

# ENTERPRISE RESOURCE PLANNING (ERP) ADAPTATION IN MALAYSIA AGRICULTURAL SME: ISSUES AND TRENDS

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## ABSTRACT

Small and Medium Enterprises (SMEs) are rapidly growing in various industries in Malaysia. As part of their survival strategy, they need to be competent, efficient, inventive and malleable in completing meek tasks while focusing on carrying the other multifarious activities. In order to be relevant in the current rivalry of Industry 4.0, any industry needs to be updated with the current technology. Enterprise resource planning (ERP) is the cohesive management of business processes, in real-time and facilitated by various technologies. There are few types of ERP available for companies, in-house which is designed for the business or off-the-shelf that companies obtain the license and use and on the cloud which is eventually off the shelf but with more personalization. Each has its advantages and disadvantages. The main objective of this research to evaluate the recent condition of the ERP adaptation in Malaysia Agriculture Sector. Furthermore, it will also recommend an appropriate approach in ERP adaptation particularly in this SME sector. This paper start with the overview of ERP adaptation in Malaysia SME especially the agriculture sector. Unfortunately, the Agriculture Sector was an overlooked industry by business IT service provider companies and many features were not compatible with their standard operating procedure (SOP) which made the consideration of ERP even riskier. The concept of ERP customization, the recent eminence of ERP in Malaysia SME and its implementation are discussed. The challenges and issues in adapting ERP in SMEs in Malaysia are also deliberated. Lastly, a suitable approach of ERP adaptation in the agricultural SME industry are proposed and concluded.

**Keywords:** ERP, Customized ERP, ERP Adaptation, Agricultural SME, Malaysia SME

## 1. INTRODUCTION

In recent decades, Enterprise Resource Planning (ERP) systems have been among the utmost significant improvements in business information systems [1 - 3] and also in Information Infrastructure (II) [4]. The main objective of ERP systems can be presented as the profits combined with the execution and utilization of ERP systems [5]. The benefits are compared only in part to the technology, majorly coming from organisational transformations; namely organisational structure, work procedures, new business processes, the amalgamation of executive and effective activities, on a worldwide-scale evaluation of work exercises moving towards organisational growth, with the assist of technology [6].

The implementation and adaptation of ERP systems has been considered as a challenging, demanding and at the high-end organizational experimentation [5]. The implementation of the system has been characterized as “one of the world’s major try-out and experiment in business and corporate transformation” and it has impacted most organizations as the biggest change project in term of cost and time [1]. In order to provide a remarkable example of the expenses and time frames associated in executing an ERP system one might refer to the Nestlé case. This company had spent US\$ 500 million in implementing ERP system by the end of 2003. It began the execution process in 1997, before decided to carry on and continue the implementation as a global resolution [7].

As the results of implementing the system, most of the companies had endeavoured to accomplish a standardized and regulated corporate business information system and also the II. Looking at the outcomes and effects, it can be inferred that the predicted design was never that successful. However, the fundamental issues which were originally rooted in approaching associated extensive systems remained unsolved. Managers were still endeavouring for organizational accountability; while the clients were pursuing for the one universal partner. Process unpredictability and uncertainty were prowling through the enterprise from all angles. Although, having befitting coordination, production and logistics might have been organized.

Consequently, the central concern of many companies turned into finding new methods to rearrange direction and collaboration among business entities, clients, suppliers and contractors. The advantage of incorporating the extended value chain has been evident and shown in various industries. Incorporating business practices and processes has enabled organizations to provide both consumers and/or suppliers with better merit in relations of information, services and products. As a result, the quality of the entire value chain has been increased and improved. Forward and backward integration has led to advanced effectiveness and proficiency in various fields such as planning, transactions and also scheduling [8].

Without information and communication technology (ICT), managing an effective supply chain is impossible [9]. The actual effective factors on the profit of a company rely massively on the capability to accurately incorporate information systems (IS) [10]. Since the advancement of Information Infrastructure and also the development and fast growth of ICT, ERP systems become one of the important pillars for global incorporation initiatives. ICT is very important as it perform as the foundation in creating the collective extended value chain [9]. In this sense, strategic decisions related to incorporation of the extended value chain where redirect by the ERP systems employment and IS integration. Accordingly, incorporation resourcefulness replicates the engagement with among the respective involved parties in this value chain.

There are numerous literatures focused on various ERP systems, intra-organisational value

chains, internal coordination and approach in implementing them effectively. However, what is lacking is information on the extended value chain with concentration on the entire chain from incipient fabricators to end clients [11 -12] and also the function of the ERP systems in relation to enhanced the services. As various corporations often operate autonomously, methodologies such as Business Process Re-engineering would not be applicable to external business process since there would not be moderator to organize a top- down approach.

