2007

Validating the IS-Impact Measurement Model in Malaysia: A Research-in-Progress Paper

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Abstract

Companies making large investments in information systems anticipate positive impacts on their organisation. Measuring information systems effectiveness or success has been an important criterion for practitioners and researchers in justifying the associated investment, both pre- and post-implementation. Often this kind of impact simply relates to the cost benefits. However, the impact that these systems bring to the companies usually involves the whole organisation. This paradox has cause misunderstanding on how to measure information systems correctly. As a result, researchers have come up with a variety of measures that produced a contradictory result, where some studies have shown positive impacts and some shown negative or nil impacts. The research-in-progress described herein follows promising work by QUT's 'IT Professional Services' research program (ITPS), evaluating the success of contemporary and complex Enterprise Systems in Queensland Government. Their 'IS-Impact' measurement model (Gable et al, 2003, Sedera et al 2004) includes four distinct but related dimensions of the multidimensional phenomenon IS-Impact. The two 'impact' dimensions (Individual-Impact and Organisational-Impact) are an assessment of benefits that have followed (or not) from the system to date. The two 'quality' dimensions (System-Quality and Information-Quality) reflect potential future impacts from the system. Together, these four dimensions reflect an ostensibly complete view of the Enterprise System – an over-arching measure of IS-Impact. The main aims of the research-in-progress are: (1) to operationalise and validate a Malay version of the IS-Impact instrument, (2) to further test the validity and robustness of the IS-Impact model and its extendibility to an enterprise systems in small and medium enterprises in Malaysia, and (3) to measure, evaluate and describe the state of enterprise systems in small and medium enterprises in Malaysia.

Keywords

IS-Impact, IS-success, ERP, SMEs, Malaysia, Replication

Introduction

Enterprise Systems (ES) are comprehensive and contemporary information systems that integrate historically separate computer systems within an organisation. In seeking competitive advantages or competitive necessities, particularly in the face of globalisation, most large organisations have invested in transitioning to enterprise systems. Experiences with ES implementation have been mixed: however, dollar and duration blowouts are not unusual, and many question the wisdom and value of the investment. A measure of the impact of the ES is an important criterion for evaluating this large investment.

Small and medium enterprises (SMEs) have also looked to ES for improvements in business processes and economies and to better connect with larger vendors, customers and other SMEs. SMEs are less able to afford a large ES investment, or experience possible related delays in system delivery. For SMEs, investing in a quality system that would give positive impact is important to them. A measurement model, the IS-Impact measurement model, is a validated instrument for measuring the impact of an enterprise system (Gable et al. 2003). This measurement model and related instrument have been extensively tested within Australian public and semi-public organisations, and less so in large Australian private sector organisations. The approach has yet to be validated in other diverse system contexts.

The purpose of this research-in-progress paper is to present a proposal to test the validity of the IS-Impact measurement model in Malaysian organisations; specifically in small and medium enterprises that are currently using ES. This proposed study will replicate work that has been done by previous researchers by extending the model in this new context, also yielding a new instrument in the Malay language. A survey method will be employed and the collected data analysed, focusing on construct and model validity. This study will ultimately, further validate the IS-Impact measurement model and extend its generalisability, as well as producing a Malay language version of the instrument, both of which offer valuable implications for research and practice.

The organisation of this paper is as follows. The next three sections respectively review literature on enterprise systems success, the IS-Impact measurement model, and the state of small and medium enterprises in Malaysia. This is followed with the research design section. The last section draws several conclusions.

