IDENTIFYING SUCCESS CRITERIA AND CRITICAL FACTORS AT THE POST-HANDOVER STAGE FOR INTERNATIONAL DEVELOPMENT PROJECTS

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STATEMENT OF ORIGINALITY

This is to certify that to the best of my knowledge, the content of this thesis is my own work, and it has not been submitted for any degree or any other purpose.

I certify that the intellectual content of this thesis is also my own work and that assistance received in preparing this thesis and its sources have been acknowledged.

Johan Fahri
29 January 2019

AUTHORSHIP ATTRIBUTION STATEMENT

This thesis contains the following material published in Section 2.3.2:

> **Fahri, J., Biesenthal, C., Pollack, J., & Sankaran, S. (2015). Understanding megaproject success beyond the project close-out stage.** *Construction Economics and Building*, *15*(3), 48-58.

I conducted a literature review and devised a model for a more comprehensive post-project evaluation.

The use of constructivist grounded theory (CGT) in the Methodology Section of this thesis was presented at the 9th Australian Consortium for Social and Political Research Incorporated Social Science Methodology Conference held at the University of Sydney on 19–23 July 2016 under the title of 'Proposing constructivist grounded theory to evaluate long-term project benefits'.

I designed and proposed the research setting by using CGT for data analysis

In addition to the statements above, where I was not the corresponding author of published works, permission to include published materials has been granted by the corresponding author.

Johan Fahri
29 January 2019

Julien Pollack
29 January 2019

DEDICATION

To Mama (1942-1999) and Papa (1939-2015)

You never left.

ACKNOWLEDGEMENT

ABSTRACT

The question of how successful a project at the post-handover stage (outcome and impact phase) is echoed in literature on project management, however, more so in the area of international development (ID) projects, due to their unique characteristics and foreign loans as a major financial source. This condition is critical when a sponsor and a government's implementing agency tend to focus on project management success, while the 'real' project success occurs at the post-handover stage when it becomes the main beneficiary's responsibility. This thesis aims to explore whether the outputs of ID projects can continuously deliver benefits at the post-handover stage.

To explore this area, this research firstly reviewed relevant literature in three main areas: (i) project success; (ii) post-project evaluation; and (iii) project benefits management, which resulted in limited studies having explored project success at the post-handover stage for ID projects. After identifying a gap, this thesis then set its methodological approach rooted on interpretivism so that it could allow the use of the constructivist grounded theory method (CGTM). An example of ID projects was the Indonesia-Managing Higher Education for Relevance and Efficiency (I-MHERE) funding scheme, which was financed through a loan from the World Bank, run between 2010 and 2012, and implemented at a majority of higher education institutions (HEIs) across Indonesia. By focussing on one sub-component, the research collected secondary and primary data, that is, interviews from 18 participants from two institutions. Collected data resulted in the identification of 10 success criteria and eight critical factors.

The analyses indicated several contributing factors that provided evidence regarding the different levels of the significance of identified success criteria and critical factors, as well as a variety of definitions at the post-handover stage. Variations were further analysed by using each participant's institutional attributes, such as managerial level, organisational tenure and job tenure, and suggested that organisational tenure was the core attribute for two others. This thesis also demonstrates the use of benefit reviews as a more comprehensive post-project evaluation than the one proposed earlier. This thesis concludes its findings by generating a middle-range theory: the higher the level of organisational tenure resulted in more insightful reviewing benefits of delivered outputs which, in turn, provide insightful and various definitions of success criteria and critical factors at the post-handover stage. The middle-range theory was believed to be applicable, not only for ID projects, but also other types of projects. In conclusion, the findings allowed an opportunity to acknowledge its limitations that would led to recommendations for future examination.

LIST OF ABBREVIATIONS AND ACRONYMS

API		auxiliary performance indicator
BKMWA	*Badan Kelengkapan Majelis Wali Amanah*	Board of Trustee
BLU	*Badan Layanan Umum*	Public Enterprise Agency
BPKP	*Badan Pengawas Keuangan dan Pembangunan*	Financial and Development Supervisory Agency
CGT		constructivist grounded theory
CGTM		constructivist grounded theory method
CSF(s)		critical success factor(s)
DGHE	*Direktorat Jenderal Pedidikan Tinggi*	Directorate General of Higher Education
EPPE		ex-post project evaluation
HEI(s)		higher education institution(s)
ICR		Implementation Completion Report
ICT		information and communication technology
ID		international development
I-MHERE		Indonesia-Managing Higher Education for Relevance and Efficiency
IS(s)		information system(s)
IT		information technology
KPI(s)		key performance indicator(s)
LAKIP	*Laporan Akuntabilitas Kinerja Instansi Pemerintah*	Annual Report for Accountability and Government Performance
LFA		logical framework approach
MIS		management information system
PEU		perceived ease of use
PMBOK		Project Management Body of Knowledge
PU		perceived usefulness
SOP(s)		standard operating procedure(s)
TAM		technology acceptance model
US		United States

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CHAPTER 1:
INTRODUCTION

1.1   Rationale and Significance of the Research

Over the last 60 years, organisations around the globe have progressively been using projects and programs to realise their organisational strategic objectives (Bredillet, 2010). Massive funds have been invested in implementing these projects and programs. In 2015, the World Development Index (World Bank, 2015) highlighted that 22% of the world's US$78 trillion gross domestic product was gross capital formation, which was predominantly totally project-based. The benefits of capital formation can be experienced once projects are successfully delivered.

Project success has been discussed extensively in project management literature, which consists of two main topics: (i) project success criteria; and (ii) project success factors. Success criteria are the measures on which a project's success is judged; meanwhile success factors are essential elements that contribute to the success of a project (Ika 2009; Pinto and Slevin, 1987, 1988). Regarding project success criteria, studies have proposed several successful project models (Atkinson, 1999; Lim & Mohamed, 1999; Patanakul & Milosevic, 2009; Sadeh et al., 2000). However, these models are unable to differentiate the timeframe at which success is assessed. Turner and Zolin's (2012) project success model stands out because it emphasises the timeframe by which projects success is defined throughout output, outcome and impact phases. While output phase is the handover phase, the two phases are included in post-handover stage. The outcome phase is the phase where the delivered outputs enter and initiate their operational stage, the impact phase is the phase where the outputs demonstrate their long-term contributions to realize organization's strategic objectives. During the post-handover stage, a project's success can be perceived differently by each stakeholder, as well as be influenced by a number of factors that have contributed to the realisation of a project's strategic benefits.

The evaluation of post-project implementation is required to understand the influences of factors that lead to project success. Ward and Daniel (2012) asserted that 'by studying the projects and particularly by conducting a post-implementation review, it was possible to understanding why some projects were more successful than others in delivering benefits' (p. 67). However, literature tends to separate the concepts of post-implementation evaluation and benefits review (Archibald et al., 2012; Irani, 2010; Legovini et al., 2015; Lehtonen, 2014; Song & Letch, 2012). The literature suggests that post-implementation evaluation tends to be the focus of project management, whereas benefit reviews are an important aspect of benefits management. Benefit reviews assesses the

delivery of benefits beyond the post-handover stage, at which time project success can be determined. This thesis lean benefits review concept as it reviews 'real' project success beyond the delivery stage.

The timeframe in defining project success strengthens the distinction between the success of project management and the project itself. Satisfying the basic criteria – time, cost, and quality or performance –of project management success. In fact, 'real' project success is when outputs can assist an organisation to achieve its strategic goals (Cooke-Davies, 2002).

Conducting a post-project evaluation is challenging. They include considering the evaluation to satisfy a formal step after outputs are handed over (Al-Yaseen et al., 2010b). The post-project evaluation is viewed as 'project closure and not project improvement' (Kumar, 1990, p. 203). As well, organisations still consider the importance of measuring a project's success based on time and budget (Bowen et al., 2007). This tendency is possibly due to post-project evaluations not formally adopted in institutional guidelines (Archibald et al., 2012). Interestingly, a post-project evaluation can also be used as an opportunity to blame others for failures (Disterer, 2002; Schroeder, 2013; Serafeimidis & Smithson, 2000). This situation tends to be avoided and other factors can be used as excuses for failure.

Further, post-implementation evaluations can be challenging in other areas, such as ID projects. Studies have been conducted to focus on ID projects, emphasising the challenges in conducting a post-project evaluation (Andersen et al., 2011; Diallo & Thuillier, 2005; Golini & Landoni, 2013; Khang & Moe, 2008;). According to these studies, challenges include the intangibility of project objectives and deliverables, sustainability, complex networks of stakeholders involved, a lack of defined primary clients or beneficiaries, significant political risks, demanding local constraints, risky environments, incompatibility of project management tools and techniques, and the monitoring and measuring of project objectives. However, there is little information on how success is seen in post-project evaluation, particularly, for ID projects.

This thesis highlights that post-project evaluations for ID projects tend to be challenging because they are conducted in multi-layered stakeholder institutions. Although an ID project is usually managed at the national level, its implementation can reach an entire state or nation states. A post-project evaluation is usually conducted at the national level and at the handover stage. Because this evaluation tends to be less effective, the long-term benefits will be the responsibility and ability of the main beneficiaries to manage them. The second factor lies in the perceptions of the main beneficiaries. A crucial point occurs when funding is transferred and managed by the main

beneficiaries. The funding status changes as it reaches the intended beneficiaries. While funding is a loan for the country, it is usually a grant to the main beneficiaries. While a government strives to pay back a loan, the main beneficiaries tend not to perceive it as an urgent matter.

This thesis explores these issues in the context of an ID project completed in Indonesia in 2012. As an example, this thesis uses the Indonesia-Managing Higher Education for Relevance and Efficiency (I-MHERE) funding scheme. Although the I-MHERE was used as a 'case', this research should not be considered using a case study approach. The I-MHERE funding scheme was merely used a general example of ID projects that could be similarly implemented to others. The funding scheme only provided context in which the data were collected. Instead, this research integrates case study design with constructivist grounded theory (i.e. constructivist case study methodology) for the development of analytic generalisations and theory building (Lauckner et al., 2012).

Further, the I-MHERE was sourced from a World Bank loan of US$80 million (Halsey & Chelsea, 2013). As indicated earlier, the fund was a loan for the Government of Indonesia, to be managed by an implementing unit at the Directorate General of Higher Education (DGHE)[1], the Ministry of National Education. The funds or 'grant' were allocated to almost every HEI as the main beneficiary.

This funding scheme involved multilevel stakeholder institutions, consisting of the World Bank as the project sponsor and DGHE as the implementing agency. As well, the main beneficiaries included approximately 70 HEIs across Indonesia. These institutions received the I-MHERE funding scheme as a grant, not as a direct loan from the World Bank.

While project management success was claimed to have been achieved, it was difficult to measure 'real' success of the project. Key stakeholder institutions – the World Bank and DGHE – may have argued that they produced the project report, *Implementing Completion Report*. However, this report paid more attention to budget absorption than to measurements of project success, according to the World Bank project report (Halsey & Chelsea, 2013),. The implementing unit (DGHE) also argued that the project had been audited nationally by the Financial and Development Supervisory

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[1]   DGHE has been amalgamated into the Ministry of Research, Technology and Higher Education since 2014.

Agency (*Badan Pengawas Keuangan dan Pembangunan* – BPKP). Still, the project success was less traceable.

This thesis takes a constructivism perspective on this situation and aims to explore whether outputs of the I-MHERE funding scheme are currently delivering benefits that were handed over at the end of 2012. The concern about the timeframe discussed earlier indicates that limited discussions have been paid during the transition from the handover (output) stage to the post-handover stage (outcome and impact). This limitation is believed to be more significant for ID projects.

Project sponsors and implementing agencies are more concerned about project management success, especially financial accountability of the project than the success of projects, which depends on the ability of main beneficiaries to manage benefits. This ability tends to be one of the targets of ID projects in assisting main beneficiaries. When referring to Regulation Number 60 of 1999 (BKMWA, 2014), one reason to implement I-MHERE was because the main beneficiaries were not sufficiently capable in managing their institutions, including managing benefits gained from an ID project.

By allowing main beneficiaries to manage long-term benefits, especially with limited or no involvement from key stakeholders, meant that the chance of achieving overall project success was difficult. Although outputs were used, whether main beneficiaries received benefits became the main question. Therefore, certain criteria need to be satisfied so that outputs can be used for the long-term. Importantly, factors that contribute to these criteria that are defined beyond the handover stage need to be identified. This thesis indicates that *very limited studies have explored project success at the post-handover stage for ID projects*.

These factors and success criteria at the post-handover stage can be uncovered through a comprehensive post-project evaluation. While other studies, such as Fahri et al. (2015), have shown underlying support of evaluation theory over the period of a project's output lifecycle, the transition of these outputs to produce benefits are still unclear. In other words, to identify success criteria and critical factors, an exploratory study needs to be carried out to bridge the gap between a post-implementation evaluation under the project management concept and benefits review within the concept of the benefits management process.

This thesis uses an exploratory approach by relying its foundation on interpretivism and constructivism paradigms. These paradigms allow this thesis to use the constructivist grounded theory method (CGTM) as its core methodology. While basic grounded theory allows the

emergence of theory from data, constructivism allows the use of a researcher's experience and knowledge to sharpen concept generating and theory building (Charmaz, 2014a, Eisenhardt & Graebner, 2007)). In other words, the research context leads to the use of CGTM to identify success criteria and critical factors of the I-MHERE's outputs at the post-handover stage. Whilst constructivism makes possible the constructions of definitions of both categories by the actual users as the actual beneficiaries beyond the handover stage, cases provide context in which the data are collected. In this case the I-MHERE outputs were measured their success at two different institutions.

In short, the CGTM will be the core analysis for the benefits review in order to identify and define success criteria and critical factors of the I-MHERE funding scheme at the post-handover stage. Whilst the 'case' will be a research strategy for theory building. The use of the CGTM in this exploratory research is expected to cope with variations in defining success criteria at the post-handover stage. It is important to identify critical factors that contribute to the success of an organisation's long-term strategy.

1.2   The Research Question

Based on gaps in the literature and utilising the I-MHERE funding scheme as an example of ID projects, exploring and uncovering the success criteria and critical factors refer to the research question, as follow:

> **What are success criteria and critical factors at the post-handover stage for ID projects?**

1.3   Research Aims and Objectives

The aim of the research is to explore whether outputs of an ID project have continuously received benefits beyond the handover stage. Based on this aim, detail objectives are as follows:

- Identifying and defining success criteria at the post-handover stage;

- Determining the most essential success criterion at the post-handover stage;

- Identifying and defining critical success factors at the post-handover stage;

- Determining the most critical success factor at the post-handover stage; and

- Determining how institutional demographic attributes, such as managerial level, organisational tenure, and job tenure play a part in influencing success criteria and critical success factors.

1.4   Research Contributions

The knowledge and practice identified in this research are expected to contribute to the following:

- Identify success criteria and their critical factors at the post handover stage for ID projects;

- Generate conceptual definitions of success criteria and critical factors by participants at the post-handover stage through the use of constructivist grounded theory (CGT);

- Strengthen the definition of the benefits review as a combination of post-project implementation evaluation and original benefits review under benefits management;

- Produce a middle-range theory based on findings and the relevant literature;

- Encourage future studies based on the newly identified middle-range theory; and

- Demonstrate its contributions to evaluation theory.

This thesis also makes the following practical contributions:

- To provide further findings on an early-published project report regarding the use of I-MHERE funding scheme outputs at the post-handover stage.

- To highlight the most influential factors within HEIs in Indonesia regarding additional funding sourced from a loan.

- To introduce an alternative approach to review benefits for projects that are funded by foreign loans.

- To promote the inclusiveness of a benefits review into the Annual Report for Accountability and Government Performance (*Laporan Akuntabilitas dan Kinerja Instansi Pemerintah – LAKIP*)

1.5   The Structure

This thesis is structured into seven main chapters (Figure 1.1). Chapter 1 explains the basic motivation of this research by pointing out current literature focuses and the reality of this literature in practice, as well includes the research question and expected contributions.
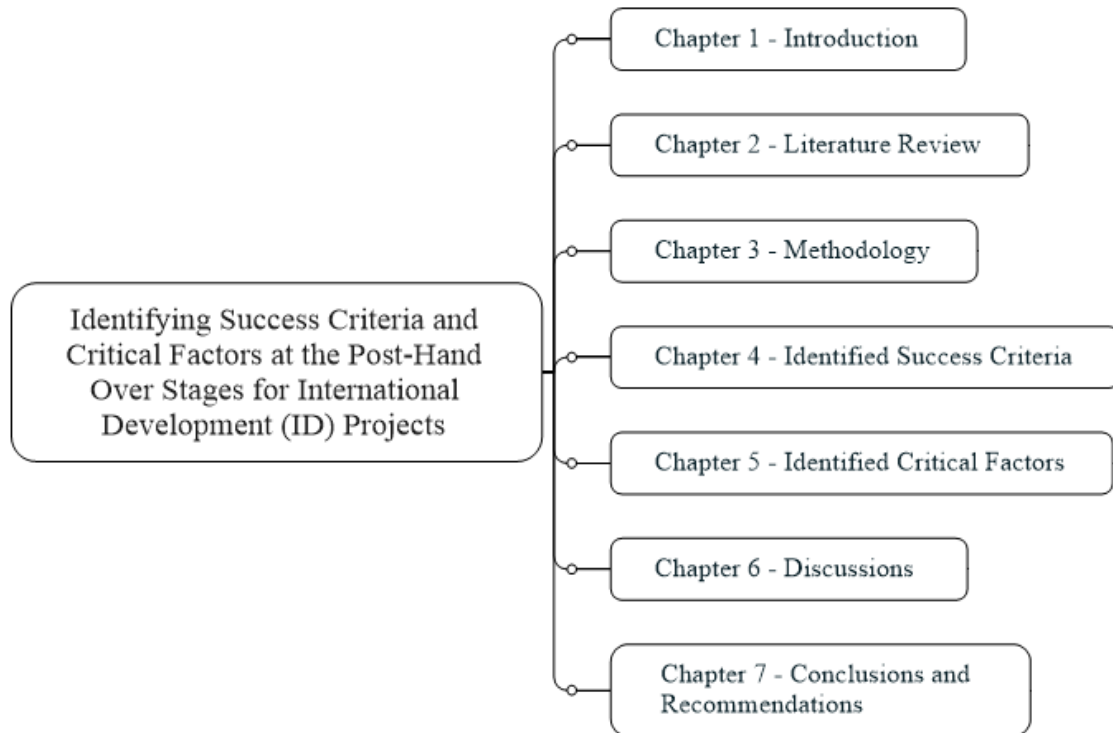
Figure 1.1   Thesis overview

Chapter 2 discusses relevant literature that is expected to identify gaps in the knowledge. The discussions focus on three areas: (i) project success criteria and success factors; (ii) post-implementation evaluation; and (iii) benefits management. Specifically, they focus on how ID projects are positioned in the literature. As indicated earlier, because of the nature of ID projects, actual success experienced by the main beneficiaries can be neglected in the literature, therefore, this focus will identify gaps in the literature, which are expected to highlight the significance of this research.

In Chapter 3, identified gaps will lead to discussions of the research setting that covers data collection and early data analysis. Primary and secondary data are being used for the analysis while the analyses process will use the CGTM. The identified categories are expected to cover success criteria and their critical factors. Furthermore, this chapter highlights institutional attributes that will be perceived to influence the participants (users) in identifying both categories.

In Chapter 4 and Chapter 5, further analyses of both categories are discussed. While both categories are identified in Chapter 3, Chapters 4 and 5 analyses how participants define the categories according to their context. The analyses also include how participants' institutional

attributes impact on their responses that shape the definitions. All findings from the analyses in these two chapters will be further discussed in Chapter 6 with regards to their relevance to the literature.

Chapter 7 concludes the thesis by highlighting the findings and describing how they answer the research question. It also presents the limitations of this thesis. If limitations can be identified, then recommendations can be proposed to overcome them in future research. The recommendations will also include suggestions on how to manage benefits of ID projects that are generally neglected once outputs are handed over to the main beneficiaries. Since ID project stakeholders consist of layers within the group that tend to evaluate the project to the handover stage, this thesis will recommend that evaluation should include main beneficiaries, including users of outputs as the 'actual' beneficiaries.

CHAPTER 2:
LITERATURE REVIEW

2.1 Introduction

In this chapter, the literature review covers three main topics: (i) project success; (ii) post-project evaluation; and (iii) project benefits management that elaborates on the basic contexts of project management and ID projects. Figure 2.1 illustrates the overview of the literature review.

The first topic, project success, covers areas that require clarification: (i) project success criteria; and (ii) critical success factors, to provide a framework on how the benefits of a project should be measured. Factors that contribute to achievements of the success criteria are also included.

Measuring the benefits after a project has ended can be challenging. This challenge usually occurs when evaluating how project outputs contribute to long-term objectives and critical factors beyond the handover stage. Hence, the first section aims to review project success, especially in the area of ID projects that have special characteristics. As shown in Figure 2.1, this area covers general concept of success criteria, success criteria of ID projects, success factors at the impact phase, and success factors of ID projects.

To overcome the vogue and challenge in the first topic, the second section about post-project evaluation also needs to be reviewed. This topic concerns more about how outputs of a project are evaluated. This evaluation is considered to be essential to assess long-time contributions to the host organisation.

The review of the second topic starts with elaborating on basic concepts of evaluation, as well as its relevance on basic core concepts, with the main focus on the latest trend in literature regarding evaluation. Following this review, a second topic includes patterns in evaluation practices. The review on these patterns increases the relevance to this thesis, especially how evaluation has been recently conducted in practice.

The review in the second section also includes the stages of an evaluation that add to the depth of the review and its relevance to this thesis, particularly in clarifying the term 'post' in post-evaluation. This elaboration also emphasises patterns of evaluation in practice.