Based on the current reviews, it is stated that Malaysian SMEs are very careful and slow in ERP adaptation and some of the risks which prevent the SMEs to take step in implementation of these systems into their business flow are also discussed. All these, prepares the base for the investigation on proposition of a suitable approach which could well-fit the requirements of SMEs especially with agriculture business theme in Malaysia.

According to some literatures, the current status of this system involvement in businesses in Malaysia shows that many companies are resistant in ERP implementation due to the lack of information in picking the right ERP form and also the issues a particular ERP form could bring in to the business once wrongly chosen. Issues such as complexity of functions, cost as one of the first issues, limitation to some forms of ERP and many more. Therefore, this paper has tried to bring in a successful approach which has been practiced in SMEs in some European countries and make the localization based on SOPs practiced and examine whether it could be a help to smaller players of industry.

Based on the environment and structures of the Agriculture Sector and also most of the industry in that particular sector is in the SME category, it is believed that there is an immense need requirement and need to evaluate the recent and latest condition of the ERP adaptation in Malaysia Agriculture Sector. Furthermore, based on this evaluation and analysis, an appropriate approach in ERP adaptation predominantly in this SME sector is proposed.

This paper discusses the ERP concept and also the importance of implementation system in agriculture SMEs in different countries to explore its performance if applied in similar enterprises in Malaysia. Primarily, the literature explores the comparability and relativity of experiments with

ERP in all sectors; gradually laying it down to its position in Malaysia enterprises. Furthermore, the application of ERP in agriculture field SMEs has been investigated. The result of ERP application in Malaysian Agro-based businesses and ERP enhancement methodologies have been discussed in details. The idea of suitable adaptation approaches in Malaysia Agricultural Industry is recommended in this paper in order for the industry to successfully implement the ERP systems.

## 2. ENTERPRISE RESOURCE PLANNING

### 2.1 Introduction

ERP known as the name of packaged software applications initially directed to be implemented in manufacturing corporations [13]. At first, it came to market as Manufacturing Resource Planning systems or (MRP II) by the Gartner Group in the early 1990's [14 – 15]. Then it was extended to further purposes such as human resource and finance. The term was well received by business software vendors. Since, this concept of MRP II was introduced and adopted by other sectors and changed to ERP. Currently, the systems are now configured for organizations in many different sectors such as services and government. Today, ERP systems are known as one stop integrated knowledge system that could be used within any business enterprise [16]. Organizations compose ERP systems in three remarkable methods [15]:

- Integrated Standard Application Packages
- Integrating Systems In-house
- Joint Venture Systems

Standard Application Packages points to combine group of applications created by solution providers to satisfy industry wide business requirements overall. There are also best of breed functional systems which are designed to feed the middle ware of services, there are called off-the-shelf systems as well. Standard Applications packages managed to meet the requirements of many cases from different industries and in many other cases, combination of standard application packages and off-the-shelf or best of breed functional applications make a successful result and those systems are known as Joint Venture Systems by Dalhen and Elfson [15].

To talk about goods of ERP systems, the availability of information to all organization's functional areas in real-time and also the data

standardization through the entire enterprises would be the highlight of all. "Best practices" covered in the organization, the capability and power to force an enterprise to move towards market trends and analysis and detailing that can be employed for long-term outlining. Nowadays, there are many ERP service providers and designers but on top of all, 5 are well known as listed; SAP AG, Oracle Corporation, People soft Inc., JD Edwards and Company and Baan International. All these five ERP vendors conquer 64 percent of total ERP market. The advantages of ERP were integrated functionality, consistent user interface, integrated database and unified architecture and provide tools for the inquiries.

ERP systems commonly incorporate with different and various software modules, allowing allow businesses to integrate, automate and systemize the preponderance of business purposes by using the common data, records, information, practices and updates concurrently and real-time [1]. The key element in any ERP system is the collaboration of various organizational tasks in order for it to require the information only to be entered once and the data would be accessible through the organization with real-time and actual updates [1]. ERP is illustrated as a complete and comprehensive software solution at the operational level, where all related business functions and processes were integrated and on the same time depicting the universal and holistic view of the business processes from a distinct IT architecture [17]. Furthermore, ERP systems have been also described as a complete business software package that allow organization and companies to resourcefully and meritoriously handle all types of resources such as material, human resources and finance by offering an overall integrated resolution required for any organization in processing the information needs thoroughly [18-19].