Enterprise Systems

Enterprise Systems, primarily known as Enterprise Resource Planning Systems (ERP) are systems that integrate different computer systems or standalone software within an organisation. The ERP systems integrate and support all aspects of business functions, such as accounting, inventory control, and human resources within an organisation by way of sharing a common database and common user interface. ERP was first introduced by SAP AG with the introduction of R/2: a real-time, mainframe-based business software suite to integrate accounting, sales and distribution, and production processes for corporations. The advantages of integrating key business processes across an organisation can facilitate and expedite information sharing, business planning and decision making (Klaus et al. 2000). ERP have thus gained popularity among large organisations since the mid-to-late 1990s. As the early ERP systems could cost up to $2 million and take as long as four years to implement, the main market for the systems was Fortune 1000 (Bingi, Sharma & Godla 1999) companies. There are several key drivers that contributed to the rapid growth of ERP systems (Skok and Legge (2001), Klaus, et al. (2000), Bingi et al. (1999)):

- Legacy systems and Year 2000 system concerns,
- Globalisation of business,
- Increasing national and international regulatory environment,
- Business Process Reengineering and the current focus on standardisation of process,
- Scaleable and flexible emerging client/server infrastructure,
- Trend for collaboration among software vendors.

Companies who have seen the benefits that the ERP systems provide reported that ERP have improved operating margins, improved on-time product delivery rates, reduced customer lead times, and decreased the work-in-process inventory (Bingi et al. 1999). Shang and Seddon have classified the benefits of ERP systems into five categories (Shanks & Seddon 2000):

(i) **Operational benefits**, which include process cost reduction, cycle time reduction and productivity improvement. Since ERP systems automate business processes and enable process changes, ERP systems are expected to offer these types of benefits.
(ii) **Managerial benefits**, which include better resource management and improved decision making and planning, because of the centralised database and built-in data analysis capabilities.
(iii) **Strategic benefits**, which include supporting business growth, building cost leadership, assisting with product differentiation and building external linkages to customers and suppliers.
(iv) **Information technology (IT) infrastructure benefits**, which include building business flexibility and IT cost reduction, e.g. software maintenance costs.
(v) **Organisational benefits**, which include supporting organisational change, facilitating organisational learning, empowerment of staff, and helping to build a common vision.

Implementing ERP involves extensive commitment and effort. Companies may spend millions of dollars, take more than a year to integrate all functions within the organisation, change the way they ran the business, and maintain and upgrade the systems so that it will continue providing the functionality required, and simultaneously bring benefits. ERP comes as a standard software package available off-the-shelf. ERP vendors often work directly with key-users in implementation. These standard, configurable information systems (IS) packages are often customised to the more specific requirements of the company. During the system deployment period, key-users need to cooperate and communicate efficiently with the system vendor. Careful planning and implementation of the system is crucial, because once the systems are implemented, restoring the systems' previous state is extremely difficult and expensive (Bingi et al. 1999).

Recently, ERP systems have also evolved to include front-end processes—those that involve customers—such as customer relationship management (CRM), supply chain management (SCM), and e-commerce. In the early 1990s, most major corporations began upgrading their mainframe systems with the new client/server-based ERP systems developed by industry leaders such as SAP AG, People-Soft Inc., and J.D. Edwards & Co. As the Internet began to replace client/server platforms, ERP firms began working to enable their technology to operate via the Web (Shanks & Seddon 2000).

Enterprise Systems Unsuccessful Story

By the late 1990s, sales of ERP systems began to slow. Some large companies encountered problems implementing the systems, and others felt that ERP did not serve its purpose as a planning tool. Researchers

found that many ERP implementation projects are not completed on time and within budget, and many fail to realise promised benefits, at least for the first few years (Mabert, Soni & Venkataramanan 2001; Shanks & Seddon 2000). The failure rate of ERP implementations as reported by Peslak (2006) and Gargeya and Brady (2005) ranges from 50 percent to as high as 90 percent. Several large companies such as Dell, AeroGroup, Unisource, and several garbage disposal companies have abandoned their ERP projects. The most notorious case was the FoxMeyer Drug Corporation, who claimed that the SAP R/3 system sent the company into bankruptcy (Bingi et al.1999; Scott & Vessey 2000). However, there are also reported benefits of ERP projects' implementation by some companies, whose expectation for the projects were exceeded.

