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A Review of Contributing Factors and Challenges in Implementing Kaizen in Small and Medium Enterprises

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Abstract

The introduction of ASEAN Economic Community (AEC) in 2015 poses another challenges to the Small and Medium Enterprises (SMEs) in Malaysia to remain competitive in a larger market of ASEAN, apart from the existing effect of globalization from low cost countries such as China and India. It is important for these SMEs to remain competitive in the market since SMEs contribute significantly to the Malaysian economy. One method to improve business competitiveness is by applying the concept of continuous improvement also known as Kaizen. This paper reviews some selected factors contributing to the successful implementation of Kaizen and its challenges among small and medium enterprises. The factors such as good communication between the top management and their employees, clear corporate strategy, the presence of a Kaizen champion personnel in the organization, good knowledge management and employees empowerment were found to contribute to the successful implementation of Kaizen. The review also found that resistance to change, failure to motivate employees, lack of understanding on companies' strategic path and difficulties in managing continuous improvement itself formed some of the challenges in implementing Kaizen. It appears some similarities exist between small and medium enterprises, and large companies in terms of the contributing factors in implementing Kaizen. Thus, this paper can provide some insights into the factors contributing to successful implementation of Kaizen and its challenges. Hopefully, this paper can be beneficial to the Small and Medium Enterprises as well as other industry players in formulating their continuous improvement or Kaizen strategies.

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1. Introduction

Globalization era has affected the manufacturing industry worldwide. Stiff global competition is one of the many challenges faced by the manufacturers due to the globalization. As a result, manufacturers need to do something to ensure that they remain competitive in the market. One of the strategies implemented by many companies to improve their competitiveness is to apply the continuous improvement or Kaizen concept in their organization (Teece, 2007). The Kaizen philosophy is based on the understanding that the way of our life requires a consistent improvement. Therefore, the best way to react to this increase global competitiveness is for companies to conduct the improvement activities continuously with the objectives to reduce wastes.

The word Kaizen is derived from two Japanese words “Kai” which means change and “zen” which means for the better (Palmer, 2001). Kaizen is a Japanese philosophy that promotes small improvements made as a result of continuing effort. This small improvements involve the participation of everyone in the organization from the top management until the lower level employees. The long-term improvement is achieved by having the employees working gradually towards higher work standards. Kaizen strategy has been successfully implemented by the Japanese industry after the World War II (Imai, 1986). Kaizen was initiated as a response towards problem faced by the Japanese industry after the World War II such as limited resources and difficulties to obtain raw material. Therefore, the Japanese companies started to look into how to improve their production processes by minimizing waste and optimizing process efficiencies. Initially Kaizen initiatives were led by Toyota Motor Company in their effort to become a global automotive leader which tried to emphasize on incremental changes, low cost solution, employee empowerment and the development of organization that holds continuous improvement with emphasis on process improvement rather than the result (Imai, 1986).

According to Marie et al (2005) one of the best approaches that can help companies to improve their performance is through benchmarking. This is because through benchmarking firms can learn and adopt certain business process that they might consider as beneficial to be implemented at their place. Therefore, many of the Kaizen activities, also known as Toyota Production System (TPS), were benchmarked based on the initiatives done at Toyota Motor Company. The work of Kaizen which involves incremental changes rather than radical changes has enabled people involved in the Kaizen activities to be easily adaptable to those changes, thus, formalized those changes into their daily routine activities (De Lange-Ros and Boer, 2001). The Kaizen concepts was introduced by Imai (1986) and it consists of various continuous improvement activities also known as Kaizen umbrella. Under this Kaizen umbrella concept, various activities take place such as customer orientation, Total Quality Management (TQM), robotics, Quality Control Circles (QCC), suggestion system, automation, discipline in the workplace, Total Preventive Maintenance (TPM), Kanban, Quality improvement, Just-In-Time (JIT), zero defects, productivity improvement and new product development (Imai, 1986). Imai (1986) further iterates that there are three pillars to implement Kaizen which are housekeeping, waste elimination and standardization. According to Wormak and Jones (2003), there are seven types of wastes that should be eliminated. The wastes are overproduction, transportation, waiting, inventory, motion, over processing and defects. To ensure success in implementing the three pillars for Kaizen success, three factors should be taken into account which are visual management, the role of the supervisor and the importance of training and creating a learning organization.

