on providing services and intangibles to the public as customers, thus public sector organizations should improve their service delivery and appreciate customer value in relation to fulfilling their roles (Osborne, Radnor, Kinder, & Vidal, 2015; Said, Alam & Aziz, 2015).

It is important to study on how the practice of Lean Management in the context of local government will affect organizational performance in relation to organizational productivity and service delivery to the public. To that extent, three Lean Management practices in the local government have been identified for increasing organisational performance, namely 5-S, kaizen, and Value Stream Mapping. Currently, there has been little study on Lean Management practices in the context of local government focusing on city council in relation to organisational productivity and service delivery. The main objective of this study is to determine the implementation of Lean Management practices in Malaysian local government and its effect on its productivity and service delivery.

## **LEAN MANAGEMENT PRACTICES**

The basic idea behind quality improvement is to increase quality so that productivity efficiency can be achieved and finally symbolize the successfulness of organizations. Quality improvement is an ideology that has been widely discussed in various works such as Hasan and Kerr (2003); Martínez-Lorente et al. (1998); and Milakovich (1990) as a tool for measuring the performance of organizations. As the approach was widely recognized after the success of Toyota Corporation in kaizen, six sigma, Lean, TQM, Just-In-Time (JIT), and many more tools have been developed to suit organizational needs. Lean Management practice is among the important concepts that provide assistance in improving public sector

quality (Barton & Matthews, 2015). Clark, Silvester, and Knowles (2013) mentioned the importance of understanding the Lean principle elimination of waste and non-value added activities so that, Lean Management practices can be carried out perfectly. Bhasin (2008), in his proposal on adapting a dynamic multi-dimensional model for Lean, provide an overview on the “success dimension” on performance measurement in organization as an additional to the existing lean model. In the same study, he further discussed how each perspective is crucial in determining “success dimensions” in an organization.

Development and improvement of practice for Lean Management thus can be said, in a dynamic multi-dimensional model, to have taken into consideration the assessment of an organization as a whole to achieve organisational productivity. However, this model has not come into practice as the initial stage of understanding Lean principles must be clearly completed by an organisation first. Understanding the real concepts will result in organizational quality improvement and thus enhance productivity. Thus, it has contributed to the reasons for unfinished tool improvement resourcefulness in the public sector, including financial restrictions, as the public sector is controlled by government financial plans (Comm and Mathaisel, 2005), goals, and purposes which are not associated with the public workers, organizations, and administration (Barazza et al, 2009; Bouvard, Dohrmann, and Lovegrove, 2009), as well as dissimilarities in outlines of thinking, understanding and working environment of public sector workers as discussed in Bagley and Lewis (2008); Hines and Lethbridge (2008); and Lodge and Bamford (2007).

Various literature such in Muhammad, Masron, and Majid (2015); Siddiquee (2008); and Haque (2001) had mentioned that increasing demand from public towards public sector organizational productivity has become more apparent as the public lodges more complaints with the Public Complaint Bureau. Thus, it is important for the public sector organization to innovate and transform their organisation in order to overcome their weaknesses. Kaizen or continuous improvement had been introduced in the public sector office since 2001 (Wong, 2013). It only became famous in practice when the electronic government concept became widely used around 2006. Through kaizen, public sector databases have become more transparent and open for participation as public documentation and an online complaint and suggestion portal became part of electronic government.

Value Stream Mapping is believed to have come after 5-S was put into practice. As 5-S provides a work ethic for the whole organisation, Value Stream Mapping focuses more on the process to develop work flows for an organisation. In a book written by Rother and Shook (2003), it was mentioned that Value Stream Mapping is practiced with the aim of providing systematic work flows in order to avoid waste by eliminating non value added activities. In Malaysia, value stream mapping journey in the public sector had started in 2005, and since then, it had been widely implemented in government organisation.

Lean Management practices comprised of operational stability elements, first time quality, production flow, and intrinsic values such as best quality, high morale and optimum safety (MPC, 2014). However, for this study, the researcher only examined those operational stability elements that relate to the service industry, which are 5-S, kaizen, and Value Stream Mapping (VSM). These three elements of Lean Management practices had been grouped as one independent variable in this study.

In terms of organisational performance, various researchers such as Belekoukias, Garza-Reyes, and Kumar (2014); and Raposo and Machado (2013) have studied Lean Management approaches in terms of organizational productivity. However, private sector perspectives are emphasized in the existing literature, including industrial and profit-oriented entities. Public sector perspectives are neglected in the literature, thus contributing to a lack of empirical research assessing Lean Management practices in this context. Even though it has been widely implemented in the public sector, in terms of studies related to organisational performance, most have focused on the assessment of practice at the Ministry and Federal agency level (Tan, 2014). As for local government, there have been a few studies performed with respect to Lean Management practice on organisational performance, as highlighted in a study done by (Ibrahim et al., 2013).