It is difficult to isolate causes of ERP success or failure. ERP implementations vary from one company to another: it cannot be assumed that a successful implementation approach in one company can be replicated successfully within another. Factors such as company size, the number of ERP functions or modules deployed, level of pre-implementation planning, and commitment during implementation distinguish companies' implementation experiences (Mabert et al. 2001). Moreover, the terms 'failure' and 'success' may be ambiguous. Researchers involved in evaluating the impact of ERP systems found it difficult to determine the right measures of success and variables associated with the success of the systems (Bingi et al., 1999; Gargeya & Brady 2005; Klaus et al. 2000; Mabert et al. 2001; Peslak 2006).

Measuring the Impact of ERP

Most literature on ERP systems success evaluation focuses on the implementation issues, rather than on the investment or benefits from the ERP to the organisation after the systems have been deployed. Additionally, the question of how ERP systems are considered to be a success or failure remains the primarily issue for researchers. For this reason, most of the studies on ERP success reflect only on cost or benefits analysis and pay more attention to finding factors that contributed to the success of ERP implementation.

Empirical research examining the impact of ERP systems is sparse (Gable, Sedera & Chan 2003; Peslak 2006; Wu & Wang 2007). Instruments and methods for evaluating ERP success tend to be idiosyncratic, which is perhaps a possible explanation for the mixed results observed.

Mabert et al. (2001) have conducted two surveys in order to gauge the benefits from ERP systems, and discovered that the expected benefits from ERP systems could not been realised. In a study to identify variables associated with ERP project success, Peslak (2006) found that ERP implementations are generally viewed as moderately successful by top financial executives. Using User satisfaction as a measure of system success, Wu and Wang (2007) developed an instrument and applied it in firms that implemented ERP systems in Taiwan. They found that user satisfaction could be a valid measure to evaluate system success in an ERP environment. Some studies used secondary data and case studies in evaluating the ERP implementation success (Gargeya & Brady 2005; Scott & Vessey 2000). The range of examples above prove the diversity of approaches and the lack of a standard, validated measure of ERP success; which is possibly one of the reasons why researchers have found it difficult to measure the impact of ERP.

Brynjolfsson (1993) suggested that the lack of payoff of IT could be due to mismeasurement of inputs and outputs, lags in payoffs that make analysis misleading, redistribution activity amongst organisations, and a lack of explicit measures to quantify the benefits of systems. He also found that there is still gap in available measurement tools. Gable et al. (2003) suggested five main reasons why studies could lead to mixed results in measuring ERP success: 1. Incomplete or inappropriate measures of success, 2. Lack of theoretical grounding of causal and process models of IS success, 3. Myopic focus on financial performance indicators, 4. Weaknesses in survey instruments employed or 5. Data collection approach. Because of the complexity and the dynamic characteristics of the ERP systems, researchers should choose the right measures and must consider not only the obvious cost or benefit analysis, but also the non-financial factors that include information visibility and flexibility, and human factors.

Evaluating ERP systems is found to be difficult for some researchers. This might be due to the fact that ERP systems handle large amounts of transactions across many business functions involving a variety of stakeholders. Because ERP systems are more complex than traditional standalone IS, using traditional methods or existing IS measurement models may not apply for measuring ERP system success. There are some approaches, frameworks, or models either proposed or used by some researchers in measuring the ERP systems. Rosemann and Wiese (Klaus et al. 2000) used the 'Balance Scorecard' approach that was introduced by Kaplan and Norton to measure the organisational benefits. This approach consists of four performance perspectives: financial perspectives, the customer perspectives, the internal business approach and the learning and growth perspectives (DeLone & McLean 2003). Skok and Legge (2001) used an interpretive approach to understand the reasons of ERP systems failure, from individuals who have been involved in the planning and management of the ERP systems. They have adapted Bancroft's framework of nine critical success factors in this study. A similar study was also conducted by Chang, et al. (2000) through Delphi type survey circulated to SAP vendor,

"big 5" consulting firms and large regional firms, and five closely related Queensland government client agencies.

Mabert et al. (2001) and Wu and Wang (2007) conducted empirical studies to measure ERP success. Mabert et al. developed a survey instrument to address the value ERP brings to an enterprise by looking at the returns and benefits from ERP systems. They believed their study is the first to investigate the ERP measure of success, and identified factors that influence outcomes. User satisfaction measurement introduced by Bailey and Persons forms the basis of the instrument developed by Wu and Wang. This validated instrument provides understanding of the nature and dimensionality of the key-user satisfaction for the ERP system. They further recommended this instrument to be used by practitioners to assess and analyse problematic aspects of their ERP systems.