Jacobs & Bendoly [20] illustrated the ERP system in a corporation's foundation, is similar to the actual highway system. They have similarly advised that IT theories in business such as, B2B (Business to Business), B2C (Business to Consumer), and CRM (Customer Relationship Management) are essential elements of any enterprise's core ERP system. There has been evidence that, despite the determination of ERP system, immediately after an enterprise implements an ERP system, the competitively and survival of the business becomes vital. Research reports the implementation of ERP

systems to enterprise's business procedures as a process-driven design [21 – 22]. Meanwhile, the implementation of business's operation procedures into ERP is defined as the technology-driven design for ERP adaptation and implementation [23 – 25].

Furthermore, literature suggests that the impression which both business SOP modification to the implemented system's functionality and reference model proposed to the organization as future model bring can equally be beneficial to hybrid strategies [26 – 29]. The experiment should be backed up by the use of new approach or tools to pair and match the ERP program and the organization's needs and requirements [30]. Nowadays, the operational practices and the supply chains procedures are more multifarious than the previous years. Currently, the business functions have become more complex and complicated which involve different departments and concurrently required the most updated information together with the critical linkage among the upstream and downstream partners. Over the years, ERP systems have demonstrated as one of the resolutions to the requirements of countless trades and businesses, but on the same time it did an exorbitant blunder for several other businesses. ERP adaptation has been reported to come with long timelines, challenge, high cost, and also it could place huge pressure on business timeline and resources [1, 31].

According to research, almost 70 percent of ERP adaptation and implementation projects are unsuccessful in obtaining their main implementation aims [32 – 36]. It is also represented in literature that ERP implementation failure is frequent even in projects with the most proper circumstances [37]. The literature on ERP implementation and adaptation can be concluded as quite broad and extensive [31, 38-39]. The literature reported on various areas and covers multi issues such as explicit approaches in ERP requirements investigation [40], risk management and mitigation based on ERP systems [41 – 42], pre-implementation concerns and disputes [43], the preparation of ERP implementation in terms of influence and deliberately of the local or social features [44 – 45], and among the utmost significant area is the critical success and failure factors in implementing ERP systems [46 – 50].

Even though the current literature covers a wide range of ERP systems issues and complexity but the scope and highlights given in understanding the failure of ERP implementation is quite vague and

elusive. It also required by the practitioners and researchers a distinct and single literature resource, which can be denoted as a reference spot for enhanced and enhanced understanding of the character and potential sources of implementation failures. Furthermore, thorough analyses on the current failures are required for the purpose to escalate the probabilities of forthcoming positive and fruitful implementations and to avoid or limit the failures to occur again.

In the beginning, ERP was established mainly to manage and forecast material requirements. Along the way, even with the high costs and difficulties in the adaptation and implementation procedures, the systems have finely evolved and matured into comprehensive advanced technology software, able to perform complicated and complex task and also various organizational activities, delivering the uniqueness of the integration features that manage to relate almost all function in the organization. As reported, these systems have been comprehensively implemented among almost all major fortune 500 companies in various fields are adopting this excellent practice [51].

ERP systems are usually engaged to tackle problems of organizational failure in ICT coordination caused by the application of legacy systems [18]. Legacy systems generally function to offer to develop long- process solutions that are challenging to maintain. Besides, they longer meet organizational needs after a while [52]. The literature claims that combining some proven SOPs with success records from different industries which hold similar process flow in main departments such as HR or Finance with data flow across different departments of an organization could be the base of a new ERP system with enhanced relationship and coordination among the collected information. Rightly chosen ERP systems are offering benefits such process as cost and time reduction, speedy process transaction, enhancement of operation performance, finance control management, better web interfaces, customer service and most of all, clear and effective communication among all of above [53].

## 2.2 Benefits and Challenges of ERP Systems

There are varieties of advantages ensuing from ERP implementation in the organization, and it can be varied. Among the common benefits

accomplished from implementing ERP system are improve supply chain performance [54] reduction in production and financial cost [55 – 56], increased profits [56 - 57], centralized information [58], integration improved in business processes [58 - 59], enhanced and improved reporting [60], advancement of technology [59] and attain extension of enterprises systems which improved planning and control [55]. Even though there is no indication of undesirable and destructive achievement related to ERP investments is recorded, some of the challenges are high implementation costs [56], organization and businesses with greater altitudes of divergence have effect worst in its corporate governance when implementing ERP. However, imposing the systems is tough, laborious, and steeply-priced for organizations [61]. Implementation intricacies and related demanding situations are based on the character of ERP systems, which deal with pass-organizational enterprise tactics in a fee web because of the essential constructing block of the gadget [62].