The last sub-topic in the second section discusses additional concepts for conducting an evaluation. This concept is introduced as Ex-Post Project Evaluation (EPPE), a concept that is driven after reviewing the previous sub-topics that identify possible and suitable concepts that could be used as a basic foundation for conducting this thesis.
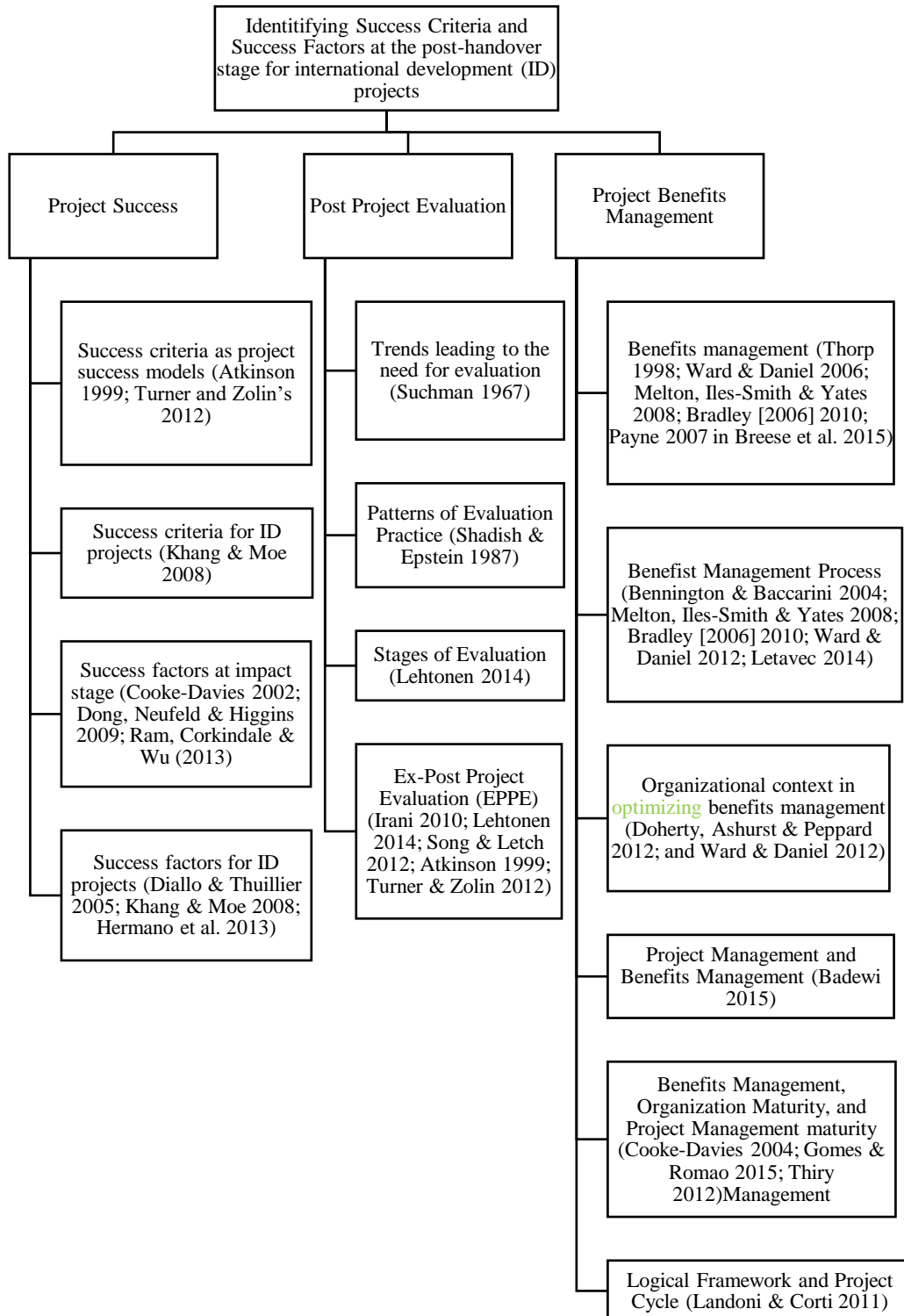
Figure 2.1   Overview of the literature review

The last section focuses on project benefits management. Reviews on the literature realises a newly-formed understanding about this area. Project management literature mostly focuses on how a project is delivered and how its outputs are produced by the end of the agreed timeframe. However, through this review, this topic can be limited in its discussion, specifically in the context of ID projects.

A conclusion is synthesised from reviewing the sub-topics in this section. They will cover the basic concept of benefits management and its processes, organisational context and its level of maturity. In the context of ID projects, a logical framework is also reviewed, which is discussed in the area of evaluating ID projects.

2.2   Project Success – An Evolution

Project success has been discussed extensively in project management literature. According to Zwikael and Smyrk (2012), project success can be classified according to the criteria of management and investment, which is expanded to reveal conceptual principles in the form of project efficiency, organisational benefits, impact, stakeholder satisfaction and future potential (Joslin & Müller, 2015).

Another model by McLeod et al. (2012a) classified project success under process success (project management success), product success (satisfaction with project output) and organisational success (organisational satisfaction with outcome). Badewi (2016) framed project success as the output of three interacting sub-success criteria: (i) successful project management in delivering the project output; (ii) successful communication and understanding of stakeholder needs; and (iii) a successful realisation by the organisation of its project benefits.

Furthermore, according to Ika (2009) and Pinto and Slevin (1987, 1988), project success consists of two elements: (i) success criteria; and (ii) success factors. Success criteria are the measures on which a project's success is judged. Success factors are essential elements that contribute to the success of a project. More specifically, Ika (2009) defined success criteria as 'a group of principles or standards used to determine or judge project success' (p. 8). Söderland et al. (2012) viewed that success criteria can be used to determine the success or failure of a project. As defined earlier, success factors contribute to the likelihood of project success. Müller and Jugdev (2012) categorised success factors as independent variables, and success criteria as dependent variables that is used to measure the success of a project.

It is interesting to note that the understanding of success criteria has changed, that is, its development may be represented by two seminal works, as demonstrated by Ika's (2009) study which identified three forms of evolution.

1. Project success criteria are defined by the 'triangle virtue' (iron triangle) that generally consists of time, cost and quality;

2. Success criteria are perceived as a 'virtuous square' that consists of time, cost, quality and client satisfaction; and

3. Success criteria are broadened, covering time, cost and quality, as well as the realisation of the strategic organisation, satisfaction of end users, and satisfaction of other stakeholders.

A second seminal study by Müller and Jugdev (2012) highlighted project success development into three periods: (i) 1960s-1980s; (ii) 1980s-1990s; and (iii) 1990s-2000s. Their definition of these distinct periods builds on seminal research works into project success by Pinto and Slevin (1987). According to Müller and Jugdev (2012):

- Project success between 1960s and 1980s focuses on the project implementation and handover period and defined success in terms of the iron triangle (i.e. critical success criteria).

- Research in the 1980s-1990s concentrated on developing critical success factors (CSFs) lists, employing subjective and single case studies instead of a classification scheme or framework.

- Research in the 1990s-2000s emphasised – as referred by Bredillet (2008) as – the success school, pertaining to the emergence of integrated frameworks on project success.

Both seminal studies shed light on the current research that aims to investigate project success. Although the first work by Ika (2009) did not specify a timeline regarding the focus of project management research, as indicated by Müller and Jugdev (2012), these works are significant to this thesis because they can navigate the position of the literature for this thesis. As well, it shows their contributions to knowledge regarding the development of project success discussions. The development of project success criteria and success factors are elaborated in sub-sections.

2.2.1 General Discourse of Success Criteria as Project Success Models

Studies have defined a general definition of success criteria. Nevertheless, this thesis needs to review how this definition relates to measuring the success of an ID project at the post-handover stage. This concern is necessary to anticipate a broadening of the definition that aligns with the latest era. This period focuses more on integrating frameworks of success criteria, including how general understanding of these criteria are significant in project management fields, specifically for

ID projects. The elaboration on characteristics of ID projects are discussed in the following section of this chapter.

Several studies have proposed project success as models on how a project is measured. Other success models are discussed elsewhere, however, five main models used for evaluating the success of a project upon completion are perceived to be relevant to this thesis. Their reviews indicate three categories on how project success is measured based on a timeframe point of view.

The *first category* covers the proposed model by Patanakul and Milosevic (2009) who categorised the measurement of project success into three areas: (i) organisational criteria, including resource productivity and organisational learning; (ii) a project's criteria, consisting of time-to-market and customer satisfaction; and (iii) personal criteria, such as personal growth and satisfaction.

Patanakul and Milosevic's study is perceived to be relevant for this thesis because it indicates how success criteria impact organisations. This thesis will focus on a selected type of institution[2], such as HEIs, that lead to the definition of the success, especially at the impact phase. This thesis views that its contextual background of institutions can set an example of sensitivity in evaluating the benefits. This sensitivity can also be applied to an ID project that is sourced from a foreign loan and one with political interests.

The next model of project success was offered by Sadeh et al. (2000). They focused on the role of contract type in the success of defense projects under increasing uncertainty by dividing project success into four dimensions: (i) meeting design goals; (ii) benefit to the end user; (iii) benefit to the developing organisation; and (iv) benefit to the national technological infrastructure of the country and firms involved in the development process. These four dimensions placed their model of success into the first category where results were not being measured.

The relevance of Sadeh et al.'s study lies in almost all dimensions of project success – this being, that success is not only taken from a customer viewpoint but from an industry/society viewpoint This is simiarly seen with an ID project that has its own characteristics, and where it is crucial to ensure benefits, which can be seen as success criteria, are delivered over the proposed time period. When a country borrows millions of dollars from foreign institutions, the benefits should be

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2 Bush (1983, p. 36) provides a basic definition of institution as defined as 'a set of socially prescribed patterns of correlated behaviour'. Another definition is provided by Barley (1990, p. 65) who defines institution as 'sets of overarching principles and practices that have the normative force of taken-for-granted assumptions or cultural blueprints for action.'

experienced well beyond the delivery stage. In other words, outputs do not only meet the requirements when they are handed over, but they should also deliver the benefits to their end users. These benefits are critical to the organisational or institutional development, such as providing basic infrastructure.

Another study addressing success criteria is by Lim and Mohamed (1999) who focused on grouping success criteria into micro and macro viewpoints. Micro viewpoint consists of completion time, completion cost, completion quality, completion performance, and completion safety. In a broader view, macro viewpoints cover completion time, completion satisfaction, completion utility, and completion operation. The classification of these viewpoints becomes an interesting aspect for this thesis when viewed at the delivery stage and post-handover stage, because… In this thesis, the focus will be on the post-handover stage, however, the micro viewpoint should also be considered. In other words, these viewpoints can provide definitions of project success at the post-deliver stage, along with how project success is judged at the delivery stage.

In terms of the method, Lim and Mohamed (1999) used case study and meta-analysis of mostly secondary documents. This thesis also partially uses a case study approach because an ID project usually has several sub-projects nationally. Certain groups of institutions can be clustered as a study case. As well, this thesis uses secondary documents before proceeding with the next process of collecting primary data.

Up to the last study, the proposed model suggested a different point of views on how project success should be judged. The previous studies were perceived to be insufficient in providing accurate results on how a timeframe is considered to assess project success. In other words, the three models mentioned above are unclear for timeframe parameters. They assume that success criteria are measured at the delivery stage. Once outputs of a project commence implementation, their success criteria are perceived differently over the period. This thesis views that a project's outputs are enablers for an organisation to deliver its strategic, long-term objectives.

The discussion also defines a *second category* that separates success into the deliver/handover stage and post-delivery/post-handover stage. A seminal project success model by Atkinson (1999) is discussed. This model indicates project success regarding the timeframe. It clearly distinguishes between project success at the delivery stage and post-handover stage. According to Atkinson (1999), criteria at the delivery stage propagate the iron triangle (cost, time and quality). For the post-handover stage, Atkinson (1999) emphasised that criteria broadens the scope of information systems (ISs), organisational benefits and community benefits.

Atkinson's (1999) model took into consideration the entire project lifecycle, even beyond continuous assessments because 'real' project success should be measured at the post-handover stage. At this stage, project outputs should be able to act as enablers so that organisational or institutional strategic objectives can be delivered. Outputs should demonstrate 'actual' success at the post-handover stage.

Atkinson's (1999) study can be treated as a seminal work for the foundation of this thesis. His explicit differentiation of the stages has set the timeframe that should be considered for determining project success over a certain period. Even though his work focused on a meta-analysis approach of the relevant literature, his work demonstrated the defined success criteria. His work could imply that previous studies are implicit in using timeframes to clarify project success. Hence, his work can set a path for this thesis as it focuses more on how success criteria of an ID project's outputs are defined at the post-handover stage. Besides, his broadened scope of the success criteria can be relevant to this thesis. An ID project also provides basic infrastructure for information technology (IT) that could benefit an institution or organisation as a whole. This perception is aligned with the focus of this thesis, where an ID project is usually managed nationally by selected recipients. Nevertheless, the benefits are aimed for recipients and the country's long-term strategy.

In practice, the definitions of a post-handover stage are still ambiguous, which have resulted from a timeframe that is used to measure long-term successful of a project. Addition to this, some studies generalise the post-handover stage as equal to a longer term stage (Bell & Aggleton, 2012; Bryant et al., 2006; Holtgrave et al., 2002; International Initiative for Impact Evaluation, 2012; Manzoor Arain & Sui Pheng, 2007; Patton, 2010; Rudd, 1996; Taye, 2013; Uys, 2001; White, 2006). The clarification of the stages (terms) is a crucial link to a project's success model and its detail criteria. In other words, Atkinson's (1999) and those studies' divisions of project stages generalise the post-handover stage. Therefore, clarifications of this stage is required.

This thesis also reviews a research model by Turner and Zolin (2012) who clarified the post-handover stage by dividing it into two phases: (i) project outcome; and (ii) impact. The outcome phase is defined as the stage where 'new capabilities that operation of the new asset give to the investing organisation' (Turner & Zolin, 2012, p. 90). Meanwhile, the impact phase is considered to be '[t]he long-term performance improvement that it is expected the new capabilities will enable the parent organisation to achieve' (Turner & Zolin, 2012, p. 90). This clarification leads this model to the *third category*.

Turner and Zolin's (2012) seminal model led to another solid framework for this thesis. Their view was based on empirical results from their study, which used sufficient sampled data and industrial types. It allowed a clear division of the post-handover stage. Based on this division, Table 2.1 is presented, summarising dimensions related to project success according to stage categorisation. Their model demonstrated that project success is perceived differently by different stakeholders at different timeframes. Importantly, this model emphasises the impact phase where this thesis focuses on.

Table 2.1   Project success understood by timeframe

Stakeholder	Output at completion	Outcome months after completion	Impact years after completion
Investor or owner	Time Cost Features Performance	Performance Profit Reputation Consumer loyalty	Whole life value New technology New capability New competence New class
Project executive or project sponsor	Features Performance Time and cost	Performance Benefits Reputation Relationships Investor loyalty	Future projects New technology New capability New class Value creation Reputation
Consumers	Time Price of benefit Features	Benefit Price of product Features Developments	Competitive advantage Price of product Features Developments
Operators/users	Features Performance Documentation Training	Usability Convenience Availability Reliability Maintainability Cost reduction: Operating Maintaining Training Staff	New technology New capability New competence New class

Stakeholder	Output at completion	Outcome months after completion	Impact years after completion
Project manager and project team	Time Cost Performance Learning Camaraderie Retention Well-being	Reputation Relationships Repeat business	Job security Future projects New technology New competence
Senior supplier (design and/or management)	Completed work Time and cost Performance Profit from work Safety record Risk record Client appreciation	Performance Reputation Relationships Repeat business	Future business New technology New competence
Other suppliers (goods, materials, works, or services)	Time Profit Client appreciation	Reputation Relationships Repeat business	Future business New technology New competence
Public	Environmental impact	Environmental impact Social costs Social benefits	Whole life social Cost-benefit ratio

Up to this point, discussions have led to three categories for a project success model, as illustrated in Figure 2.2. Category 1 covers models that have undefined timeframes. Next, models under Category 2 start to differentiate between the handover stage and post-handover stage. However, the post-handover stage cannot be differentiated. The last category has clear differentiation of the post-handover stage that can be broken up into outcome and impact phases.
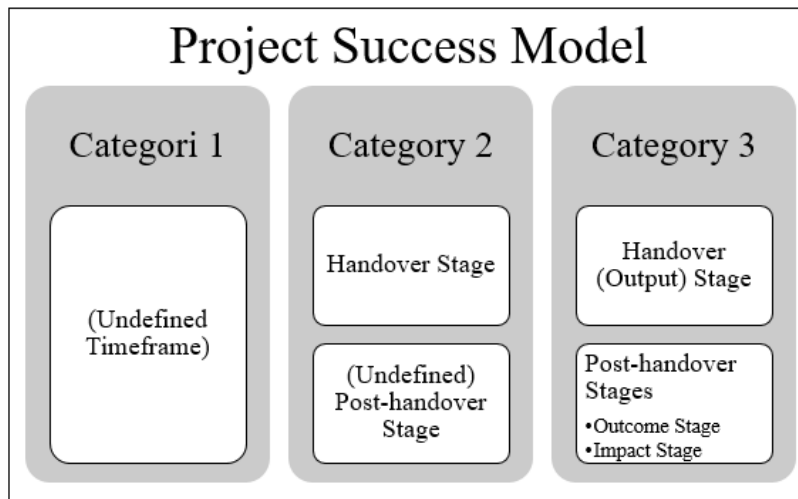
Figure 2.2   Project success model categories

To conclude, Category 1 can be seen the models that do not clearly mention when success is measured. This period of assessment is usually conducted at the handover or delivery stage. Category 2 commences by providing a more obvious timeframe for the assessment. Studies under this category have clearly mentioned that a project's success should be measured, not only at the delivery stage, but also at the post-handover stage. However, studies seem to have mixed the mid- and long-term stages into a single post-handover stage. Hence, the review of the literature demonstrates that Category 3 describes these two stages and provides important separations for the post-handover stage.

The basic division for these three categories lies on the timeframe where success of a project is measured. The timeframe is one of the factors that emphasise the evolution of the project success model. Because of the timeframe, different stakeholders can define a project's success differently at different stages throughout its output lifecycle. Based on this context, this thesis views that *studies have paid limited attention on the importance of timeframes in assessing project success*. Importantly, the focus on the timeframe will allow a clearer differentiation between project management success and project success. This differentiation can also cover a clear distinction between success criteria and success factors of both, including ID projects.

2.2.2   Project Success Criteria for International Development Projects

This thesis reviews a congruence of Turner and Zolin's success model into a more specific context, as well as views the last model and those ones under the previous two categories that maybe applicable to measure commercial and business project performance. Meanwhile, other types of

projects maybe found to have difficulty in adjusting its detail criteria, such as ID Projects, which are the focus of this thesis.

ID projects are perceived to possess their own characteristics, which include intangibility of project objectives and deliverables, a complex network of many stakeholders involved, a lack of defined clients or beneficiaries, significant political risks, demanding local constraints, risky environments, incompatibility of project management tools and techniques, and monitor and measurement of achieving project objectives (Diallo & Thuillier, 2005; Golini & Landoni, 2013; Khang & Moe, 2008; Youker, 1999). Moreover, Khang and Moe (2008) argued that ID projects mostly concentrate on alleviating poverty, improving living standards, protecting the environment, protecting basic human rights, assisting victims of natural or people-caused disasters, capacity building and developing basic physical and social infrastructures.

By comparing the example in Table 2.1, a model cannot be entirely used to measure the success of an ID project. Those criteria indicate the measurement of mostly commercial and business performance projects. In other words, it indicates a need for a more applicable success measurement for ID projects. Studies have indicated a lack of available literature for success criteria in ID projects (Bayiley & Teklu, 2016; Diallo & Thuillier, 2005; Ika & Donnelly, 2017; Kwak, 2003; Yamin & Sim, 2016) that should be developed throughout the lifecycle of a project (Ahsan & Gunawan, 2010).

;;

Following on is another seminal study by Khang and Moe (2008) who comprehensively identified success criteria of ID projects for every step of a project lifecycle. They aligned success criteria according to the Project Management Body of Knowledge (PMBOK) guide for a project's lifecycle. In other words, success criteria are different in various phases of a project. They grouped the criteria into four phases, as follows:

1. Phase I – *Conceptualising*. Addressing relevant needs of the right target group of beneficiaries; identifying the right implementing agency capable and willing to deliver; and matching policy priorities and raising the interests of key stakeholders.

2. Phase II – *Planning*. Success criteria are the approval of, and commitment to, the project by key parties; sufficient resources are committed and ready to be disbursed; and core organisational capacity are established for project management.

3. Phase III – *Implementing*. Comprising of resources mobilised and used as planned; activities carried out as scheduled; outputs produced meet the planned specifications and quality; and good accountability of resources are utilised.

4. Phase IV – *Closing* or *completing*. Success criteria are project assets transferred, financial settlements completed, and team dissolved to the satisfaction of key stakeholders; project end outputs are accepted and used by target beneficiaries; and project completion reports are accepted by key stakeholders.

Up to this stage of the review, it is indicated that success criteria are evaluated at the handover stage, however, a more comprehensive result can be obtained (Figure 2.2). The success criteria for ID projects should be evaluated using Category 3 (Figure 2,2), considering multilevel stakeholder institutions are in force. Due to this specific nature, the success criteria for ID projects have different stakeholder institutions that are interested in the criteria at different stages (Figure 2.3)
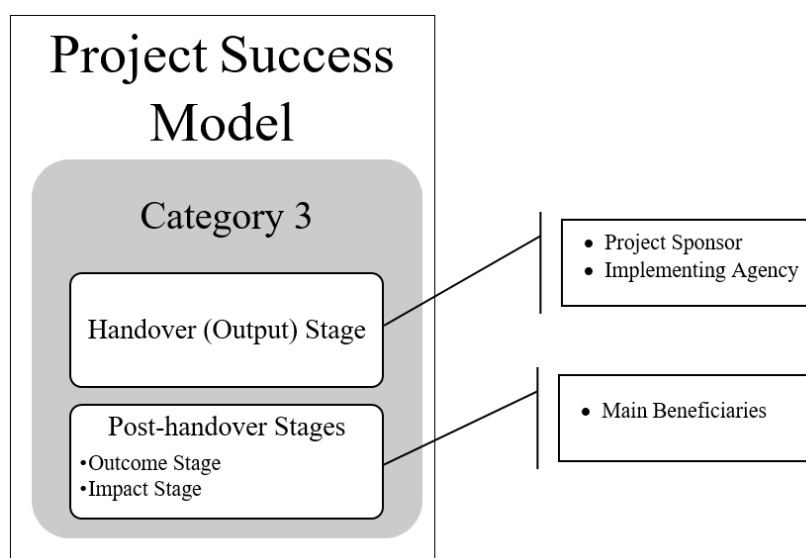
Figure 2.3   Success model at various stages by stakeholders for ID projects

Figure 2.3 emphasises the discussion earlier. The success of an ID project is the most important element for a sponsor and an implementing agency. However, this concern is limited to the handover stage. As mentioned earlier, due to high political interest, both institutions are more focussed on the delivery of a project's outputs in terms of satisfying financial accountability as a criterion for success.

Once the outputs of a project is handed over, its success will be of great concern to the main beneficiaries. These institutions need to ensure that outputs can be adopted and adapted as the main beneficiary's new resources. These resources are expected to realise their intermediate and long-

term goals. While satisfying financial accountability is a project management success element, cost is the 'real' benefit in the success of a project. Unfortunately, *a wider gap is more obvious in the literature to explore project success for ID projects*. Discussions then consider how to elaborate the topic on project success factors at the post-handover stage.

2.2.3   Project Success Factor at the Post-handover Stage

Even though there is no consensus on how to define project success (Bredillet, 2008; Müller & Jugdev, 2012), factors do exist that contribute to attaining defined criteria. Studies have been conducted to identify project success factors (Baccarini, 1999; Fortune & White, 2006; Pinto & Slevin, 1987) of which are identified leading up to the handover or delivery stage. Prior to this stage, it is less attached to project management success (Cooke-Davies, 2002; Ika, 2009; Munns & Bjeirmi, 1996).

Previous reviews on success criteria have shown two different stages during the post-handover period: (i) outcome; and (ii) impact. At the impact phase, project outputs are expected to demonstrate their 'real' contributions to achieving strategic objectives (Cooke-Davies, 2002). A number of factors influences these contributions. As discussed earlier, a number of studies have been conducted to identify critical success factors at the post-handover stage.