A framework was introduced by Shang and Seddon that classifies potential ERP benefits that organisations might be able to achieve from their use of ERP systems. They presented 25 benefits of ERP systems combined into five categories or dimensions, which are operational benefits, managerial benefits, strategic benefits, IT infrastructure benefits, and organisational benefits. This framework was adopted by Sammon, Adam and Carton (2003) in their study to identify the benefits of Data Warehousing in ERP systems.

Upon realising that research rarely come up with a model or framework to measure ERP success and benefits, Gable, Sedera, and Chan have taken a step towards developing and introducing a measurement model for measuring ERP or enterprise system success from multiple perspectives. This model has been tested, validated, and proven to be a reliable instrument to measure enterprise system success. Details of this measurement model will be discussed in the next section.

The IS-Impact Measurement Model

In 2003, Gable, Sedera and Chan introduced an IS-Impact measurement model that consists of four dimensions to evaluate the success of an enterprise system. This measurement model was developed due to lack of standardised, validated, and reliable enterprise system success measurement. Furthermore, the existing traditional measurement models, commonly used to measure financial criteria of an Information System (IS), may not be suitable for measuring a complex system such as ES.

The Development and Validation of the Model

The development of the IS-Impact measurement model was carried out in two phases: (1) the exploratory phase and (2) the confirmatory phase, by following the research cycle proposed by Mackenzie and House. In the exploratory phase, two surveys were conducted in order to identify important set of ES success measures and to test the *a priori* model. These surveys were conducted at 27 government agencies in the state of Queensland that had implemented SAP R/3 in the 1990s (Gable et al. 2003; Sedera & Gable 2004; Sedera, Gable & Chan 2003). The construction of the *a priori* model was based on the DeLone and McLean (1992) IS success framework. Initially, the *a priori* model had five dimensions of measures which are System Quality (SQ), Information Quality (IQ), User Satisfaction (US), Individual Impact (II), and Organisation Impact (OI). However, in the construct validity testing, the factor solution depicted that the US measure loaded along with the SQ measure (Gable et al. 2003; Sedera & Gable 2004). The US dimension was then removed from the model and this left it with four dimensions.

Subsequently, in the confirmatory phase, the model was further tested for its validity and reliability using a different data set. In this survey, the instrument was distributed to 185 Oracle enterprise system solutions users in a large university. Validity and reliability testing of the model shows evidence of four distinct and associated dimensions, and when combined represent an overarching measure of enterprise system success. Table 1 was adapted from Sedera et al. (2004) and gives a summary of the three surveys conducted:

Table 1: Details of the Three Surveys

Purpose		Organization	ES	#
Exploratory Phase				
Identification Survey	Identify the salient success dimensions and measures	Public Sector	SAP R/3	137
Specification Survey	Specify the a priori model using constructs and measures identified	Public Sector	SAP R/3	310
Confirmatory Phase				
Confirmation Survey	Validate the ES success model and instrument	Higher Education	Oracle	153

Figure 1 shows the IS-Impact measurement model that represents four distinct, but related dimensions, which are Individual Impact, Organisational Impact, Information Quality and System Quality. The impact dimensions

are an assessment of benefits that have either resulted, or failed to result from the system. The quality dimensions reflect future potential. There are 27 measures of enterprise system success in this model.

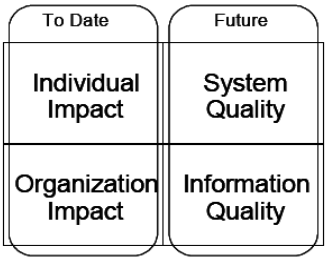

Figure 1: The IS-Impact Measurement Model

These multidimensional distinct, but correlated, measures deviate from DeLone and McLean in five ways (Gable et al. 2003). Firstly, it does not present a causal or process model of success. Secondly, the exclusion of Use as a success dimensions. Thirdly, Satisfaction was conceptualised as an overarching measure of ES success rather than as a dimension. Fourthly, new measures were added for evaluating contemporary IS context and reflects organisational characteristics. Finally, it also includes additional measures to explore more holistic organisational impacts dimensions. Figure 2 shows all the constructs together with the 27 measures contained in the survey instrument.