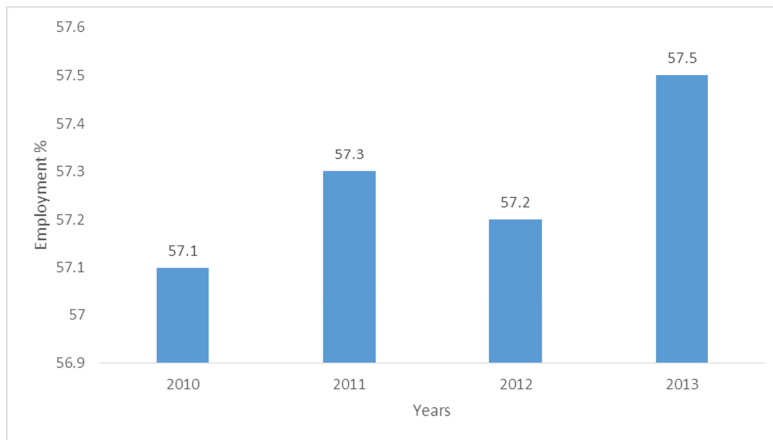
2. Small and Medium Enterprises

Small and medium enterprises (SMEs) have played a major contribution to the development of Malaysian economy. SMEs accounted for the majority business entity in Malaysia. Based on the 2013 SME Malaysia annual report for instance, SMEs accounted for 98.5% of total number of firms in Malaysia. SMEs in Malaysia also contributed about 32.73% of national GDP and exported 19% of Malaysia total export value.

The importance of SMEs in Malaysia can also be seen from the number of employment offered by SMEs over the years. On average, from year 2010 to 2013 SMEs in Malaysia have provided more than 55 percent of job opportunities to Malaysian workforce. The SMEs employment to total employment (refer to figure I) also increased

from 57.1 percent in 2010 to 57.5 percent in 2013. This condition indicates a promising growth of job opportunities to be offered by the SMEs in Malaysia that could help the Malaysian government to reduce the unemployment rate in the country.

Figure I. Employment Share of SMEs to Total Employment (%)



Source: Annual Report 2013, SME Corporation

The Small and Medium Enterprises contribution to the Malaysian industry could be looked in terms of producing their own products and sell them to the market. In some cases Small and Medium Enterprises are the materials suppliers or components assemblers for large scale companies or Multinational companies (MNC). In Malaysia, most of the Small and Medium Enterprises are located mainly in the west-coast of Peninsular Malaysia especially in the state of Selangor, Wilayah Persekutuan Kuala Lumpur, Perak and Johor. These four states constitutes 52.6% of total Small and Medium Enterprises in Malaysia (Department of Statistic Malaysia, 2011). Based on the economic census conducted in 2011 by the Department of Statistic Malaysia, there are 645,136 SME establishment out of 662,939 total establishment in Malaysia (Department of Statistic Malaysia, 2011). These SME companies are involves in various economic sectors such as manufacturing, services, agriculture, mining and quarrying, and construction.

With the introduction of ASEAN Economics Community (AEC) in 2015, the needs for the SMEs to improve their innovation and productivity are becoming more important. This is because the ASEAN Economics Community (AEC) will create a potential market of 600 million population within the ASEAN countries. In addition, globalization has caused the influx of low cost products coming from countries such as China, Vietnam and India. This condition has made the need for companies especially the Small and Medium Enterprises (SME) in Malaysia to improve their cost in order to become more competitive. Therefore, Kaizen can be used as a tool to help Small and Medium Enterprises (SME) to improve their productivity, thus, making them more cost-effective and competitive.