A review of studies conducted in the area of success factors at the post-handover stage identified several points, the most common being senior or top management responsibility and support. A meta-analysis study by Paul (1995) identified senior management responsibility as the key factor. His study on total quality management demonstrated an urgent need to maintain quality throughout the process. This maintainability can be realised by improving the link between key performance indicators (KPIs), business plan and objectives. Paul's study also suggested that it is the responsibility of senior management to ensure that business plans and organisational strategic objectives are well translated into KPIs at the initiation stage. By doing this, a link can be formed and evaluated.
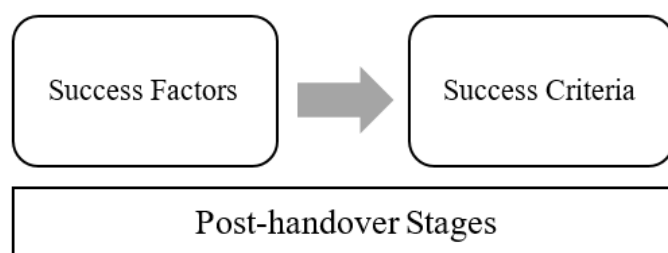
Figure 2.4   Success criteria and success factors at the post-handover stage

Moreover, by translating the plan and objectives in KPIs, success factors at the post-handover stage can be identified, which is made possible by comparing the plan and its actual realisation. Both successful and unsuccessful achievements can be identified regarding factors that have contributed to the end result. In other words, internal factors contribute to the success criteria, as illustrated in Figure 2.4. However, these criteria can differ from those identified at the handover stage due to factors that are not included in the implementation stage.

This thesis shares a similar perspective to the study earlier on senior management responsibility. One responsibility is to ensure KPIs of an ID project align with the strategic objectives of project recipients or beneficiaries. Nevertheless, this research needs to specify success factors at the impact phase of the post-handover stage of an ID project, therefore, Paul's (1995) study is considered limited in specifying these factors.

In terms of senior or top management support and responsibility, this thesis also reviews a study from Dong et al. (2009) that emphasised the use of a qualitative approach to reveal success factors at the post-handover stage, namely, support from top management is crucial. These supports consist of a need to provide resource, to consider change management, and to allow for vision-sharing.

This thesis values the study by Dong et al. (2009) because it identified success factors at the post-handover stage, as well as, importantly, the use of a qualitative method, which is used in this research to define success factors. However, this thesis aims to identify these factors specifically at the impact phase from an ID project perspective. These two reasons lead the basic differences from previous studies, particularly the Dong et al. study.

Other identified success factors at the post-handover stage include portfolio and program management, a line of sight feedback, and learning from experience. These success factors were covered by the Cook-Davies (2002) study, which included two of these factors: (i) portfolio; and (ii) program management, as well as learning from experience, all perceived to be relevant to this thesis. This thesis perceives that a project, including an ID project, is a part of an organisation's portfolio. Managing portfolios and programs allows an organisation to realise project output benefits at the impact phase. This ability can also demonstrate the level of an organisation's experience and expertise in managing additional resources.

Unfortunately, the Cooke-Davies study only mentions an implicit post-handover stage that includes portfolio and program management only. Nevertheless, their study is considered useful for this thesis because they imply that the level of experience from an organisation to manage its resources

is essential. This thesis anticipates a lack of capability of former project recipients after an ID project ended. These recipients should be able to sustain output benefits for the longer term.

In terms of the level of experience, newly-introduced outputs should allow users to be well trained and educated. This thesis relates an identified factor – learning from experience – to other factors, namely, training and education that should also be a part of an organisation's learning process. A well-established organisation should have gained experience in the learning process, especially associated with training and education programs to ensure the adoption and adaptation of any newly-developed system, for example, standard operating procedures (SOPs) or a finance IS. By utilising post-implementation enterprise resource planning, Ram et al. (2013) pointed out that training and education, as well as system integration, are key factors at the post-handover stage.

Scheers et al.'s (2005) quantitative study also emphasised two main points regarding good support of, and cooperation with, central agencies concerned with financial reforms, results-oriented culture and the acknowledgment of the necessity to report cash transactions. Their study suggested the tendency to prioritise financial reporting systems, especially when a project is conducted within a multilevel agency. This type of condition relates to this thesis where an ID project is usually run across the country, but the project had a single-roof reporting system at an appointed ministry.

Importantly, Scheers, et al.'s study (2005) indicated that post-financial reviews play a major role that is certainly relevant to this thesis because an ID project is usually sourced from foreign loans. The financial performance of key beneficiaries could be the focus of a project sponsor or donor. This performance includes the increase of financial management capabilities in response to beneficiaries' business changes. Still, Scheers, et al.'s study only mentioned a post-handover stage where success factors were identified.

All in all, this thesis views organisational support as an essential factor because it covers a total support ecosystem from the lowest to the highest managerial level. An example of a study that demonstrates this factor came from Veiga et al. (2014) who examined the adoption period of users after project outputs were handed over and they became proficient with its procedures. Even though their study was conducted in the banking sector, involving a reasonable number of financial analysts, the focus was on a newly-introduced system. As a new system, they concluded that greater organisational support played a significant role to ensuring a smooth adoption process until users were proficient in understanding its process. In other words, this resulted in a wider context of a critical factor at the post-handover stage. This thesis widely perceives this adoption process as the learning process.

This thesis views that the identified factor from Veiga et al. (2014) study as a comprehensive perspective. Previous studies have certainly identified senior or top management's support and responsibilities that can be expressed by supporting training and education programs to ensure a smooth process of adopting and adapting produced outputs, including system integration. However, as suggested by Veiga et al. (2014), this thesis considers that greater organisational support can be viewed as support from an entire organisational structure, that is, from basic managerial support to the most senior managerial level. In other words, organisational support covers a wider range than top management support.

By referring to the studies above, success factors should be able to clearly identify the impact phase once success criteria and factors are identified. Unfortunately, most studies have generalised success factors identified at the post-handover stage (Patanakul & Milosevic, 2009; Ram et al., 2013; Wateridge, 1995). Therefore, this thesis views the need for identifying success factors of an ID project at the impact phase.

To identify success factors of an ID project, a review of extant literature on this area needs to be undertaken. Previous elaborations have indicated specific characteristics of ID projects. This uniqueness can lead to complex factors that could contribute to the achievement of strategic objectives. Factors identified in the following studies are summarised in Table 2.2.

Table 2.2   Project success factors for ID projects

Success factors for ID projects
Political, legal, cultural, technical, managerial/organisational, economic, environmental, social, corruption, and physical factors (Kwak, 2002).
Trust and communication (Diallo & Thuillier, 2004, 2005).
Degree and consistency of local leadership, policy characteristics, availability of resources, number of implementing actors, alignment of clients, learning opportunity among implementers and between projects, past experience of implementers, and local environment (Struyk, 2007).
Policy supports of donors and recipient government; adequate institutional competencies, and strong ownership and institutional commitments (Khang & Moe, 2008).
Team building, local environment, implementation approach, learning opportunities, policy characteristics, availability of resources, and stakeholder/beneficiary satisfaction (Hermano et al., 2013).

These factors were identified by various stakeholders (Diallo & Thuillier, 2004, 2005), mainly at the handover stage. Arguably, Khang and Moe's (2008) study identified factors at the post-handover stage, however, they could not be differentiated into the outcome phase or impact phase.

Reviews in this chapter indicate the absence of clarity in terms of the timeframe for identified success factors, resulting in vague context of ID projects, considering its complex environment (Ahsan & Gunawan, 2010; Crawford & Bryce, 2003; Diallo & Thuillier, 2005; Hermano et al., 2013), as indicated in the supervision of World Bank projects (Chauvet et al., 2010; Chauvet et al., 2013; Dollar & Levin, 2005). Hence, a post-project evaluation cannot be proposed to identify success criteria at the post-handover stage, nor can success factors may contribute to the achievement of success criteria be planned.

In a general project environment or ID project context, post-implementation evaluation is usually conducted up to the handover stage. The possibility of extending the evaluation to assess the 'real' project success is necessary, especially when *literature have limited attention on exploring success factors at the post-handovers stage, specifically for ID projects.* Section 2.3 reviews post-project evaluation, commencing with basic discussions on reasons for conducting an evaluation.

2.3 Post-Project Evaluation

The literature review suggests that a post-project evaluation can be used for an ID project. This evaluation is viewed as an empirical query to identify success criteria of an ID project at the impact phase. The identification of the success criteria could also identify factors that have contributed to the achievement of those success criteria. Therefore, success criteria and factors at the impact phase are the focus of this thesis, to determine their absence in previous reviews. To justify an evaluation, the review firstly expresses the need for an assessment.

2.3.1 The Need for Evaluation

The definition provided by *Encyclopaedia of Evaluation* elaborates a comprehensive meaning of the word 'evaluation':

> Evaluation is an applied inquiry process for collecting and synthesising evidence that culminates in conclusions about the state of affairs, value, merit, worth, significance, or quality of a program, product, person, policy, proposal, or plan. Conclusions made in evaluations encompass both an empirical aspect (that something is the case) and a normative aspect (judgement about the value of something). It is the value feature that distinguishes evaluation from other types of inquiry, such as basic science research, clinical epidemiology, investigative journalism, or public polling. (Fournier, 2007, p. 141)

The definition covers empirical and normative aspects of an evaluation. This thesis focuses on the empirical aspect, driven by some absences in the review previously. These absences need to be filled through empirical studies, and this thesis can be one of them.

Moreover, studies have indicated that success criteria and success factors at the impact phase have paid little attention in the literature. Through a post-project evaluation, this thesis expects to reveal those success criteria and success factors. In a historical perspective of the evaluation concept, Suchman (1967) recognised three trends that lead to the need for evaluation: (i) changes in the nature of social problems; (ii) changes in structures and function of public agencies; and (iii) changes in needs and expectations of the public. Based on Suchman (1967) identifying the need for evaluation, this thesis recognises that an ID project leads to how main beneficiaries and stakeholders, including the wider community, have expectations on the changes. In addition for ID projects, the complexity and multilevel stakeholders involved in an ID project leads to queries on how beneficial a project is expected to be, especially when it is sourced from a foreign loan.

Apart from three trends from Suchman (1967), this thesis also considers the Seven Hierarchical Categories developed by Bennett (1975). This hierarchy starts with inputs, followed by activities, people involvement, reactions, knowledge, attitudes, skills, aspirations, practical changes and end results. According to Bennett, inputs yield activities and certainly involves people who may have positive or negative reactions. These people change their daily practices in performing tasks when knowledge, attitudes, skills and aspirations are involved. The change in practice leads to an end result. In general, this process is viewed by this thesis as a common input-output process. Nevertheless, Bennett's hierarchy not only provides a framework for conducting an evaluation, but also indicates elements that could contribute to producing the end result.

Another traditional work in evaluation theory is the evaluability assessment by Wholey (1987). This assessment contributes to the theory for policymakers to evaluate the effectiveness of government-initiated programs, however, four problems exist:

(i)   A lack of definition of the problem addressed and of the program itself.

(ii)   A lack of a clear logic of [a] testable assumption linking expenditure of resources to intended impacts.

(iii)   A lack of agreement on evaluation priorities

(iv)   An unwillingness to act on the basis of evaluation information.

(Wholey, 1987, p. 90)

This thesis addresses a similarity by focusing on the second problem. An ID project, which is usually sourced from a foreign loan, strives to prove itself to be beneficial for the long-term so that it can realise its full potential. Adding to this challenge is an ID project with its multilevel

stakeholders and political interests. An ID project needs to demonstrate its long-term achievements so that a foreign loan can be granted.

Still, a practical perspective is needed to conduct an evaluation, such as a review on how an evaluation is implemented. The review includes analysing four patterns for evaluation in practice, as clustered by Shadish and Epstein (1987): (i) academic; (ii) stakeholder service; (iii) decision-drive; and (iv) outcome patterns.

Two of these patterns: (i) academic; and (ii) outcome patterns will enable an alignment to the academic pattern where 'program effectiveness criteria are developed from relevant literature or considering the nature of the program itself' (Shadish & Epstein, 1987, p. 576). The effectiveness criteria are viewed as success criteria that can be drawn from the literature beyond the delivery stage. Meanwhile, the nature of the program itself is perceived as an ID project that has specific aims due to the specific contextual background of the recipients.

In terms of the outcome pattern, this thesis focuses on the timeframe of ID project output contributions, aiming to identify success criteria and their critical factors at the post-handover stage. As a qualitative method is used, the researcher plays the role of a 'methodological expert'. In other words, he is the main research instrument for collecting and analysing data. The role of the researcher will be elaborated in Chapter 3.

By leaning on academic and outcome patterns, absences in the literature for success criteria and success factors of ID projects at the impact phase are addressed, as indicated previously. Moreover, by addressing these absences, reviews can be developed to indicate the intertwining connection between the evaluation theory and project management literature.

2.3.2 Adopting Evaluation Theory in Project Management

Studies have demonstrated the use of evaluation theory in project management in the form of post-implementation evaluation (Irani, 2010; Kumar, 1990; Lehtonen, 2014). This thesis reviews studies that have used evaluation in the project management field whilst highlighting their relevance to this research. Although other studies have been conducted, the following are perceived to be more relevant in expressing the adoption the two concepts. Interestingly, some are considered to be meta-reviews from recent studies that were focused on post-project evaluation.

Table 2.3   Studies in post-implementation evaluation

Irani (2010) – Four phases of evaluation:

1. *Ex-ante evaluation* – evaluating a project before implementation or execution by examining organisational strategic appraisal.

2. *Metrics* – translating results of the first evaluation into more executable tasks.

3. *Command and control* – guiding and controlling the execution of the project according to the baselines until the project produces the intended outputs.

4. *Ex-post evaluation* – measuring a project's achievements and covering the achievement of project objectives and target outcomes, as well as reviewing performance, cost, benefits, risks and stakeholders.

Song and Letch (2012) – 4W+H formula

- *Why* is an evaluation being carried out?

- *What* are the objects being evaluated?

- *When* is the evaluation to be conducted?

- *How* is the evaluation to be performed?

- *Who* are the stakeholders involved during the evaluation?

Archibald et al. (2012) – Proposed comprehensive project lifecycle

- Adding the incubation phase before the project starts

- Adding post-project evaluation to the project closeout phase.

Lehtonen (2014) – Three phases of evaluation:

- *Ex-ante assessment* – assessing at the delivery stage.

- *Ex-post evaluation* – evaluating outputs as new resources.

- *Ex-nunc monitoring* – monitoring further contributions of new resources.

Legovini et al. (2015) – Impact evaluating

'Impact' Evaluation model – measuring the likelihood of a project to achieve its objectives up to the delivery stage.

Similar concerns are shared with those studies above. However, some emphasise an evaluation approach more at the delivery or handover stage, such as the Irani (2010) ex-post evaluation, Song and Letch (2012) '*when'*s focus, and the additional post-project evaluation stage by Archibald et al. (2012).

The view on assessing project success to the last two phases of the Lehtonen (2014) study forms two reasons. The last two phases are considered to be in parallel with the outcome phase and impact phase of Turner and Zolin's (2012) project success model. While ex-post evaluations can

explore project success at the outcome phase, from the outset monitoring is used for exploring how outputs can deliver strategic objectives.

The other reason that relates to Lehtonen (2014) is the context of his projects. Lehtonen's classification of a post-implementation evaluation is based on studies from megaproject context. This type of project involves multilevel stakeholders from financial and non-financial institutions and has significant socioeconomic effects. This condition is almost similar to most ID projects that are largely financed by foreign loans and have interests from a large number and types of stakeholders.

Turner and Zolin's impact evaluation model and Lehtonen's (2014) work cannot represent the basic idea of this thesis. The impact evaluation model is considered to be useful up to the delivery stage and to the donor. Meanwhile, main beneficiaries are located at the bottom of the stakeholder structure where they are actual parties who experience the real benefits of the project. Hence, impact evaluation can be considered a failure in measuring the actual achievement of benefits for primary beneficiaries.

The reviews above demonstrate how an evaluation at the post-handover stage have been a concern that was generally rooted from an adoption of evaluation theory into the project management concept. This thesis strongly indicates this by showing a gap on how to clearly separate the post-handover stage into outcome and impact phases. This separation is to align with the success model pointed out by Turner and Zolin. In other words, it is hereby suggested that a post-project evaluation could be used to unveil success criteria and success factors at the impact phase. At this stage, a project's outputs demonstrate their contributions to realise its organisation's strategic objectives.

Nevertheless, a post-project evaluation requires facing challenges in practice. Firstly, a post-project evaluation may be perceived narrowly to evaluate project success up to the delivery stage. For instance, Anbari et al. (2008) viewed post-project evaluations as aimed at identifying and documenting lessons learned and evaluating the performance of the project manager regarding delivering a project of the required scope on time and within cost. Cleland (1985) also argued that a post-project evaluation is a review of the project during its lifetime and not an assessment of its sustainability, as the evaluation targets the time immediately after the phase out (Sandru, 2013).

Even though Archibald et al. (2012) admitted to the importance of post-project evaluation, they justified that 'the post-project evaluation phase obviously requires a flexible amount of time,

depending on the type of product that the project has produced' (p. 29). The required period to conduct a post-project evaluation is usually a concern of certain people, especially former project members who are released once the project is finished (Ahsan & Gunawan, 2010). Their absence can cause another challenge, that is, to conduct an evaluation after the project has been completed.

The second challenge to conducting a post-project evaluation is to provide management support. Quite often a post-project evaluation receives minimum support from the organisation's senior or top management. This lack of support appears in the form of management commitment to continuous improvement, yet sanitised reporting with problem issues buried (Bowen et al., 2007). Furthermore, the project has no obligation to conduct post-project appraisals (Ahsan & Gunawan, 2010); project managers perceive an evaluation is merely a formality (Al-Yaseen et al., 2010a); and simply, policies and procedures that document how information from post-implementation reviews are to be relayed to decision makers are limited (Kumar, 1990).

The last challenge lies in completing policies, procedures and guidelines for managing a project. This lack of information at the post-implementation evaluation stage is emphasised in a study by Archibald et al. (2012) who suggested that the model of project management lifecycle in the PMBOK guide is incomplete. Their proposal was to include the post-project evaluation phase after the existing close-out phase in the PMBOK guide, that is, to provide information on success criteria and success factors, a view also shared by this research. An evaluation should be carried out after a project's outputs have been handed over so that the next stage to demonstrate actual benefits to an organisation's strategic objectives can be conducted.

The challenges above leads to an obvious gap in the literature. Due to unclear timeframes in assessing project success, as discussed earlier, *post-implementation evaluations are usually limited when used to report on project management success.*

Considering those challenges and ID project characteristics, it is perceived that conducting a post-project evaluation for an ID project will be more challenging because literature on comprehensive post-project evaluations is scarce. There have been studies focused on evaluating post-project implementation, for instance, the World Bank Development Impact Initiative, Independent Development Evaluation of African Development Bank, and International Initiative for Impact Evaluation. However, post-implementation evaluations may be insufficient in terms of grounding the thesis findings based on real client or main beneficiary viewpoints.

In the context of ID projects, real clients or main beneficiaries tend to be nebulous (Ahsan & Gunawan, 2010; Diallo & Thuillier, 2005; Golini & Landoni, 2013; Khang & Moe, 2008). This vagueness is caused by a multilevel stakeholder framework where main beneficiaries are usually at the bottom of the stakeholder structure. An ID project is usually implemented nation-wide with an appointed minister or agent at the national level and implemented at lower entities. For example, an ID project run under the Ministry of Education has its activities conducted at higher educational institutions, high schools or other educational communities, which are the 'real' client or key stakeholders of an ID project.

This thesis perceives that multilevel stakeholders strengthen the need for a post-project evaluation that should be comprehensive in evaluating achievements of the intended objectives at the main beneficiary's level at the impact phase. Besides, a post-project evaluation should be perceived to comprehensively assess project management and project success. The overall project success means that outputs are formulated to deliver short-, mid- and long-term organisational objectives (Eweje et al., 2012; Shenhar & Dvir, 2007).
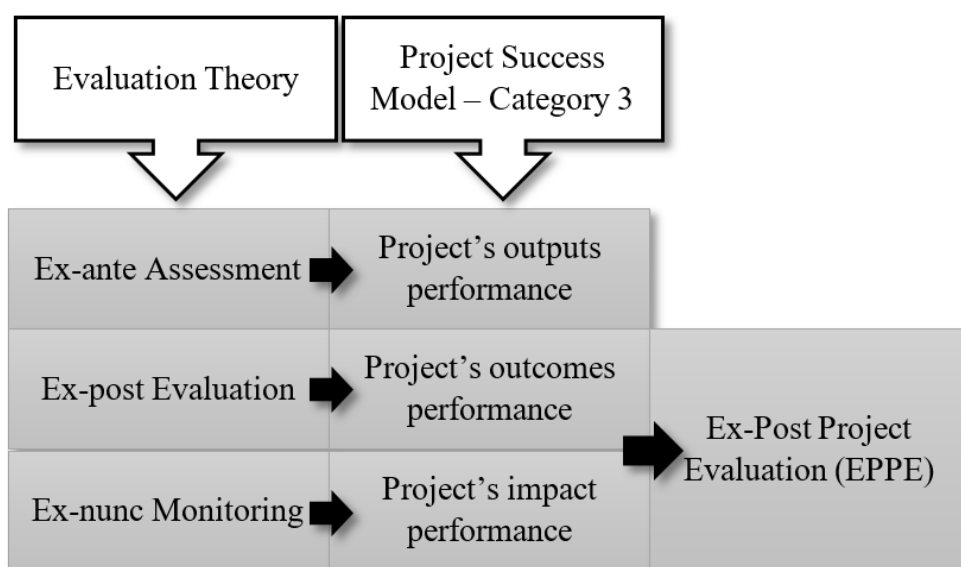
Figure 2.5   Proposed model of post-project evaluation (partially adapted from Fahri et al. (2015))

Considering the importance of timeframes when conducting a post-evaluation review, an inclusive approach is proposed that will review studies on project success models and post-implementation evaluations by adopting an evaluation concept into the project management context. The proposed

approach for post-project evaluation is referred to as EPPE (Ex-Post Project Evaluation) (Fahri et al., 2015)[3].

This thesis perceives this framework to evaluate project post-implementation and to identify benefits gained from a project. In other words, the EPPE framework is expected to cover two phases of the post-handover stage which are expected to evaluate the performance of project outputs, namely outcome and impact

EPPE could minimise three obstacles in conducting a post-project evaluation in general project management and ID project contexts, as indicated above. Figure 2.5 shows that EPPE is conducted after the delivery stage, covering outcomes and impacts that address the first challenge when most project evaluations are usually conducted to the end of the delivery stage.

In terms of the second challenge, Figure 2.5 draws from reviewing literature concerned with the post-project evaluation beyond the delivery stage. The EPPE framework can be seen as a synthesis of timeframes in the evaluation concept and project success model. This synthesis explains the coverage of both phases of the post-handover stage. Even though this thesis focuses on the impact phase, the outcome phase is an essential phase when an organisation starts to adopt and adapt outputs of a project. This thesis certainly needs to understand adoption and adaptation processes before entering the impact phase when outputs demonstrate their contributions to achieving strategic objectives. This thesis assumes that this process occurs at the outcome phase of the post-handover stage.