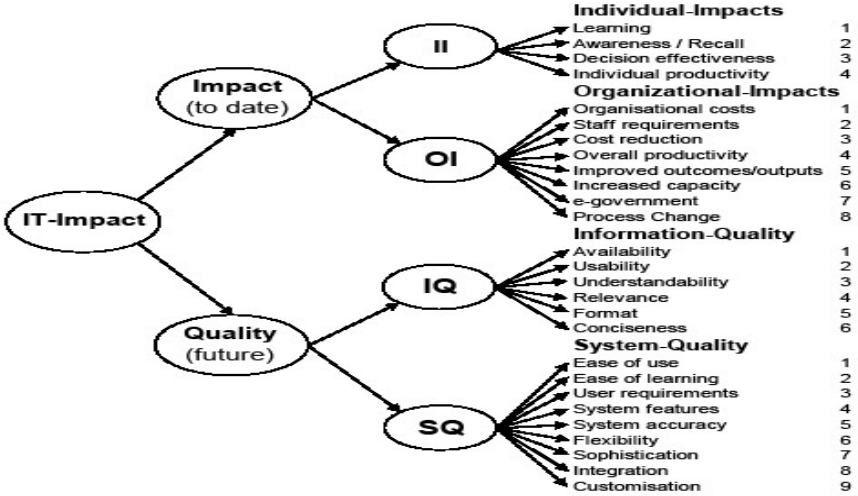

Figure 2: The 27 Measures of IS-Impact

What makes this model unique is that it can measure the impact of the IS being measured, and at the same time seek the potential of the systems in the future. Furthermore, the survey instrument is easy to understand and can be used in assessing the level of IS impact across multiple staff perspectives in an organisation. Also this model can establish an ES success benchmark that can be used to compare different versions or upgrades of ES, different organisations or departments, different types or modules of ES, as well as other demographic groupings.

Small and Medium Enterprises (SMEs) in Malaysia

Small and medium enterprises (SMEs) in Malaysia play a vital role in strengthening the country's industrial base, as well as providing support for industries to enhance Malaysia's development across economic sectors. Generally, SMEs in Malaysia are defined into two broad categories and can be summarised as shown in table below.

Table 2: Definition of SMEs in Malaysia

Category	Small Enterprise	Medium Enterprise
Manufacturing, manufacturing-related services and agro-based industries	Sales turnover between RM250,000 and less than RM10 million OR full time employees between 5 and 50	Sales turnover between RM10 million and RM25 million OR full time employees between 51 and 150
Services, Primary Agriculture and Information & Communication Technology	Sales turnover between RM200,000 and less than RM1 million OR full time employees	Sales turnover between RM1 million and RM5 million OR full time employees between 20 and

(ICT)	between 5 and 19	50

According to the 2005 productivity report (*Productivity Report* 2005) prepared by the National Productivity Corporation (NPC), SMEs accounted for more than 90% of total manufacturing establishments. They contributed 29.6% share of total manufacturing output, 25.9% share of total manufacturing added value, and 31.1% share of total manufacturing employment. Overall, SMEs were involved in the manufacturing of food products and beverages (32.8%), chemical and chemical products (14.1%), rubber and plastic products (10.4%), fabricated metal products (6.9%), basic metals (5.8%), nonmetallic mineral products (4.2%) and furniture (4.2%). With the introduction of the New Economic Policy in 1971, the government put additional effort into the development of SMEs (Saleh & Ndubisi 2006). Furthermore, the government's continuing commitment in SMEs development can be seen in the first and second Industrial Master Plan. It is followed by the Third Industrial Master Plan, from 2006 to 2020, to coincide with the country's vision 2020. Under this plan, the government has implemented numerous policies and strategies in order to enhance the growth of the manufacturing sector.