Effective from 1st January 2014, new SME definition has been introduced in Malaysia. SMEs can be categorized into three categories which are micro, small and medium. These categories will depend on the number of full time employees or sales turnover that the companies have. The SMEs are divided into two sectors: manufacturing, and services and other sectors. Table II shows the categories of SME in Malaysia. In the manufacturing sector, SMEs are defined as companies having full time employees of less than 200 workforce or sales turnover of less that RM50 million. Whereas, in the services and other sectors, SMEs are defined as company that employed less than 75 full time workers or sales turnover of less than RM20 million. Depending on the number of full time employees or sales turnover, the SMEs will be categorised as either Micro SMEs, Small SMEs or Medium SMEs. For instance, a manufacturing company that has sales turnover of between RM300 000 to RM15 million or number of employees between 5 to 75 employees will be categorized as a small SME.

Table II. Categories of Small and Medium Enterprises

CATEGORY	MICRO	SMALL	MEDIUM
Manufacturing	Sales turnover less than RM300 000 Or Less than 5 employees	Sales turnover more than RM300 000 but less than RM15 million Or From 5 to less than 75 employees	Sales turnover more than RM15 million but less than RM50 million Or From 75 to less than 200 employees
Services and others		Sales turnover more than RM300 000 but less than RM3 million Or From 5 to less than 30 employees	Sales turnover more than RM3 million but less than RM20 million Or From 30 to less than 75 employees

Source: Annual Report 2013, SME Corporation

3. Continuous Improvement (Kaizen) implementation in the Industry

As the world economy is moving towards more global, many companies cannot avoid from the effect of globalization. Globalization has caused business decision or action at one part of the world to have significant impacts in other parts of the world. As the world are becoming more connected to one another, especially with the advance in information technology, it has created a new level of competition among the industry players. Therefore, SMEs cannot ignore the needs for them to improve their performance in terms of quality, cost and delivery (QCD). This is because in order for firms to compete successfully, they will need to reduce their costs and at the same time improve their quality and delivery performance (Bane, 2002; Gulbro et al, 2000). In some cases, due to the intense competition, SMEs will have difficulties to acquire new business contracts or renewing current contracts unless they can prove to their customers that they are better than their competitors. Based on a study done by Samad (2007) on the SME companies in Malaysia, it was found that one of the biggest challenges faced by the SMEs in Malaysia is their low level of productivity. Therefore SMEs can apply Kaizen to help them to reduce their costs and at the same time increase their quality and delivery performance.

The aims of doing Kaizen is to do improvements in term of costs, quality, flexibility (Bessant et al, 1994) and also productivity (Choi et al, 1997). Through Kaizen, it focuses on three improvement areas which are *Muda* (waste), *Mura* (discrepancy) and *Muri* (strain) (Imai, 1986). The tools that are used to implement Kaizen, also known as Kaizen umbrella, are Total Quality Control (TQC), Total Productive Maintenance (TPM), Quality Improvement, Automation, Zero Defect (ZD), Kanban, Just-in-time (JIT), Quality Control Circle (QCC) and the suggestion system (Imai, 1986). A study by Nordin et al (2010) conducted among Malaysian Automotive Industry companies found that Kaizen was the main leading lean practice in Malaysia. A similar result was also found in a study done on the electrical and electronic industries in Malaysia by Wong et al (2009).

Continuous Improvement or Kaizen is a strategy normally adopted by a company where teams of employees at various levels through cross-functional effort with collective talents within the company work together proactively on improving specific area within the company (Imai, 1986). In implementing Kaizen, companies strongly emphasize the involvement of the plant floor employees with some level of empowerment given to them to identify

and solve problems related to the workplace issues. Kaizen, if implemented correctly, can encourage employees to think differently about their work and boost the morale and the sense of responsibilities among the employees regarding their workplace. This is because through the empowerment given by the top management, employees will start to feel that they are also partly involved in the decision-making and improvement process.

To implement Kaizen, companies will adopt the Plan-Do-Check-Action (PDCA) cycle to solve both unit-functional and cross-functional problems in their activities (Imai, 1986). During the planning stage, employees will try to identify areas that need improvement. Once they have identified the problem areas, the next step is to implement the Kaizen. To implement the Kaizen the employees can use various techniques to develop a clearer understanding of the current waste areas such as the Five Whys technique or Value Stream Mapping (VSM) technique.

