

FACTORS INFLUENCING THE SUCCESSFUL IMPLEMENTATION OF SAP

¹Siti Khalidah Mohd Yusoff, S.M. Ferdous Azam

***Abstract---**SAP was founded in 1972 in Walldorf, Germany. It stands for Systems, Applications and Products in Data Processing. The main advantage of using SAP as your company ERP system is that SAP has a very high level of integration among its individual applications which guarantee consistency of data throughout the system and the company itself. This paper gives brief guidelines what organization should consider when they planned to implement SAP ERP in their business. The study focused to analyze the factors that effect on the implementation of SAP. For analyzing the factors that place effects, some variables like, project preparation, technology selection has been elected in this study. While on the basis of such variables data has also been collected to analyze the influence. Regression and correlation analysis has been performed in this study, where the results were significant in context of relationships and influence between them.*

***Keywords---**Germany, Data Processing, Integration, applications, Company, SAP.*

I. Introduction

Being competitive in business has become more complex; making the use of a better system like SAP ERP an excellent solution, as it is a system that integrates all business units such as planning/controlling, purchasing and financing. SAP ERP is the most renowned system that has recently been implemented in Malaysia. Almost all of the articles regarding SAP ERP highlight similar advantages and disadvantages of the system Pros of EPR creates a more efficient work environment, making it easier for employees to do their job which leads to effectiveness (Parr, Shanks, & Darke, 1999; Nguyen et al., 2019; Nikhashemi et al., 2013; Pathiratne et al., 2018; Seneviratne et al., 2019; Tarofder et al., 2019). Vendors have past knowledge and expertise on how to best build and implement a system and disadvantages of ERP Return on Investment may take too long to be considered profitable. SAP ERP implementation has a risk of project failure. The success of the system is fully dependent on how the workers embrace and utilize the system. Employees need to be continuously trained on how to use the system and it is also important for companies to make sure the integrity of the data is protected. SAP has experienced a number of enhancements from SAP R/1, SAP R/2, SAP R/3, SAPERP and the latest being SAP HANA. By implementing SAP an organization will have improved real time visibility and control over their business operation.

According to (Gargeya & Brady, 2005), implementing the ERP systems is not an easy task. ERP systems by their very nature are complex and large; therefore they warrant careful planning and execution to ensure their successful implementation (Gargeya & Brady, 2005). In one research completed by Pierre Audoin Consultant (PAC) in 2012, they suggest that a well-run SAP project team should work to put the following in place: A comprehensive repository of all changes, each change should have a single traceable history from request through impact analysis to development, testing, implementation and production, a set of application versions, with a capability to allow instant fall back, detailed correlation between problems and changes, 'single source of truth' about who made which change and when. Impartial figures showing productivity and accuracy of staff's work.

¹Management and Science University
khalidah@msu.edu.my

Organizations in developing countries like Malaysia face numerous challenges in implementing technology and systems, including a lack of human and financial resources to support such initiatives (Abdelghaffar & Azim, 2010). However the Malaysian Government's commitment to the development of technology infrastructure can be seen from the Malaysian Industrial Master Plan for 2006-2020, this also coincides with the country's vision for 2020 (Abdelghaffar & Azim, 2010). Organizations in Malaysia should take the opportunity to use the technology infrastructure that is being built by the government in order to expand their business and sustain their competitive advantage in the marketplace (Bradford & Florin, 2003).

This study is about the SAP system which has become popular among organizations in Malaysia. The SAP system monitors and controls in one system all business units like planning, purchasing and financing. Whilst the advantages of the system are highlighted in many advertising mediums, many organizations still experience problems especially during the system implementation stages. This study will identify the problems encountered by a number of selected companies during ERP implementation. It will also identify the major causes of these problems by conducting a study among Malaysian Companies on what their preferences were when they decided to adopt an ERP system. Successful business organizations recognize the importance of technology in running an efficient operation and maintaining their competitive edge (Xu, Nord, Brown, & Nord, 2002). As a result of SAP giving many advantages that result in overall business improvements and costs being utilized effectively many organizations in Malaysia have implanted SAP into their operational and management processes; however not all organization in Malaysia can afford to implement SAP. By completion of this research study an understanding of why these companies can't afford to implement the SAP system; as well as identifying the factors as to why some of the companies failed to implement the system will be determined (Kim & Oh, 2002).