## **Lean Management Practices in Local Government**

The local government in Malaysia can be classified into three categories, namely city council, municipal council, and district council (KPKT, 2013). Local government is the lowest tier in the government structure, after Federal and State government. The three categories of local

government include the city council as the biggest among the three. Such city councils exist in the central areas and developed states of Malaysia such as Kuala Lumpur, Johor, Selangor, Sabah Sarawak, Terengganu, Perak, and Pulau Pinang. Some of the developing states such as Kelantan, Negeri Sembilan and Perlis do not have this type of council. Meanwhile, municipal councils exist in urban areas. In Malaysia, all 13 states have municipalities with the exclusion of Federal Territory. As for district councils, they focus on rural areas. Currently there are 142 district councils throughout Malaysia.

These are mainly accountable for community development activities, maintaining public infrastructure, facilities and landscape and planning, and controlling and enforcement activities in the city, town or district area. Local government is in addition responsible for delivering public services to the public. Among the services provided by local government are renewal of licenses, quit rent and assessment collection, registration for hawkers, and service maintenance such as garbage collection and parking services. As local government is responsible for fulfilling their residential needs and providing services, it is important to assess how Lean Management is practiced in their organisation contributes to organisational productivity and service delivery.

Continuous productivity and delivery to the public is among the objective that had been set at all public sector organization. Implementation of Lean Management has been proven to foster organisational performance in various public sector organisations in Malaysia (Jala, 2014). Thus, Lean Management is important to reach the highest profits of organisations and at the same time help customers of the services and products offered. In educational service sector as an example, Comm and Mathaisel (2005) investigated the significance of ‘transformational shift’ in the top management thought, which is to change ways of thinking by providing full understanding of the use of Lean principles in delivering the services to students as their ultimate customers (Hines & Lethbridge, 2008).

The implementation of a quality program related to organisational performance in the public sector is more challenging than the implementation in the private sector. Hazlett, McAdam, and Walker (2013) claimed that a lack of such placement constrains improvement efforts at all levels and in all functions within the public sector, something which is inclined to be

intensified in local government due to the hierarchical and control culture leading to limited empowerment. Bovaird and Martin, (2003) as cited in Hazlett et al., (2013) stated that for numerous stakeholders this is typically due to conflicting necessities (e.g. internal stakeholders such as political leaders, staff, managers, and administrators as well as external stakeholders).

The public sector has been described as an area of inherent complexity by Lapsley and Skærbæk (2012), and is difficult to manage, due to the status of managerial culture in a sector which experiences many political influences (Aziz, Rahman, Alam & Said, 2015). Study conducted by Power, Sohal and Rahman (2001) has shown some important modifications between ‘more agile’ and ‘less agile’ organizations in evaluating the serious accomplishment factors in which a ‘more agile’ organization gives primacy to external factors such as customer organization, while ‘less agile’ organizations give primacy to internal factors.

According to Daft (2000) as cited in Kamal (2015); p.44, organizational performance is defined as “*the organization’s ability to attain its goals by using resources in an efficient and effective manner*”. Parker (2000) listed some of the objectives in measuring organizational performance such as achieving customer satisfaction and the understanding of organizations process by its employees. Some scholars believe that the excellence organization nurture from the certain cultural traits such in Cauchick Miguel (2015); and Studer (2013).

In assessing organizational performance, previous literature split it into operational performance and financial performance (Mavondo & Farrell, 2003). Operational performance is the focus of this study, as this study is concerned with Lean Management practices in the local government context which is currently still in the early phase of practicing Lean ideology according to National Economic and Advisory Council as of 2010. This study only explains the operational performance aspect consist of organizational productivity and service delivery on Malaysian city council. However, there is still little research on the topics in Malaysian perspective.

## **Lean Management Practices and Productivity**

The theory of quality improvement states that improvement initiatives have a significant positive correlation with performance (Hamid, 2011). Several researchers have studied the relationship between the improvement initiatives (quality management) and operational performance (Merino, 2003; Shah and Ward, 2003) including variables such as quality, cost and time of delivery or speed. Studies conducted by Basu (2014); Baird, Jia Hu, and Reeve (2011); and Merino (2003) examined the performance of the implementation of the improvement initiatives that have an impact on the achievement of operational performance. They found that operational performance is mostly affected by workforce management techniques such as employee involvement, empowerment, training, and information sharing. This was further supported by Abdollahi, Arvan, and Razmi (2015) study mentioning that human resources perspective is among the critical success factor in fostering organisational performance.

