ERP System Implementation in a Leading LED Manufacturing in Malaysia: A Supply Chain Perspective

Siti Noor Roseamirah Ali[1], Premkumar Rajagopal[2], Veera Pandiyan Kaliani Sundram[3], Shamsul Baharin Saihani[4], Shereen Noranee[5]

[1,5]*Faculty of Business and Management, Universiti Teknologi MARA, UiTM Kampus Puncak Alam, Selangor, Malaysia*
[2]*Malaysia University of Science and Technology, 47301 Petaling Jaya, Malaysia*
[3]*Department for Technology & Supply Chain Management, Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Selangor, Kampus Puncak Alam, Malaysia*
[4]*Institute of Business Excellence, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia*
[1]veera692@uitm.edu.my
[5]shereen@uitm.edu.my
[2]premkumar@must.edu.my
[3]veera692@uitm.edu.my
[4]shams887@uitm.edu.my

***Abstract* — Organizations are extremely dependent on valuable and quality information exchange to perform their daily operations and long-term action plans. Hence, selecting and embracing the right supply chain or business management software has become essential to the organization. Most Malaysian manufacturers prefer adopting an enterprise resources planning (ERP) system. However, implementing an ERP system successfully is costly and complex, and often shows high disappointment rates or even abandonment due to the need to fit with the business or social culture. The study conducted to explore the ERP system implementation in a manufacturing-based organization from the perspective of supply chain management. The ERP system implementation could have either positive or negative effects on organization or company in terms of performance and innovation. The empirical data were collected using an in-depth interview as an instrument in an LED manufacturing company. The result confirms that data cannot be edited after the done click, server down and more procedure and process are the causes of ineffective implementation of the ERP system in the company. This study gives insight to all top management and supply chain practitioners in the manufacturing industry company in implementing ERP systems. Furthermore, the findings of this study could also be beneficial to all ERP users as they would be able to understand the ERP system implementation in sectors apart from the manufacturing industry. Finally, the outcome of this study could be useful to an ERP system adopters in different developing countries. This is one of the first studies, which adequately covers the challenges faced on ERP implementation itself in an LED-manufacturing firm.**

***Keywords* —** *ERP system, Supply Chain Management, Manufacturer*

1. Introduction

Nowadays, many organizations invest heavily in implementing Enterprise Resource Planning (ERP) system, because they want high positive benefits towards their company and organizations. To make sure that organization may have better customer satisfaction, increase information accuracy, and improved decision making for management, this robust system became among the riskiest investment for organization. More recently, some researchers have turned their attention to the contribution of ERP systems to supply chain coordination, when supply chain is composed of several legal entities, such as in virtual enterprises or in an international context [34].

However, some of the company did not implement ERP system in their daily work activities because not all of them will involve with the system. The cause of the implementation among of them is depends on their job role. Furthermore, the study conducted to investigate the impacts of ERP system in Supply Chain Management towards the company. The ERP system may give either positive or negative impacts towards the company that implementing ERP system. Other than that, the veteran employees need to adapt with the system. Some of them cannot adapt on the spot and need time to manage and familiar with the system. So the company need to send the employees to training to make sure all the business and production activities go smooth.

The previous study has emphasized Enterprise Resources Planning packages are only compatible with the databases and operation systems of some companies, and procedural and data compatibility are crucial to the acceptance of the system by employees [8].

However, some of the organization may face problems when their employees did not follow the trend which they did not implement the ERP system effectively in their job role. The employees may use differ medium for restore and share the data and

information. The data and information for all the supply chain activities may differ if the medium is not same. The synchronization of the system will help the business activities going well especially for supply chain activities. For example, when the customer order from the company all the data of ordering will be placed in the system. With the implementation of ERP system, there is no error of customer information and will be link to the production department.

Furthermore, we need to meet our customer expectations. Our customers have high expectations, whether they are individual consumers or other organizations. Companies like us often make changes to meet these expectations. Many consumers now expect to have a seamless multichannel experience. For example, they can browse a product catalogs in-store, place an order online and also can make online payment transaction. Other than that, supplier also can directly synchronize with our stock and also order. It will help this supply chain integration more efficiency. This proposition is reinforced by [32]. ERP is the backbone of SCM. Most ERP system providers have been enhancing their products to include sales-force automation, data warehousing, document management, and after-sales service and support and the most important trend today is the integration with SCM.