The SAP system offers comprehensive functionality to an organization in one system; however, there is a requirement to customize the system according to the organizations' specific needs. The general objective for this study is to understand the problems encountered when companies implement the SAP ERP system. The specific objectives of this study are as follows; to identify the problems encountered by the selected Malaysian Companies during ERP implementation, to identify the major causes of these problems, to determine if there is a co-relationship between competence of the SAP partners and the problems, to develop a framework that minimizes problems associated with the implementation of the SAP ERP system (Kerr, 2008).

SYABAS was appointed by the State and Federal Governments to upgrade and enhance the water supply system and services in the State of Selangor under the privatization concept. It was formed as a result and response to the previous management's financial constraints, ineffective management, poor water quality standards and inconsistent supply of treated water. On the 1st January 2005, SYABAS was granted a concession by The Federal Government and The Selangor State Government to manage, operate and distribute quality clean water for a period of thirty years.

The University of Malaya derives its name from the term 'Malaya' as the country was then known. The Carr-Saunders Commission, which recommended the setting up of the university, noted in its Report in 1948: "The University of Malaya would provide for the first time a common center where varieties of race, religion and economic interest could mingle in joint endeavor ... For a University of Malaya must inevitably realize that it is a university for Malaya." On June 16th 1962, University of Malaya celebrated the installation of its first Chancellor, Tunku Abdul Rahman Putra Al-Haj, who was also the country's first prime minister. The first Vice-Chancellor was Professor Oppenheim, a world-renowned Mathematician. Currently, His Royal Highness, The Sultan of Perak Darul Ridzuan is the Chancellor of the University of Malaya. 2002 to import, distribute and market Audi and Volkswagen vehicles, as well as related spare parts, accessories and to complete the servicing for these vehicles in Malaysia. EON Auto mart is another wholly owned subsidiary of the company, which distributes a range of Mitsubishi cars. As a re-seller for Mitsubishi cars it offers a various range of Mitsubishi models such as the Colt, Evolution, Grandis and other popular Mitsubishi models. EON Auto mart also pro This research will specifically

focus on the problems faced by Syarikat Bekalan Air Selangor (SYABAS), University of Malaya and EON Berhad (Edaran Otomotif Nasional) during the implementation of the SAP system and why some organizations are not willing to use the system vides after sales This research will help organization's gain an understanding of the problems they will face before they implement the system, allowing them to prepare the solutions to overcome the problems. They will also gain an understanding of the advantages for their organization associated with the use of the SAP system (Gable & Stewart, 1999).

II. Literature Review

The SAP system was founded in June 1972 and was known as System analyses und Programmentwicklung in German or System Analysis and Program Development by five former IBM engineers in Mannheim Baden-Württemberg Baden-Württemberg (Dietmar Hopp, Klaus Tschira, Hans-Werner Hector, Hasso Plattner, and Claus Wellenreuther). Later they changed it to System, Anwendungen und Produkte in der Datenverarbeitung or Systems, Applications and Products in Data Processing (SAP). It is a complex system which combines all functions within one software package to meet the demands of medium and small business(Holland & Light, 1999). From the SAP website the system features included: Accounting and financials – this module in the system combines all the transactional and operational data which then gives an accurate financial statement for the whole company, sales and service – This module is designed to meet customer demands, support the entire order-to-cash process, and provide after-sales support, procurement and logistics execution – this module assists a company to monitor their costs and manage their purchasing flow. Since SAP ERP is integrated into all business functions within one system, an organization has access to real time information, which helps them to make informed decisions and control the operation of the organization; reducing costs by maintaining just one system. It allows all levels of the organization to share information between the different business units, which improves the capabilities and information transparency of the organization. The ERP system links back-office operations to front-office operations, as well as both internal and external supply chains through a suite of client/server based application modules (Nah, Islam, & Tan, 2007). The increase in business trends due to globalization, mergers, and acquisitions demand that companies must have the ability to control and coordinate increasingly remote operating units (Amoako-Gyampah, 2004).