Implementation of Lean is often linked to the increase in operational performance and often, the amplified productivity and enhanced quality; speed of services offered; or the delivery of services, while cutting cost are the benefits of Lean Management practices in organisation (Shah & Ward, 2003). Moreover, previous studies by Miao, Tang, Xi, and Liu (2011) provided positive results for Lean implementation for improving organizational performance and service delivery efficiency in municipal service centre located at Jiangmen city in China. Literature related to organizational productivity was derived from the prior study done by Radnor and Johnston (2013), who stated that Lean practices in the public sector have increased team performance and productivity to achieve the target goals. This is because Lean Management practices may be implemented as a collective approach inclusive of all employees in an organization in achieving the target of more productive methods. Thus, the first hypothesis for this study is:

**H<sub>1</sub>:** The implementation of lean Management in local government significantly affects its productivity.

## **Lean Management Practices and Service Delivery**

Originally, the Lean Management concept was developed by the private sector, specifically Toyota, as a way to eliminate waste and deliver customer satisfaction to the highest level. However, as public services nowadays move towards the 'New Public Management' practice, it is important to take into consideration the appreciation of service delivery that illustrate the customer-centric element as one of the element in NPM (Samaratunge, Alam, & Teicher, 2008). In addition, as reported in the study done by Suárez-Barraza and Á. Miguel-Dávila (2014), they found out that local government tried to create more value for the citizen customers by eliminating waste and unnecessary process in their task. This was supported by Radnor and Johnston (2013), who demonstrated that the practice of Lean Management in the public sector reduced waiting time for public services and improved service delivery.

There has been some empirical evidence found on the different factors that drive the success of enhancement resourcefulness between public and private sectors towards delivery efficiency. According to Dabholkar (2015), improvement of resourcefulness in the private sector is driven by customer demand, while in the public sector, it is response for government mandates. Therefore, this requires the implementation of the Lean approach which consists of numerous practices with the purpose of improving efficiency, quality, and approachability in order to satisfy customers. That is parallel to what Todd (2000) stated, as Lean Management construction is "initiative, whose objective is to decrease the leftover in human determination, inventory, time to market, and manufacturing space to become highly responsive to customer demand while producing world class quality products in the most efficient and economical manner". Therefore, the second hypothesis is:

**H<sub>2</sub>:** The implementation of lean Management in local government significantly affects the quality of its service delivery.

## **RESEARCH METHODOLOGY**

Survey research is used in gathering data. As this study attempts to assess how Lean Management practices might affect organizational performance, survey research using questionnaires will be used by the researcher. The unit of analysis for this study are the employees of city councils in Malaysia. The sampling technique used for this study is simple random sampling. Simple random sampling helps the researcher in selecting a sample without bias and thus can be said to represent the whole population fairly.

The study was conducted in all city councils located in Peninsular Malaysia, which covered nine city councils from the total of 13 city councils that exist in Malaysia. 30 questionnaires were distributed to each city council, except for those located in Sabah and Sarawak. Out of the 270 questionnaires distributed, 217 were returned to the researcher, however only 198 questionnaires are usable, which represents a 70% collection rate for this study. A higher response rate is expected when personally administered questionnaire approach is used (Yu & Cooper, 1983).

A questionnaire had been designed to accommodate the research objectives. Implementation of Lean Management practices is measured using the extent of Lean Management practices in organisation (Radnor & Walley, 2008); the effect of Lean Management practices on of organisational productivity(Radnor & Johnston, 2013; Kerr, 2003); and the effect of Lean Management practices on service delivery efficiency (Calisir, Bayraktaroglu, Gumussoy, & Kaya, 2014). A five (5) point Likert scale is used in measuring the degree of agreement from respondents' on the variables tested.

## **RESULTS AND DISCUSSION**

Prior to data analysis, data screening is conducted as to ensure that all data gathered met the related assumption of data normality and to confirm that all data had been correctly entered. The normality of the data was confirmed with the value of Skewness and Kurtosis range between  $\pm 2$  (Kim, 2013). This study conform the face validity as all the measures were obtained from the previous established study. Organizational productivity, the Cronbach's Alpha value is 0.832. This value shows that the indicator in this

variable possess high internal consistency. The service delivery score for Cronbach's Alpha is 0.856 which indicates the indicator under this variable has acceptable level for internal consistency. Overall, the indicator for both variables in measuring local government performance is 0.829 which shows a good internal consistency.

## Respondents' Profile

Table 1 indicates the distribution of questionnaires per city council. All nine (9) city councils located in Peninsular Malaysia took place in this study and among them all, Majlis Bandaraya Shah Alam (MBSA) returned the highest number of valid questionnaires, which is 27, representing 13.6% of the total sample population.

Table 1: Respondent's Organisation

Name of City Council	Frequency	Percentage (%)
DBKL	20	10.1
MBSA	27	13.6
MBPJ	21	10.6
MBMB	22	11.1
MBJB	22	11.1
MBI	18	9.1
MBPP	22	11.1
MBAS	26	13.1
MBKT	20	10.1
Total	<b>198</b>	<b>100</b>

## Descriptive Statistics

### ***Lean Management Practices in Local Government***

The first objective of this study is to determine the extent of Lean Management practices in Malaysian local government. In order to achieve the first objective, descriptive analysis is carried out using frequency to explain the most, moderate and less implemented lean management in an organization.