Therefore, there are still some of the company outside there did not take initiative or implement this system in their supply chain activities to improve their company performance. This is because the employees may have a problem to implement the system due to the age factor, their knowledge capabilities, system breakdown cause of internet coverage and their self-learning level. Then, the top management itself needs to take the responsibilities to send the employees to training courses internal or external and also need to upgrade the system and internet coverage

2. Literature Review

2.1. Enterprise Resource Planning (ERP)

There are many definitions of ERP system exist and have been discussed by previous researchers, depending on the angle of the research scope. Eventually, it is likely that those definitions are coiled with the term of “integration”. ERP system is known as a software that integrates all of the technical and operational applications, information from all the departments into unified database and considered as business solutions to most organizations [15].

Enterprise resource planning systems are extensive software systems that integrate a number of business processes, such as manufacturing, supply chain, sales, finance, human resources, budgeting, and customer service activities [33]. The other benefits of ERP systems are its complete integration with all the business process, reduction in the volume of data entry, upgradable of the technology, portability to other systems, adaptability, and applying best practices [22].

The foundation of ERP system was in manufacturing providing only production planning, and afterward in the mid of 1990s, the system further expanded to contain functionality such as financial management, order management, assist management, and human resources management. Nowadays, ERP system functionality increased to include marketing automation, e-commerce, sales, and also supply chain systems. Presently, the major ERP systems applications include financial applications, human resources applications, and manufacturing applications that provide variety of functions [21].

The implementation of ERP Systems in an organization is often accompanied by substantial changes in organizational structure and ways of working [8]. The ERP system highly demanded among organizations due to companies and industries expectation on its benefits but sometimes the benefits are unattainable. Successful ERP implementation involves redesigning business processes from an intransigent, mass-transaction orientation to an agile, lean, and knowledge-based process [10], [32].

During business process transformation efforts, firms must engage in corresponding training programs, operating procedures, and information technologies to support the emerging infrastructure. The result of appropriately implementing ERP is to improve firm performance primarily caused by redesigned business processes, integrated managerial functions, accelerated reporting cycles, and expanded information capabilities [14], [21].

2.2. Supply Chain Management in Enterprise Resources Planning

Supply Chain Management (SCM) is defined as a set of approaches used to efficiently integrate suppliers, manufacturers, warehouses, and stores so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time in order to minimize system wide costs while satisfying service-level requirements [10], [23]. SCM is used by companies all over the world in order to enhance their capability level with the purpose of being flexible and response in order to

adapt themselves with market requirements [19], [26]. It is a network of facilities and distribution options that execute the purpose of procurement of materials, process of turning these materials into intermediate and finished products, and process of distribution of these finished products to consumers [10].

Supply chain scholars were often confused by some SCM definitions that have been written in the literature [17]. There were three key subjects that have been appeared from the different kind of definitions: activities, benefits, and constituents/ components. The first theme of SCM definitions which is activities include the flow of materials and information, and networks of relationships, focusing on both internal and external which mean inside and outside of the organization. Second, the benefits resulting from execution of SCM strategies are to upgrade the value and to ensure increase consumer satisfaction. Third, the components or constituent parts of SCM; what organizations, functions and procedure that taking part in the supply chain [16].

SCM defined that the management of a network of all business processes and activities involving procurement of raw materials, manufacturing and distribution management of Finished Goods. SCM is also called the art of management of providing the Right Product, At the Right Time, Right Place and at the Right Cost to the Customer. A supply chain is a global network used to deliver products and services from raw materials to end customers through an engineered flow of information, physical distribution, and cash.

SCM practices are those managerial actions undertaken to improve performance of the integrated supply chain. For the purposes of this research, SCM practices have been identified as: strategic supplier partnership, level of information sharing and quality of information sharing [16].