The system is a standard package; this means that if a user has a problem with SAP ERP they can search for a solution via the internet as users from different organizations use the same system. At Dow Corning it was suggested by a Director in Europe that the SAP product would be a fast and effective way to attain global discipline and an integrated common system (Ross, 1999). Implementing ERP packages will not necessarily reconcile communication problems or improve communications capabilities. Increased communication capabilities might not be a good thing anyway (Mandal & Gunasekaran, 2003). Problems will arise if an organization blindly adopts the ERP packages because the technology may not fit the organizations environment. This reason will limit the problem of finding someone who knows about the SAP ERP software packages, the problem of acquiring the skill base is reduced. The adoption of SAP ERP may discourage vendors from providing upgrades; upgrades may also be so extensive that they require a customer software developer base. Users in the organization share the same information from the same system; this means they can have access to accurate and immediate information anywhere in the world as long as they have access to the SAP ERP system. As SAP ERP is real time process information, users can obtain the current information and status of the organization. SAP ERP provides consistency, visibility and transparent information flow across the entire organization; this helps to improve the business process efficiency and enhances the competitive advantage of an organization (Mandal & Gunasekaran, 2003).

ERP implementation is not a technology but is a people project (Ram, Corkindale, & Wu, 2013). So the users' role in the ERP System implementation cannot be (Dagher & Kuzic, 2011) defined user involvement as "A psychological state of the individual and as the importance and personal relevance of a system to a user". It has been noted that user

participation/involvement in defining the needs and implementation of ERP systems is always important (Salih & Doll, 2013).

Based on previous research the ERP implementation life cycle is divided into 5 stages: project preparation, technology selection, project formulation, implementation/development and deployment. The description of each stage is as follows: Project preparation – examples would be; setting the goals and objectives, determining the project budget and time scales, identifying a companies' maturity level, identifying the business process re-engineering requirements, investment evaluation of Information Technology and analysis of the existing information system. In research done by Zainal Ariffin Hasibuan and Gede Rasben Dantes it was highlighted that project preparation involved. This is the most challenging and difficult task in the implementation project. It is important to create an understanding, an agreement on implementation and sharing of information among project teams and to communicate the outcomes and goals across the organization within each stage of implementation (Upadhyay, Jahanyan, & Dan, 2011). It has the most important role (66.40%) in determining the success of ERP implementation. Culture Readiness–It is also important to know if the companies' culture is ready to change because if future users give a negative response to the new system it will impact the SAP ERP implementation. Culture readiness has an impact of up to 47.30% in determining the success of ERP implementation.

ERP Implementation Methodology this activity has a 52.20% role in determining the success of ERP implementation. Donovan (1999) conducted a Risk Management Assessment to identify the required preparation for facing the occurrence of undesired events. Good planning and adoption of systematic risk management are crucial to a projects completion on time, within-budget and compliance with all requirements. Risk management has an up to 41.40% role in determining the success of ERP implementation. Technology Infrastructure - According to (Federici, 2009), an adequate IT infrastructure, hardware and networking are critical to a successful ERP system implementation. It has an up to 38.40% role in determining the success of ERP implementation. Strong ERP Product - being determined by the product selection process. A strong ERP product has a 55.40% role in determining the success of ERP implementation. Project formulation – covers the business blueprint that will be used in implementation/development. There are so many software/IT systems in the market to cater for the needs of the user who is seeking an efficient and inexpensive system to run their businesses operations and management. When comparing SAP (which provides a comprehensive solution for all levels of business),with other software/IT systems, the need to purchase a variety of packages to meet the businesses requirement needs to be considered as not all systems can integrate the business needs. Simply; some company's products may need to use additional/different kinds of packages to cater for the different business functions e.g. Accounting, Sales and Purchase and Human Resource Management. When using different systems/packages, organization will need to hire different and additional types of consultant for each system/package and its maintenance requirements (Nicolaou, 2004).