Table 2 shows the outcome for lean management practices in all city councils. Descriptive analysis of frequencies with mode value as determinants for practice level is the result for the analysis.

**Table 2: Descriptive Statistics for Level of Lean Management Practices in Organizations**

Level of Practices	Frequency and percentage (%) of Lean Management Practices		
	5-S	Kaizen	VSM*
Mostly	169 (85.4)	0 (0)	29 (14.6)
Moderate	23 (11.6)	54 (27.2)	121 (61.1)
Less	6 (3)	144 (72.8)	48 (24.2)
<b>Total</b>	<b>198 (100)</b>	<b>198 (100)</b>	<b>198 (100)</b>

\*VSM: Value Stream Mapping

It was found that, 5-S is mostly practiced, followed by value stream mapping which is moderately practiced and kaizen being the least practiced in the organizations. Most respondents selected 5-S as the most practiced with a total of 169 (85.4%) of them choosing to rank it as number “1”. Kaizen is the lean management practice that is implemented the least in organizations, with 144 (16.1%) respondents selecting score “3” (less practiced). VSM, on the other hand, scored as moderately practiced in organizations with 121 (24.2%) respondents who ranked this practice as number “2”. Table 3 provides details for the lean management practice level in each organization studied.

Most of the councils selected 5-S practice as the type of lean management most commonly practiced by their organization. This might be due to the Malaysian government’s effort of promoting the implementation of 5-S in public sector organizations. After the introduction of the ‘Look East Policy’ by Malaysia’s former Prime Minister, Tun Dr. Mahathir Mohamed in 1992, quality improvement has become among the most crucial element that was introduced in the public sector.

Value stream mapping is moderately practiced in city councils, as shown in Table 2. Some of the city councils, rather than practicing 5-S, put their focus more on value stream mapping. This was done as they believe that systematic workflow will result in more productivity and better service

delivery. Majlis Bandaraya Shah Alam (MBSA) and Majlis Bandaraya Pulau Pinang (MBPP) were among the city councils that emphasis more on the implementation of value stream mapping. Business process reengineering had been done since 2011 after the rebranding of MBSA and became a focal practiced in the organization. This has been proven as a wise move as they received an award in 2012 for their special project, “Simplifying the Application for the Approved Individual Bungalow Proposal from 60 days to 1 day” and “Lean Recognition Award” in 2014 from the Malaysian Productivity Corporation (MPC).

‘Kaizen’ on the other hand, was found to be less implemented in city councils. Most employees tend to follow the existing rules, policies and procedures rather than contributing their ideas for improvement. The participation of employees in lean management is more on the established and ruled programs such as 5-S and value stream mapping. As ‘kaizen’ requires an idea of improvement from individuals in the organization, this practice had not gain much attention from the employees since most of them resist participating. Therefore, they believe that ‘kaizen’ is being less implemented in their organization.

Even though kaizen and value stream mapping come together in quality improvement programs, this concept however had been abandoned due to the resistance to change by employees and misunderstandings of the concept as well. According to the study done by Siddiquee (2002), the government work culture at the beginning of the New Public Management (NPM) is more to directive style leadership and they strongly depend on the central government. Meanwhile, quality improvement programs such as ‘kaizen’ and value stream mapping required employees to be more responsive in their work tasks.

These results met the first objective of the study, which was to examine the extent of lean management practices in the local government, comprising 5-S, ‘kaizen’ and value stream mapping in which 5-S had been selected as the most common approach in the local government with 169 (85.4%) respondents ranking this practice as number “1”. Value stream mapping is moderately practiced in local government with 121(61.1%) respondents ranking this practice as number “2”. ‘Kaizen’ became the least practiced lean management in their organisations with 144 (72.8%). Respondents ranking it as number “3” (less practiced).

## Descriptive Statistic for Local Government’s Organisational Performance

Table 3 provides the descriptive results for organisational productivity. Score of 0.5738 for standard deviation and 4.1102 for mean, shows that respondents are highly agree on all items in this section.

**Table 3: Descriptive Statistics for Organizational Productivity**

Item	N	Minimum	Maximum	Mean	Std. Deviation
Saving time	198	3.00	5.00	4.1566	0.5242
Minimizing waste	198	3.00	5.00	4.1313	0.5900
Minimizing error	198	2.00	5.00	3.9697	0.6203
Support from top management	198	3.00	5.00	4.3283	0.6031
Employees involvement	198	2.00	5.00	3.9697	0.6285
Increase in productivity	198	3.00	5.00	4.1061	0.4767
<b>Average for total score</b>				4.1102	0.5738

Table 4 provides details of mean analysis for service delivery assessment. To summarise, the average mean and standard deviation scores are 4.0379 and 0.5632 respectively. This shows that most of the respondents agree on most statements being questioned on the service delivery section.