Integration intensity in SCM also defined as the approaches applied in integration, managing and coordination of supply, demand and relationships in order to satisfy clients in effective way [17]; as tangible activities/technologies that have a relevant role in the collaboration of a focal firm with its suppliers and/or clients [11], and as the approach to involve suppliers in decision making, encouraging information, sharing and looking for new ways to integrate upstream activities [28].

As a consequence, it involves developing customer contacts by customer feedback to integrate the downstream activities and delivering orders directly to customers [16], [36]. In this sense, studying SCM practices supports the view theory regarding SCM. Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers [27]. In essence, supply chain management integrates supply and demand management within and across companies.

To varying degrees, the logistics function also includes sourcing and procurement, production planning and scheduling, packaging and assembly, and customer service [31]. It is involved in all levels of planning and execution-strategic, operational and tactical. Logistics management is an integrating function, which coordinates and optimizes all logistics activities, as well as integrates logistics activities with other functions including marketing, sales manufacturing, finance, and information technology.

They can also be departments or functional areas or individuals within a larger organization; there are internal as well as external supply chains. For the most part the model applies to corporations. Most work on supply chains, both theoretical and applied, involves a manufacturing firm in the middle (although service firms also have supply chains) with a supplier of materials or components on the upstream side and a customer on the downstream side.

2.3. Enterprise Resources Planning (ERP) Implementation in LED Manufacturing Company

2.3.1. Problems with ERP implementations

The interruption of system or system down may affect to the production flow. This situation may come once a time but if we not avoid it, it will become virus to the organization. This is because all the data and information of customer and supplier transaction in the system. We need to hire the IT technician in case there are problems while using the ERP system. So it also will cost to the company to make sure the system did not have problem. [17] mentioned that ERP difficulties stem from two issues: the company has not made the strategic choices needed to configure the systems and processes, and the implementation process is spinning out of control.

Some of the problems encountered with ERP implementations are related to motivation for their adoption: legacy systems (poor data quality, interfacing), understanding business process, infrastructure requirements, and customization of new system. However, the main problems are related to people: changing work practices, change management, internal staff adequacy, training, top management support, and consultants. The

misconception is that ERP is a computer subject, when in reality it is very much a people-related, business subject. The effect of this misconception is that many firms have failed to implement and use ERP because of management presumptions that it just the current software and that it should be implemented just as other information systems have been implemented.

Even though ERP implementation becomes a focal point of business and technology planning [10], implementing ERP systems is expensive and time consuming with many projects taking longer, costing more, and delivering less than expected. The cost of ERP Software, design, adjustment, configuration, testing and implementation is too high. This is because the system will upgrade and troubleshoot the system by technicians of the company's IT system. There may be additional indirect costs due to ERP implementation such as new IT infrastructure, upgrading WAN links and others.

ERP dissemination are highly time-consuming. Projects may take 1-3 years (or more) to get completed and fully functional system. The employees will also take a long time to adapt with the systems and continuous learning while using it. Some systems will continue to upgrade to the new version, and workers need to pursue the latest version [2]. Otherwise, it is difficult for them to synchronize with their suppliers and customers to use the system. Too little customization may not integrate the ERP system with the business process & too much customization may slow down the project and make it difficult to upgrade. The migration of existing data to the new ERP system is difficult (or impossible) to achieve.

Integrating ERP system with stand-alone software system that is as difficult. These activities may consume a lot of time, money & resources, if attempted. Some of the data cannot be transferred to the new system based on the programming and coding from previous system [14]. The participation of users is very important for successful implementation of ERP projects hence, exhaustive user training and simple user interface might be critical. But ERP systems are generally difficult to learn and use. So not all the user can use simply, they need to learn or went to the ERP system training especially for the employees (veteran employees) that usually use the manual process to do the documentation and business activities.

2.3.2. Factors of implementing ERP system in organization

(a) Commitment by top management

As we know the top management is the main role for an organization high performance. This is because the role of top management will influence the performance of employees and affect to the organization. In the scope of ERP system implementation, the top management needs to provide and ask the employees to use the system in the daily work activities especially when it involve with the supply chain management [2].