Loss of privacy: Some degree of privacy loss for employees can occur when you implement a new IT system, due to the systems integration capacity and improved methods of capturing productivity data. Less power to make decisions: Integration will challenge existing power bases and the nature of some senior roles in an organization. Whilst most IT systems are put in to facilitate better decision-making based on integrated data, those who were in the position to make more localized decisions under the previous system may feel threatened. Research undertaken at Massachusetts Institute of Technology (MIT) in Cambridge, Massachusetts and ENGCO global engineering company by Goeun Seo 2013 highlighted the same issues were faced when SAP ERP was implemented in the university or business environment. (Garg & Garg, 2014) defined resistance to change as: "Behavior, which is intended to protect an individual from the effects of real or imagined change". Another researcher (Dezdar & Ainin, 2011) defined resistance as: "Employee behavior that seeks to challenge, disrupt or invert prevailing assumptions, discourses and power relations (Dezdar & Ainin, 2011) posited that resistance may be viewed from two different angles, such as attitudinal and behavioral responses to change. Resistance is defined as a phenomenon

which can deter the overall change process, either by delaying or slowing down its beginning, obstructing or hindering its implementation, and increase its costs.

Implementing an ERP system is a change and it is human nature to resist change. For successful ERP system implementation, change management is considered as a critical aspect (Nah, Zuckweiler, & Lee-Shang Lau, 2003). Lack of change management may appear as a hindrance to successful ERP implementation. For effective change management, training of the users is essential (Wong & Tein, 2003). This factor is a primary concern for organizations involved in ERP system implementation (Wong & Tein, 2003). Researchers noted resistance to change as a major issue faced by the organizations during ERP implementation and usually led to conflicts among stakeholders (Gwillim, Dovey, & Wieder, 2005). Carefully managing the changes to business processes is required to overcome resistance (Gwillim et al., 2005).

Culture is a set of shared beliefs within a country or community where a person lives. Culture is learned; it cannot be inherited (Peslak, Subramanian, & Clayton, 2008). It reflects the ability of humans to feel, communicate and learn. If we agree that culture is learned, then it will affect behavior at the organizational and at the individual level. Therefore, culture imposes rules, values, and practices on a society. At the cultural level, Hofstede (Peslak et al., 2008) argues that there are four elements that can be used to identify differences between one country and another. Culture has different layers (Peslak et al., 2008) and culture is always a collective phenomenon, because it is at least a partly shared aspect among people who live or lived within the same social environment (Plant & Willcocks, 2007). ERP software packages that manage and integrate business processes across organizational functions and locations cost millions of dollars to buy, several times as much to implement, and necessitate disruptive organizational change (Plant & Willcocks, 2007). Skok and Döringer suggests there has been an increase in reported ERP failures, suggesting that the implementation issues are not just technical, but it includes behavioral factors and Chatfield suggests that the organization's culture and structure has a significant effect upon the implementation process. The complexity of ERP systems results in an enormous learning curve and behavioral changes for users (Plant & Willcocks, 2007). If there is no training program this results in low acceptance and curbs the progress of the project. This means re-skilling users in new technology and training in the use of specific application modules.

Key users of a company should not only be experts in the company's processes but also have awareness and knowledge of the information systems in the specific branch. Involving users can decrease their resistance to the potential use of the ERP system, especially if users feel that they are the people who choose and make the decisions (Stanciu & Tinca, 2013). Various factors will influence the SAP ERP implementation success such as the organizations maturity level, implementation approach, the organizations cultural, an organization's business processes and management commitment (Stanciu & Tinca, 2013). Communication should be of two kinds: Inwards to the project team, and Outwards to the whole organization. It is importance to create understanding and approval of implementation. Sharing information between the project team members and communicating the results and defined goals to the rest of the organization is also important. An SAP ERP vendor after consultation with their customer can design the flow of business practices required. ERP systems are built to best practice standards for the specific industry, and to successfully install ERP all the processes in a company have to conform to the ERP model.

Data accuracy is an absolute requirement for an ERP system to function properly. A fundamental requirement for the effectiveness of an ERP system is the availability and timeliness of accurate data (Stanciu & Tinca, 2013). According to (Dagher & Kuzic, 2011), the system developers and managers should concentrate on developing better systems rather than focusing on user satisfaction. Quality Assurance is essential; it should be established in the early phases of ERP implementation to avoid erroneous results and costly corrections afterwards (Dagher & Kuzic, 2011). SAP ERP implementation has become very popular in organizations such as those that have been highlighted in this chapter. Through its global use and the benefits of its own website enabling effective communication with and between users, implementing

SAP ERP gives advantages to the organization using the system. Introducing a new system into an organization involves the entire workforce and management working as a team to ensure the implementation of the SAP ERP system is a success.