**Table 4: Descriptive Statistics for Service Delivery**

Item	N	Minimum	Maximum	Mean	Std. Deviation
Decrease the number of dissatisfied customer	198	3.00	5.00	4.0758	0.5419
Reduce the time taken in responding to the complaint	198	3.00	5.00	3.9798	0.5422
Improve the customer satisfactory score	198	3.00	5.00	4.0859	0.5767
Reduce waiting time	198	3.00	5.00	4.0101	0.5731
Delivering service to the customer on time as promised	198	2.00	5.00	3.9293	0.6796
Improve service delivery	198	3.00	5.00	4.1465	0.4658
<b>Average for total score</b>				<b>4.0379</b>	<b>0.5632</b>

## Hypotheses Testing

Second objective of this study is to examine the effect of Lean Management practices in local government productivity and service delivery. In order to achieve this objective, two hypotheses have been developed.

This study employs simple regression analysis to test the hypotheses. Before regression analysis can be conducted, there are few assumptions to be met including normality and linearity, correlation and multi-collinearity. As this study has normal and linear data and thus, the first assumption to conduct regression analysis had been met.

**Table 5: Summary for Correlation and Multi-Collinearity**

	Lean Management Practices	Organisational Productivity	Service Delivery
Lean Management Practices	1		
Organisational Productivity	0.447**	1	
Service Delivery	0.346**	0.335**	1
Variance Inflation Factor (VIF)		0.614	0.349
Tolerance		2.172	4.559

\*\*Significance level at 0.01

Table 5 provides the result for Pearson’s correlation coefficient and multi-collinearity for lean management practices and organizational productivity and service delivery. For Pearson’s correlation, the result indicates that organizational productivity has positive relationship with lean management practices at the value of  $r = 0.447$ . For service delivery, the result indicates positive correlation with lean management practices with value of  $r = 0.346$  and correlation for organizational productivity is  $r = 0.335$ . All correlation value is significant at the level of 0.01.

### Lean Management Practices and Local Government Productivity (H1)

The first hypothesis for this study is to examine the effect of lean management practices on local government productivity. The model for regression analysis for the first hypothesis was developed as follows:

Regression model 1:  $Y = \beta_0 + \beta X + \varepsilon$

Where:

Y = Organisational Productivity

$\beta_0$  = Constant term

$\beta$  = Beta coefficient

X = Lean Management Practices

$\varepsilon$  = Error

**Table 6: Result for Regression Model 1 (Productivity)**

Variables	Coefficient	T-statistics	P-value
Intercept	-1.790	-2.120	0.320
Lean Management Practices	0.762**	6.32	0.002
R <sup>2</sup>	0.359		
F-statistics	36.339		

\*\*Significance level at 0.01

Table 6 shows the model summary for simple regression. The R-squared value is 0.359 indicates that 35.9% of lean management practices contributed to the organizational productivity in which R-square has a moderate fit. In addition, f-statistics is at p-significant of 0.0002. Since the significant value for p is less than 0.05, thus it can be said that this regression model is significant in predicting the effect of lean management practices on organizational productivity. Result: There is a significant effect of lean management practices and local government organizational productivity.

The result of significant value for the implementation of lean management practices affecting local government organizational productivity is 0.002. At a significant level of 0.01, this result proved that the significant effect of Lean Management practices and organizational productivity. Therefore, the first hypothesis (H1), which stated that there is a lean management practice that affects local government organisational productivity, is accepted.

This finding on H1 was consistent with the previous study done by Suárez-Barraza and Ramis-Pujol (2010), who mentioned that lean management practices had increased the organisational productivity in the organisations, which were contributed by factors such as support from

leader, focus on simple and practical process and effective implementation of lean philosophy in organisation. Furthermore, the practice at all levels had contributed to the success of lean management practices on organisational productivity as in the study by Suárez-Barraza (2013).

Other studies that support this hypothesis were done by Pakdil, Leonard, and Bennett, (2015); Bateman et al., (2014); and Carter, Danford, Howcroft, and Richardson (2011) in the public sector case and found that lean management practices in their organisation, productivity is enhanced by cutting out waste, simplifying process with systematic flows, saving time procedure and understanding of the implementation by the organisation. In fact, the defect can be reduced and the organisation can be turned into a more effective and efficient one. The implementation of lean management had improved the quality in the organisation and thus, the government was able to deliver better outcomes and services to the public.

### Lean Management Practices and Local Government Service Delivery

The second hypothesis for this study is to examine the effect of lean management practices on local government service delivery.

$$\text{Regression model 2: } Y_1 = \beta_0 + \beta X + \varepsilon$$

Where:

$Y_1$  = Service delivery

$\beta_0$  = Constant term

$\beta$  = Beta coefficient

$X$  = Lean Management Practices

$\varepsilon$  = Error

**Table 7: Result for Regression Model 2 (Service Delivery)**

Variables	Coefficient	T-statistics	P-value
Intercept	0.342	-2.420	0.224
Lean Management Practices	0.619**	1.987	0.008**
R <sup>2</sup>	0.281		
F-statistics	19.400		

\*\*Significance level at 0.01

Table 7 shows the model summary for simple regression. The R-squared value is 0.281 indicates that 28.1% of lean management practices contributed to the service delivery in which R-square has a moderate fit. In addition, f-statistics is at p-significant of 0.008. Since the significant value for p is less than 0.05, thus it can be said that this regression model is significant in predicting the effect of lean management practices on service delivery. The result of significant value of implementation of lean management practices towards organisation's service delivery efficiency is 0.008. On a significant level of 0.01, it can be concluded that lean management practices affect local government's service delivery. Hence, the second hypothesis (H2) for this study is accepted.