ERP in SMEs in Malaysia

The adoption level of information and communications technology (ICT) among small and medium enterprises (SMEs) in Malaysia is still low, although there has been some improvement over the past several years (Manecksha 2003). SMEs have started investing in enterprise resource planning (ERP) systems and other enterprise systems, upon hearing that ERP is a vital communication tool in exploring new international markets. The government has shown support for SMEs in implementing ERP by providing small loan for ICT adoption (SMIDEC), for up to RM250,000.

A 2004 study conducted by NPC about selected manufacturing companies that had implemented ERP, sought to assess the impact of these systems (Productivity Report 2004). Respondents agreed that ERP is able to provide better management tools to enhance their competitiveness and increase customer satisfaction. This provides evidence of the importance of ERP systems for SMEs in Malaysia, to retain competitiveness. However money is a significant issue for SMEs (Anonymous 2000). The cost of ERPs is still extremely high for SMEs. They cannot afford to deal with issues and delays in implementation. Therefore, ensuring a quality ERP system after it was implemented is important to SMEs.

Research Problem and Design

Research Problem

Having successfully developed and tested the validity of the measurement model, we would like to see whether this model is complete, and can measure any type of ES or any contemporary IS. This also includes testing the robustness of the model in other contextual settings such as various sizes of organisations, countries, and languages. Thus, the aims of this study are twofold: (1) to further validate the robustness of the IS-Impact measurement model and its extendibility to an enterprise system in small and medium enterprises in Malaysia, and (2) to measure, evaluate and describe the state of these systems. The key research question for the proposed study is:

> *"Is the IS-impact measurement model valid for small and medium enterprises in Malaysia?"*

Research Objectives

The objectives of this study are:

- To validate the robustness of IS-Impact measurement model and its extendibility to small and medium enterprises in Malaysia
- To measure and evaluate the impact of enterprise systems (ES) in Malaysia
- To translate the instrument to the Malay language
- To understand the state of ES in SMEs in Malaysia.

Design of the Proposed Research

Methodology

As mentioned in the introduction, this study will replicate prior work by ITPS researchers. Replication in this case means extending the measurement model that was developed in assessing the impact of enterprise system success to a different context. The reason for this is to evaluate the general applicability of the measurement model together with its instrument so that it will present a robust and standard measurement model.

According to Berthon, et al. (2002), replication is regarded as an approach to verifying knowledge. This approach is widely accepted by researchers in revisiting previously proposed theory to compare findings. The word research (re-search) itself promotes the process of going back to observe, investigate, or experiment previous theory for existing gaps and to expand the knowledge (Berthon, et al.2002; Samaddar & Kadiyala 2006). Furthermore, when determining the applicability of findings of one study to another context, replication is the appropriate approach (Samaddar & Kadiyala 2006). However, study relating to theory generation received more attention than study on theory extension and generalisation, that is, the 'search' predominates 'research'.

In particular, this proposed study fits with one of the strategies introduced by Berthon et al., which is context extension. This strategy applies the existing theory and method to different contexts in order to explain the results. An example of a study that has applied existing theory to different contexts was done by Dasgupta et al. (1999). The adoption of IT was studied in the Indian manufacturing sector by extending the IT adoption frameworks that were designed for US and UK organisations. In relevance to this proposed study, this strategy will discover whether the IS-impact measurement model that is valid in one setting will give the same result in another.

A survey will be conducted in order to validate the IS-Impact model. In the development of the IS-Impact measurement model, researchers generated two survey instruments. The final survey instruments contained 27 measures of success, employing a quantitative measure with seven point Likert scale. In this study, the same survey instrument will first be translated into the Malay language. As all the small and medium enterprises (SMEs) in Malaysia are locally owned companies, it is logical to translate the instruments into Malaysia national language. Detailed processes of translating and administering the survey instrument will be discussed in the research design section.