(b) Extended education and training

The extended knowledge of an employee's its depend on their higher level education and also their work experience. Based on the research by [4] said that since ERP is a complex information system that provides integrated processes for an organization, the organization needs to train and educate their employees' anxiety and stress about the use of the ERP system and provide better understanding about the benefits of the system for their tasks.

(c) Data accuracy

Data accuracy is important in the organization management and performance. ERP system provide data accuracy especially for Supply chain management activities, such as the status of product stage, delivery status, the information of customers and suppliers, the information of the Bill of Materials, the variance of the finished goods and also the production alert and warning for every production activity. Most execution of human resources and network of customers and suppliers related to data and updates related to storage and transaction management.

In addition, the finance module is a straight-forward business processes which is mostly implemented as standard accounting practice. Similar to human resource and customer and supplier network module, financial module focuses on transaction accuracy and record keeping [12].

(d) Excellent project management.

To improve the company performance, every project leader and department need to get excellent performance in their project. It also appears that inadequate project management leads to short-term solutions being applied to the problems that occur during the implementation of ERP systems with substantial side effects when systems go live [17].

Previous research has indicated that the scope and difficulty of ERP implementations are different from traditional analysis and design projects [10] suggesting a particular project management strategy

to be developed to address the specific challenges of such projects. In particular, it is argued that ERP projects are often associated with the widespread "re-engineering" of business practices, whereas traditional projects have smaller organizational "footprints" and are designed to match current practices [6].

2.3.3. Benefits of ERP Implementation

ERP systems are expected to reduce costs by improving efficiencies through computerization and enhance decision-making by providing accurate and timely enterprise-wide information [30]. The implementation of such systems requires effective involvement of the whole organization. Despite of the awareness of the problems associated to ERP implementations, still the majority of enterprises failed due to the lack of their thought of organizational factors such as interdepartmental communication and cooperation, implementation management and management support.

ERP systems have significant impact on organizational capabilities [17]. [20] indicate that ERP systems are beneficial to achieve strategic, organizational, management, operational, and IT infrastructure goals. ERP systems enable more accurate and timely information coordination, which reduces inventory and administrative costs and increases responsiveness to market demands [11]. Reducing buffer inventory and lead times increase the efficiency and flexibility of the firm [13], [25]. Therefore, in both theoretical and practical perspective, it is important to know the impact of ERP systems on the firm.

Some past research studies measured ERP benefits in terms of ERP impact at the organizational level [5], [7]. However, to date, little research work has focused on measuring ERP benefits at the individual user level. The study by [8], for example, found that ERP system usage is directly related to ERP benefits at the user level, and that technical resources, organizational fit and extent of ERP implementation are key drivers of ERP system usage.

The highest benefit achieved through the ERP system involves; increased flexibility in information generation, improved quality of financial reports, improved application integration, and easy maintenance database. This clearly shows that the ERP system have an important if not a determining impact on legacy systems and particularly on accounting ones. Further, the evidence also strengthens the statement that ERP systems have been successful in fulfilling their purpose for the business as a whole as discussed in the earlier sections.

That is, application integration, real-time production information and especially information for the decision clearly affects not only the financial operations of the company financial statements [1]. [7] noted the large impact of ERP system on SCM in helping companies to share information with other partners. Upon receiving an order from their customer, their supplier will immediately replenish the raw materials based on the information they received. Therefore, in order to monitor and collect information within the supply chain, ERP system is needed with the additional external functionality and devices of SCM and manufacturing execution systems.

The main philosophy of SCM is to have the right product in the right place, at the right price, at the right time, and in the right condition [24]. Therefore, companies need not only to flow information within the company but also they need to share this right information with the right supply chain partner in the right time [18]. In order to achieve these goals, organizations need an information system, such as ERP system, to facilitate the synchronization of the entire supply chain and provide timely information to all supply chain partners in order to assist their decision making and eventually attain customer satisfaction. ERP system is generally conceived as an important precursor to SCM performance and a very useful tool for its improving [4].