In the Five Whys technique, developed by Toyota, the employees will be asking “why” five times and answering to each of the five “why”. The aims of this five whys is to uncover the root cause of a problem. The Value Stream Mapping, on the other hand, involves making flowcharts of the steps, process or activities involved. Through this way, the employees can identify the non-value activities (waste) that occurs within the process and try to find ways to eliminate or reduce them. Most often the company will ask its employees to use the cross functional team of employees to work together on the project. Once the team has gathered the necessary data, analyzed and assessed them the next step is to set a realistic goal to be achieved. Areas that can be improved will be based on the problem areas identified such as the level of product quality, scrap rate, total distance travel in making the product, amount of space used, amount of work-in-process or the number of staff used for a specific task. After a few sessions of brainstorming, the team will try to identify what could be the options or ideas to improve the current situation or problem. The team will select the best options and implement them at the factory floor.

The third stage in the Plan-Do-Check-Action (PDCA) cycle is to conduct a follow up on the Kaizen activities to see if the improvement gives any positive or negative effect towards the problem issue. The team will record their achievement on the scorecard and present them to the top management and others so that it will be assessable to all employees. The fourth stage is to review on all of the achievement and see if action can be taken to standardize the Kaizen activities to similar process within the company.

4. Contributing factors to successful Kaizen implementation

This sub-section discusses some selected factors which have been identified from previous studies on how some companies are successful in implementing Kaizen. Hiam (2003) for example, stresses that company which uses a mediocre working culture in their organization will tend to have a lack of understanding between the top management and their employees on the need to generate constructive suggestion or idea. Thus, having a good improvement suggestion system that encourages effective communication between the top management and the shop floor level employees is very important. This is because the improvement suggestion system will encourage the employees to contribute their improvement ideas based on the experience they have gained throughout their daily working life (Womach et al, 2007). Therefore, as the employees continue to do their daily routine and get accustomed with the process, they are likely to develop a better way to make the process done easier or faster. Chen and Tjosvold (2006) found that the success of the Japanese Suggestion system has enabled the Japanese companies to improve customer satisfaction, improve productivity index, achieve world-class standard, increase employee job satisfaction and improve company revenue.

The second factor that can contribute to Kaizen success is the top management commitment in having a clear corporate strategy, policies and goals that can stimulate Kaizen culture in the organization (Imai, 1986). Kaizen strategy through top management commitment guided by the Deming cycle also known as Plan-Do-Check-Action (PDCA) cycle can be used as a tools to solve cross-functional issues involving various function in the organization. A clear Kaizen strategy and policies can provide good support and direction towards Kaizen implementation such as a more effective resource allocation. In a study done by Bateman (2003) on 21 British automotive components

manufacturers found that resources availability such as the easiness to deploy the human resource to conduct improvement activities was identified as one of the main significant contributing factor in sustaining the process improvement activities. Furthermore, Bateman (2003) has identified that management approach which have “open minded culture” and “enthusiasm” towards changes tend to develop a positive Kaizen culture in the organization. In addition, these kind of management style tends to smoothen the resource deployment especially when cross-functional effort are needed.

The presence of a caliber Kaizen champion in an organization is the third contributing factor towards successful Kaizen implementation. A Kaizen champion who has a good personal understanding in conducting Kaizen, and a high personal desire and commitment to lead the continuous improvement activities can become a critical change agent in an organization (Bateman, 2003). In addition, effective communication and knowledge management are also another crucial factors that a Kaizen champion should have in order to implement Kaizen successfully (Nonaka & Takeuchi, 1995; Pagell, 2004). Thus, the operation managers who possess those skills are more likely to be the most suitable Kaizen champion to lead the changes at the shop floor level (Hill, 1991). This is because, the role of a Kaizen champion as the link between the top management and the employees is very important especially during the change intervention. The Kaizen champion need to act as a driver and a motivator to the people under his or her supervision. According to Bateman (2003) the presence of an influential Kaizen champion is more apparent especially in a small company.