- H1: There is a significant relationship between project preparation and SAP implementation success.
- H2: There is a significant relationship between technology selection and SAP implementation success.
- H3: There is a significant relationship between project formulation and SAP implementation success

III. Research Methodology

The conceptual framework is the foundation on which the whole research project was based upon. It logically describes, elaborates and developed the association network between all the variables that are relevant to the research. The diagram explains the relationship between independent and dependent variables in which the hypotheses can be easily postulated and aides the clear understanding of the dynamic situation. These models consist of three factors that have an effect on SAP project implementation.

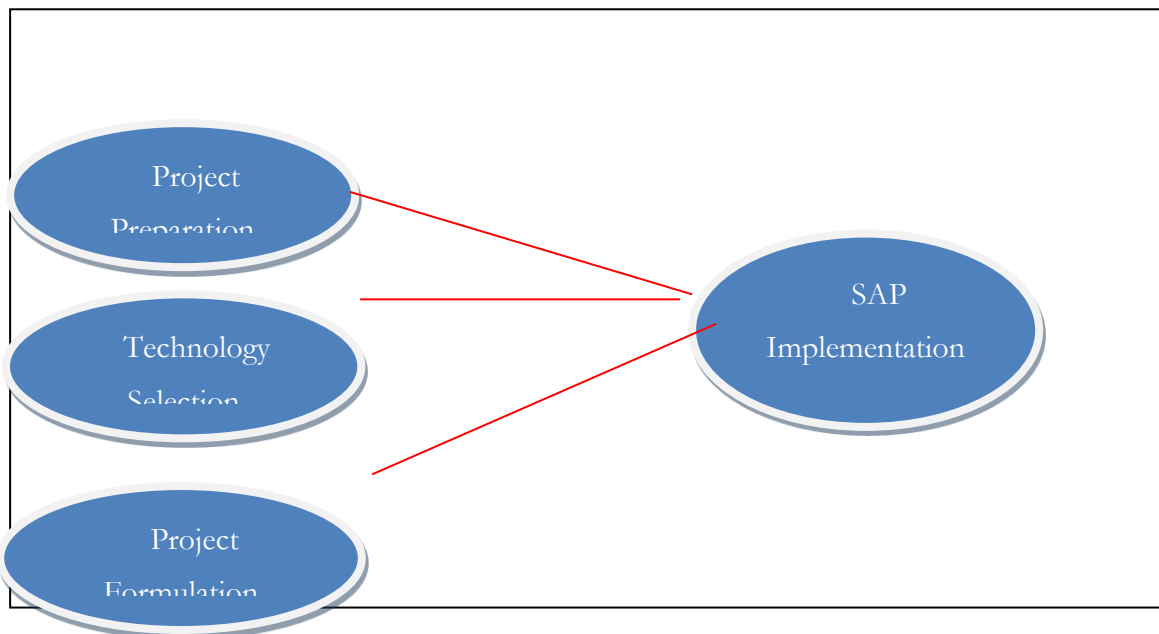


Figure 1: The Research Model

This research needs to identify the implementation success of SAP with the relevant attributes of project preparation, technology selection, project implementation, implementation development and deployment. The proposed research framework for this study and each of the variables has a different impact on the determinant factor that could lead to the success of SAP implementation.

Data Collection Approach

The purpose of this study is to understand what problems were experienced by SAP users and vendors during the implementation stage within three Malaysian Companies and to identify the major causes of these problems. This research also helped to determine if there was a co-relationship between competence of the SAP partners and the problems. The three major Malaysian companies selected are; Syarikat Bekalan Air Selangor Berhad (Syabas), University Malaya (UM) and Edaran Otomotif Berhad (EON Berhad). These three major government linked companies (GLC) are very important in Malaysia. This study will there for focus on Syarikat Bekalan Air Selangor (SYABAS) who have currently implemented SAP ERP but users still struggle to operate it. The study examines The University of Malaya issues and problems since they implemented SAP ERP and then EON Berhad who implemented SAP quite sometime ago but the performance results remain

inconsistent. In this research data was collected by the use of an online survey tool called Survey Monkey; questions were prepared online and distributed to target respondents via email.