The EPPE model is also considered to address the third challenge. The model in Figure 2.5 is based on an argument provided by Archibald et al. (2012), who pointed out deficiencies in the PMBOK Guide's four phases of project lifecycle. They argued the need for a post-project evaluation beyond the delivery stage. This argument also strengthens this thesis by perceiving that the EPPE model be used as an academic pattern in general and as an outcome pattern more specifically. EPPE is perceived as another indication of the need to adopt evaluation concepts into a project management context. To conclude, EPPE as the proposed model, points out that post-implementation evaluations are limited in its use by ID project key stakeholders – project sponsors and implementing agencies – to evaluate successful project management outcomes. *The literature has*

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[3]   The researcher strengthens the proposed framework from a previous published model.

insignificant discussions on post-project evaluation that comprehensively evaluate project
management success, as well as the success of ID projects.

This insignificant focus in the literature can be caused by the nature of ID projects. *Firstly,* ID projects have multi-layered stakeholder institutions. Although an ID project is usually managed at the national level, the implementation of a project can reach the whole country. Although a project maintains a national-level implementing unit, the main beneficiaries are located at the bottom of the stakeholder hierarchy. At the national level, the implementing unit and project sponsor tend to communicate ineffectively to their primary beneficiaries about post-project evaluations, therefore, leading to failure of the project before benefits can be experienced. Unfortunately, this process takes time and with the layers of stakeholders involved, the benefits evaluation can hinder the outcome, therefore, it is the responsibility of the main beneficiaries to manage long-term benefits.

Secondly, the perception from main beneficiaries towards receiving funding is that most ID project funding is sourced from foreign loans. A crucial point occurs when funding is transferred from the implementing unit at the national level to the main beneficiaries. The funding status usually changes as it reaches the intended beneficiaries. While funding is a loan taken out by the country, it is usually a grant for the main beneficiaries. While a government strives to pay back the loan, the main beneficiaries tend not to ignore the urgency of this situation.

When the government uses the term 'grant', main beneficiaries have less obligation to repay the loan directly to the sponsor. In this situation, main beneficiaries are less motivated to optimise the benefits. They tend to receive the outputs and disregard whether they should be maintained for the long-term. Main beneficiaries tend to ignore why they need to sustain the benefits, which is sourced from a grant, as opposed to a loan. Because of these two concerns, this thesis considers the importance of discussing project benefits management in the following section.

2.4   Project Benefits Management

In Section 2.3, project success criteria and their critical factors have been explained. Most studies have identified both success criteria and success factors up to the delivery stage when a project is considered a success once its outputs can satisfy traditional triangle aspects: time, cost and quality. In fact, at the end of the delivery stage, outputs can begin to demonstrate their beneficial contribution to an organisation for the long-term. This thesis assumes that beyond the delivery stage is a phase when project outputs are considered to be the project's benefits.

Following on, this thesis needs to clarify simple definitions between 'success' and 'benefit'. While 'success' is defined 'as the accomplishment of an aim or purpose', 'benefit' is 'an advantage or profit gained from something' (Oxford University Press, 2018). These definitions lead to differentiate the definition of success evaluation and benefits evaluation. This thesis views the difference between these two types of evaluations is based on the timeframe. Success evaluation can be referred as an evaluation of project success up to the end of the delivery stage. Meanwhile, benefits evaluation relates to an assessment on how beneficial a project's outputs is in realising intermediate and long-term objectives of an organisation. In fact, this thesis can simply refer the benefits evaluation as a longer-term success evaluation of project contributions.

Furthermore, a benefits evaluation can also be used to assess the ability of senior management within an organisation to sustain benefits once a project has been successfully delivered. Project outputs can support the organisation in realising its strategic objectives.

Before discussing benefits management, this thesis elaborates on how literature defines benefits. Benefits can be identified in the form of financial (Al-Yaseen et al., 2010a; Kumar, 1990; Love & Irani, 2001) and non-financial (Archibald et al., 2012; Eldabi et al., 2003; Horvath et al., 2011; Liu et al., 2003; Poon & Wagner, 2001). They can also be categorised into tangible and intangible benefits (Hallows, 2005; Remenyi et al., 1993; Thomsett, 1993) and can be perceived to be efficient and effective. Efficiency benefits relate to reducing operational costs; effectiveness benefits are associated with ways of producing different things better than the expected results (Fitzgerald, 1998; Silk, 1990).

The definitions above may have provided a general definition of benefit. They can be defined to be more contextual. In the IS and technology discipline, for instance, Remenyi et al. (1997) defined 'IS benefits should […] be seen as a composite of issues which deliver real business value to a number of stakeholders in the organisation' (p. 6). Thorp (1998) defined 'a benefit as an outcome whose nature and value (expressed in various ways) are considered advantageous by an organisation' (p. 234). A benefit is also defined as 'an outcome of change that is perceived as positive by a stakeholder' (Bradley, [2006] 2010, p. 18). In the perspective of strategic management, Melton et al. (2008) referred benefits to a process of translating strategic business objectives into more explicit categories of benefits. In other words, the translation is perceived as a process of absorbing and transforming a project's outputs into an organisation's resources to deliver strategic objectives.

A dictionary defines 'benefit' as a single word; the review also indicates more specific definitions of the term. This thesis views that, in plural form, benefits are referred as operational, technical and strategic definitions. The former can be found in studies that have defined benefits as more, for instance, financial and non-financial, as well as how project outputs increase the level of effectiveness and efficiency during operational activities.

Meanwhile, other studies have indicate the latter where benefits are defined at a more strategic level. These studies were more focused on how a project's outputs are expected to deliver strategic objectives. Some studies considered outputs for translating an organisation's business goals. Interestingly, as highlighted earlier, the review clearly differentiated success criteria based on the timeframe: outcome and impact phases. This differentiation is illustrated in Figure 2.2. Furthermore, outcome and impact phases are referred by many studies as the post-handover stage. This thesis views that the post-handover stage is where benefits are more appropriate to be identified and defined. Once a project hands over its outputs, they enter a new phase to realise strategic objectives achievements.

This thesis considers this transition period as an ability of an organisation to manage its benefits. Ward and Daniel (2012, p. 67) asserted that 'by studying projects and particularly by conducting a post-implementation review, it is possible to understand why some projects are more successful than others in delivering benefits'. In other words, by conducting an evaluation, benefits generated from a project can be identified, including the ability of an organisation's benefits management.

2.4.1 Benefits Management

In the literature, project success is discussed separately from benefits management. Remenyi and Sherwood-Smith (1998) perceived a project as a mechanism to deliver outputs while benefits realisation is a continuous process that demonstrates evidence of an investor's benefits. Their opinion is aligned with the perspective of the Cranfield process model (Ward et al., 1996) on realising benefits.

As pointed out earlier, the difference between the lexical meaning of success and benefits leads to a differentiation between success evaluation and benefits evaluation. This thesis views benefits evaluation can be used to assess benefits management capability of an organisation. Benefits gained from a project enter their transition period from outputs of a project (end products) to new resources (new inputs) to realise mid- and long-term objectives. Hence, these benefits should be

well managed throughout the transition process. Benefits management capability is required by an organisation to maximise beneficial contributions of a project's outputs.

Although this sub-section is titled Project Benefits Management, the literature showcases various concepts about managing benefits. Five significant concepts are summarised in Table 2.3: (i) activity benefits realisation; (ii) benefits realisation approach; (iii) benefits management; (iv) project benefits management; and (v) benefits realisation management. Interestingly, benefits management is defined differently by Ward and Daniel (2006) and Breese et al. (2015), however, both studies use the same terminology.

Ward and Daniel (2006) proposed a narrow context in defining benefits management. They drew the definition from IT and IS investment. Another narrow context in defining the concept is activity benefits realisation, in which Remenyi et al. (1997) defined the concept by using a similar contextual background as Ward and Daniel (2006).

Table 2.3   Defining benefits management

Concept	Definition
Activity Benefits Realisation (Remenyi et al., 1997)	Activity benefits realisation 'focuses on achieving the maximum value from information systems investment' (p. 7).
Benefits Realisation Approach (Thorp, 1998)	The benefits realisation approach is 'a business oriented framework, supported by a set of processes, techniques and instruments which enables organisations to select and manage a portfolio of programmes such that benefits are clearly defined, optimised and harvested' (p. 234)
Benefits Management (Ward & Daniel, 2006)	Benefits management is 'the process of organising and managing such that the potential benefits arising from the use of IT/IS are actually achieved' (p. 36)
Project Benefits Management (Melton et al., 2008)	Project benefits management is 'a business process which links the reason for doing projects with the business impact from their delivery' (p. 3).
Benefits Realisation Management (Bradley, [2006] 2010)	Benefits realisation management is 'the process of organising and managing, so that potential benefits, arising from investment in change, are actually achieved' (Bradley, [2006] 2010, p. 29)
Benefits Management (Breese et al., 2015)	Benefits management is 'a process that defines the potential business benefits and financial impact of a project and ensures that these are achieved in practice' (p. 1441).

This thesis also examines two other definitions that are considered to have a financial-oriented focus: (i) benefits realisation management (Bradley, [2006] 2010); and (ii) benefits management (Breese et al., 2015). The concept by Breese et al. (2015) provides an indication of four stages of concept development.

1. Stage 1: Started in the 1990s by introducing benefits management.

2. Stage 2: Occurred between the late 1990s and 2000s when benefits management was predominantly pioneered by consultancy firms and business-orientated university departments to address the failure of IT projects.

3. Stage 3: Occurred in the mid to late 2000s when benefits management was refined for best practices and as a maturity model.

4. Stage 4: Considered more recent (2010 onwards) when benefits management was developing as a specialist accreditation for trainers and educators.

These stages also provide a guide to align a need for a more appropriate definition, therefore benefits management should also be used as a best practice and maturity model of an organisation or institution as the capacity to learn and develop, as indicated by Ashurst and Doherty (2003).

This thesis also considers the definition of a benefits realisation approach (Thorp, 1998) and project benefits management (Melton et al., 2008). However, Thorp's definition of benefits realisation approach is likely to be misleading, because a portfolio is treated as part of a program. In fact, this perception should be reversed, that is, a portfolio covers programs and projects (Thiry, 2012). From a project management standpoint, benefits management is viewed to be more focused on program management (Barclay & Osei-Bryson, 2009).

In terms of a definition for project benefits management (Melton et al., 2008), this thesis views this concept is more relevant than the one being described under benefits realisation approach. The definition of project benefits management signifies an ability to link reasons for completing a project and its impact on the business process. Since this thesis is concerned about the timeframe, the definition of project benefits management is on how to maintain a project's benefits after its outputs have been handed over.

By using project benefits management as a more appropriate concept for this thesis, it is assumed that the project is the enabler. This enabler is expected to deliver successful business benefits (Cooke-Davies, 2002; Letavec, 2014; Turner, 2009; Ward & Daniel, 2006). Additionally, as an enabler, a project's benefits are seen as change agents within an organisation (Cooke-Davies;

Davenport et al., 1998; Ward et al., 1996). Nonetheless, Bennington and Baccarini (2004a) argued that change does not necessarily provide business benefits.

2.4.2 Benefits Management Processes

In demonstrating the capability of a project's output to deliver strategic objectives, a number of processes are required. Table 2.4 summarises the processes that occur in managing benefits that emanate from a project's outputs. Six processes from a number of recent studies are highlighted. While other studies have detailed the processes, others list them simply. However, all of these processes recognise the importance of planning, but only Ward and Daniel (2012) and Letavec (2014) have indicated the essential process of sustaining benefits.

Table 2.4   Benefits management processes

Benefits management processes
Benefits identification, benefits realisation planning, benefits monitoring, and benefits realisation (Bennington & Baccarini, 2004a).
Benefits realisation planning; benefit metrics tracking; linking the project scope and the benefit metrics; and linking business change outside of project scope and the benefit metrics (Melton et al., 2008).
Set visions and objective; identify benefits and changes; define initiatives; optimise initiatives; manage initiatives; and manage performance (Bradley, [2006] 2010, pp. 40-44).
Identifying and structuring the benefits; planning benefits realisation; executing the benefits plan; reviewing and evaluating the results; establishing potential for further benefits (Ward & Daniel, 2012).
Benefits identification, benefits analysis and planning, benefits delivery, benefits transition, and benefits sustainment (Letavec, 2014).
Planning, review, realisation, and strategy (Breese et al., 2015; Serra & Kunc, 2015).

Benefits management should play a significant role in the transition period of a project's outputs. Once a project is completed and its outputs are handed over, benefits management is crucial to ensuring that beneficial contributions of the outputs can be experienced for the long-term. This thesis suggests that processes should also consider the timeframe so that they will be more aligned (Figure 2.6).

Figure 2.6 highlights three phases of project output lifecycle. At the output stage, the process is started with benefits planning and benefits metrics, which are established to ensure the project scope is aligned with the overall organisational goals. This alignment emphasises a project that acts

as an enabler, as discussed earlier. In other words, by considering Project Success Model – Category 3, this thesis refers benefits management process that covered benefits planning, benefits metrics tracking, benefits transition, benefits delivery, and benefits review and sustainment (Melton et al., 2008; Ward & Daniel, 2012; Letavec, 2014).
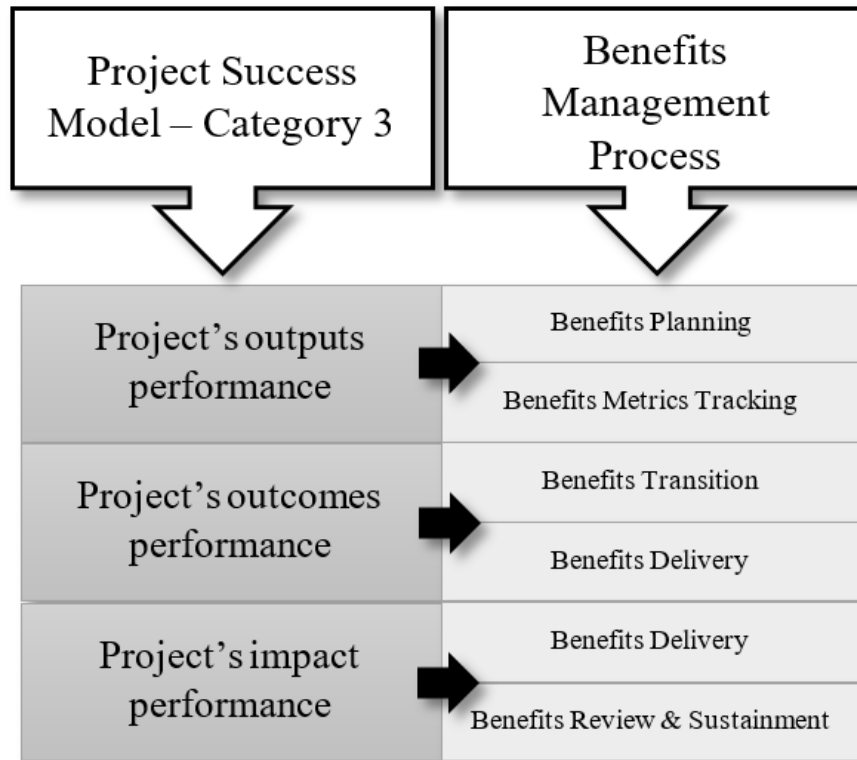
Figure 2.6   Synthesised benefits management processes

Once a project is completed and its outputs are handed over, the process should ensure that the benefits being transferred become part of the recipient's new resources. At the outcome phase, benefits transition is necessary. As discussed earlier, training and education during the transition period will ensure that new resources (project outputs) can be used by the users to perform their daily tasks.

Once users are proficiently trained to work on the outputs, the organisation can then expect 'real' benefits to be delivered. The benefits delivery process is also expected at the impact phase. Project outputs are expected as a beneficial contributions to deliver an organisation's strategic objectives. At the impact phase, the process of delivering benefits should be accompanied by a review or appraisal to assess long-term contributions of the project's outputs. The review process will allow

the organisation to decide whether to sustain the resources with modification to be made, or terminate them only to be replaced with new ones.

The application of formal and structured project benefits management processes will increase the likelihood that desired benefits are delivered (Bennington & Baccarini, 2004a). This assumption is empirically proven in a study by Badewi (2016). According to his findings, he proposed an inclusive project governance structure to comprehensively manage a project with the benefits generated to maximise the project's long-term success.

In more recent work, Zwikael and Smyrk (2019) explore the concepts of benefits management and project management. In particular, how the recent version of the PMBOK® guide incorporates the concept of benefits management. However, this review can argue that PMBOK is more practical guidelines than an academic work. Besides, the PMBOK guide is still used up to the end of the project, and are still unable to demonstrate the concept of benefits management. As well, benefits management is an emerging concept on project management and remains relatively underdeveloped. In other words, it still could be argued that *benefits management is still perceived in the literature as a separate concept from project management*. As well, *limited studies have been conducted to demonstrate the use of a benefits review – an element of benefits management process – to explore 'real' project success.*

2.4.3 Organisational Context in Benefits Management

In benefits management, the processes should consider the organisational context. Ward and Daniel (2012) considered types of an organisation as an essential factor for optimising the benefits management process. The process frequently encounters differences between private and public sector institutions, size of the organisation, and whether an organisation is a single or multiple business unit.

In optimising the process of benefits management, Doherty et al. (2012) empirically showed that traditional project success factors are to have an explicit benefits focus. They identified six factors to optimise the process of benefits management and referred them as trends of movement (Doherty et al., 2012, pp. 7-10).

1.   Identifying goals and objectives to detailed benefits planning.

2.   Project management to the management of transformation.

3.   Well-balanced project teams to coherent governance structures.

4. Senior management support and commitment to active business leadership.

5. User participation to stakeholder-enabled benefits realisation.

6. Rigorous software testing to ongoing benefits review.

These factors are similar to benefits management processes that include benefits identification, planning, and the transformation period after a project has ended, as well as the handover of project outputs and its people. Doherty et al. (2012) also emphasised organisational governance under the six factors, for example, from the third and fourth factors. In other words, their study acknowledged long-term project success factors as a benefits management process.

The trend of movement from traditional project success factors towards a more benefits-oriented focus is also suggested by Chih and Zwikael (2015) who compared the approaches of traditional project management and benefits management regarding managerial focus, project objectives, performance evaluation and project leadership focus (Chih & Zwikael, 2015).

Chih and Zwikael's study is another example of how project long-term success can be seen as a focus of benefits management. Their viewpoint also considered organisational context to allow benefits management to be optimised. Both Doherty et al. (2012) and Ward and Daniel (2012) implied that organisational context influence is necessary to fully implement benefits management. They implicitly acknowledged the challenging context of public sector organisations and their complex stakeholders. It is presumed that it is more challenging for an ID project environment due to its characteristics. ID projects also intend to increase an institution's or organisation's maturity level. However, *studies have paid less attention on how effective these projects can actually increase the level of maturity of the main beneficiaries while the project sponsor and implementing unit limit their evaluation up to the handover stage*. At this stage, most studies in the literature have provided empirical results, mostly from the lens of project sponsors. Project success occurs at the post-handover stage when success depends on the level of institutional or organisational maturity to ensure the benefits are managed and sustained for longer. At the outcome and impact phases, *rare studies have been conducted to explore organisational context in managing benefits in the context of ID projects*.

2.4.4 Project Benefits Management in the International Development Context

ID projects are perceived to have a unique nature due to their primary goal to deliver benefits (Khang & Moe, 2008) and their own distinct characteristics (Diallo & Thuillier, 2005; Golini & Landoni, 2013; Khang & Moe, 2008; Youker, 1999). Considering the nature of an ID project, the

concept of benefits management is likely to be viewed as a bottom-up approach, easing its challenging characteristics. One significant characteristic of ID projects is its multilevel stakeholder structure. An ID project is usually run nation-wide and managed by an appointed ministry or national agency. However, main beneficiaries of a project are at the bottom of the structure.

In terms of hierarchical for stakeholder accountability, a multilevel stakeholder structure leads to a complicated accountability system. When an ID project is run nation-wide and the main beneficiaries are at the bottom of the structure, the accountability process will be challenging. A national report of an ID project is also an accumulation of all parties' accountability reports. The national accountability is also a generalisation of the accountable or less-accountable processes throughout the country.

Moreover, political and organisational pressures can come from the funding source. Most ID project funding are sourced from loans granted by international agencies, such as the World Bank, Asian Development Bank or Islamic Development Bank. This funding source means that a loan is committed by a country, and therefore, needs to be repaid. A foreign loan can be used as a political commodity to enforce ruling on a government. Benefits management is then expected to provide evidence on the success of the ID project funded by an international agency.

Under these circumstances, a post-implementation evaluation needs to be implemented and comprehensive, as well as needs to document that benefits are fully experienced by owners and their users beyond the delivery stage, that is, in the long-term. In other words, benefits management is likely to be comprehended from a holistic viewpoint.

In the context of ID projects, comprehension tends to be obtained by using a logical framework approach (LFA). As an American-designed model, the LFA was developed to 'improve project management of ID projects and accountability to Congress' (Baccarini, 2011, p. 504). Major ID agencies had used the LFA for years (Landoni & Corti, 2011; MacArthur, 2011). However, this model was heavily criticised (Gasper, 2000) because its focus was more on quantitative rather than qualitative aspects and it simplified changes in social context (Pomerantz, 2011). Like many other project evaluation methods, the LFA was used from the viewpoint of sponsors, not from beneficiaries (Eggers, 1994; Lewis & Madon, 2004; Rodríguez, 2005). Importantly, donors and governments are still concerned about the narrow opinions about financial accountability (Britton, 2005). Improving this approach were carried out, particularly to address the rigidity of the linear relationship in the LFA (Bakewell & Garbutt, 2005; Cornell, 2015; White, 2005). However, they

tended to be unsuccessful and some agencies, including United States Agency for International Development, removed the LFA from their guidelines (Landoni & Corti, 2011).

In removing the LFA, less comprehension of a post-project evaluation method was noticeable. Badewi (2016) argued that benefits review should be conducted by benefit owners; and in the context of ID projects, sponsors or donors are not the main beneficiaries. Importantly, the emphasis of benefits management should be placed on main beneficiaries as the actual benefits owners (Figure 2.6).

From the position of the main beneficiaries, another aspect should be considered: most ID project sponsors tend to marginally consider a recipient's institutional or organisational maturity in managing the benefits gained from a project. This attention is crucial because benefits management reflects organisational maturity (Cooke-Davies, 2004; Gomes & Romao, 2015; Thiry, 2012). '[O]rganisational maturity, structure, and culture are key issues, which hinder the organisations from implementing better benefits realisation practices' (Haddara & Päivärinta, 2011, p. 4).

The reason for failure and negligence might be due to limited discussions in the literature on project benefits management (Bennington & Baccarini, 2004b; Chih & Zwikael, 2015). In other words, studies on project benefits management, in general, are considered to be a new topic. The lack of studies on this topic is recently indicated by two leading project management institution journals: (i) International Journal of Project Management; and (ii) Project Management Journal. The International Journal of Project Management recently called for papers to be submitted for a special issue on project benefits management (Zwikael, 2014). Meanwhile, in 2015, the Project Management Journal opened a request for proposal to 'incorporate the findings of relevant research in the revision of existing PMI standards' (PMI, 2015).

The topic is presumably uncommon in the context of ID projects where an evaluation tends to be conducted by the project sponsor or project donor and not by the main beneficiary. In other words, *the topic of project benefits management has a wide gap in the literature for ID projects in bridging two major concepts – project management and benefits management*. Hence, comprehensive information on post-project evaluations should be put in place. This evaluation can cover post-implementation evaluation, which assesses project management success and benefits review, which evaluates project success. Additionally, this bridge is expected to allow a bottom-up approach to a post-implementation evaluation by the benefits owner. In particular, organisational internal factors should be taken into consideration for the two concepts to be linked.