The organization structure is another important factor that will affect Kaizen implementation outcome. It was found that organization with horizontal structure that uses ad-hoc relationship and collective membership with a high degree of autonomy, self-discipline and openness tends to be successful as compared to a bureaucratic organization (Watanabe, 2011). Management involvement, clear objective setting and measurement, the presence of a continuous improvement leader, active workers involvement, availability of resources, existence of cross-functional teams, and clear organization structure are among the factors contributing to the success of Kaizen implementation based on interviews with first tier suppliers of the automotive industry in Valencia, Spain (Garcia-Sabater et al, 2011). The existence of problem solving teams such as quality circles and cross functional group working together to implement Kaizen are also found to be a catalyst towards Kaizen implementation (Marin-Garcia et al., 2008). Previous studies show that employee’s empowerment is very important to the success of Kaizen implementation (Bessant, 2000; Womack et al, 2007; Liker & Hoseus, 2008). This is because through employee empowerment, more people will be involved actively in problem-solving process and it can also increase the sense of responsibilities towards finding the right solution.

Most of the studies done on identifying contributing factors towards successful Kaizen implementation were mainly focused on the large organization leaving behind only few studies on the SMEs. In a case study done by Puvansvaran et al (2010) on SME suggested that having a right mindset and a strong management involvement are significant in ensuring successful Kaizen implementation. A right mindset suggests that employees should have a “can do attitude” towards implementing Kaizen. In addition, the management in the company should also encourage and support the people process-oriented-effort towards the improvement made by their employees.

A study that was done by Chapman et al (1999) based on a survey conducted on the SME and large companies in Australia has found that there appears to be almost similar successful contributing factors in implementing Kaizen. The only significant different that was identified in the study was the way companies support their Kaizen implementation. Large companies tend to put greater effort on training as compared to SMEs which use incentives system and suggestion schemes as a way to support the mechanism to implement the Kaizen activities in their companies.

5. Challenges in implementing Kaizen

Even though many organizations understand the need to implement Kaizen at their workplace, not all companies are successful with their implementation. The reason is because managing Kaizen activities is not an easy task

(Pullin, 2005). A study done by Garcia-Sabater et al (2011) has identified challenges to Kaizen such as resistance to change especially among mature workers, and confusion on the concepts of continuous improvement. The findings from this study also support the earlier studies done by Bateman and Rich (2003), Bessant et al (1994), Dale et al (1997), Jorgensen et al (2003) and Kaye and Anderson (1999).

A study that was conducted among the United States manufacturers indicated that only 11% of companies doing continuous improvements have considered their initiatives to be successful (Mendelbaum, 2006). Some organizations have failed to motivate their employees to participate in the Kaizen activities due to the absence of compensation or reward, lack of proper training for the employees and long delays in getting the suggestions processed (Robinson & Schroeder, 2004). The top management should develop a reward system that would recognize the effort done by their employees and managers to ensure Kaizen success (Imai, 1986). However, companies which wanted to introduce Kaizen in their organization should also take extra precaution before starting their Kaizen. This is because companies tend to develop a strategic path that lacks a good understanding between the upper management and the employees at the lower level (Hiam, 2003).

Among other challenges faced by the operation management in implementing Kaizen in their organization was to manage the continuous improvement itself (Kiernan, 1996; Pullin, 2005). In addition to that, lacking of resources to run the activities, lacking of focus due to business pressure and lacking of understanding on the need to change are also challenges to Kaizen implementation. Managers for example, do not know what to do to change their cultures or how to deal with challenging and demanding nature of Kaizen and fail to convince the shop floor employees that they need to change (Bateman et al., 2003).

In a study done by Dora (2012) on SME operating in the food sector found that lack of knowledge, availability of resources and poor employee participation were among the barriers faced by the SME to implement continuous improvement.

6. Conclusions

This paper provides an insight into some selected factors in ensuring a successful Kaizen implementation and its challenges. The above review indicates that factors such as communication between the top management and its employees, clear strategy, the need of a personnel who can champion the implementation of Kaizen in a company, having good knowledge and provide employees with certain level of empowerment are important to ensure a successful Kaizen implementation. On the other hand, challenges faced by the organization in implementing Kaizen include factors such as the lack of ability to manage the continuous improvement itself, the resistance to changes and lack of motivation among the employees due to poor reward system.