The development of the ERP systems is mainly constructed on the “pleasant exercise” fashions. Consequently, their imposing regularly calls for corporations to restructure their enterprise techniques around the one's practices, which is obvious in recent research. As an example, Maguire et al. [63] discover the overview of ERP structures frequently ensuing in key organizational modifications, which, unless it is accomplished and handled cautiously, it will bring chaotic and instability inside the organization. This conflict is mainly glaring with regards to the query of a way to combine ERP systems, which should take place to the legacy system, and how the employers' approaches need to be modified. This crucial reorganization is frequently considered as the root of multiple failures [64].

According to Hirt and Swanson [65], businesses that aim to utilize ERP systems without having a “reorganization approach” may eventually go through technical and supervisory troubles. Additionally, suspensions in undertaking implementation or even complete failure of the implementation are among other possibilities. Other elements determined to mark the efficacy of ERP gadget implementation, consists of external advisor or consultant sustenance, knowledge and experience transfer, and the methodological and technical components in understanding the transfers, these

elements are essential during the implementation of ERP system.

Rather, the task of pinnacle management assist is positioned to be not as much essential compared to furnish by using the users [66]. Investigating ERP recognition and acceptance demanding situations from a Saudi Arabian cultural perception and insight, Alhirz and Sajeev [67] discover distinctiveness and authority detachment do not have any widespread influence on reputation; however, ambiguity prevention provides a tremendous impact. Further, user involvement and preferences have a high-quality impact on ERP systems, steering to device attractiveness.

The difficulties and challenges frequently originate from the reality that provides from the ERP functionality structures, generally enfolds thousands of commercial enterprise activities. In order to obtain the advantages presented by the way of ERP structures, those complex and various demanding situations have to be triumph over. Therefore, in setting up targets for completing maintenance it's miles regularly essential to set priorities.

### 2.3 ERP Systems Implementation Risks

The failure rate in the implementation of ERP systems has been perceived as high as 40 to 70% [68-69]. Although the failure risk is very high, in the successful cases of the ERP implementations show a massive advantage and enhancement on the strategic plans as well as operating system of those enterprises [1, 59]. The origin of failure causes has become a topic which grabbed many researchers in the IT industry and many practitioners' attention. Some of the known risks are not holding a theoretical foundation with them [70-71]. The conclusion of all done researches on failure factors came to an agreement that categorizes the issues into seven segments: Technological, Organizational, Managerial, Financial, Legal, Contractual and Business itself. The Business risk to start with is twisted with the consistency of model and process within and outside the organization once it comes to system implementation [72]. Organizational risks are referring to the circumstances of where the ERP is implemented [73]. Technological risks arise once the ICT tries to figure out the practical SOP and translate it into information language [74]. Managerial risks pop-up based on the view stands of the business owner or decision-making manager or team about overall IT and ERP specifically in business [75-76].



Financial risks happen due to cash-flow or capital power of companies (mainly SMEs) which prevents them and tighten their hands to spend on upgrading expenses or licensing [77]. Contractual risks pertain when too many parties are involved in a business such as IT solution providers or ERP vendors and consultants as partners [78]. Packaged ERPs are mostly license basis and not sold and since those are software which obtains intellectual property. Legal risks are linked to ‘the risk of losing competitive advantage from open source terms requiring a waiver of intellectual property (IP) rights’ when it comes to enterprise’s software used [79].

#### 2.4 ERP Implementation Success and Failure Attributes

For an ERP system implementation to be measured as successful, an organization is capable and competent to effectively conduct entire business roles and functions, and the implemented ERP system managed to fulfil all goals of the execution that have been set before [80]. According to Umble et al. [81] and Dezdar & Sulaiman [82], the attainment of the implementation is quantified by the benefits accomplished, as example, such as reduction in the number of staff; the management of the inventory are more organized the lowering of IT expenditure, and better cash management. Likewise, as mentioned by Delone and McLean [83], the satisfaction of end-users and their views of a newly implemented ERP system are also a common extent and measure of a system’s success. Calisir and Calisir [84] seem to agree, as they have found that the perceptions of users towards a system greatly determine their level of satisfaction, and helps in making full use of the new system. On the same note, Sun et al. [85] have initiated that the participation of users during the implementation of an ERP system can determine its success. Others, such as Bhatti [86], have gauged the success of ERP systems by looking at project metrics (time to completion, budget utilization), and user metrics (satisfaction level, system utilisation level). These views are validated by Chang et al. [87] that agreed on the users play the most important role in defining the implementation success of an ERP system. Powerful leadership and self-efficacy have also been found to have high influence and impact on the positive reception of an ERP system [88].