2.5   Research Gaps

Chapter 2 has identified several significant gaps in project management and benefits management, particularly in the context of ID projects. Nevertheless, discussions have covered general discourses in order to navigate these gaps, to be identified under each main topic: project success, post-project evaluation, and project benefits management.

Under the topic of project success, three main gaps were identified. First, studies have neglected to focus on the importance of timeframes in assessing project success, as well as the lack of information in the literature on project success for ID projects at the handover stage.

For the second main gap under the topic of post-project evaluation, two gaps were identified: (i) post-implementation evaluation is usually limited to be used to understand project management success; (ii) the literature has insignificant discussions on post-project evaluations that comprehensively evaluate project management success and project success for ID projects.

The third main gap under the topic of project benefits management, four research gaps were identified. Benefits management is still perceived in the literature as a separated concept from project management. Also, limited studies have been conducted that demonstrate the use of benefits review – an element of the benefits management process – to explore 'real' project success. In particular for ID projects, studies have neglected to focus on how effective these projects can increase the level of maturity while the project sponsor and implementing unit limit their evaluation up to the handover stage. Lastly, the topic of project benefits management indicates a wide gap in the literature for ID projects in bridging two major concepts: (i) project management; and (ii) benefits management.

Based on these gaps, an overall research gap can be concluded. The discussions concluded that *very limited studies have explored project success at the post-handover stage (outcome and impact) for ID projects*. These gaps and those under the main topics signify the rationale for this thesis and their potential contribution to the knowledge (Figure 2.7). In other words, this research posits itself to explore project success at the post-handover stage for ID projects. This exploration will be based on the main research question: *What are critical factors and success criteria at the post-handover stage for ID project outputs?*
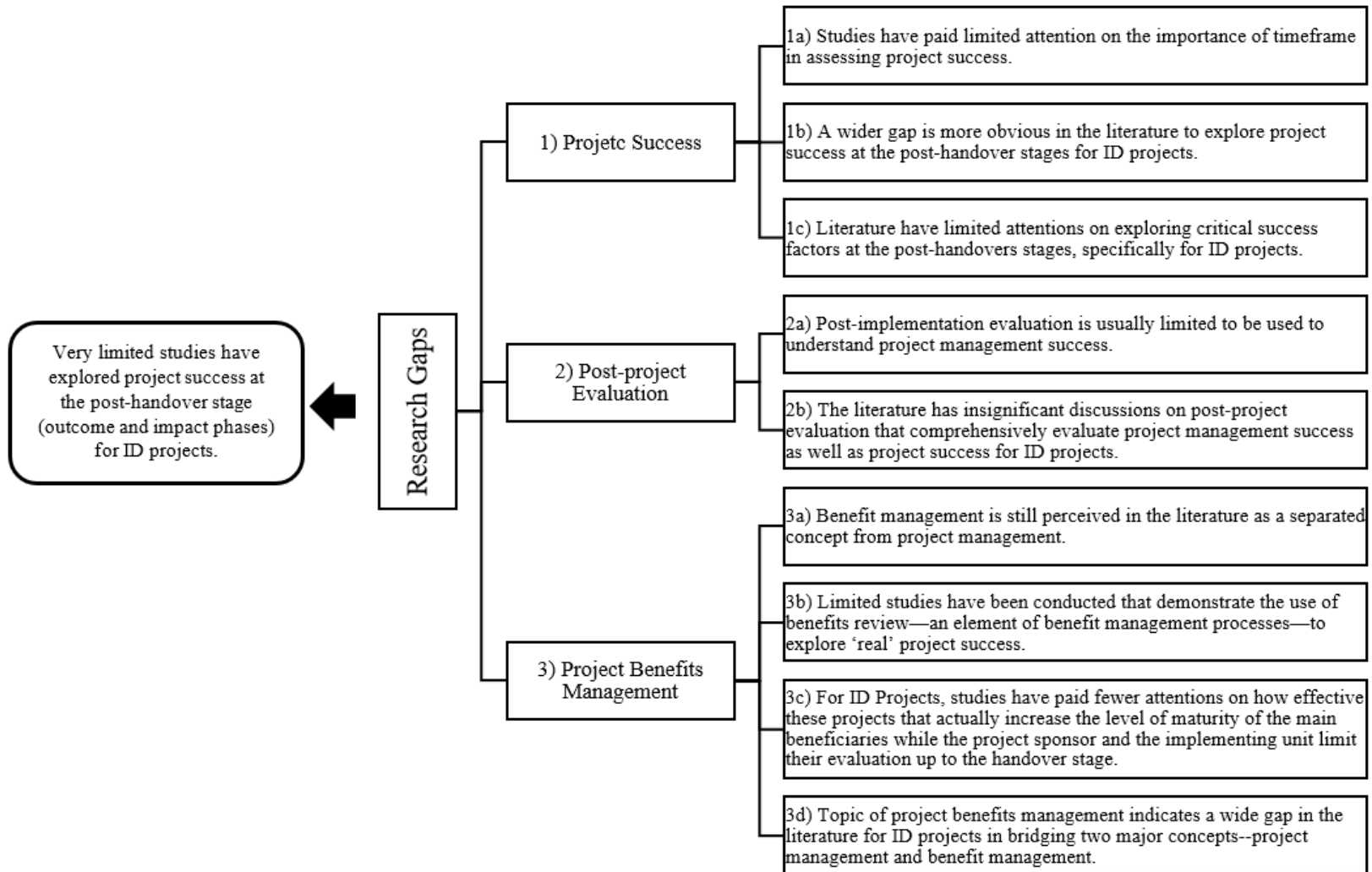
Figure 0.7   Overall research gap

CHAPTER 3:
METHODOLOGY

3.1 Introduction

Chapter 3 discusses the methodology used in this research, mainly focussing on two main parts: (i) underlying methodology; and (ii) how it was implemented to collect and process the data gathered. As illustrated in Figure 3.1, the overview details the position of the research in the research paradigm, grounded theory overview, constructivism in grounded theory, use of CGT, actual use of the method, data collection, data, processing, and a chapter summary.
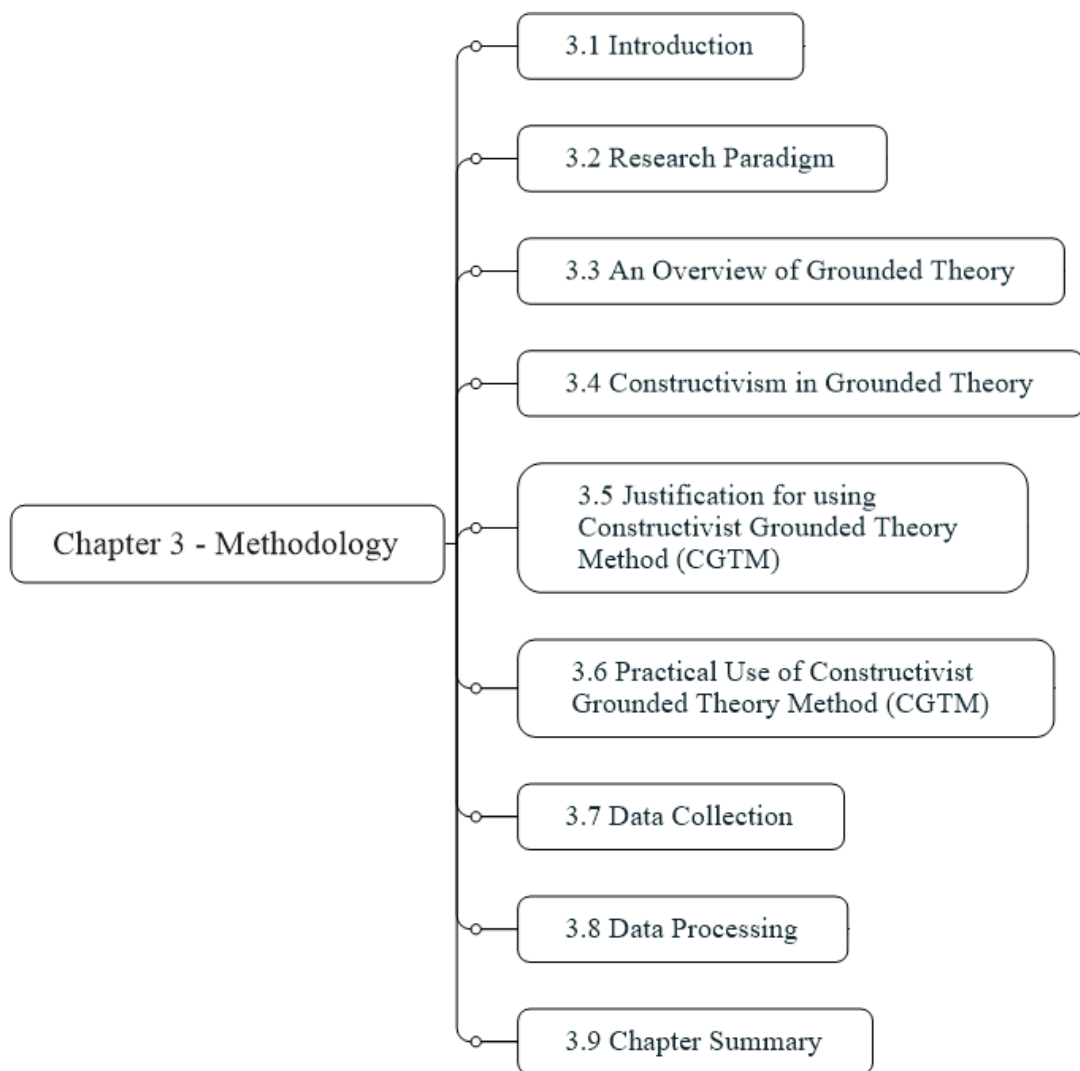
Figure 3.1   Overview of Chapter 3

3.2   Research Paradigm

Discussions in Chapter 2 have pointed out gaps in the literature. These gaps have led to the formation of the research question and a selection of a method required to address it. The most suitable method needed to be succinctly elaborated is under the topic of methodology. While the methodology explains 'how do we know the world or gain knowledge of it?' (Denzin & Lincoln, 2005, p. 22), it is actually based on the nature of the social world. As illustrated in Figure 3.2, which consists of a phenomenon (ontology), knowledge of those phenomena (epistemology), and human nature, focusing on the relationship between human beings and their environment (Burrell & Morgan, 1979).
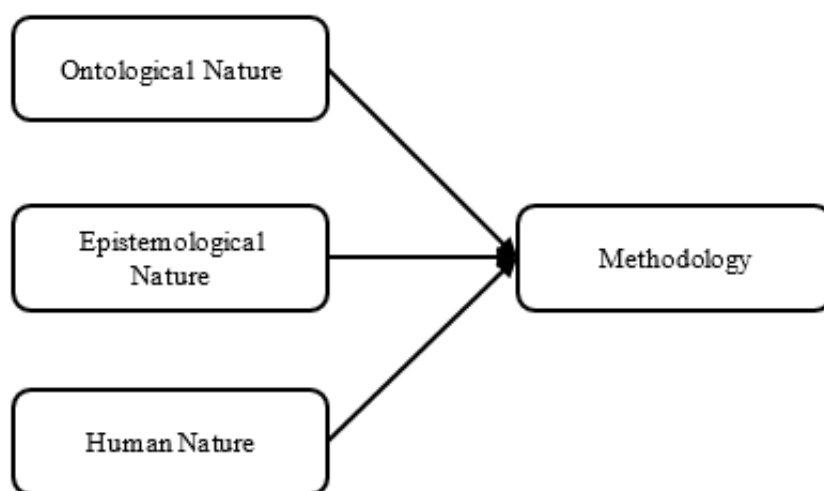
Figure 3.2   Underlying nature of methodology (adapted from Burrell & Morgan (1979))

The three natures of the social world are assumptions used by a researcher in carrying out his/her research. They are driven by 'a basic set of beliefs that guide action' (Guba, 1990, p. 17, in Creswell, 2007) and known as a paradigm. In a more specific entity, such as an organisation, a paradigm is 'a general perspective or way of thinking that reflects fundamental beliefs and assumptions about the nature of organisations' (Gioia & Pitre, 1990, p. 585).

This description of paradigm was aligned with the context of this research. In the context of ID projects where real project success was measured at the post-handover stage, the main beneficiaries were the entities (organisations or institutions) that evaluated and experienced success. This success had criteria that were different from those at the handover stage; they were contributed by a number of internal factors. Both success criteria and their critical factors are the focus of this

research and, therefore, it needs to set assumptions in selecting an appropriate methodological approach to identify and define both.

The paradigm of this selection also needs to be more specific, considering the three natures mentioned. The natures also represent the context of this current research with regard to main beneficiaries as organisations or institutions. In organisational studies, the difference in paradigms is due to the differences in the *nature of science* – subjective and objective—and *nature of society* – regulation and radical change (Burrell & Morgan, 1979).

By using Burrell and Morgan's natures, this research determines its core paradigm. In terms of the nature of a society, this research is based on its context. In general, projects are enablers that achieve an organisation's or institution's strategic objectives. While an entity (organisation or institution) strives to maintain order by implementing a number of regulations that assures stability, it is constantly evolving.

Stability can also mean minimising distortions within an organisation because of its development and evolvement. 'What is stable becomes a target for change' (Gioia & Pitre, 1990, p. 587). In other words, change is inevitable, but not so radically changed. For ID projects in this research, the stability of the main beneficiaries were required, considering the source of the financing scheme. This type of project has political sensitivity, so radical changes in the main beneficiaries are less favourable. In short, this research posits itself under the regulations yet might be moved to a higher change nature.

For a subjective, objective nature, this research reflects on the discussions of the available literature. Different stakeholder institutions at different timeframe define project success in their own way. The research focuses on the timeframe where real project success is experienced at the post-handover stage (outcome and impact) when success is based on the reality of using a project's outputs to perform daily tasks. Identifying and defining success criteria and their critical factors would be the construct of an organisation's members' realities and perceptions. Each member is likely to have different expectations of the outputs as they are used daily. These expectations can be subjective and different from other members. Subjective points of view can lead this research to posit itself into more subjective areas than objective ones, such as a traditional triangle of project management success (time, cost, quality/performance). All in all, this research can consider itself under the paradigm of *interpretivist* (Figure 3.3).
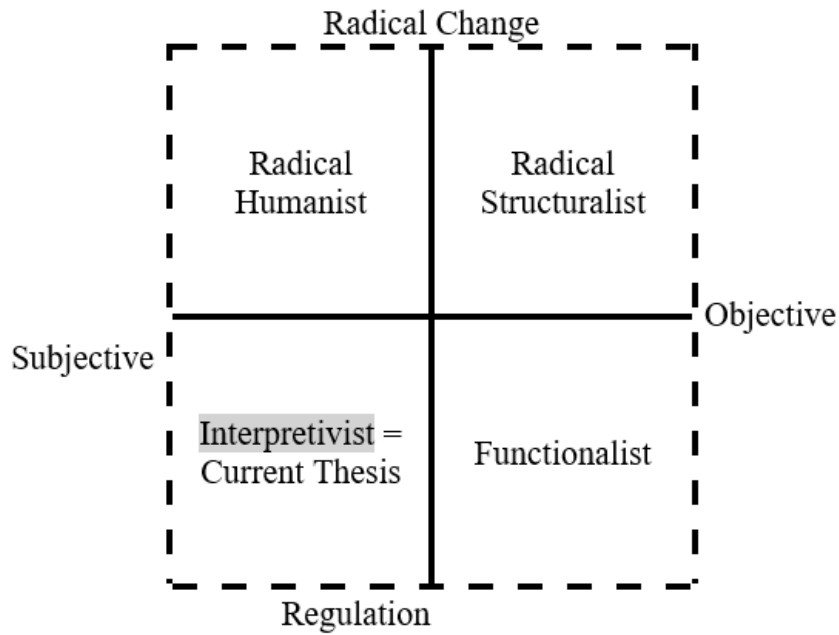
Figure 3.3   Current research position in Burrell and Morgan's four research paradigms (1979, p. 22)

A research can become a unique when it contributes to knowledge, especially in building a theory. Once this research set its position in a paradigm or worldview, it needed to consider how the paradigm would assist in building or generating theory. As highlighted by Gioia and Pitre (1990), interpretivism should consider the goal of the study, theoretical concerns, and the approach for theory building, as summarised in Table 3.1.

Table 3.1   Theory building under four paradigms (Gioia & Pitre,1990, p. 591)

Paradigm	Goals	Theoretical concerns	Theory-building approach
Interpretivist – a more subjectivist view, also with an apparent concern with regulation, or at least a lack of concern with changing the status quo	To *describe* and *explain* in order to *diagnose* and *understand*	Social construction of reality Reification process Interpretation	*Discovery* through *code analysis*

Table 3.1 implies branches of the earlier paradigms, in particular, theoretical concerns. According to Denzin and Lincoln (2005), interpretative paradigms consist of positivist and post-positivist, constructivist, feminist, ethnic, Marxist, culture studies, and queer theory. Creswell (2007) divided

the paradigm into postpositivism, constructivism, advocacy/participatory, and pragmatism. In other words, Creswell admitted to using constructivism in interpretivism, while Gioia and Pitre indicated the use of social construction of reality as a theoretical concern for interpretivism. These considerations highlight that constructivism is likely to be the most representative of an interpretivist paradigm or interpretivism.

The sub-division of constructivism in interpretivism can also be available in practice. Researchers have recognised that their own contextual backgrounds shape interpretations. Researchers have posited themselves in the research to admit how their interpretation flows are derived from their individual, cultural and historical experiences. This implies that researchers and what is being researched can construct the findings.

In other words, the findings are solidly grounded from data that are not only gathered from those being researched, but also from the researcher's experiences and knowledge. This means that the researcher acknowledges his 'positioning practices' as one of four types of reflexivity, as pointed out by Alvesson et al. (2008), in grounded the theory from the data generating. In this context, the researcher needed to acknowledge how the one's experience might influence how the data were interpreted.

Further, 'findings are usually presented in terms of the criteria of grounded theory or pattern theories' (Denzin & Lincoln, 2005, p. 25). Grounded theory has become a beacon for conducting a qualitative study that attempts to focus on the quality and depth of a phenomenon being studied. This consideration has led this current research to set its main approach as a qualitative research. As well, the influence of constructivism enhances theory building of grounded theory. Both grounded theory and the influence of constructivism are elaborated in the following sections.

3.3   Overview of Grounded Theory

Grounded Theory was proposed by Glaser and Strauss in their prominent book, *The Discovery of Grounded Theory*. In this book, the authors (1971, p.3) state that 'generating grounded theory is a way of arriving at theory suited to its supposed uses'. According to Mills et. al (2006, p.26), as an inductive process, grounded theory is seen as "a methodology that seeks to construct theory about issues of importance in people's lives". This implies that grounded theory is both a theory and a process. As a theory, grounded theory represents a systematic account of conceivable relationships (Beck et al., 2013). For example, Lee (2002) states that grounded theory is concerned with 'real

things, represents real entities and is evaluated on how well it corresponds to the causal way of the economy actually' (p. 797).

As a process or methodology, grounded theory captures participants' perspectives of certain phenomena being researched, and developing theories from the beginning rather than forcing them a priori (Miles, 1979). In other words, grounded theory is defined as an inductive process to generate theory based on systematically gathered and analysed data (Charmaz, 2006; Corbin & Strauss, 2014; Goulding & Saren, 2010; Maceachen et al., 2012) to reveal inherent trends and practices (Dirks & Rice, 2004). Glaser and Strauss (1971) also stress that 'generating a theory involves a process of research' (p. 6).

As a basic viewpoint, 'grounded theory is derived from data and then illustrated by characteristics examples of data' (Glaser & Strauss, 1971, p. 5) In other words, grounded theory can be defined as the end product, as well as the process (Beck et al., 2013; Creswell, 1998; Strauss & Corbin, 1990). However, the original grounded theory method has been criticised in multiple ways. One crucial aspect of it was when it was attacked and there should not have been any preconceived assumptions beforehand, including a massive review of the extant literature (Charmaz, 2006; Corbin & Strauss, 2014; Mills et al., 2008; Strauss & Corbin, 1990).

However, interestingly, in the original version of grounded theory, Glaser and Strauss (1971) realised the importance of preconceived assumptions and stated:

> [O]f course, the research does not approach reality as a *tabula rasa*. [The researcher] must have a perspective that would help [the researcher] see relevant data and abstract significant categories from [the researcher's] scrutiny of the data. (p. 3, Footnote 3)

The most interesting part of the journey of grounded theory is the split of the two designers. Coleman and O'Connor (2007) claimed that the split was due to extended coding systems by Stratus and Corbin, called axial coding, having 'philosophical and pedagogical differences' (Kendall, 1999, p. 748). Importantly, this section is not intended to discuss the split of Glaser and Strauss (Coleman & O'Connor, 2007; Kendall, 1999; Walker & Myrick, 2006), but it is to elaborate the development of grounded theory. After the split, grounded theory originators maintained their own stance of the theory, as summarised in Table 3.2.

Table 3.2   Basic stances of grounded theory originators (Charmaz, 2000, p. 510)

Glaser	Straus and Corbin
Glaser's position often comes close to traditional positivism, with its assumption of an objective, external reality, a neutral observer who discovers data, reductionist inquiry of manageable research problems, and objectivist rendering of data.	Strauss and Corbin assume an objective's external reality, aiming towards unbiased data collection, proposing a set of technical procedures, and espousing verification.

As indicated by Kendall (1999), the split was likely caused by challenges in applying the theory, particularly in bridging its philosophical and pedagogical stances. In general, the original grounded theory had been challenged for decades. According to Charmaz (2014a), throughout the 1990s, postmodern and narrative critics weakened the epistemology of the original grounded theory because it clung to outdated modernist epistemology. Charmaz referred to criticisms from Conrad (1990), Ellis (1995) and (Richardson, 1993), claiming:

> … grounded theory fragmented the respondent's story, relied on the authoritative voice of the researcher, blurred difference, and uncritically accepted Enlightenment grand metanarratives about science, truth, universality, human nature, and world views. (Charmaz, 2014a, p. 13)

3.4   Constructivism in Grounded Theory

Critics have led to the development of using grounded theory. For example, Mills et al. (2008) confirmed its use by discussing the progression of theoretical sensitivity, treatment of the literature, coding and diagramming, and identifying the core strategy. In their elaboration, Mills et al. (2008) viewed the discernment of the constructivist approach. They believed that due to ontological relativism and epistemological subjectivism, traditional grounded theory has evolved into the CGTM.

> Constructivism assumes the relativism of multiple social realities, recognises the mutual creation of knowledge by the viewer and the viewed, and aims toward [an] interpretative understanding of subjects' meanings. (Charmaz, 2000, p. 510)

Charmaz (2000) then proposed the use of the CGTM in early 2000. Her approach basically adopted the inductive, comparative, emergent and open-ended method by Glaser and Strauss (1971). Figure 3.4 depicts the general overview of the CGTM. The figure shows that the processes are commenced with the research question, followed by sampling, data collection, coding processes, theory building, and writing up. Memo-writing accompanies the processes, especially when

constant comparative analysis occurs along the way. Further, a 'case' was used to build theory (Eisenhardt & Graebner, 2007). All these processes were adopted in this research.