The above review shows that previous studies have been done to examine the contributing factors and challenges to implement Kaizen successfully among organizations in some parts of the world. However, very few studies have been done to study factors contributing to Kaizen success and challenges related to Kaizen implementation especially in the context of Malaysian SMEs (Achanga et al, 2006). With the competitive market that the SMEs in Malaysia are facing, continuous improvement are needed by the SMEs to improve their performance. Thus, studies on factors contributing to the successful implementation of Kaizen and its challenges should be encouraged. The findings from such studies could be beneficial in assisting the relevant authorities and the SMEs to devise their continuous improvement strategies. Early identification of the contributing factors and challenges in implementing continuous improvement can make SMEs more aware of their own capabilities and weaknesses that can hinder them from initiating a Kaizen activities. In addition, this study can also help SMEs to sustain their Kaizen activities in their organization.

Last but not least, this paper also forms part of an ongoing study by the author to examine what could be the contributing factors and challenges faced by the Malaysian SMEs in implementing continuous improvement or Kaizen in their organization.

References

- Achanga, P., Shehab, E., Roy, R., & Nelder, G. (2006). Critical success factors for lean implementation within SMEs. *Journal of Manufacturing Technology Management*, 17(4), 460 – 471.
- Bane, R. (2002), “Leading edge quality approaches in non-manufacturing organization”, *Annual Quality Congress Proceedings, ABI/INFORM Global*, pp. 245-50.
- Bateman, N., & Rich, N. (2003). Companies perceptions of inhibitors and enablers for process improvement activities. *International Journal of Operations & Production Management*, 23(2), 185-199.
- Bessant, J. (2000). Creating and maintaining high involvement innovation. Paper presented at Seminar on Kaizen from Understanding to Action, Institute of Electrical Engineers, London.
- Bessant, J., Caffyn, S., & Gilbert, J. (1994). Mobilizing continuous improvement for strategic advantage. *EUROMA*, 1, 175-180.
- Chapman R.L., & Sloan T.R. (1999), “Large firms versus small firms- do they implement CI the same way?”, *The TQM Magazine*, Vol.11 Iss 2 pp.105-110.
- Choi, T.Y., Rungtusanatham, M. and Kim, J.S. (1997). ‘Continuous improvement on the shop floor: lessons from small to midsize firms’, *Business Horizons*, Vol.40, No.6, pp.45-50.
- Dale, B.G., Boaden, R.J., Wilcox, M., & McQuater, R.E. (1997). Sustaining total quality management: What are the key issues? *The TQM Magazine*, 9(5), 372-380.
- De Lange-Ros, E. and Boer, H. (2001). ‘Theory and practice of continuous improvement in shop-floor teams’, *International Journal of Technology Management*, Vol. 22, No. 4, pp.344-358.
- Department of Statistics, Malaysia (2011). *Economic Census 2011, Profile of Small and Medium Enterprise*.
- Garcia-Sabater, J.J., & Marin-Garcia, J.A. (2011). Can we still talk about continuous improvement? Rethinking enablers and inhibitors for successful implementation. *International Journal Technology Management*, 55, 28-42.
- Gulbro, D.R., Shonesy, L. and Dreyfus, P.(2000), “Are small manufactures failing the quality test?”, *Industrial Management & Data Systems*, Vol.100 No.2.
- Hiam, A. (2003). *Motivational Management: Inspiring your people for maximum performance*. New York: American Management Association.
- Hill, T. (1991). *Manufacturing Strategy*. 2nd ed. Basingstoke: Macmillan.
- Imai, M. (1986). *Kaizen: The Key to Japan’s Competitive Success*. New York: McGraw-Hill.