Research Design

This program of study is divided into three phases. Figure 3 represents the research design of the study in detail. In the first phase, the definition phase, the research problem is identified by constructing research questions. This is followed by a comprehensive literature review in order to understand more on the topics that are related to this study, and at the same time identify gaps in measuring IS success and the appropriate research method to use. From the study of the enterprise systems (ES) in Malaysia, a context report will be produced describing the state of ES in Malaysia. This report will act as a reference when measuring the impact of ES and validating the measurement model. The definition phase is concluded by producing a draft Malay version of the instrument.

In the translation process of the original instrument, which is in the English language, the 'back translation' approach, also known as 'double translation' is chosen as the appropriate technique. It is most commonly used by researchers because it is effective and an adequate translation process (Chow 1997; McGorry 2000; Samaddar & Kadiyala 2006). At least two bilingual individuals will participate independently in this process. The first translator will translate the English version instrument to the Malay language. The second translator will then independently translate the Malay version instrument back to English. Hence there will be two versions of instruments in the original language. These instruments can be compared for any inconsistencies, mistranslations, meaning, cultural gaps, and/or lost words or phrases. When both translators are satisfied with the translated instrument, it is ready for pilot test.

The second phase of the study, which is the survey phase, starts with a conducted pilot study to verify the draft Malay instrument. A selected number of respondents will be asked to answer the survey instrument. The respondents are also asked to provide feedback regarding the survey, to draw attention to confusing words, tenses, terms etc. An item analysis will be conducted to look at the reliability of the instrument. Item distribution may also be considered to observe the variation of the collected data. From the reliability results and feedback from the respondents, the instrument will be revised if necessary.

Once the instrument is verified successfully, the instrument is ready to operationalise to target respondents. A sample of ES users in the small and medium enterprises in Malaysia will be identified. The selected organisations must fit the definition of SMEs and must be currently using the ES. The survey instrument will be administered to the respondent as an email attachment or online survey. The respondents will be notified in advance about the ethical clearance, privacy, and confidentiality issues regarding the survey. The collected data is then analysed using descriptive and comparative statistical methods in order to observe the tendency of the data, distribution as well as for comparison purpose. In this analysis, the findings will reflect to the impact of ES to the SMEs in Malaysia. A report describing the findings from this analysis will be produced. This will conclude the second phase of this study, to proceed with the final phase.