CGT has been used in various fields, including nursing (Annells, 1997; Norton, 1999), psychology (Corbet-Owen & Kruger, 2001; Dodson & Dickert, 2004; Madill et al., 2000), occupational and environmental medicine (Gustafsson et al., 2003), hospitality (Dirks & Rice, 2004) and education (Jones, 2002; Jones & Hill, 2003). In the last decade, a generic form of grounded theory has also been used in project management studies (Coleman & O'Connor, 2007; Hoda et al., 2010; Osadchyy & Webber, 2015; Phua, 2004).
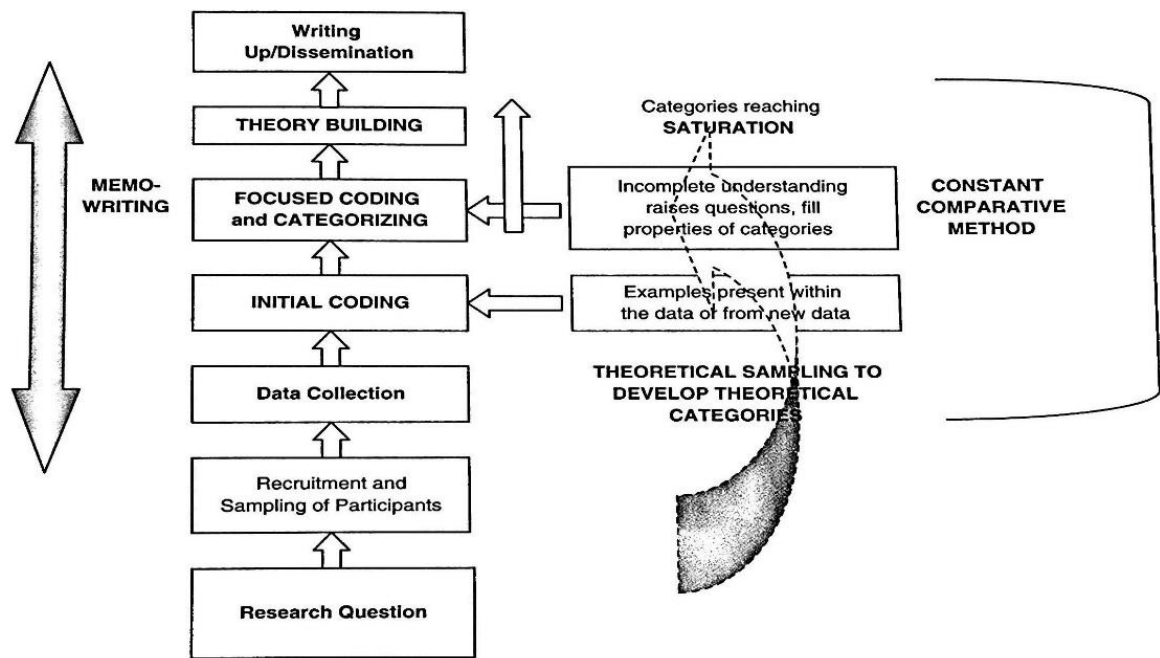
Figure 3.4   Constructivist grounded theory (reproduced from Charmaz, 2014a, p. 18)

Apart from critiques and applications of CGT above, earlier elaborations on the research paradigm has set the position for this current research to allow for brief discussions on interpretivism that have influenced constructivism. Hence, this research perceives CGT to be the most appropriate methodology, because it employs a generic approach of grounded theory, as introduced by Glaser and Strauss (1971), as well emphasises on 'viewing the research as constructed rather than discovered fosters researchers' reflexivity about their actions and decisions' (Charmaz, 2014a, p. 13).

In this research, participants were perceived as the core of the main beneficiaries in using project outputs, focussing their voices as 'rich, accurate detailed descriptions that are much more

meaningful' (McCallin, 2009, para. 7). The participants were members of the former recipient of the I-MHERE funding scheme (the 'case'). This scheme produced number of outputs that had being used since they were handed over in 2019. Hence, the participants *were* the actual beneficiaries that needed to be taken to into consideration their rich description on success criteria and the critical factors.

3.5   Justification in Using Constructivist Grounded Theory Method

According to Söderland et al. (2012, p. 768), 'project success is and will always be a subjective judgement from different perspectives, which are formed by an individual[']s position in [an] organisation[], their role and their worldview'. The property or dimension of project success, especially in the context of an ID project is considered valuable when it generates 'fresh perspective and frame-breaking insights' (Eisenhardt, 1989). As discussed in the literature earlier, 'real' project success is experienced at the post-handover stage when the project sponsor and implementing agencies have a chance to experience actual success. Instead, main beneficiaries are those who can provide insightful definitions of a project's success.

In this context, the CGTM is used for grounding this subjectivist view of the main beneficiaries. It would also be used to emphasise how participants (individually) and their organisation (institutionally) interpret success at the post-handover stage. Results of using the CGTM are expected to be compared with various organisations or sampled sites. Outputs of a project are then expected to reveal what the interpretation of success criteria at the post-handover stage is when delivering strategic objectives, including critical factors that have contributed to the attainment of the criteria.

Based on discussions in Chapter 2 and earlier figures, Figure 3.5 is produced to point out the limited attention in clarifying timeframes in project success models that are needed to align the success of a project's outputs at every stage of the lifecycle when they are expected to deliver their intermediate and long-term contributions. This expectation can be carried through an evaluation that will be used to understand a project's success, particularly to uncover success factors at the post-handover stage.

Figure 3.5 describes two out of the four practical patterns of evaluation, academic and outcome, created by Shadish and Epstein (1987), as discussed in the literature earlier. Figure 3.5 also includes Hart's (1998) definition on summative evaluation, which is usually used to evaluate policies and programs in a large context, including ID projects. Summative evaluation can also be

used in the form of qualitative research that can cover targeting and institutional capacity (Rist, 1994).

In terms of benefits management, benefits review extends and strengthens the evaluation on the achievement of project success criteria and identification of critical factors at the post-handover stage. In the literature, a benefits review can be used to understand the achievement of financial benefits (Al-Yaseen et al., 2010a; Kumar, 1990; Love & Irani, 2001) or non-financial benefits (Liu et al., 2003), such as value creation (Archibald et al., 2012; Horvath et al., 2011). In short, Figure 3.5 illustrates the rationale in using the CGTM, which bridges the conventional post-implementation evaluation and benefits review to explore success criteria and their critical factors at the post-handover stage.
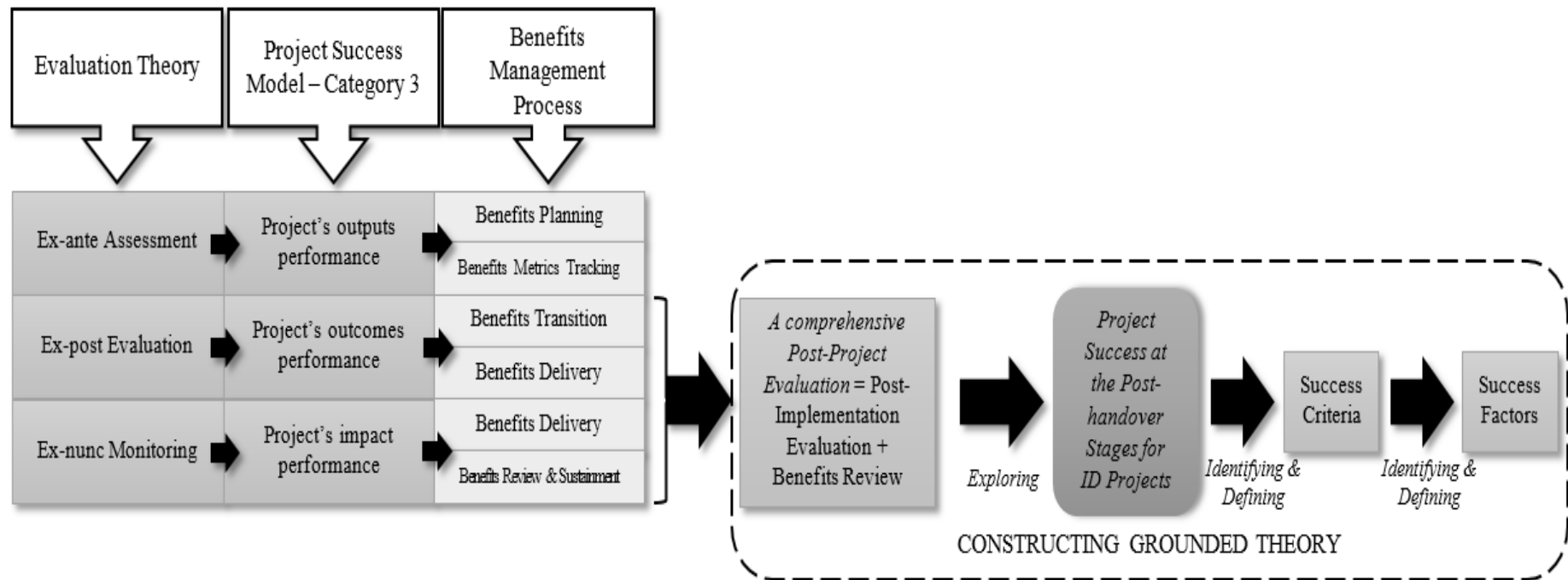
Figure 3.5   Justification of constructivist grounded theory (developed from Fahri et al. (2015))

3.6 Practical Use of Constructivist Grounded Theory Method

This research implements three main stages in using the CGTM: (i) data collection; (ii) coding processes; and (iii) concept generation. In applying the CGTM, Section 3.6 discusses how concepts of grounded theory, both the original and constructivist versions, are synthesised in the current research. There is an awareness that by using the grounded theory approach, data collection and data analysis have vogue boundaries and are sometimes interrelated (Charmaz & Belgrave, 2007; J. M. Corbin & A. Strauss, 1990). However, this sub-chapter emphasises the difference between Section 3.6.1 and Section 3.7. While Section 3.6.1 demonstrates the understanding of synthesising and using the CGTM for this current research, from Section 3.7 onwards the actual use of the CGTM and results of early data processing will be explained.

3.6.1 Data Collection

Distorted boundaries exist in using the grounded theory method, therefore, the research needs clear sub-stages under data collection, including primary and secondary data. These two types of data determine the sequence for collecting data. As the primary data of this research are transcripts from interviews of the research participants, it was necessary to determine potential participants, that is, those who used outputs of the I-MHERE funding scheme after they were handed over in 2012.
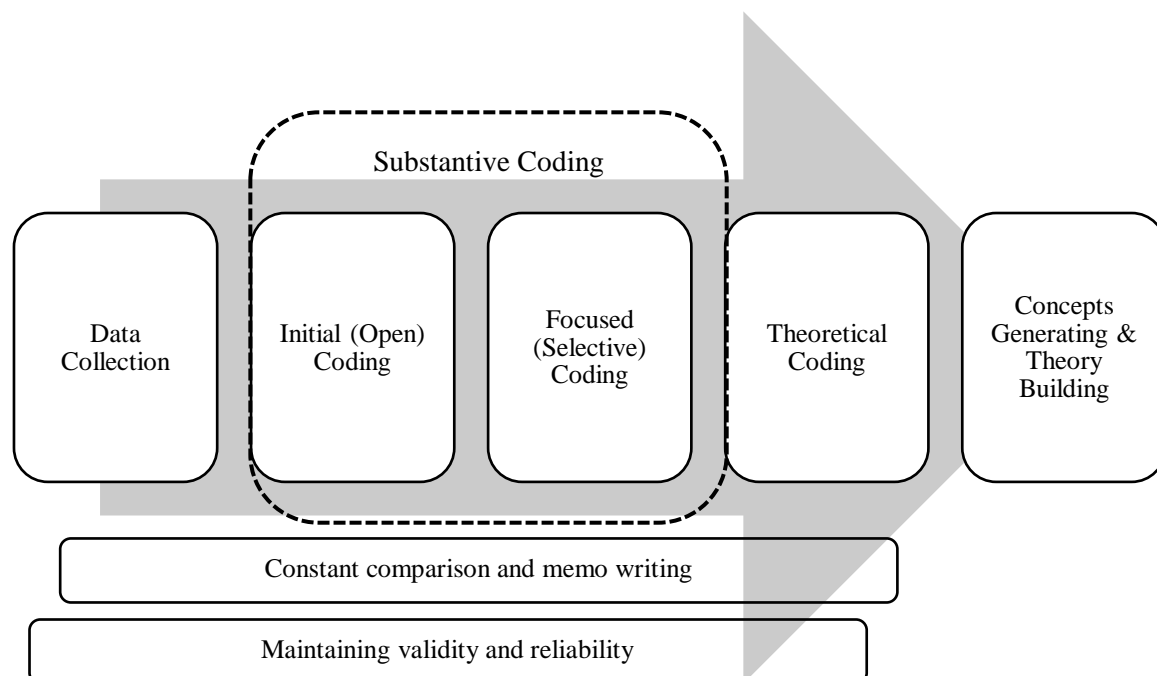
Figure 3.6   Implementing constructivist grounded theory (Charmaz, 2014a, p. 18)

The sequence in data collection commenced with collecting and generating secondary data, such as the Implementation Completion Report (ICR) and institution annual reports. The ICR elaborated the delivered outputs of the I-MHERE funding scheme of the institution. Once data was gathered, sampled outputs were determined, followed by potential research participants being approached for the interviews. The interviews were recorded to become transcripts that became essential primary data. The interviews used open-ended questions, as listed in Table 3.3. All questions were translated into the Indonesian language as the research participants are Indonesians.

Table 3.3   Interview questions

Question	Expected Answer
1. What do know you about I-MHERE Project [Funding Scheme]?	*This question will be asked to the selected participants at all level of management. Answers to this question are expected to assess firstly participants' knowledge of the projects. According to the answers, next, the participants will be categorised into three groups of priority for an intensive interview later on. These groups will be 1) very knowledgeable, 2) knowledgeable, and 3) less knowledgeable groups. The division will not imply that the participants do not earn the benefit of using the project's outputs. The answers are expected to provide a general knowledge of I-MHERE Project by the participants. The answers are then expected to lead to other questions, or to prompt participants to give more detail. Probing techniques will be employed to gain more in-depth explanation.*
2. What do you know about the outputs of I-MHERE Project [Funding Scheme]?	*Project outputs will be identified by reviewing project document (ICR, Implementation Completion Report). By using this document and university organisational structure, before interviewing, the participants will be selected according to the selection criteria of Step 5. The question will be then asked this group of participants. It will be an interesting finding to observe any emerging categories of the participants according to Question 1 yet they are the users of the outputs. Answers are expected to provide general elaboration project deliverables.*
3. How was the project implementation?	*Answers to this question are expected to obtain participants comments on how the project implementation was. The participants do not have to be directly involved in the project. For these participants, their perceptions will provide a comparative point of views on how the project implementation was. Their perceptions will provide the comparative point of view in the implementation of the project was.*
4. In what ways was the project successful?	Answers to this question are expected to elaborate the interviewees' perspectives on how the Project should be defined a successful one. The answers are supposed to start 1) developing tentative categories on the level of understanding of a successful project, and 2) identifying directions to the more specific questions.
5. Did the project contribute to strategic objectives? How? In which ways? How do you know that?	*The answers are expected to confirm the participants' knowledge of their organisational strategic objectives as well as how their understanding of project success contributes to attaining these goals.*

Question	Expected Answer
6. What do you know about your organisation (university's) strategic goals?	*Answers are expected to assess participants' knowledge and understanding in regards to their institutional strategic objectives. This question will be asked of the participants at all level of management, but the most expected answers will be from the middle and top management level. However, this will not mean disregarding the answer from the participants from lower managerial level. Their answers will imply a comprehensive understanding of organisation members' toward their strategic objective. A cross-sectional comparison of participants' answers will be an interesting find in which matching the answers of this section with their knowledge of the project and its initiated mission.*
7. What are the criteria that the project contribute to the strategic objectives?	*Answers to this question are expected to elaborate the interviewees' perceptions of how they relate beneficial project contributions to their organisational strategic goals. The interviewees are expected to delineate their opinions on how the project should be able to contribute to the strategic objectives. The answers are expected to initiate theoretical sampling that leading to substantive areas, coding, data saturation, memos, and substantive theory.*
8. What contributed to these criteria?	*This question is intended to elaborate interviewees' perspectives on factors that have contributed to the achievement of the Project success criteria at the impact level. The question will be referred to the identified criteria as responded in Question No. 7. GTM cyclic process will be used to generate substantive concepts that will describe critical factors.*

The primary results of the interviews were transcripts digitally recorded and then transcribed. This process needed a formal consent from each participant as every response she and he gave were recorded for further analysis, particularly for the coding process, essentially consisted of substantive and theoretical coding (Holton, 2007). While initial (open) coding and focused (selective) coding were included in the substantive one, theoretical coding covers theoretical saturation. Hence, a comprehensive perspective of data collection and processing in this research is illustrated in Figure 3.7. The stages include data collection, initial coding, focused (selective) coding, theoretical coding, concept generation and theory building. Along these stages, constant comparison, memo writing, maintaining validity and reliability of the data were included in the process. This topic will be elaborated in Section 3.6.7.

3.6.2 Initial (Open) Coding

Different terms have been used for the coding process, especially the first step of coding data (Charmaz, 2014b; J. M. Corbin & A. Strauss, 1990; Holton & Walsh, 2016). Initial (open) coding is the second stage of the overall research stage but it is the first stage for processing data. The coding process uses recorded words (transcripts) produced from each interview. Transcribed interviews are the main source for the initial coding process, where key points are collated from

raw data. Sensitising concepts are valuable to initiate coding the data received from the participants (viewed) and researcher (viewer) who would analyse the data.

At this stage, two options of coding are available: (i) word-by-word coding; (ii) line-by-line coding (Charmaz, 2014a). This current research used line-by-line coding because:

> … it breaks data up into their component parts or properties; defining the actions on which they rest; looking for tacit assumptions; explicating implicit actions and meanings; crystallising the significance of the points; comparing data with data; and identifying gaps in data. (Charmaz, 2014a, p. 125)

> Line-by-line coding forces the researcher to verify and saturate categories, minimises missing an important category, and ensures relevance by generating codes with emergent fit to the substantive area under study. (Holton, 2007, p. 24)

The above codes generated from the participants' transcribed interviews are clustered into selective codes.

3.6.3 Focused (Selective) Coding

The next stage for data processing is to categorise and analyse the data through focused (selective) coding, which will enable constant comparison and memo writing (Åge, 2011; Glaser, 1978; Glaser, 1998). The process allows for more focus on the most significant ones. In other words, while line-by-line is used at the initial coding, the results of this process allows the analysis to focus on common themes that start to emerge.

A continuation of line-by-line coding is progressed during the focused (selective) coding period, which is expected to identify success criteria at the post-handover stage, as perceived by the participants. The coding process also aims to identify factors that have contributed to the achievement of those criteria. Factors reflect an organisation's ability to manage benefits gained from a project, with benefits management being an element of organisational maturity (Gomes & Romao, 2014). As the codes are focused on success criteria and success factors, they can be further analysed at the next stage: theoretical coding.

3.6.4 Theoretical Coding

Theoretical coding will identify when codes are close to saturation. This next stage of substantive coding consists of initial and focused coding processes. As pointed out by Holton (2007), fewer new sub-themes will appear. In other words, theoretical coding, being sub-themes that have been selectively focused at the previous stage (focused coding) are more clustered or categorised into

abstract and contextual. According to Glaser (1978), the process in which these themes start to determine their relations under certain categories is called theoretical coding.

At this stage, extant literature is reviewed to decide if the codes or themes have reached their saturation point. One of Gioia and Pitre (1990, p. 593) paradigms, interpretivist paradigm, posits the step of reviewing literature just before theory building. The review of literature was placed inside a general scope of theoretical coding by Chen and Ma (2015, p. 3), termed as the 'literature comparison phase' by Pandit (1996, p. 10) .

Furthermore, themes produced from the focused coding stage examines the possibility of relations among them. This is essential when considering that more than one organisation or institution participates in this research. Theoretical coding examines how certain themes can be identified from one institution while absent at the another. The similarity of themes is viewed as saturation points, while the differences are considered to be reviewed by constantly comparing the raw data (transcripts). Once these themes are saturated, the process can be continued by generating concepts and theory building.

As indicated in Figure 3.6, before reaching the theory building stage, several parallel processes need to be carried out, including constant comparison, memo writing, and validity and reliability. These processes are crucial steps before deciding on data saturation that leads to more solid themes and categories, especially identified success criteria and success factors.

3.6.5 Constant Comparative Analysis

In the original grounded theory concept, Glaser and Strauss (1971) proposed a constant comparative method, using explicit coding and analytic procedures to generate theory systematically. Glaser and Strauss (1971) described four stages of grounded method: '(i) comparing incidents applicable to each category; (ii) integrating categories and their properties; (iii) delimiting theory; and (iv) writing the theory' (Glaser & Strauss, 1971, p. 105).

Charmaz's CGTM (2014a) termed the stages of grounded theory differently. Figure 3.4 shows that constant comparative analysis covers data collection, initial coding, focused coding and theoretical coding that lead to theory building. As suggested by Charmaz, during these stages, categories reach their saturation points and start to form theories. As well, comparative analysis is considered to be suitable after coding and writing memos (Charmaz, 2014a). Both the original and constructivist grounded theorists suggested an iterative process to constantly compare the original data until

coding results reach the categories they represent. The final process leads to theory generation or theory building.

Based on these two versions of grounded theory, this research illustrates an understanding of synthesising the implementation of the constant comparative method. This research views this analysis in two perspectives. First, starting from data collection, processes were constantly being compared with the themes and raw data or transcripts, as illustrated in Figure 3.6. This comparison was crucial because it considered various languages used. As coding processes were escalated, sub-themes and themes represented what the words meant. Although the original data (transcripts) were in the Indonesian language, sub-themes and themes were generated in English. Constant comparative analysis was essential to ensure that the sub-theme and themes represented the actual meaning in their context.

Secondly, a comparative analysis was carried out between the saturated themes and different participating institutions. The themes can reach their saturation point at one institution, but they can still appear at different participating institutions. Hence, it was necessary to ensure the saturation of themes from all institutions.

By comparing different themes from various participating institutions, it may be expected that the comparative analysis would allow for discussions on the relationship between core categories, including critical factors within each institution, as explained previously. These differences would emphasise 'the underlying theoretical reasons for why the relationship exists' (Eisenhardt, 1989, p. 542).

In this research, constant comparison was conducted to group codes gained from the focused (selective) coding process to produce a higher level of abstractions (concepts) while at the same time taking notes (memo writing) to relate the categories and concepts to relevant extant literature (Fernández, 2004).

3.6.6 Memo Writing

As shown in Figure 3.6, coding processes are in parallel with constant comparison and memo writing. In terms of memo writing, Birks et al. (2008, p. 14) stated that 'memo writing was used as an analytical strategy to permit the researcher to achieve abstraction while remaining true to the data'. The memos themselves were defined as 'the theorising write up of ideas about codes and their relationships as they strike the analyst while coding' (Glaser, 1978, p. 83).

Moreover, while other grounded theorists, including Charmaz (2000), used the term 'memo writing', Glaser (1978) divided memo writing into 'theoretical memos' and 'theoretical writing'. Åge (2011, p. 1600) viewed 'theoretical memos' as 'immediate notations of emerging ideas about categories and how they inter-relate' while 'theoretical writing' is the next process where 'these memos are then sorted into a theoretical outline'.