With ERP system companies are able to integrate all functional units, standardize and manage information sharing within their entire departments and then extended it to suppliers and customers in order for suppliers to expedite the delivery of necessary raw materials and also in order for customers to place an order faster and smoother [11].

3. Research Methodology

3.1. Research Design

Qualitative study is being chosen as the method of conducting this research in order to achieve the research objectives of this project paper. To be engaged with lives of the samples studied, to understand their stories, to get different point of views and value their meanings is what qualitative research is all about [8], [29]. Therefore, this method is chosen to conduct this study to investigate the impacts of ERP system in a manufacturing firm. Qualitative research can help the research to develop empathy for the organisation of studied, which can make the research understand the experiences of its samples [5]. Therefore, in this study, the researcher can engage in how the employees feel about the implementation of ERP system in a manufacturing firm. through several data collection methods.

3.2. Sampling Technique

The research is proposed towards six employees, two from the Administration Department, two from R&D Department, one from Casting Department and one from Inventory Department. This is especially to see if there are any differences in opinions towards the impacts of ERP systems implementation based on the employees individually and also towards for every department. The possible respondents will be individually informed by the researcher to ask for their consent in participating in the study. Once consents have been collected from all of the respondents, the place and time for the interview to be conducted will be informed to all of the respondents.

Before conducting the interview, permission to record the interview through sound recording via mobile phone will be sought. Having completed the interviews, the researcher will transcribe the responses. The judgmental or purposive sampling technique is proposed in order to select six employees from different departments to participate as the respondents of the study conducted. Those employees who are expected to be rich in information will be selected to be interviewed [29].

4. Data Analysis and Result

4.1. Demographic Profile

Although the demographic backgrounds of the employees are not compulsory in order to achieve the objectives of this study, the deviations in the demographic backgrounds can be studied on whether it affects the point of views of the answers given by the respondents in Section B of the interview questions. The demographic data that were being collected consist of age, department, position and working experience of the respondents.

Table 1. Demographic backgrounds of respondents

No	Department	Position	Age	Working Experience (Years)
R1	Inventory Department	Inventory Controller & Production Planner	27	2 Years
R2	Administration Department	Project Admin	28	0.5 Year
R3	Administration Department	Admin Executive	32	5 Years
R4	Administration Department	Admin & Operations Executive	31	4 Years
R5	R & D Department	R & D Engineer	28	3.5 Years
R6	Casting Department	Production Assistant Engineer	25	1 Year

The reason why the respondents chosen because of some criteria:

i. A person who work in on and involve directly with the supply chain activities in the company.
ii. A person who deals with customer and clients especially to whom that do purchasing activities.
iii. A person who frequently use the Odoo system daily.

4.2. The Causes of Ineffective Enterprise Resources Planning Implementation on Supply Chain Management in a LED Manufacturing Firm

4.2.1. Data cannot be editing after done click

The employees cannot edit the certain information what they key in into the Odoo system. For example, the wrongly manufactured quantity of finished goods data key-in. Daily briefing stated that MO needs 200 units, but certain department did not adhere to the specified quantity. So instead of 200 units, only 150 units were done. Serial No printed out is for 200 units so in Odoo there is already an excessive number of finished goods.

4.2.2. Server down

As we know that ERP system is a web base system so once the internet having an issue, it will affect all the work related to the system. The problems of server down related to the coverage and WLAN network. The network of internet in the company is not too strong for certain times. So it will affect to the activities in the Odoo System and the process. Some of the employees give up to use the system effectively because they cannot face to the problem.

4.2.3. More procedure and process

One of the employees' state that it will be problem and cause of the ineffective Odoo System implementation because of the complexity for certain activities. We know that ERP system will help organization especially employees to do work faster and better but it is different for this case. The respondents state that he need to key in every

process and activities for each stage. The Casting Department they will be several stages to make sure the work-in-process (WIP) becomes finished goods.

For example, they need to do the epoxy burn activities, so that the engineer need to key in the data of quantity and date of activities for the stage. Then, for casing and bolt and nuts drill, he also need to key in the data. Actually, this process will make sure the quantity and quality of the finished goods guaranteed, but for them, it was a burden.