Despite the success story of ERP implementation, there are cases that the organization have failed ERP system implementations, and required alternative approaches and strategies for successful

implementation [89-91]. Based on the literature, a consolidation of meagre planning and intense modification of ERP software has been recognised as the utmost regular cause of ERP implementation deficiency [92]. Accordingly, one of the major influences resulting in successful implementations has been introduced as an implementation with minimum modification since it decreases the workload on ERP vendors, prevents technical failures, and overall saves resources [61, 89].

Numerous additional factors attributed to implementation deficiencies have been discovered; namely, undervaluing the importance of data collection, having an extremely basic approach towards the practicality of ERP, overlooking various aspects of the project, poor examinations, inadequate background knowledge of the user, weak initial operational practices, high resource turnover, and data migration challenges [93-94]

Based on the evidence, Huang et al. [48] claimed that the ERP system provides particular continuous risks as a result of its distinctiveness. In their findings, they introduced a few different factors and developed a framework to examine and analyse the value of these factors and finally sort them in accordance with their importance. On this account, the factors are organized as: Scarcity of top management pledge and commitment; Unproductive communication; Inadequate preparation and training; Lack of user involvement and support; Poor project management; totally depend on previous systems; Inter-departmental encounters and conflicts; Configuration and composition of project team; Setbacks in restructuring business procedures and processes; and Deficiency of meticulousness about essential modifications and deviations.

The consequences of this investigation will support the organization in evaluating the risks related to the implementation of the ERP system. Xue et al. [95] adopted different strategies in investigating the failure of ERP system implementation by using a case study in China involving vendor practices. Among the main causes of ERP implementation failure that have been observed are failure in adapting to local values and cultures, less experienced in handling local Human Resources matters, BPR, lack or non-existence of information sharing, failure to comprehend cultural features, deficiency in adapting to changes in economic and business current situation and background, fail to control the cost functions (i.e. acclimatising to various fluctuating costs), and

failure to comprehend and understand the related technical issues and problems. Additionally, Amid et al. [91] have studied the critical failure factors in Iranian companies and categorized the failure aspects and attributes to vendors and consultants, human resources, managerial, project management, processes, organisational, and technical issues. Momoh et al. [96] run a detailed and comprehensive investigation of the related previous literature between 1997 and 2009. The investigation has identified causes of implementation catastrophe as extreme and over customization, problem in integration either internal or external, less comprehends of business requirements and implications, poor strategy, and approach in change management, the quality of data is questionable, misalignment and mismanagement of IT with business, concealed and unknown costs, insufficient preparation and training, and nonexistence of top management provision and support.

### 3. ERP CUSTOMIZATION

In order to cover the possible hole between ERP usability and hierarchical requirements and to fit an ERP framework and the business procedures of the organization; the ERP framework system is suggested to be customized accordingly [97]. Distinctive conceptualizations of ERP framework customization in premature investigation incorporate associated terms, for example, fitting [98], change [99], and utilitarian combination of the framework [47]. For example, in view of the analysis of the ERP writing, and supplemented by hands-on work and meetings with ERP agents and specialists, Brehm et al. [98] built up fabrication of ERP fitting choices. The structure recognizes nine diverse kinds of ERP bundle fitting, running from "light" setup up to "substantial" bundle code change. While performing an ERP framework, an agreement can change an ERP framework by utilizing any blend of the fitting sorts [99]. It was additionally adjusted by Rothenberger and Srite [99] who assembled ERP alteration selections into three territories: arrangement/determination, jolt on, and framework change. An organization may design a framework based on its requirements and needs by choosing suitable framework sections and appropriate parameters setting. Subsequently, it happened that this situation may not suit all current business requirements and needs; an association may realize jolt on (or outsider bundles) which can provide support to ERP usefulness or fabricate

custom highlights over the ERP stage. In completion, the ERP framework code might be altered to suit the business requirements and needs [99].