- Manoj Dora, Dirk Van Goubergen, Maneesh Kumar, Adrien Molnar, Xavier Gellynck, (2013), “Application of lean practices in small and medium-sized food enterprises”, *British Food Journal*, Vol.116 Iss 1 pp.125-141.
- Marin-Garcia, J.A., Pardo del Val, M. and Bonavia, T. (2008). ‘Longitudinal study of the results of continuous improvement in an industrial company’, *Team Performance Management*, Vol.14, Nos.1/2, pp.56-69.
- Jorgensen, F., Boer, H., & Gertsen, F. (2003). Jump-starting Continuous Improvement through self-assessment. *International Journal of Operations & Production Management*, 23(10), 1260-1278.
- Kaye, M., & Anderson, R. (1999). Continuous improvement: the ten essential criteria. *International Journal of Quality & Reliability Management*, 16(5), 485-509.
- Kiernan, M.J. (1996). Get innovative or get dead. *Business Quarterly*, 61(1), 51-58.
- Khoo, C.S. (2010). The success stories of Malaysian SMEs in Promoting and Penetrating Global Markets through Business Competitiveness Strategies. Discussion paper. Copenhagen, Asia Research Centre, Copenhagen Business School.
- Liker, J.K. & Hoseus, M. (2008). *Toyota Culture: The heart and Soul of the Toyota way*. New York: McGraw-Hill Professional Publishing.
- Marie, J.L, Bronet, V and Pillet, M.(2005), ”A typology of ‘best practices’ for a benchmarking process”, *Benchmarking: An International Journal*, Vol.12 No.1, pp.45-60.
- Mendelbaum, G. (2006). Keep your eye on the ball. *APICS Magazine*.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-creating Company: How Japanese Companies Create the Dynamic of Innovation*. New York: Oxford University Press.
- Nordin, N., Md. Deros, B., & Abdul Wahab, D. (2010). A Survey on lean manufacturing implementation in Malaysia Automotive Industry. *International Journal of Innovation, Management and Technology*, 1(4), 374-380.
- Pagell, M. (2004). Understanding the factors that enable and inhibit integration of operations, purchasing and logistics. *Journal of Operation Management*, 22(5), 459-487.
- Palmer, V.S. (2001). *Inventory Management Kaizen*. Proceedings of 2nd International Workshop on Engineering Management for Applied Technology, Austin, USA. 55-56.
- Puvanasvaran A.P, Kerk S.T, & Ismail A.R (2010). A Case Study of Kaizen Implementation in SMI. Proceeding of National Conference in Mechanical Engineering Research and Postgraduate Studies (2nd NCMER 2010), Pekan, Kuantan, Malaysia 374-392.
- Pullin, J. (2005). Room for improvement. *Professional Engineering*, 18(15), 38 – 138.
- Robinson, A.G., & Schroeder, D.M. (2004). *Ideas are free: How the idea revolution is liberating people and transforming organizations*. USA: Berrett-Koehler Publishers.
- Rose, A.N.M., Deros, B.M., & Rahman, M.N.A. (2014). Critical success factors for implementing lean manufacturing in Malaysian Automotive Industry. *Research Journal of Applied Sciences, Engineering and Technology*, 8(10), 1191-1200.

- Samad, N.A.(2007). Positioning Malaysia SMEs in the global. Proceedings of Persidangan Kebangsaan IKS 2007, Kota Kinabalu: Universiti Utara Malaysia.
- SME Corp Malaysia (2013). 2013 Annual Report.
- Teece, D.J. (2007). Explicating dynamic capabilities: the nature and micro-foundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(11), 1319 – 1350.
- Watanabe, R.M. (2011). Getting ready for Kaizen: organization and knowledge management enablers. *The Journal of Information and Knowledge Management System*, 41(4), 428-445.
- Womack, J., Jones, D. (2003), *Lean Thinking: Banish waste and create wealth in your corporation*. New York: Simon & Schuster.
- Womack, J., Jones, D., & Roos, D. (2007). *The Machine that Changed the World* Published. New York: Simon & Schuster.
- Wong, Y.C., Wong, K.Y., & Ali, A. (2009). A study on lean manufacturing implementation in the Malaysia Electrical and Electronic industry. *European Journal of Scientific Research*, 38, 521 – 535.