Nevertheless, this research treats theoretical memos and theoretical writing as one single process of memo writing. The amalgamation of these processes was allowed by constant comparative analysis with the themes produced from the focused coding stage, as well as from the transcripts. Notes in the form of memos are written to ensure that themes having reached their saturation point represent the raw data (transcripts) and clusters from the previous stages. Therefore, concepts can be initially generated and theories can be built.

3.6.7 Maintaining Validity and Reliability

In conducting qualitative research, validity and reliability were of concern. Figure 3.6 illustrates the parallel process before reaching data saturation. In other words, the last parallel process would be crucial to ensure that validity and reliability is included throughout the entire research process.

3.6.7.1 Reliability

In terms of reliability, several studies have highlighted this concern with regard to the qualitative work. Three types of reliability have been used in the literature. While Kirk et al. (1986) used the terms 'quixotic reliability', 'diachronic reliability' and 'synchronic reliability', Long and Johnson (2000) used three types of test for reliability: (i) stability; (ii) consistency; and (iii) equivalence. This research considers that the reliability types from both works are the same, however, Long and Johnson's reliability terms are being used. Simple terminology for both elements of reliability attracted this current research's attention. Data analysis would determine which of the three elements are the most appropriate.

1. '*Stability* is established when asking identical questions of an informant at different times produces consistent answers.

2. *Consistency* refers to the integrity of issues within a single interview or questionnaire, so that a respondent's answers on a given topic remain concordant.

3. *Equivalence* is tested by the use of alternative forms of a question with the same meaning during a single interview, or by concurrent observation by two researchers.' (Long & Johnson, 2000, pp. 30-31)

3.6.7.2 Validity

Lincoln and Guba (1985) focussed concern on credibility, transferability, dependability and confirmability on the overall research process. Eisenhardt (1989) also highlighted fundamental theoretical reasons for relationships that exist between the themes in establishing internal validity. In qualitative research, the emphasise of internal validity lies in comprehending the views of 'those involved, uncover the complexity of human behaviour in context, and present a holistic interpretation of what is happening' (Merriam, 2002, p. 25).

In this research, the validity measurement method is used, as pointed out by Whittemore et al. (2001), highlighting four main techniques to ensure the validity of a qualitative study. Details of each technique led this research to use them (Table 3.4 and Chapter 6),

Table 3.4   Techniques in addressing validity

Type of techniques	Technique
Design consideration	Developing a self-conscious research design
	Sampling decisions (i.e. sampling adequacy)
	Employing triangulation
	Giving voice
	Sharing perquisites of privilege
	Expressing issues of oppressed group
Data generating	Articulating data collection decisions
	Demonstrating prolonged engagement
	Demonstrating persistent observation
	Providing verbatim transcription
	Demonstrating saturation
Analytic	Articulating data analysis decisions
	Member checking
	Expert checking
	Performing quasi-statistics
	Testing hypotheses in data analysis
	Using computer programs
	Drawing data reduction tables
	Exploring rival explanations
	Performing a literature review
	Analysing negative case analysis
	Memoing
	Reflexive journaling
	Writing an interim report
	Bracketing
Presentation	Providing an audit trail

Type of techniques	Technique
	Providing evidence that support interpretations
	Acknowledging the researcher perspective
	Providing thick descriptions

3.6.8 Concept Generation and Theory Building

Theoretical saturation of the themes indicates the beginning of the concept generation process. In other words, at the point of theoretical saturation:

> The concepts have achieved theoretical saturation and the theorist shifts attention to exploring the emergent fit of potential theoretical codes that enable the conceptual integration of the core and related concepts to produce hypotheses that account for relationships between the concepts thereby explaining the latent pattern of social behaviour that forms the basis of the emergent theory. (Holton, 2007, p. 21)

The saturation that generates and builds theories is the result of a number of coding processes. These processes should be accompanied in parallel with a constant comparative analysis, memo writing, and maintaining validity and reliability of the data and the process (Figure 3.6).

Apart from Figure 3.6, it is important to note that generating concepts from each participating institution and comparing results from different institutions are also crucial. This research anticipated a number of themes from participating organisations or institutions would emerge and become saturated. The concepts were generated at each individual participating site, followed by a 'theory' built at the final stage. However, concepts can differ according to the involvement of each institution.

3.6.9 Limitations of Grounded Theory

Similar to other research methodology, this research is aware of grounded theory's limitations. One may argue about the general weaknesses about validity and reliability of the method (Parry, 1998). More specific to this concern is warned by Kolb (2012, p. 86) who indicated that 'purposive, convenience and theoretical sampling strategies may produce a biased sample … the researcher's personal world view and individual biases are critical factors that may influence the study'. Addressing the validity concerns above were efforts to tackle these limitations. The acknowledgement about the researcher's 'voice' in the interpretations should be made clear, as highlighted in the form of several techniques, including memos and providing reduction tables in the appendices.

A more practical concern was to admit that grounded theory method is time-consuming (Bartlett & Payne, 1997). This is likely due to the iterative processes of massive data that lead to the difficulty to produce results, which in turn, is exposed to the risk of excessively complicated theory (Fendt & Sachs, 2008). To address this issue, a reliable qualitative research software was implemented, Nvivo Pro 11. Since all data was stored electronically, the processes of coding from multiple data sources were well managed.

3.7   Data Collection

3.7.1   Collecting Preliminary Data and Ethics Considerations

Primary data included responses obtained from the interviews that were transcribed for further analysed. Meanwhile, secondary data were supporting documents related to the I-MHERE project that provided clues to the source of the primary data. Hence, in this research, steps were initiated by collecting secondary data, to be followed by the primary ones.

The intended data were collected after receiving two formal approvals:, (i) aimed at students who wish to conduct a research, granted by Human Research Ethics Committee of University of Technology, Sydney[4] (Appendix 1); (ii) from institutions that provided I-MHERE project documentation, and former project recipients (HEIs).

3.7.1.1 Elicited Documents

The main role of secondary data was to narrow targeted participating institutions that were former project recipients. Once they were decided upon, formal and informal approaches were implemented to gain their official consent. More specific project documents and relevant institutional documents were required for determining potential research participants in these institutions.

The interviews were conducted to obtain participants' responses based on the established interview questions (Table 3.3). Elaborations continued at the interviews. In other words, secondary data provided a clear direction towards the interviews of the research participants as the primary source of data.

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[4]   The researcher was a student of the University of Technology Sydney in the researcher's first two years of candidature.

The targeted participating institutions (former project recipients) were targeted by examining several documents obtained from the World Bank Jakarta Office as the project sponsor, DGHE, Ministry of National Education,, and National Development Planning Agency, Ministry of National Development Planning. From these institutions, the following documents were obtained:

1. Implementation Completion and Results Report (Report No. ICR 2379) dated 25 June 2013

2. Project Appraisal Document (Report No. 31644-ID) at effective currency rate dated 30 April 2005

3. Project Performance Assessment Report (Report No. 97132) dated 18 June 2015

4. Final Project Disbursement (Excel format) dated 9 October 2012

5. Draft ICR (produced by DGHE for WB) dated 25 March 2013

6. Implementation Performance of Overseas Loan/Grant Report (*Laporan Kinerja Pelaksanaan Pinjaman/Hibah Luar Negeri*) dated December 2012.

The first three documents above were used to examine the overall performance of the project nationally. The fourth document (Final Project Disbursement) was used to focus on potential participating institutions. The DGHE was mostly concerned about the tendency to assess overall performance at the end of the project. (Halsey & Chelsea, 2013). An accompanied document to the fourth document was the fifth one (Draft ICR). These two reports were obtained through personal communications with former project members. Meanwhile, the last document (Implementation Performance of Overseas Loan/Grant Report) was downloaded from the website of National Development Planning Agency, Indonesian Ministry of National Development Planning. However, the fifth document has limited contribution in shaping the overall analysis because the I-MHERE funding scheme contributions were less detailed in this document. Nevertheless, it provided a general overview on how foreign loans, including funding from the World Bank for the I-MHERE Project, had contributed to the national development portfolio.

3.7.1.2 Overview of the 'Project'

Although the focus of this research is on the I-MHERE project, this was not a specific case that could lead this research to use a case-study approach. Instead, the I-MHERE was an example of an ID project that have similar nature of characteristics around the world. Moreover,In the literature, this research argues that an ID project's sponsor does not conduct an evaluation beyond the delivery stage. This argument is also applicable to the I-MHERE project which finished in late 2012. This research suggests a post-project evaluation to be carried out so that success criteria and success factors can be identified at the post-handover stage. The success of the I-MHERE project

also pointed out the capability of former project recipients in managing benefits beyond the delivery stage, as well as factors that could demonstrate how benefits of the I-MHERE project were managed.

The I-MHERE project was implemented nationally in 2009 and continued to 2012 after being initiated by an Indonesian government in 2005. Funding was financed from a World Bank loan for US$30 million of International Development Association credits (IDA-40770) and US$50 million from the International Bank for Reconstruction and Development (IBRD-47890) (Halsey & Chelsea, 2013). The project was implemented at most HEIs across Indonesia with different components and sub-components[5]. During the implementation period, the project was managed nationally by the DGHE[6] from the Ministry of National Education. An overall illustration of this project is summarised in Figure 3.7.

Although the I-MHERE project was referred to as a 'project', it could be better referred of as a 'funding scheme'. The funding, which was sourced from a foreign loan by the World Bank, produced a number of projects in a recipient HIE. For example, the I-MHERE at an HEI could benefit by establishing IT infrastructure and conducting a series of training programs.

3.7.1.3 Justification for Selecting Sub-Component B.2a

As highlighted in Figure 3.7, this research focuses on the sub-component B.2a because it relates to the professional experience of the researcher who had been advantageous in determining theoretical sensitivity (J. Corbin & A. Strauss, 1990). The researcher was the project manager (executive director) at Khairun University [13], which was one of the recipient HEIs. The researcher related his experience and knowledge as the project manager to the context of the I-MHERE sub-component B.2a. As well, he used his professional experience as a user. The researcher has taught at the HEI for over 10 years, as well as appointed as head of the management department (head of school). As a user, he is theoretically sensitive to the 'real' benefits of funding scheme outputs.

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[5] *Component A:* Higher Education System Reform and Oversight, Series A1, A2, and A3.

   Component B: Grants to improve academic quality and institutional performance. Series: B1 and B2 (B.2a: Competitive grants for strengthening institutional management in non-autonomous public HEls; B.2b: Proposal-based grants for strengthening institutional management at autonomous public HEls (Batch I, II, and III); and B.2a: Performance-based contract grants for autonomous public HEls (World Bank, 2013, p. 64).

[6] This directorate has merged into the Ministry of Research and Technology under the new government and is currently titled: Ministry of Research, Technology, and Higher Education, Republic of Indonesia

However, he needed to exclude the institution where he worked to minimise bias towards the analysis.
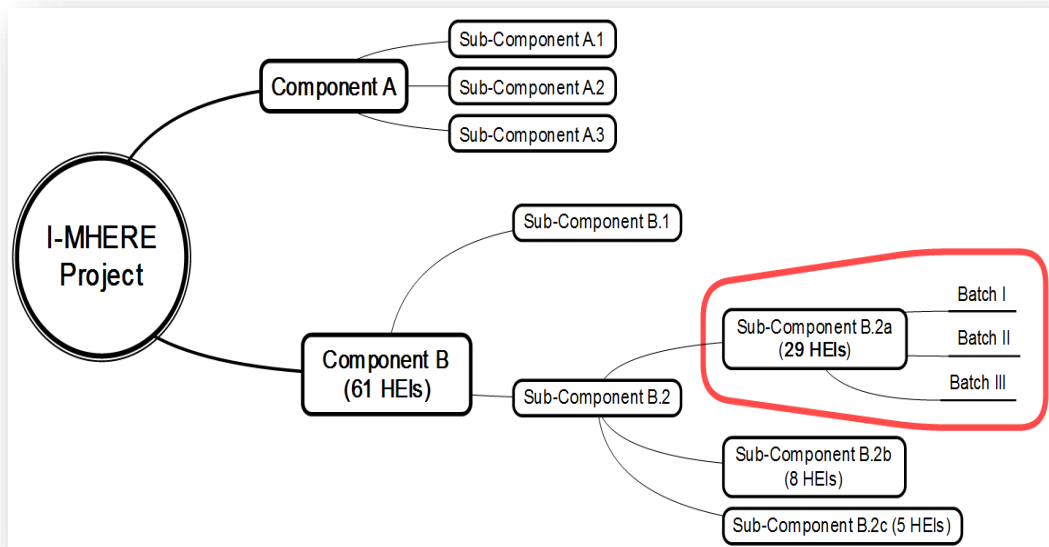
Figure 3.7   Overview of the I-MHERE funding scheme

3.7.1.3 Justification for Selecting Sub-Component B.2a

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Another research focus was to study the contributions made by the I-MHERE funding scheme, specifically to HEIs under sub-component B.2a at the strategic or impact phase. These contributions were perceived to be more valuable for HEIs under sub-component B.2a as opposed to other HEIs from other sub-components. As stated earlier, HEIs within this component have an inflexible business process in managing facilities, finance and human resources as consequential to

running their businesses in accordance with Indonesia Government Regulation No. 60 of 1999, which highly depends on the centralistic ministerial financial management system. Regulation No. 60 implies that HEIs from sub-component B.2a are less independent and capable of managing their own organisation. As mentioned before, the I-MHERE funding scheme for this sub-component was aimed at strengthening the capacities of HEI so that they would be able independent in running their businesses. The aims of sub-component B.2a and B.2b were to narrow the gap between HEIs . Hence, it is perceived that underlying conditions of HEIs under sub-component B.2a is appropriate to set up as a case study for this current research.

A final focus was on the population (29 HEIs) being compared to other sub-components, although it also has various types of HEIs. The 29 HEIs consisted of 22 universities, five polytechnics and two institutes. According to Act No. 12 of 2012, these institutions offer different forms of service. These three different types of HEIs, namely universities, polytechnics and institutes, are expected to provide fruitful research findings, while experiencing benefits from a similar funding scheme. In other words, although each sub-component has different types of HEIs, the focus of this research is on HEIs under a similar management regime. These HEIs would become the population of this current research. The specification of a population is necessary to clarify the findings area (Pettigrew, 1988) and inessential variation, focusing only on one particular sub-component.

Determining Potential Participating Institutions

To determine potential institutions for participation in the research, the selection heavily relied on the final project disbursement, containing two performance measurements: (i) physical achievement; and (ii) budget disbursement. The latter measurement was based on the number of physical targets on their initial plans, whereas the former was judged in terms of money spent[7]. The selection of potential institutions is summarised in Table 3.5. Steps to obtain these institutions are as follow:

1. Listing the population of HEIs for sub-component B.2a, excluding the researcher's institution. Table 3.5 summarises these 28 former HEIs.

2. Sorting HEIs based on their physical performance [Column (2).

3. Clustering HEIs in Column 2 into lower performers (below 90%), middle performers (90% to 100%), and top performers (100% and above)

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[7] According to I-MHERE project guidelines, the outputs could be funded by four different types of expenditure: (i) policy study;, (ii) staff development; (iii) technical assistance; and (iv) IT and software development.

4. Combining the selection with low performance in budget disbursement (Column 3)

5. Taking into consideration relationships with former project managers, e.g. Trunojoyo University and Brawijaya University, which also represented middle and top performers.

Table 3.5   Sampling system (reproduced from final project disbursement (DGHE, 2013))

Former grantees (former project recipients) (1)	Average target achieved (%)[8] (2)	Average budget disbursement (%)[9] (3)
Sriwijaya University (*Universitas Sriwijaya*)	57%	62% (*Low Performer*)
State University of Semarang (*Universitas Negeri Semarang*)	70%	59% (*Low Performer*)
State University of Medan (*Universitas Negeri Medan*)	77%	61% (*Low Performer*)
Udayana University (*Universitas Udayana*)	78%	32% (*Low Performer*)
University of Syah Kuala (*Universitas Syiah Kuala*)	79%	63% (*Low Performer*)
University of Bengkulu (*Universitas Bengkulu*)	80%	68% (*Low Performer*)
Sultan Ageng Tirtayasa University (*Universitas Sultan Ageng Tirtayasa*)	84%	79% (*Low Performer*)
University of Palangkaraya (*Universitas Palangkaraya*)	87%	88%
Sebelas Maret University of Surakarta (*Universitas Sebelas Maret Surakarta*)	90%	76%
Polytechnic of Ujung Pandang (*Politeknik Negeri Ujung Pandang*)	94%	47% (*Low Performer*)
Andalasa University (*Universitas Andalas*)	98%	57% (*Low Performer*)
State University of Makassar (*Universitas Negeri Makassar*)	100%	41% (*Low Performer*)
ISI Yogyakarta	100%	49% (*Low Performer*)

Low Performers (Sriwijaya – Syah Kuala)

Middle Performers (Bengkulu – ISI Yogyakarta)

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8   Average number of proposed projects against the actual accomplished projects.

9   Average proposed budget against the actual total expenditure at the end of the I-MHERE funding scheme period.

Former grantees (former project recipients) (1)	Average target achieved (%)[8] (2)	Average budget disbursement (%)[9] (3)
Nusa Cendana University (*Universitas Nusa Cendana*)	100%	*50% (Low Performer)*
State Polytechnic of Bali (*Politeknik Negeri Bali*)	100%	88%
State Polytechnic of Jakarta (*Politeknik Negeri Jakarta*)	100%	105%
State Polytechnic of Bandung (*Politeknik Negeri Bandung*)	100%	*56% (Low Performer)*
Trunojoyo University (*Universitas Trunojoyo*)	100%	86%
State University of Papua (*Universitas Negeri Papua*)	106%	88%
Jenderla Soedirman University (*Universitas Jenderal Soedirman*)	109%	82%
State University of Surabaya (*Universitas Negeri Surabaya*)	110%	96%
Sam Ratulangi University (*Universitas Sam Ratulangi*)	111%	*42% (Low Performer)*
Brawijaya University (*Universitas Brawijaya*)	113%	96%
State Polytechnic of Semarang (*Politeknik Negeri Semarang*)	115%	*35% (Low Performer)*
State University of Malang (*Universitas Negeri Malang*)	116%	77%
Sepuluh November Institute of Technology (*Institut Teknologi Sepuluh Nopember*)	143%	99%
Hassanudin University (*Universitas Hasanuddin*)	147%	109%
University of Lampung (*Universitas Lampung*)	147%	80%

(Middle Performers — bracketing rows Nusa Cendana through Trunojoyo in Column (2))

(Top Performers — bracketing rows State University of Papua through University of Lampung in Column (2))

The clustering system resulted in 13 potential HEIs (*grey cells* in Column (1) that could be approached. After several months of intensive formal and informal communications, two former

project recipients provided their formal approval. These institutions are labelled as Site 1 and Site 2, both located in the same city in Central Java, Indonesia. Hence, data collection was more efficient, especially for site visits that were conducted from September to November 2016.

3.7.1.5 Participating Institution – Overview of Site 1

Site 1, Teacher Training College, was first established in 1965. It accommodated the needs of teachers around Central Java and gave great attention to their education. By Indonesian Presidential Decree No. 124 in 1999, Site 1 was upgraded to become a university (Site 1, 2016).

In 2017, the number of enrolled students increased to 35,701 (*Unit Pelaksana Tugas Telekomunikasi, Informasi, dan Komunikasi* – Information, Communication, and Technology Unit, Site 1, 2017), comprising of nine faculties: (i) Faculty of Science Education (4,906 students); (ii) Faculty of Language and Arts (6,045 students); (iii) Faculty of Social Sciences (3,005 students); (iv) Faculty of Maths and Science (3,798 students); (v) Faculty of Engineering (4,094 students); (vi) Faculty of Sports Science (3,923 students); (vii) Faculty of Economics (4,268 students); (viii) Faculty of Law (1,710 students); and (iv) the Postgraduate School (3,952 students). Data illustrated the need for better management of the college in carrying out and bridging three pillars of higher education: (i) teaching; (ii) research; and (iii) community devotion.

Overview of the Funding Scheme – Site 1

A summary reviewing Site 1's ICR briefly explains the projects that led to the identification of potential research participants who were either directly or indirectly responsible for funding scheme/project outputs (Appendix 2).

All outputs were initiated to realise the overall goal of the funding scheme at Site 1: 'Building Site 1's management with good university governance principles'. In other words, the funding scheme was initiated as an additional source to realise Site 1's strategic objective. Strategies to achieve these objectives were implemented through two main programs: (i) Strengthening the management of Site 1's institutions (Program A); and (ii) Site 1's institutional management support (Program B).

Program A consisted of one activity: Preparation of the principal document of operation for good university governance (A1). Program B consisted of five activities: (i) Improving the quality of management planning (B1); (ii) Developing quality personnel management (B2); (iii) Developing quality asset management (B3); (iv) Developing quality management of the Internal Supervisory

Unit (B4); and (v) Developing information and communication technology (ICT) management quality.

Program A, Program B and their sub-programs utilised four types of expenditure: (i) policy study; (ii) staff development; (iii) technical assistance; and (iv) IT infrastructure and software development (Table 3.6). Expenditures are complementary to each other. For instance, a sub-program could develop a manual for using policy study expenditure, involving a consultant, benefiting technical-assistance type expenditure, and running training session for the newly-introduced guidelines, by using expenditure under a staff development category.

Table 3.6 also portrays the need for Site 1 use the I-MHERE funding scheme to realise its strategic objectives. A number of guidelines acted as enablers to realise this goal. A tendency was shown by 20 activities that utilised budgets under a policy study type of expenditure. These guidelines included practical and technical translations on how to run an institution under good university governance. To produce these guidelines, Site 1 involved 25 experts.

Meanwhile, Site 1's internal employees were being prepared for the college's strategic targets. By increasing expenditure for staff development, Site 1 was able to upgrade its staff capacity. Table 3.6 indicates that 11 activities were funded by this type of expenditure, such as training programs, as well as shows that once all required guidelines were available and staff were ready, the business process could be translated into several Iss.

To observe the need for Site 1 to benefit from the funding scheme, a report provided actual expenditure data. As at December 2012, Site 1 spent US$431,028, which consisted of four types of expenditure (Figure 3.8).

Table 3.6   Summary of project realisation for Site 1 (as at December 2012)

Type of expenditure	Achievement
Policy study	20 activities
Staff development	11 activities
Technical assistance	25 consultants
IT infrastructure and software development	3 packages

Figure 3.8 reflects one slight contradiction compared to the data in Table 3.6 that indicates three packages for establishing IT infrastructure and software development, as opposed to Figure 3.8

showing that they were accounted for the highest investment (38%), followed by the policy study (32%) and hiring consultants (22%).