One of the basic success factors for ERP usage is the specific customization towards the system according to the organization requirements [18, 100-101], but at the same time, there are a few researchers who have reported the failure of organization that venture into ERP customization [102-103]. Then again, a few investigations have explained briefly on the ERP framework customization procedures and approaches that have been connected by associations [64, 99, 104-105], likewise archiving confident outcomes from the associations [47, 106-107]. A regularly said confidence behind ERP framework customization is a useful loner among the standard ERP framework usefulness and current business forms [98, 104]. Advanced prospective confidences behind ERP bundle customization has also been investigated and discussed by Light [104]. Other than useful oddball, a few purposes behind ERP framework customization discovered in the impact of various public gatherings were recognized. For example, ERP framework customization might be executed due to an expert's absence of learning about an item or its specific situation, inadequate improvement work from the merchant or as a demonstration of defending a work position by inside data frameworks staff [104]. Given a various contextual examination of eight associations, Rothenberger and Srite [99] considered how an unusual state of customization happens. The examination researched interrelations among different elements prompting ERP framework customization. The outcomes demonstrate that high customization may happen because of security from a change in light of low ERP investment acknowledgment, authoritative culture, or dread of the individual drawback of change.

Additionally, a pointless revamp of practicality existing in the standard variant of ERP framework may moreover prompt framework customization. It was then resisted to be recognized with the user knowledge and experience and the ERP learning possible toward the beginning of the task. Likewise, the inadequate weight given to the user group's suggestions and the execution group's absence of permanence to customization solicitations may

influence the level of ERP framework customization connected. It was reported that all previously mentioned examinations depended on the examples of huge endeavours [99, 104].

#### 4. ERP IN MALAYSIAN SMEs

Although the engagements of ICT into business always come with some risks, a lot of major players in Malaysia took the risk and developed or inquired ERP into their businesses [108]. Aside from the risk, a rightly chosen system or detailed designed ERP could have a lot of priceless features and bring noticeable value to the business [109]. Companies including Malaysian Airlines decided to set big budget in order to design an in-house ERP system, but it is about big organizations which they mostly can afford the risk while the complication of these systems and the very high cost twisted with it take the acceptance rate by SMEs very down [110]. Earlier studies on the determination of ERP adaptation factors in Malaysian SMEs show the slow-moving speed among these players [109 -111]. Although different industries require a different form of ERP modules in order to maximize their operation quality, yet the system has to be modified in order to be compatible with different industries as well. Generic ERPs exist for most industries with the small scale of businesses or SMEs which could shrink down the risk rate as well as the cost for them to start with.). Some of the issues faced in SME Malaysia are [109 - 112]:

- Technological issues refer to problems that are affiliated with systematic and technology sections of an organization both in internal and external terms. These issues are categorized into four types. Two issues are mainly for off-the-shelf ERPs due to complications of system and incompatibility of business process or SOP of SMEs which makes it difficult to meet the requirements of either. The other two are about the in-house or custom-designed ERPs which take a long time to design and a longer time to implement the high cost of these systems is a big concern of all time.
- Off-the-shelf refers to the systems that are ready-made platforms by business vendors which companies could engage by obtaining license and use. These systems provide a wide range of ERP solutions from generic to semi-complex and used by many enterprises from different sectors. In the house, ERPs are systems that an

organization provides and briefs ERP vendor experts on their needs and current SOPs and then a system gets created or customized accordingly.

These issues are associated with organization resources such as employees as executors or main users of ERP in SME organizations of Malaysia [109-112]. Awareness about the impacts and role of ERP and readiness about it is important before considering the move towards ICT business [113]. Also, the insufficiency of enterprise financial backup falls under this issue as well.

#### 4.1 ERP System in Agriculture SMEs

Various studies on ERP framework usage in different SMEs have demonstrated that ERP framework modification may be satisfactory for these particular associations, with framework adaptability and versatility presence amongst the utmost imperative ERP choice and measures in SMEs [114 – 115]. A few examinations additionally report instances of ERP implementation in SMEs [109, 113, 116 – 118]. For instance, investigation on seller exercises could enhance ERP execution achievement with regards to Chinese SMEs, Liang and Xue [95] recommended that ERP frameworks ought to be adaptable at an assortment of stages with an insignificant requirement for business process redesigning. Olsen and Sætre [119] gone significantly advance by proposing that the internal advancement of ERP is one of the pre-eminent options for some SMEs. Furthermore, in a comparable disposition, Olson et al [120] announced that open-source programming ERP is reasonable for SMEs, as it gives the required adaptability through altering the open programming code. For SMEs, one kind of business procedures may regularly give their aggressive quality, and expelling or changing these might then debilitate the actual presence of the organizations [117].