4.2.4. Lack of knowledge and self-learning

Some of the employees did not want to implement the ERP system cause of their knowledge about ERP is less. They cannot adapt to the system version and did not how to use it. While then, they will be stuck and also give up to try it by themselves during self-learning.

5. Conclusion and Recommendation

5.1. Conclusion

There are several impact of ERP System (Odoo system) implementation in a LED manufacturing firm. It can be concluding the positive impacts of the Odoo system impacts are faster data storage, data accuracy, traceability, work easier and better and Customer Relationship Management. Odoo system help the employees in their daily work activities to make sure the production flow become smooth. Every department need to implement the Odoo system to make sure they can proceed their work by their job role. Based on the finding from the result, we know that there are positive impacts when the employees implement the Odoo system.

5.2. Recommendation

For company recommendations and improvement, the management level need to provide internal training to all the employees especially for the employees that not involve directly with the Odoo System. They need to motivate the employees to use the Odoo system frequently. This is because the use of Odoo System will help them to make sure all the information about the production will go smooth. Some of company will refuse to send the employees go to training because of the cost of training and also the employees' time consuming during the training.

According to research from SHRM, employee replacement can cost a company between six and nine months of the departed employee's salary. Aside from the direct financial losses, a high turnover rate also affects the company's market position, profitability, and revenue. By training employees and investing in their career development, you can make them feel valued by your organization. This will lead to longer employee tenures and less turnover.

Then, the self-learning timetable. Other than conduct internal training with the all employees, the employees itself need to have their self-learning. The management side may provide timetable for each of employees to have an hour of self-learning process. Some of the employees have more knowledge and familiar with the Odoo System function. It will easy for other employees that did not familiar to use it by ask the employees and keep learning. In ERP assimilation phase, both types of learning are essential.

Furthermore, an organization needs to have employees who develop a deeper understanding of the ERP system's functionalities and capabilities to support routine business operations. [3] state that "Because an ERP system is often complex and of large scale, the training in implementation phase is often not adequate for the employees to understand the business logic and processes within the ERP system, and continuous training and self-learning are necessary".

However, few studies have examined critical antecedents for learning ERP systems. By applying March's exploitative and exploratory learning theoretical framework, we argue that ERP assimilation is a continuous learning process, and both exploitative learning and exploratory learning are indispensable for the employees to develop a deeper understanding, which enables them to use the system's functionalities and capabilities for both normative and innovative applications by March [9].

Other than that, for new employees on job training, they need to have training for the Odoo system implementation. For example, the employees under Inventory Department, they need to familiar with Odoo System because the information about the inventory and production activities is all in the system. Although education is a cornerstone of ERP implementation, the user training is usually only emphasized and the courses are centered on computer/system operation rather than on understanding the ERP concept and spirit. Consequently [35].

Acknowledgements

Our special thanks to Universiti Teknologi MARA, Cawangan Selangor, Malaysia and Institute of Research Management & Innovation, UiTM Shah Alam. This study draws from FRGS Research Grant awarded by the KPT; Project code: 600-IRMI/FRGS 5/3 (434/2019).

References

[1] Akmal, A. O., Sundram, V. P. K., Nazura, M. S., Atikah, S. B., *"The Relationship between Supply Chain Integration, Just-In-Time and Logistics Performance: A Supplier's Perspective on the Automotive Industry in Malaysia"*, International journal of supply chain management, Vol 5, No. 1, pp. 44-51, 2016.

[2] Abd Elmonem, M. A., Nasr, E. S., Geith, M. H., *"Benefits and challenges of cloud ERP systems – A systematic literature review"*, Future Computing and Informatics Journal, Vol 1, No. 1–2, pp. 1–9, 2016.

[3] Acar, M. F., Zaim, S., Isik, M., Calisir, F., *"Relationships among ERP, supply chain orientation and operational performance: An analysis of structural equation modelling"*, Benchmarking, Vol 24, No. 5, pp. 1291–1308, 2017.

[4] Ali, M., Miller, L., *"ERP system implementation in large enterprises – a systematic literature review"*, Journal of Enterprise Information Management, Vol 30, No. 4, pp. 666–692, 2017.