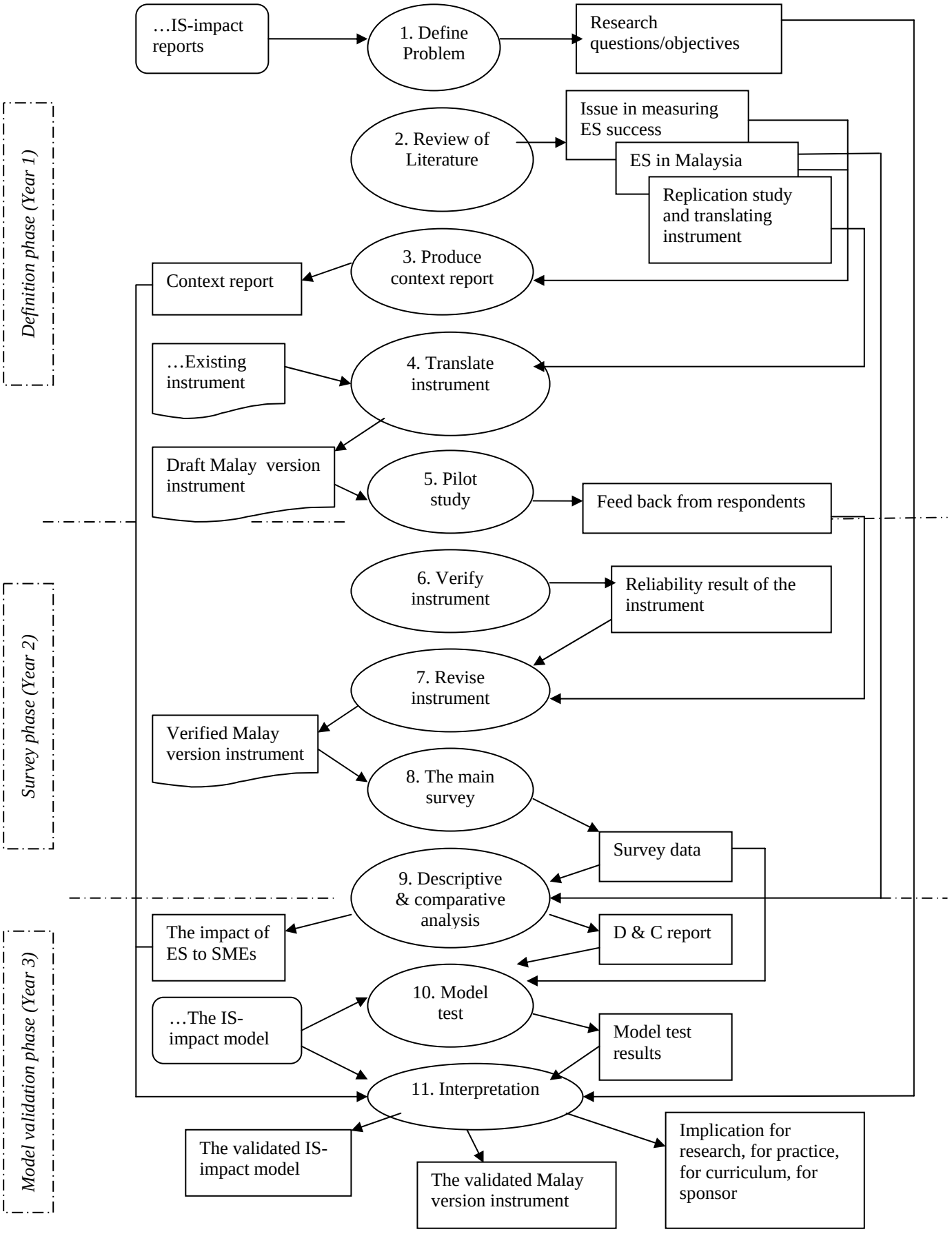

Figure 3: The Research Design

Finally, the collected data will be used in the validation process of the model. The model is valid when data presents the same findings as the achievement of previous research. For example, the model is valid if the constructs loaded independently and the measures do not overlap. Factor analysis approach will be used to measure constructs and model validity. Findings will be discussed while making references to the research questions post earlier in the definition phase. This also includes the implication of this study to research and practice.

Conclusions

Ensuring the effectiveness of an enterprise system is the most important factor in justifying investments that have been made, so that the organisation will continue receiving the benefits of the system. Studies have shown that, during initial introduction of enterprise resource planning systems by major companies, some failures and even forced bankruptcies have been faced by companies. Nonetheless, some companies did received positive benefits, but not before delay was experienced in implementation, and more money was spent than intended. Researchers and practitioners found it is difficult to measure the impact of the ERP systems because it is a complex system and usually involves stakeholders across many departments in an organisation.

Although many companies have currently made the transition from information systems to ERP systems, studies related to measuring the effectiveness are still scarce. From the study of literature, most researchers focused on the issues in implementing ERP, instead of investigating impacts on the organisation after the system's implementation. To date, there are few available measurement models, and one of them has been tested rigorously by researchers at IT Professional Services (ITPS), Queensland University of Technology. The validated measurement instrument is a reliable instrument to measure enterprise system success, or any contemporary information systems.

This paper has discussed the plan of research which is in progress to validate the IS-Impact measurement model in small and medium Malaysian enterprises. There will be three significant contributions to this research. Firstly, the outcome of the research will influence the ITPS research track by evaluating the robustness of the model in different contexts, thus generalising the use of this measurement model. Secondly, it will yield a Malay version of the survey instrument in gauging the impact of ES in Malaysia. Thirdly, as this study could also be seen as another attempt in validating, or rather re-validating, the IS-Impact measurement model, it is hoped on completion of this study, the validity of the model will not only be confirmed, the IS-Impact model will be presented as a standard theory for measuring the impact of enterprise systems or a contemporary IS.

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