In this manner, the previous study on ERP in SMEs shows a necessity to adjust to the current business forms for vital apprehensions [114, 118]. Be that as it may, there exists a study on ERP framework customization in SMEs. Especially, the purposes of ERP framework customization inside the setting of SMEs have gotten extremely restricted consideration. The reason for this examination is consequently to add to filling this information hole. Through an examination of a new understanding of ERP customization in the SME



setting, the investigation endeavours to recognize the purposes behind ERP framework customization, to study the effects and impacts of the SME situation and setting in this undertaking.

ERP system implementation in the agriculture sector has been contemplated to be limited. Although ERP system is almost ideally able to meet the requirements of a dynamic supply chain process belong to a solid business model with fixed SOP and minor need for modification, when it comes to a sector with profound demand for production and logistics procedure, a conventional ERP is unable to perform in its best [46, 121, 122-125]. For example, Agro Food refers to an industry that has a high dependence on biological procedures like the growth of a plant, soil and fertilizer processes which could get affected by grate uncertainties [126-127].

The other concern would be the inflexibility of ERP systems to modification for the particular needs of an industry for its functionality. The agriculture industry was a less-worthy sector for ERP vendors to focus on for a very long time. It was not a priority to focus on and develop customized features for their needs. But that state is changing and over the past years, ERP providers recognized the shortage of customization adaptability in the system and that was where ERP II was introduced. Among the potential prospects that managed to meet the specific needs of ERP for many sectors including agriculture are open-source, service-oriented and web-based service.

In the Agriculture sector, it is very difficult to have the inventories standardized, due to the limitations. A lot of factors are involved, unpredictable amounts of harvest and also inability to calculate the amount of it by farmers could make give limitations to this process in the inventory and warehousing design of an ERP. This is where a very clear understanding of situations in the daily operation of an agro company is much needed in order to design a system for them. Meanwhile, it is possible to have accurate management over warehouse or inventory as the products are mostly short-lived. ERP could simply play an effective role in a cost-saving of stored products with a timeline. Another benefit ERP could bring to agriculture field is the transparency to the overall operation of the whole process as it saves time in preparation, documentation, and communication so it could shorten the whole process from the order to inventory and all the way to shipping and dispatch

(if the example was an edible fruit or product) [128].

ERP system functions as a convincing approach that assists companies in general. It predominantly supports SMEs in improving related activities within their internal divisions ensuing enhanced and better outcomes. Research conducted on Malaysian SMEs indicated two types of ERP systems implementation, the off-the-shelf and in-house systems [116, 129].

Exploring through the Malaysian SMEs in terms of ERP practice demonstrates quite a low rate of ERP acceptance [130]. The investigation conducted on SMEs without proper ICT discloses that despite the various issues the resistance against ERP implementation still occurs. This in turn result in poor and malfunction adaptation. On the other hand, SMEs who have designed their ERP system In-house struggled with the high expenses of the system development due to the efforts required to customize and align system functions with their standard operation process (SOP).

However, it is noteworthy to state two prominent thoughts; required investment on the implementation of an ERP system and its influence on the business process. With regard to the former point, it is of great importance to note that companies implementing ERP system encounter problems associated to start-up matters which consequently bring about a performance dip instantly after the implementation in the short term [131 - 132]. As for the latter remark, an ERP implementation has a renowned effect on the business process. Provided that the implementation of ERP is combined with properly managed business processes, the merits of the ERP can be clearly realized. Additionally, these remarks highlight the importance of a meticulous management of the adaptation process in order to maximize the benefits of an ERP system. The use of new technology, especially when the technology is intended to replace a legacy system is considered a tedious task [133].

Although the application of ERP in the agriculture-food sector has been suggested to be small, ERP system has been found very effective in covering the demands of efficient supply chains which are empowered by stable and logistic business processes and low demand uncertainty. However, even these efficient supply chains are still suffered by problems in achieving the required flexibility when traditional ERP is employed [46,

121 – 122]. So, a continuous and detailed procedure of capturing, editing and communicating of information is required to ensure the effectiveness of business processes.