[5] Beheshti, H. M., Blaylock, B. K., Henderson, D. A., Lollar, J. G., *"Selection and critical success factors in successful ERP implementation"*, Competitiveness Review, Vol 24, No. 4, pp. 357–375, 2014.

[6] Carton, F., Adam, F., Sammon, D., *"Project management: a case study of a successful ERP implementation"*, International Journal of Managing Projects in Business, Vol 1, No. 1, pp. 106–124, 2008.

[7] Davenport, T. H., Brooks, J. D., *"Enterprise systems and the supply chain"*, Journal of Enterprise Information Management, Vol 17, No. 1, pp. 8-19, 2004.

[8] Dezdar, S., Ainin, S., *"The influence of organizational factors on successful ERP implementation"*, Management Decision, Vol 49, No. 6, pp. 911–926, 2011.

[9] Elkhani, N., Soltani, S., Ahmad, M., *"The effects of transformational leadership and ERP system self-efficacy on ERP system usage"*, Journal of Enterprise Information Management, Vol 27, No. 6, pp. 759-785, 2014.

[10] Finney, S., Corbett, M., *"ERP implementation: A compilation and analysis of critical success factors"*, Business Process Management Journal, Vol 13, No. 3, pp. 329–347, 2007.

[11] Hassab, H. R., Hwang, W., Vonderembse, M. A., *"The impact of ERP implementation on organizational capabilities and firm performance"*, Benchmarking, Vol 19, No. 4, pp. 618–633, 2012.

[12] Helo, P., Anussornnitisarn, P., Phusavat, K., *"Expectation and reality in ERP implementation: Consultant and solution provider perspective"*, Industrial Management and Data Systems, Vol 108, No. 8, pp. 1045–1059, 2008.

[13] Ibrahim, A. R., Zolait, A. H., Sundram V. P. K., *"SCM Practices and Firm Performance: An Empirical Study of the Electronics Industry in Malaysia"*, International Journal of Technology Diffusion, Vol 1, No. 3, pp. 48-55, 2010.

[14] Katerattanakul, P., Lee, J. J., Hong, S., "Effect of business characteristics and ERP implementation on business outcomes: An exploratory study of Korean manufacturing firms", Management Research Review, Vol 37, No. 2, pp. 186–206, 2014.

[15] Khaleel, Y., Sulaiman, R. A., *"System development methodology for ERP system in SMEs of Malaysian manufacturing sectors"*, Journal of Theoretical and Applied Information Technology, Vol 47, No. 2, pp. 504-513, 2013.

[16] Koh, S. C. L., Saad, S., Arunachalam, S., *"Competing in the 21st century supply chain through supply chain management and enterprise resource planning integration"*, International Journal of Physical Distribution and Logistics Management, Vol 36, No. 6, pp. 455–465, 2006.

[17] Lee, D., Lee, S. M., Olson, D. L., Chung, S. H., *"The effect of organizational support on ERP implementation"*, Industrial Management and Data Systems, Vol 110, No. 2, pp. 269–283, 2010.

[18] Mkumbo, F. A. E., Ibrahim, A. R., Salleh, A. L., Sundram V. P. K., Atikah S. B., *"The Influence of Supply Chain Practices and Performance Measurement Practices towards Firm Performance"*, International Journal of Supply Chain Management, Vol 8, No. 3, pp. 809-819, 2019.

[19] Rajagopal, P., Nur Atiqah, Z. A., Atikah, S. B., Appasamy, G., Sundram V. P. K., *"Determinants of Supply Chain responsiveness among Firms in the Manufacturing Industry in Malaysia"*, International Journal of Supply Chain Management, Vol 5, No. 3, pp. 18-24, 2016.

[20] Rizzi, A., Zamboni, R., *"Efficiency improvement in manual warehouses through ERP systems implementation and redesign of the logistics processes"*, Logistics Information Management, Vol 12, No. 5, pp. 367–377, 1999.

[21] Ruivo, P., Oliveira, T., Mestre, A., *"Enterprise resource planning and customer relationship management value"*, Industrial Management and Data Systems, Vol 117, No. 8, pp. 1612–1631, 2017.