Data Analysis and Findings

Table 1: Correlation between all variables

Correlations						
		SP	TS	PF	ID	DT
S	Pearson	-.227**	.630**	.352**	.619**	.596**
	Correlation					
	Sig. (2-tailed)	.027	.000	.000	.000	.000
	N	71	71	71	71	71
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

The results reveal that there is an existence of significant value between these two dimensions as the p value is smaller than the significant value ($p = 0.027$ which < 0.05). The results revealed that there are 2.7 percent of respondents that did not agree that project preparation impacts SAP implementation success. This is simply because the low correlation between these two dimensions as a correlation coefficient is at ($r = -0.227$). The results revealed that there is a positive relationship between the two dimensions as the p value is smaller than the significant value, ($p = 0.000$ which is < 0.05) and correlation coefficient stand at ($r = 0.630$) and is considered a moderate high correlation. The results reveal that there is a positive correlation between these two dimensions with the results for the p value smaller than the significant value, ($p = 0.000$ which is < 0.05). However, there is a low correlation between these two dimension as the correlation coefficient is ($r = 0.352$). The results state that there is a significant value between these two dimensions as the p value is smaller than the significant value, ($p = 0.000$ which < 0.05). Furthermore there is a moderate high correlation between these two dimensions as the correlation coefficient is ($r = 0.619$). There is a positive correlation between deployment and SAP implementation success with a significant value of 0.000 which is < 0.05 . There is a moderate correlation between these two dimensions as the correlation coefficient is ($r = 0.596$). As a conclusion of the hypothesis testing results, project preparation, technologies selection, project formulation and implementation development all significantly influence SAP implementation success.

Regression Analysis

The model summary shows that the R correlation of five independent variables, Project Preparation (PP), Technology Selection (TS) and Project Formulation (PF) with the dependent variable SAP Implementation Success, is equal to 0.729. After inter-correlation, R square is generated - actually the square of R (0.729^2). This means that 72.9 percent of five independent variables have an impact on the dependent variable. In other words, 72.9 percent of the variance in SAP Implementation Success was explained by the independent variables. Based on rule of thumb, the remaining 27.1% was not explained by this regression analysis.

Table 2: Regression analysis on Model Summary

Model Summary									
Mo	R	R	Adjust	Std.	Change Statistics				
del		Square	ed R	Error of	R	F	d	d	Sig. F
			Square	the	Square	Change	f1	f2	Change
				Estimate	Change				

1	.729 ^a	.532	.506	.5087	.532	20.225	5	6	.000
a. Predictors: (Constant), DT, SP, PF, ID, TS									

Regression analysis of ANOVA test

The ANOVA table shows that the F value is 20.225 and is at the significant 0.000 level. This result confirms that 72.9 percent of the variance (R-square) in SAP Implementation Success has been significantly influenced by the five independent variables.

Table 3: Regression Analysis of ANOVA test

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	26.173	5	5.235	20.225	.000 ^a
	Residual	23.035	89	.259		
	Total	49.208	94			
a. Predictors: (Constant), DT, SP, PF, ID, TS						
b. Dependent Variable: SIS						

Regression analysis of Coefficient

The five independent variables explain 78.2 percent of the variance in SAP Implementation Success. The results from the table show that the Beta of Project Preparation (PP) is 0.47; Technology Selection (TS) is 0.282; Project Formulation (PF) is 0.116. It means that every 1 percent increase of independent variable will be affected by the Beta for each variable. Based on the results, Technology Selection and Deployment have the highest impact on SAP Implementation Success. The results show that Project Preparation has the least impact on SAP Implementation Success. While Deployment has a moderate score and Project Formulation a low score. In addition, Technology Selection and Deployment p value score is less than 0.05 (p=0.032- technology selection, p=0.01 - deployment) and is a significant predictors of SAP Implementation Success. Others, such as Project Preparation (p=0.545), Project Formulation (p=0.161) and Implementation Development (p=0.156) are not predictors of SAP Implementation Success.