Evidently, many researches pointed out about the importance of delivering an efficient service to its customer according to the lean perspective. As this study focuses on the public sector, specifically the local government, it stated that lean, as being practiced in the public sector, emphasises more on internal productivity. Previous literatures as in Radnor and Johnston (2013); and Radnor, Holweg, and Waring (2012) had mentioned that the focus of implementing lean management is more towards achieving internal productivity. However, they agreed that through internal productivity improvement, service delivery efficiency could be enhanced as well.

In a book written by James R. Evans (2008), it was explained that customer voice and needs are important factors that help to foster an organization excellence. He further emphasized the importance on making customers satisfied with the product or services delivered, which will improve the performance of organizations by achieving customer focus efficiency through service delivery. According to Hamid (2011), Lean is the practice that emphasizes the value added on customer by eliminating non value added activities. It had been clearly stated that the Lean practices were design to benefit its ultimate objective which is customer satisfaction, including their expectation on service to be received.

The customer satisfaction will be measured by the number of complaints received, the feedback assessment and the frequency of repeating visit as discussed by (Radnor & Johnston, 2013). This will be an indicator for the service delivery efficiency provided by organizations towards

its customers, especially in the public sector such as in Malaysian local government. Sometimes, in the public sector, people have no choice because government is the only sole provider for that kind of services. Therefore, the government realising that they are the ultimate choice as service providers, sometimes fail to improve their service delivery standards. Andrews (2003) identified areas of concerns for measuring customer satisfaction in the public sector.

In another study done by Radnor and Noke (2013), it was found that Lean has become a tool that assists organizations in the public sector in improving their efficiency. As the public sector is now moving towards better service delivery and performance orientation, Lean has become common practice to reduce and eliminate waste in ensuring that efficiency and customer satisfaction can be achieved.

## **CONCLUSION**

Findings from this study revealed that, among the three Lean Management practices comprised of 5-S, kaizen and value stream mapping, 5-S is the most common practice in their organisation, followed by value stream mapping and kaizen. The findings also proved that lean management practices affect local government performance in relation to its productivity and service delivery thus, both hypotheses were accepted. This was supported by previous studies as in Stone (2012); Shah and Ward (2003) and Terziovski and Samson (1999), which mentioned that lean management practices do contribute to the organisational performance in terms of organisational productivity and service delivery in their study. Therefore, it can be said that the lean management practices in the local government affect their organisational performance.

In relation to the local government, Dabholkar (2015) proved that lean management practices in local government's projects had improved customers' perceptions on service delivery received by them. The quality approach such as lean had contributed to the improvement in delivering better services to the customers. A study in local government policy analysis as in Hazlett et al. (2013), which mentioned that the quality improvement approach such as lean management practices had become a main practice in

the local government in enhancing their quality services and meet the tough demands from the customers. Lean management practices, among others, comprise a lot of quality management approaches such as 5-S, kaizen, value stream mapping, just-in-time, Kanban and seven wastes, which provide various choices for organizations to implement the quality programs that are most suitable for them.

Lean management practices in the local government, specifically city councils, have provided evidence of quality enhancement in the public sector. Since the reformation to New Public Management (NPM), the public sector had taken initiatives to innovate and improve their image of quality. The productivity had increased since the introduction of quality improvements such as lean management practices. Apparently, this study found that the practice of lean management had affected organizational performance in terms of internal productivity and service delivery. Therefore, it is important in the future, for government bodies or agencies to understand their organization and customer, so that they can design or adopt an appropriate quality program to be implemented in their organization. Exposure on various quality programs such as lean through workshops and seminars can be done in order to encourage government bodies or agencies in implementing quality improvement in their organizations. Accreditation from related authorities such as Malaysian Productivity Corporation (MPC) and International Standard for Organization (ISO) may enhance the public image of the organization and increase employee motivation in implementing lean.

## **REFERENCES**

- (MAMPU), Malaysian Administrative and Modernisation Planning Unit (2013). Public Sector Conducive Ecosystem (EKSA). Retrieved November 14, 2015, from <http://www.mampu.gov.my/web/en/5s-certification>
- Abdollahi, M., Arvan, M., & Razmi, J. (2015). An integrated approach for supplier portfolio selection: Lean or agile? *Expert Systems with Applications*, 42(1), 679-690.