##### 5. SUITABLE ERP ADAPTATION FOR MALAYSIA SME AGRICULTURAL INDUSTRY

Small and Medium Industries Development Corporation (SMIDEC) is one of the multi-agency under the authority of the Ministry of International Trade and Industry (MITI). SMIDEC is an agency that responsible to encourage and regulate the enhancement of SMEs by providing intensive and precise training sessions for managerial aspect, technical aids, consultation, financial and more in order to improvise the business quality of SMEs while preparing them for collaboration and communication with larger companies (MNCs) in and outbound. SMEs take a big portion of manufacturing institutions in Malaysia. They take up to 90% of the entire industry. Since Malaysia's government has set the goal to become a fully industrialized country by 2020, SMEs became an even greater concern as an important contributor and for that cause, SMIDP or Small and Medium Industries Development Plan was established in Malaysia to assist SMEs with a strong foundation within and readiness for intra industry relations. The SMIDP's approach is to segment each industry and provide focused- progress for each individual to help SMEs achieve their objectives competitively and improvise the service quality at minimum cost by ERP implementation in those organizations. Malaysia has been the house of numerous SMEs which contribute to the agricultural industry. However, in terms of reclamation, SMEs lack high capability. Therefore, it is essential to minimize the probability of implementation failure. The paper has aimed to identify the problems related to the implementation of ERP in the industry of Malaysia agriculture. Regarding ERP integration, agriculture industries have so far appeared to be overlooked. Evidently, agricultural businesses have not been the ideal target for ERP vendors as they normally function on a fixed workflow. Hence, there has been considerable need for a proper study on these disadvantaged enterprises.

Additionally, the research has attempted to investigate those problems in order to conclude whether they are resolvable with the application of minor modifications or they need to be completely

revamped. The interest of the research has originated from the fact that, as a result of its unique geographic location and rich natural resources. According to the analysis made on several agricultural SMEs, there are several crucially influential traits in the failure of ERP implementation listed below.

- IT infrastructure
- System Training and knowledge transfer
- Over-dependence on detailed and heavy customization
- High turnover rate of project team members
- Business process re-engineering
- User's resistance to transform
- ERP system misfit

Considering these critical factors, specifically affecting the agricultural business sectors in Malaysia, there are a few possible suggestions proposed. The general conclusion achieved from both interviews states that regardless of the method used, the proper design and application of the proposed customization will lead to a positive result as far as these improvements are fully injected into either of the systems. What came to a surprise was that problems might not be the same in both companies and both experiences, however, the concerns and overall of the needs are almost identical. This paper offers the following suggestion in order to achieve the best out of an ERP system for Malaysia agriculture industry:

- A company must concentrate on the quality of integration between company requirements and ERP scope. To achieve that purpose, a detailed functional SOP and the right software are compulsory; the same has to be done on the system's usability.
- The main idea in ensuring the successful implementation or adaptation of ERP is a very strong internal support. To maintain the cost and time of a project within the plan is something decided in the initial stage. Here comes the Top Management's support, discipline, and comprehensive training, and a high-grade project planning is the following stage.
- The resources or team members with less knowledge about the overall ERP practice and/or specific features of the implemented system are commonly incapable of accommodating the ERP project planning professionally. Therefore, to avoid taking the system casually by

- employees, top management must commit to a strict pre and post system adaptation in all the stages including the training investments
- Over expectations from an ERP system is another failure fact, so a practical and rational plan and investment should be intended to bring the negative impacts of the system on the quality of the work to the minimum. This could make the system and progress to meet at a reasonable and satisfying point.
  - A hidden fact of success in ERPs for the smaller organizations is the right consultation. Having the right and knowledgeable guide is the lead to the right path for a successful choice and progress.
  - Some instructions on the system's workflow get skipped after adaptation. Either the system's design is weak and incomplete or the user provides an incomplete specification to the system as data. The time spent on both, designing the system and data provision by the user must be sufficient and enough.
  - Resources of an organization must be fully employed for a fruitful and fault-free adaptation or implementation. The commitment to the system updates must be a part of SOP and the staff's KRA. The technology must be learned with no resistance to its application.

## 6. CONCLUSION

The aimed objectives of this paper were to study the current practice of ERP systems in SMEs under the agriculture sector in Malaysia and to investigate the causes of adaptation avoidance or failures after acceptance of it. This work managed to identify the influencing facts and narrow it down to proposed suggestions by combining technical analysis and professional expertise for a trustable result and achievable goal in the improvement of these systems. In the sector of agricultural, it is of the utmost importance to empower the concept of organizational fit in order to achieve a successful ERP adoption. Aside from the above-mentioned elements proper management of the orientation as well as a diligent selection and implementation is crucial to achieving the desired ERP system.

The above points then were shared with the experts of industry who actually work in companies with ERP engagement, the overall result of the

interviews shows that all types of ERP models have their limitations and to make the cost worthy of spending especially for SMEs, the ideal model would be the combination of all, a cloud basis off-the-shelf services which allow maximum modification and provides various plug-ins.

## ACKNOWLEDGEMENT

The authors acknowledge Universiti Kebangsaan Malaysia for the support under GGP-2017-078 (Geran Galakan Penyelidikan) for this research.

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