Table 4: Regression Analysis Result of Coefficient Test

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.013	.577		.023	.982
	SP	-.060	.098	-.047	-.607	.545

	TS	.374	.171	.282	2.180	.032
	PF	.158	.112	.116	1.413	.161
a. Dependent Variable: SIS						

The five (5) factors proposed earlier have been tested. Using a sample of 95 respondents, data was obtained from selected respondents within Syarikat Bekalan Air Selangor Berhad (Syabas), University Malaya (UM) and Edaran Otomotif Berhad (EON Berhad); all the companies are located in Kuala Lumpur. The main objective was to examine the strength of Project Preparation (PP), Technology Selection (TS) and Project Formulation (PF).

IV. Recommendations and Conclusion

This study explored the relationship between project preparation, technology selection, project formulation, implementation development and deployment to SAP implementation success. The results of this study successfully provided empirical evidence of the relationship between project preparation, technology selection, project formulation, implementation development and deployment to SAP implementation success. The results of this research provide a very useful insight into service improvement opportunities. In the correlations results, among the five (5) dimensions that were stated as factors influencing SAP implementation success, project preparation had a correlation coefficient = -0.227. In terms of project preparation, this refers to the project preparation that stimulates' SAP implementation success by low correlation. The respondents scored technology selection at a correlation coefficient of 0.630, which is considered good and represents a high moderate correlation between both variables. Most respondents believe that the technology selection impact on SAP implementation success is higher when they believe several technology selection options are available; this especially true when the SAP system is associated with the success predictors in determining SAP implementation success. The main contributions of the current research include providing a reliable and valid questionnaire that is suitable for service measurement in SAP implementation. Currently there are only a few papers to be found regarding SAP implementation success in Malaysia, the current research provides updated, important insights and implications for the SAP implementation manager's consideration. In conclusion, the result of this research not only contributes to the existing knowledge regarding SAP implementation but also provides useful suggestions and insights for improving the SAP services in Malaysia. In regards to the collection methods, the present research only utilizes the quantitative method, where questionnaires are used to collect data. Research of this nature may benefit from a more rigorous method as it involves subjectivity in opinions, perceptions and feelings towards SAP implementation success, and the questionnaire approach did not fully capture these values. In this research, only five elements of the independent variable were investigated, the researcher feels that there are still other elements that can be added to the variables in order to improve future research.

REFERENCES

- [1] Abdelghaffar, H., & Azim, R. H. A. (2010). *Significant factors influencing ERP implementation in large organizations: Evidence from Egypt*. Paper presented at the European, Mediterranean & Middle Eastern Conference on Information Systems (EMCIS).
- [2] Amoako-Gyampah, K. (2004). ERP implementation factors. *Business process management journal*.
- [3] Bradford, M., & Florin, J. (2003). Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems. *International journal of accounting information systems*, 4(3), 205-225.
- [4] Dagher, J., & Kuzic, J. (2011). *Factors influencing ERP implementation in Australia*. Paper presented at the International Conference on Digital Enterprise and Information Systems.
- [5] Dezdar, S., & Ainin, S. (2011). The influence of organizational factors on successful ERP implementation. *Management Decision*, 49(6), 911-926.