- Abdullah, H. S., & Kalianan, M. (2009). From customer satisfaction to citizen satisfaction: Rethinking local government service delivery in Malaysia. *Asian Social Science*, 4(11), 87-92.
- Aziz, M. A., Rahman, H. A, Alam, M. M & Said, J. (2015). Enhancement of the accountability of public sectors through integrity system, internal control system and leadership practices: A review study. *Procedia Economics and Finance*, 28, 163-169.
- Baird, K., Jia Hu, K., & Reeve, R. (2011). The relationships between organizational culture, total quality management practices and operational performance. *International journal of operations & production management*, 31(7), 789-814.
- Barraza, M. F. S., Smith, T., & Dahlgaard-Park, S. M. (2009). Lean-kaizen public service: An empirical approach in Spanish local governments. *The TQM Journal*, 21(2), 143-167.
- Barton, H., & Matthews, R. L. (2015). Deconstructing lean policing in England and Wales: A knowledge creation perspective. In Z. J. Radnor, N. Bateman, A. Esain, M. Kumar, S. J. Williams & D. M. Upton (Eds.), *Public service operations management: A research companion*. Abingdon: Routledge.
- Basu, R. (2014). Managing quality in projects: An empirical study. *International Journal of Project Management*, 32(1), 178-187.
- Bateman, N., Hines, P., & Davidson, P. (2014). Wider applications for Lean: An examination of the fundamental principles within public sector organisations. *International Journal of Productivity and Performance Management*, 63(5), 550-568.
- Belekoukias, I., Garza-Reyes, J. A., & Kumar, V. (2014). The impact of lean methods and tools on the operational performance of manufacturing organisations. *International Journal of Production Research*, 52(18), 5346-5366.
- Bhasin, S. (2008). Lean and performance measurement. *Journal of Manufacturing Technology Management*, 19(5), 670-684.

- Bureau, P. C. (2015). Statistics by Year. Retrieved 14 October, 2015, from <http://www.pcb.gov.my/en/complaint/statistics-by-year>
- Calisir, F., Bayraktaroglu, A. E., Gumussoy, C. A., & Kaya, B. (2014). Effects of service quality dimensions including usability on perceived overall quality, customer satisfaction, and return intention in different hospital types. *International Journal of Advanced Operations Management*, 6(4), 309-323.
- Carter, B., Danford, A., Howcroft, D., & Richardson, H. (2011). All they lack is a chain: lean and the new performance management in the British civil service. *New Technology, Work and Employment*, 26(2), 83-97.
- Cauchick Miguel, P. A. (2015). Receiving a national quality award three times: Recognition of excellence in quality and performance. *The TQM Journal*, 27(1), 63-78.
- Clark, D. M., Silvester, K., & Knowles, S. (2013). Lean management systems: creating a culture of continuous quality improvement. *Journal of Clinical Pathology*, 66(8), 638-643.
- Comm, C. L., & Mathaisel, D. F. (2005). A case study in applying lean sustainability concepts to universities. *International Journal of Sustainability in Higher Education*, 6(2), 134-146.
- Haque, M. S. (2001). The diminishing publicness of public service under the current mode of governance. *Public Administration Review*, 61(1), 65-82.
- Hasan, M., & Kerr, R. (2003). The relationship between total quality management practices and organisational performance in service organisations. *The TQM Magazine*, 15(4), 286-291.
- Hazlett, S.-A., McAdam, R., & Walker, T. (2013). The role of operations management in public sector policy and practice alignment: a local government analysis. *Production Planning & Control*, 24(10-11), 988-1001.

- Hines, P., & Lethbridge, S. (2008). New development: Creating a lean university. *Public Money and Management*, 28(1), 53-56.
- Ibrahim, R. M., Ghani, M. A., & Embat, A. M. M. S. (2013). Organizational citizenship behavior among local government employees in East Coast Malaysia: A pilot study. *International Business Research*, 6(6), 83-94.
- Jala, I. (2014). Transforming Public Service Delivery. Retrieved 10 October, 2015, from [http://etp.pemandu.gov.my/Transformation\\_Unplugged-@-Transforming\\_public\\_service\\_delivery.aspx](http://etp.pemandu.gov.my/Transformation_Unplugged-@-Transforming_public_service_delivery.aspx)
- Kim, H.-Y. (2013). Statistical notes for clinical researchers: Assessing normal distribution (2) using skewness and kurtosis. *Restor Dent Endod*, 38(1), 52-54.
- Lapsley, I., & Skærbæk, P. (2012). Why the Public Sector Matters. *Financial Accountability & Management*, 28(4), 355-358.
- Liu, W.-H., Asio, S., Cross, J., Glover, W. J., & Van Aken, E. (2015). Understanding team mental models affecting Kaizen event success. *Team Performance Management*, 21(7/8), 361-385.
- Marhani, M. A., Jaapar, A., & Bari, N. A. A. (2012). Lean construction: Towards enhancing sustainable construction in Malaysia. *Procedia - Social and Behavioral Sciences*, 68, 87-98.
- Martínez-Lorente, A. R., Dewhurst, F., & Dale, B. G. (1998). Total quality management: Origins and evolution of the term. *The TQM Magazine*, 10(5), 378-386.
- Masdia, M. (2009). *Job satisfaction and turnover intention among the skilled personnel in TRIPlc BERHAD*. Universiti Utara Malaysia.
- Mavondo, F., & Farrell, M. (2003). Cultural orientation: its relationship with market orientation, innovation and organisational performance. *Management Decision*, 41(3), 241-249.