[22] Saatçıoğlu, Ö. Y., *"What determines user satisfaction in ERP projects: benefits, barriers or risks?"*, Journal of Enterprise Information Management, Vol 22, No. 6, pp. 690-708, 2009.

[23] Selvaraju, M., Beleya, P., Sundram, V. P. K., *"Supply Chain Cost Reduction using Mitigation & Resilient Strategies in the Hypermarket Retail Business"*, International Journal of Supply Chain Management, Vol 6, No. 2, pp. 116-121, 2017.

[24] Sundram, V. P. K., Atikah, S. B., Chandran, V. G. R., *Supply Chain Management: Principles, Measurement and Practice*, University of Malaya Press, Kuala Lumpur, 2016.

[25] Sundram, V. P. K, Atikah, S. B., Akmal, A. O., Zarina, A. M., *"Green supply chain management practices in Malaysia*

manufacturing industry", International Journal of Supply Chain Management, Vol 6, No. 2, pp. 89-95, 2017.

[26] Sundram V. P. K., Atikah, S. B., Hafiz, M. Z., Azimah, D., Shahrin, N., Thirunavukkarasu, K., *Supply Chain Logistics: A Malaysian Perspective*, Petaling Jaya, Selangor Malaysian Logistics and Supply Chain Association, 2017.

[27] Sundram, V. P. K., Atikah, S. B., Zarina, A. M., Zolait, A. H., *"The effect of supply chain information management and information system infrastructure: The mediating role of supply chain integration towards manufacturing performance in Malaysia"*, Journal of Enterprise Information Management, Vol 31, No. 5, pp. 751-770, 2018.

[28] Sundram, V. P. K., Chandran, V. G. R., Bhatti, M. A., *"Supply chain practices and Performance: the indirect effects of supply chain integration"*, Benchmarking: An International Journal, Vol 23, No. 6, pp. 1445-1471, 2016.

[29] Sundram, V. P. K., Chandran, V. G. R., Atikah, S. B., Rohani, M., Nazura, M. S., Akmal, A. O., Krishnasamy, T., *Research Methodology: Tools, Methods and Techniques*, MLSCA, Selangor, 2016.

[30] Sundram, V. P. K., Rajagopal, P., Atikah, S. B., Subramaniam, G., *"The Role of Supply Chain Integration on Green Practices and Performance in a Supply Chain Context. A Conceptual Approach to Future Research"*, International Journal of Supply Chain Management, Vol 7, No. 1, pp. 95-104, 2018.

[31] Sundram, V. P. K., Rajagopal, P., Nur Atiqah, Z. A., Atikah, S. B., Appasamy, G., Zarina, A. M., *"Supply Chain Responsiveness in an Asian Global Electronic Manufacturing Firm: ABX Energy (M)"*, International Journal of Supply Chain Management, Vol 7, No. 2, pp. 23-31, 2018.

[32] Tarn, J. M., Yen, D. C., Beumont, M., *"Exploring the rationales for ERP and SCM integration"*, Industrial Management & Data Systems, Vol 102, No. 1, pp. 26-34, 2002.

[33] Wenrich, K., Ahmad, N., *"Lessons learned during a decade of ERP experience: A case study"*, International Journal of Enterprise Information Systems (IJEIS), Vol 5, No. 1, pp. 55-73, 2009.

[34] Yang, C., Su, Y. F., *"The relationship between benefits of ERP systems implementation and its impacts on firm performance of SCM"*, Journal of Enterprise Information Management, Vol 22, No. 6, pp. 722-752, 2009.

[35] Yu, C. S., *"Causes influencing the effectiveness of the post-implementation ERP system"*, Industrial Management and Data Systems, Vol 105, No. 1, pp. 115–132, 2005.

[36] Zolait, A. H., Ibrahim, A. R., Chandran, V. G. R., Sundram, V. P. K., *"Supply chain integration: an empirical study on manufacturing industry in Malaysia"*, Journal of Systems and Information Technology, Vol 12, No. 3, pp. 210-221, 2010.