- [6] Federici, T. (2009). Factors influencing ERP outcomes in SMEs: a post-introduction assessment. *Journal of Enterprise Information Management*, 22(1-2), 81-98.
- [7] Gable, G., & Stewart, G. (1999). SAP R/3 implementation issues for small to medium enterprises. *AMCIS 1999 Proceedings*, 269.
- [8] Garg, P., & Garg, A. (2014). Factors influencing ERP implementation in retail sector: an empirical study from India. *Journal of Enterprise Information Management*.
- [9] Gargeya, V. B., & Brady, C. (2005). Success and failure factors of adopting SAP in ERP system implementation. *Business process management journal*.
- [10] Gwillim, D., Dovey, K., & Wieder, B. (2005). The politics of post-implementation reviews. *Information Systems Journal*, 15(4), 307-319.
- [11] Holland, C., & Light, B. (1999). A critical success factors model for ERP implementation. *IEEE software*, 16(3), 30-36.
- [12] Kerr, D. (2008). Feral systems and other factors influencing the success of global ERP implementations *Enterprise Resource Planning for Global Economies: Managerial Issues and Challenges* (pp. 147-165): IGI Global.
- [13] Kim, B.-G., & Oh, J.-I. (2002). Factors Influencing the Successful Implementation of the ERP System. *Asia pacific journal of information systems*, 12(2), 137-162.
- [14] Mandal, P., & Gunasekaran, A. (2003). Issues in implementing ERP: A case study. *European Journal of Operational Research*, 146(2), 274-283.
- [15] Nah, F. F.-H., Islam, Z., & Tan, M. (2007). Empirical assessment of factors influencing success of enterprise resource planning implementations. *Journal of Database Management (JDM)*, 18(4), 26-50.
- [16] Nah, F. F.-H., Zuckweiler, K. M., & Lee-Shang Lau, J. (2003). ERP implementation: chief information officers' perceptions of critical success factors. *International journal of Human-computer Interaction*, 16(1), 5-22.
- [17] Nicolaou, A. I. (2004). *ERP systems implementation: drivers of post-implementation success*. Paper presented at the Decision support in an uncertain and complex world: The IFIP TC8/WG8. 3 International Conference.
- [18] Parr, A. N., Shanks, G., & Darke, P. (1999). Identification of necessary factors for successful implementation of ERP systems *New information technologies in organizational processes* (pp. 99-119): Springer.
- [19] Peslak, A. R., Subramanian, G. H., & Clayton, G. E. (2008). The phases of ERP software implementation and maintenance: A model for predicting preferred ERP use. *Journal of Computer Information Systems*, 48(2), 25-33.
- [20] Plant, R., & Willcocks, L. (2007). Critical success factors in international ERP implementations: a case research approach. *Journal of Computer Information Systems*, 47(3), 60-70.
- [21] Ram, J., Corkindale, D., & Wu, M.-L. (2013). Implementation critical success factors (CSFs) for ERP: Do they contribute to implementation success and post-implementation performance? *International Journal of Production Economics*, 144(1), 157-174.
- [22] Salih, A., & Doll, Y. (2013). A middle management perspective on strategy implementation.
- [23] Stanciu, V., & Tinca, A. (2013). ERP solutions between success and failure. *Accounting and Management Information Systems*, 12(4), 626-649.
- [24] Upadhyay, P., Jahanyan, S., & Dan, P. K. (2011). Factors influencing ERP implementation in Indian manufacturing organisations. *Journal of Enterprise Information Management*.
- [25] Wong, B., & Tein, D. (2003). *Critical success factors for ERP projects*. Paper presented at the Project Management Conference.
- [26] Xu, H., Nord, J. H., Brown, N., & Nord, G. D. (2002). Data quality issues in implementing an ERP. *Industrial Management & Data Systems*, 102(1), 47-58.
- [27] Nguyen H.N., Tham J., Khatibi A., Azam S.M.F. (2019). Enhancing the capacity of tax authorities and its impact on transfer pricing activities of FDI enterprises in Ha Noi, Ho Chi Minh, Dong Nai, and Binh Duong province of Vietnam , *Management Science Letters*
- [28] Nikhashemi S.R., Paim L., Haque A., Khatibi A., Tarofder A. K. (2013). Internet technology, Crm and customer loyalty: Customer retention and satisfaction perspective , *Middle East Journal of Scientific Research*
- [29] Pathiratne S.U., Khatibi A., Md Johar M.G. (2018). CSFs for Six Sigma in service and manufacturing companies: an insight on literature, *International Journal of Lean Six Sigma*
- [30] Seneviratne K., Hamid J.A., Khatibi A., Azam F., Sudasinghe S. (2019). Multi-faceted professional development designs for science teachers' self-efficacy for inquiry-based teaching: A critical review, *Universal Journal of Educational Research*
- [31] Sudari S.A., Tarofder A.K., Khatibi A., Tham J. (2019). Measuring the critical effect of marketing mix on customer loyalty through customer satisfaction in food and beverage products, *Management Science Letters*
- [32] Tarofder A.K., Haque A., Hashim N., Azam, S. M. F., Sherief S. R. (2019). Impact of ecological factors on nationwide supply chain performance, *Ekoloji*