- Muhammad, Z., Masron, T., & Majid, A. A. (2015). Local government service efficiency: Public participation matters. *International Journal of Social Science and Humanity*, 5(10), 827.
- Osborne, S. P., Radnor, Z., Kinder, T., & Vidal, I. (2015). The SERVICE Framework: A Public-service-dominant Approach to Sustainable Public Services. *British Journal of Management*, 26(3), 424-438.
- Pakdil, F., Leonard, K. M., & Bennett, D. (2015). The effect of organizational culture on implementing and sustaining lean processes. *Journal of Manufacturing Technology Management*, 26(5), 725-743,
- Pepper, M., & Sense, A. J. (2014). Local government service systems improvement: exposing the social networks. *Journal of Management & Governance*, 18(3), 873-890.
- Radnor, Z. J., & Noke, H. (2013). Conceptualising and contextualising public sector operations management. *Production Planning & Control*, 24(10-11), 867-876.
- Radnor, Z. J., Holweg, M., & Waring, J. (2012). Lean in healthcare: The unfilled promise? *Social science & medicine*, 74(3), 364-371.
- Radnor, Z., & Johnston, R. (2013). Lean in UK Government: internal efficiency or customer service? *Production Planning & Control*, 24(10-11), 903-915.
- Radnor, Z., & Walley, P. (2008). Learning to walk before we try to run: Adapting lean for the public sector. *Public Money and Management*, 28(1), 13-20.
- Raposo, A. C. R., & Machado, M. J. C. V. (2013). Lean accounting: Accounting contribution for lean management philosophy. *Tourism & Management Studies*, 3, 886-895.
- Rother, M., & Shook, J. (2003). *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*. New York: Lean Enterprise Institute.

- Said, I., Omran, A., Yaacob, Z., & Abas, Z. (2009). The relationship between quality management, strategic control systems, and financial performance of Malaysia local government. *Annals of University of Bucharest, Economic and Administrative Series*, 3, 23-40.
- Said, J, Hui. S. H, Othman. R, & Taylor. D. (2010). The mediating effects of organizational learning orientation on the relationship between strategic management accounting information use and organizational performance. *Asia-Pacific Management Accounting Journal*, 5(2), 11-29.
- Said, J, Alam. M. M., & Khalid, M. A. (2016). Relationship between good governance and integrity system: Empirical study on the public sector of Malaysia. *Humanomics*, 32(2), 151-171.
- Said, J, Alam, M. M., & Aziz, M. A. (2015). Public accountability system: Empirical assessment of public sector of Malaysia. *Asian Journal of Scientific Research*, 8(2), 225-236.
- Salaheldin, S. I. (2009). Critical success factors for TQM implementation and their impact on performance of SMEs. *International Journal of Productivity and Performance Management*, 58(3), 215-237.
- Siddiquee, N. A. (2002). Administrative reform in Malaysia: Recent trends and developments. *Asian journal of political science*, 10(1), 105-130.
- Siddiquee, N. A. (2008). Service delivery innovations and governance: The Malaysian experience. *Transforming Government: People, Process and Policy*, 2(3), 194-213.
- Stone, K. B. (2012). Four decades of lean: A systematic literature review. *International Journal of Lean Six Sigma*, 3(2), 112-132.
- Studer, Q. (2013). Making lean progress last: Why sustaining excellence requires the right leadership framework. *Frontiers of Health Services Management*, 29(3), 41-46.

- Suárez-Barraza, M. F. (2013). Process innovation in local governments: An empirical study of its continuous improvement efforts. *Review of Business Management, 15*(47), 204-220.
- Suárez-Barraza, M. F., & Á. Miguel-Dávila, J. (2014). Assessing the design, management and improvement of Kaizen projects in local governments. *Business Process Management Journal, 20*(3), 392-411.
- Suárez-Barraza, M. F., & Ramis-Pujol, J. (2010). Implementation of Lean-Kaizen in the human resource service process: A case study in a Mexican public service organisation. *Journal of Manufacturing Technology Management, 21*(3), 388-410.
- Wong, D. (2013, 20 August 2013). A kaizen approach to our public sector IT system, *The Star*.
- Yu, J., & Cooper, H. (1983). A quantitative review of research design effects on response rates to questionnaires. *Journal of Marketing Research, 20*(1), 36-44.