The information provided in Table 3.6 and Figure 3.8 are invaluable in determining the potential of research participants. The investment under these expenditures indicated the tendency of outputs to be delivered by the funding scheme. In other words, the higher the number of outputs, the more potential research participants exist. These outputs provided direction for direct and indirect users who were interviewed, to unveil how they define the success criteria and their critical factors at the post-handover stage.
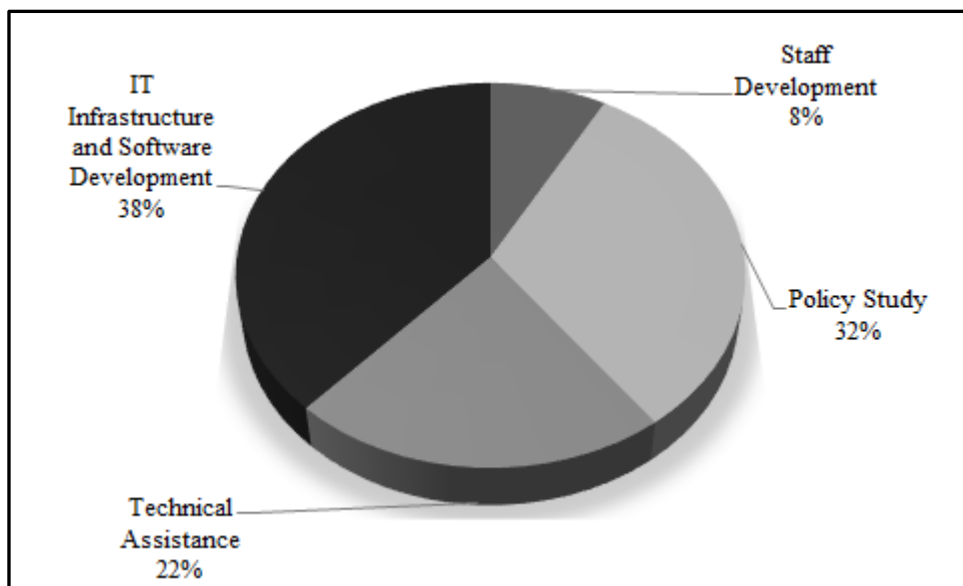
Figure 3.8   Actual budget disbursements as per project expenditure for Site 1 (reproduced from Site 1, 2013)

It was interesting to note that Site 1's ICR was able to elaborate on benefits delivered at the outcome phase (Appendix 2). Since the ICR was submitted in 2013 after the project ended in 2012, the project team was able to determine how outputs progressed to deliver the next beneficial contribution in line with Site 1's institutional objectives. However, by using the timeframe for success criteria, no data were available regarding beneficial contributions of outputs at the post-handover stage.

It was necessary for the missing data to justify the current research by identifying success criteria at the post-handover stage. Research was recently conducted to reveal how research participants perceived the success criteria of outputs at the post-handover stage (in the long-term) to assist them in performing their daily tasks (Section 3.7.1.6).

Participating Institution – Overview of Site 2

Another participating institution, referred to as Site 2, set its vision and mission for a period of five years. Its vision was to be recognised as a vocational HEI that is able to compete and be accountable, as well as possess the character and ethics in applying science, technology and business to its courses. Its mission statement is five-fold, consisting of: (i) conducting superior, characterised and ethical vocational higher education in the field of technology and business; (ii) developing applied research and community service in the field of technology and business; (iii) improving quality institutional management through continuous development based on good governance principles; (iv) enhancing and strengthening character and ethics of academic cultures organisational and working atmosphere; and (v) broadening cooperation among stakeholders.

Since Site 2 started its operations, the institution has continued evolving to reach its strategic, long-term objectives. Its strategic plan clearly needed additional resources to realise its vision and mission. Grants were also needed as a form of additional financial support.

Overview of the Funding Scheme – Site 2

As an HEI, Site 2's development policy for 2007 to 2015 followed a higher plan. This plan was predominantly emanated from the Ministry in the form of the National Education Development Strategic Plan (*Renstra Depdiknas*) 2005-2009, Higher Education Strategic Plan 2005-2009, and Long Term Higher Education Strategy (HELTS 2003-2010). The development policy was the basic reference for I-MHERE funding scheme activities, which strengthened the capacity of Site 2's management.

Also, from the ICR, Site 2 proposed a maximum amount of US$500,000[10] to be granted, to be used to finance six major programs (Table 3,7), including a number of projects to be conducted (Appendix 3) .

Four types of expenditure were used in each program: (i) policy study; (ii) staff development; (iii) technical assistance; and IT infrastructure and software development, each complementing each other under one program or sub-program (Figure 3.9). For example, Program F had the highest investment on IS, but still required other activities that were financed by the other three types of expenditure.

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[10] At the time the project was implemented, the currency was US$1 = Rupiah 10,000.

Table 3.7   Summary of proposed budget for Site 2

Program	Proposed budget
Program A: Strengthening governance towards autonomous university	US$67,074
Program B: Structuring asset management	US$27,898
Program C: Human resources planning	US$29,960
Program D: Financial management and internal audit system development	US$45,743
Program E: Quality improvement on procurement management systems	US$62,041
Program F: Integrating management information system	US$267,191

Table 3.7 and Figure 3.9 reflect the need urgently required by Site 2 to amalgamate the management information system (MIS). This integration was not only between newly-informed systems produced by the I-MHERE funding scheme, but also between those that already existed onsite. Importantly, integration was the main part of the Site 2 master plan for its MIS. They also indicate other priorities benefiting the I-MHERE funding scheme. The investment went to all six programs (Table 3.7).

By the end of the funding scheme period, priorities of spending seemed to be consistent. Based on the four types of expenditure, Figure 3.10 shows the urgent need for Site 2 to manage its budget efficiently because more than half of its investment was used for IT-infrastructure, followed by expenditure for policy study, staff development and technical assistance. These proportions confirmed the priority of investment for the six main programs above.

The extent of the final budget disbursement (Figure 3.10) was used to determine the number of potential research participants, that is, the higher the number of outputs would allow for more potential participants to exist who also confirmed the delivered sub-programs (Appendix 3).

It is interesting to note that a few sub-programs were not delivered in December 2012 (Appendix 3), for example, A3 – Document of Site 2's strategic plan, C2 – Workload and job title planning, and D2 – Establishing an internal oversight unit. Because they were not delivered, budget disbursement was achieved at the end of the 2012 funding scheme period. Data from the ICR indicated that the final budget disbursement only reached less than 80 percent.
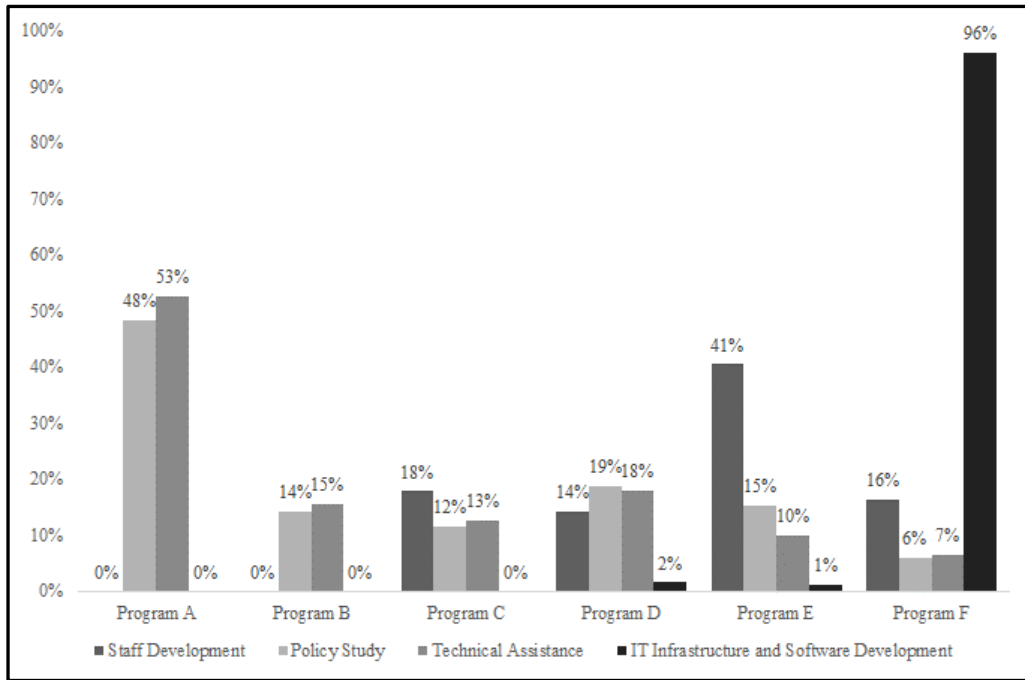
Figure 3.9   Budget disbursements as per Program for Site 2
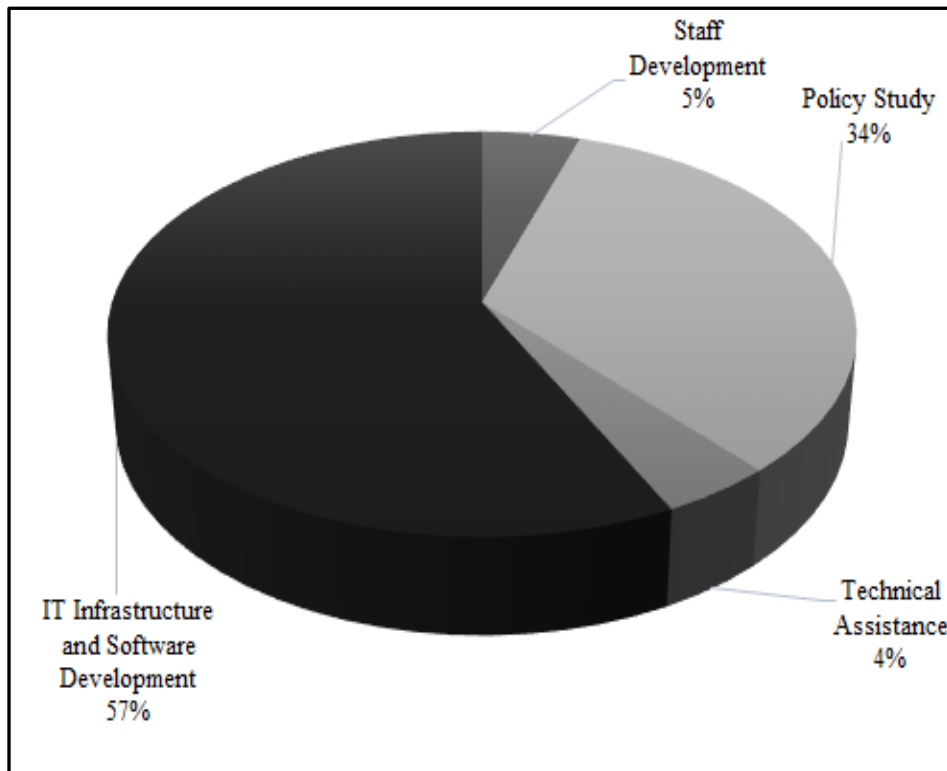
Figure 3.10   Actual budget disbursement as per project expenditure for Site 2

Furthermore, different to Site 1's ICR (Appendix 1), Site 2's report did not contain information of outputs at the outcome phase of the post-handover stage. The ICR did not explain how outputs delivered their benefits beyond the delivery stage. Appendix 3 portrays the outputs of the funding scheme and achievements at the end of 2012. This missing information strengthens the argument of this research to reveal success criteria and their critical factors at the post-delivery stage, especially at the post-handover stage (outcome and impact). At these stages, success criteria demonstrated how outputs contributed to delivering Site 2's strategic objectives. During this process of delivery, a number of factors played their roles.

3.7.1.6 Selecting Participants

Site visits allowed the researcher to access the Site 1's and Site 2's ICR and LAKIP, but more importantly, it allowed interviews to be conducted, which were focused on the current direct and indirect users of the project's outputs. While the ICRs informed of current users, the LAKIP only provided information about institutional performance and accountability. LAKIP also showed an HEI's organisational structure. By examining outputs from the ICR and the organisational structure, it assisted the process of selecting potential research participants, as well as allowed the identification of direct and indirect users who were termed as 'participants'.

In this research, participants were divided into two groups: (i) Group 1 consisted of members at the middle and top management level of the organisation; and (ii) Group 2 was those in the lower management level. Group 1 tended to be indirect users, while direct users tended to be from the lower management level and therefore included in Group 2. The selection of participants included within these two groups is elaborated separately at each institution.

Site 1's Participants

Identifying project outputs is essential to determining potential research participants. Data gathered from the Site 1 ICR were funding scheme's outputs that highlighted potential participants who could be direct users of project outputs or those who participated in project activities, as well as indirect users who have indirectly experience in project outputs. Seven project outputs were sampled from Site 1 (Appendix 2), as follow:

1. Performance IS for Academic Staff (coded KPI-4.2.4)

2. Integration of Finance IS, Budgeting IS, and Accounting IS (coded KPI-4.2.2)

3. Inventory Management System (coded KPI-4.2.3)

4. Standard Operating Procedure for Asset Management (coded auxiliary performance indicator (API) API-9.4)

5. Research IS (coded KPI.4.2.1)

6. Training Program: Human Resource Competency (coded KPI-3.4)

7. Training Program: Database (coded API-6.4)

From the outputs, research participants from Site 1 were selected. As summarised in Table 3.8, these participants were also labelled in a four-digit numbering system. From left to right, the first digit indicates their site (Site 1); the second digit specifies his or her managerial level (Group 1 or Group 2); and the last two digits represent the sequence of each participant based on the interview process. A labelling system is useful for the identification of interviewees and further analysis. The same labelling system was used for Site 2 participants.

Table 3.8   Participants labels for Site 1

Sampled output	Expenditure category	Output code	Group *	Participants label
Performance IS for Academic Staff	IT Infrastructure and Software Development	KPI-4.2.4	1	1101
Integration of Finance IS, Budgeting IS, and Accounting IS	IT Infrastructure and Software Development	KPI-4.2.2	1	1102
Inventory Management System	IT Infrastructure and Software Development	KPI-4.2.3	2	1203
Standard Operating Procedure for Asset Management	Policy Study	API-9.4	1	1104
Research IS	IT Infrastructure and Software Development	KPI.4.2.1	2	1206
Training Program: Human Resource Competency	Staff Development	KPI-3.4	1	1107
Training Program: Human Resource Competency	Staff Development	KPI-3.4	2	1208
Training Program: Human Resource Competency	Staff Development	KPI-3.4	2	1209
Training Program: Database.	Staff Development	API-6.4	2	1210

* 1 = middle management; 2 = lower management

Furthermore, for four types of expenditure, Site 1 proposed a number of projects. This current research focuses on these projects under the I-MHERE funding scheme (Table 3.8) where the sampled project led to the selection of the research participants.

Participants Institutional Background – Site 1

As organisational members, this research perceives essential aspects or attributes related to the participants, such as managerial levels, organisational tenures, and their job tenures. These attributes were expected to play a significant role in shaping participant responses in identifying and defining success criteria and their critical factors (Table 3.9).

Background information about each research participant were essential elements to the data. By understanding their managerial level (*first attribute*), it was expected that their organisational knowledge would contribute to identifying success criteria and their critical factors of all the outputs. Meanwhile, organisational tenure (*second attribute*) was also an important criterion because it was used to examine the participants' comprehensions about their institution. The longer they were employed by their institution, the more understanding they gained about their workplace.

In terms of a participant's job tenure (*third attribute*), it was used to examine knowledge about the institution and the I-MHERE funding scheme. During the period of their current job, outputs of the funding scheme were handed over, regardless of whether they were directly or indirectly beneficial to the end users throughout the years. Hence, it was believed that job tenure also contributed to answers during the interview.

Table 3.9   Main attributes of Site 1 participants

Participant label	Managerial level	Organisational tenure	Job tenure
1101	Middle Management	12 years	4 years
1102	Middle Management	29 years	1 year
1203	Lower Management	10 years	5 years
1104	Middle Management	27 years	1 year
1206	Lower Management	7 years	7 years
1107	Middle Management	34 years	3 years
1208	Lower Management	10 years	5 years
1209	Lower Management	9 years	1 year
1210	Lower Management	28 years	10 years

Site 2 Participants

From the Site 2 ICR, six I-MHERE project outputs were conveniently sampled (Appendix 3):

1. Managerial Competency Program intended for middle to top managers (Sub-program of C5)

2. Mikrotik Training Program aimed at introducing a network system for an enterprise named 'Mikrotik' (Sub-program of F5)

3. SMART Campus – MIS for Site 2 aimed at managing non-integrated Iss (Sub-program of F1)

4. Scholarship IS (Sub-program of F1)

5. Academic IS (Sub-program of F1)

6. Research IS Sub-program of F1)

Based on project outputs, the research participants were selected. A summary of all interviewees at Site 2 is briefly summarised in Table 3.10 as it portrays most sampled outputs as IS deliverables.

Table 3.10   Participant labels for Site 2

Sampled output	Expenditure category	Output codes	Group*	Participants label
Training Program: Managerial Competency Development	Staff Development	C5	1	2101
Training Program: Managerial Competency Development	Staff Development	C5	1	2102
SMART Campus	IT Infrastructure and Software Development	F1	1	2103
Scholarship IS	IT Infrastructure and Software Development	F1	2	2204
Training Program: Mikrotik	Staff Development	F5	1	2105
Academic IS	IT Infrastructure and Software Development	F1	2	2206
Research IS	IT Infrastructure and Software Development	F1	1	210811

* 1 = middle management; 2 = lower management

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[11] The sequence of a participant's interview was omitted after refusal to be recorded.

Similar to elaborating the background of Site 1 research participants, three attributes of the Site 2 participants were also detailed: (i) managerial level; (ii) organisational tenure; and (iii) job tenure (Table 3.11).

Background information about the research participants were essential elements of data collected. Managerial level (first attribute) of Site 2 participants was expected to enrich how these participants identify and define success criteria and success factors at the post-handover stage. Organisational tenure (second attribute) was also treated as crucial information to be gathered . The participants' organisational tenures were used to examine the their comprehensions about their institution. Similar to Site 1, the longer participants were employed at their workplace, the more knowledge they would gain from their organisation.

Table 3.11 Main attributes of Site 2 participants

Participant label	Managerial level	Organisational tenure	Job tenure
2101	Middle Management	24 years	2 years
2102	Middle Management	28 years	10 years
2103	Middle Management	12 years	2 years
2204	Lower Management	10 years	5 years
2105	Middle Management	12 years	2 years
2206	Lower Management	22 years	5 years
2108[12]	Middle Management	17 years	3 years

Job tenure (third attribute) was useful in terms of examining participant knowledge, not only about their institution but also the I-MHERE funding scheme. During the period of their current job, outputs of the funding scheme were handed over, regardless of whether they directly and indirectly benefited from these outputs throughout the years. Hence, it was believed that this attribute also contributed to answers during the interview.

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[12] The sequence of a participant's interview was omitted after refusal to be recorded.

A total of 16 participants from Site 1 and Site 2 took part in the research, with information of their institutional backgrounds summarised. For the first attribute, nine participants from middle management were categorised under Group 1. Meanwhile, seven participants from lower management clustered into Group 2; they were mainly direct users of the funding scheme's outputs.

For the second and third attributes, a formula of class interval[13] was required because of the variety of tenures and job tenures applicable to the participants. By using this formula, organisational tenures ranged from *seven to 11 years* (six participants), *12 to 16 years* (three participants), *17 to 21 years* (one participant), *22 to 26* (three participants), *27 to 31* (two participants), and *32 to 36* (one participant).

In terms of the participants' job tenures, a class interval formula produced three ranges of time period. Eight participants were clustered under the range of *one to three years*; five participants were in the range of *four to six years*; and three participants were grouped under *seven to 10 years* in their current positions.

The last group was types of expenditure in which an output was financed. Eight of the participants were directly and indirectly using the outputs that were financed by the type of expenditure for IT infrastructure and software development. Another seven participants were former attendees of training programs that were financed under staff development. Only one participant who used an output was financed by a policy study type of expenditure.

These attributes were useful in providing contextual backgrounds in the answers provided by the participants. Managerial levels and organisational tenures could contribute to shape their answers due to the participants' institutional knowledge, along with their current period when the outputs were handed over to their unit or department. Meanwhile, the type of expenditure could demonstrate the nature of outputs that participants were directly or indirectly used.

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[13] Class interval = $\frac{\text{highest value-lowest value}}{\text{intended number of classes}}$ (Maciejewski, 2011).

3.7.2　Conducting Interviews

3.7.2.1 Interview Technique and Duration

Interviewing research participants was the primary source of data collection for gathering responses in reference to long-term success criteria of project outputs along with critical factors that may have contributed to success of the project. Interviews were initially conducted in Site 1 followed by Site 2. Interviewees have been listed in Table 3.8 and Table 3.10. Probing techniques were also used to politely force the participant to respond to specific questions.

The interviews were conducted at a time and place that was most convenient for the participant, for example, at the office. An interesting finding was the time it took to undertake each interview; the maximum length 45 minutes, and the average duration was 38 minutes. Participants categorised under 'Middle Management' were concerned about the length of the interview. Interestingly, they asked about it before the interview commenced. Their positioning in the organisation seemed to give them confidence about their level of authority in controlling the duration of the interview, when they considered the level of responsibility to their unit or department. Apparently, once the interview commenced, time was no longer a concern. Nevertheless, the researcher was always aware of the precious time being granted to him so he ensured it was optimally used.

Those categorised under 'Lower Management' were rarely concerned about the timeframe of the interviews being conducted. However, when an interview was longer than expected, they became anxious. Their body language showed an uneasiness and they tended to provide shorter answers.

In dealing with participants who responded with short answers, such as 'yes' or 'no', probing techniques were applied to seek further information. Perhaps they felt the interview was taking up too much of their time. Certainly, these answers affected the quality of the data, especially when asked to describe more about the success criteria and their critical factors.

In terms of the total number of interviews, this research interviewed 18 participants from Site 1 and Site 2. However, one participant each from one site refused the interviews to be recorded. As a result, the valid number of interviews totalled 16, which consisted of nine participants from Site 1 and seven from Site 2.

Although two participants refused to be recorded, they still completed their interview,. One participant was interviewed for almost two hours, while the other interview lasted one hour. Notes

were taken from these interview for further analysis, especially for compare the previous interview results and determine data saturation.

Sixteen participants were interviewed using the semi-structured interview approach, of which nine were initially conducted at Site 1 followed by seven at Site 2. All interviews employed a semi-structured approach where participants were approached and interviewed in a sequential order. Results of the interviews were then labelled according to the sequence the participants had been interviewed. A semi-structured interview approach was used to allow for flexibility, including a convenient time and location of the participant's choosing.

During the site visit, the interviews took four hours and 12 minutes to complete at Site 1, and three hours and 32 minutes at Site 2. Responses were gathered from open-ended questions as listed in Table 3.3, along with the probing technique that was used for the listed questions in Appendix 4.

3.7.2.2 Memo Writing

A review was taken after each interview to evaluate the quality of responses to the research questions, in particular, how responses identified and defined the success criteria and success factors at the post-handover stage. The review was made possible after the memo writing process was carried out during data collection, This process is an essential step when using the grounded theory approach.

As illustrated in Figure 3.6, memo writing is a parallel process with constant comparative analysis. An example of memo writing is shown Figure 3.11. The parallel process allows data collection to be consistent with earlier data processing and analysing. Although memo writing is treated as a personal analysis step, it was invaluable in assisting the current research in understanding the contextual background during the interviews. For instance, contextual background could be in the form of a place and time for the interviews. A participant seemed to lower his/her voice during the interview because she/he was sitting at her/his desk close to the workmates. This situation tended to hinder the flow of the interview.

Memo writing was an effective way for the researcher to personally reflect during and after the interview. While on location, notes were used to decide the next participant to be interviewed, as well as used as a guide for the semi-structured interview. In other words, memos were used to determine the sequence of the interviews based on the most convenient and relevant participant.
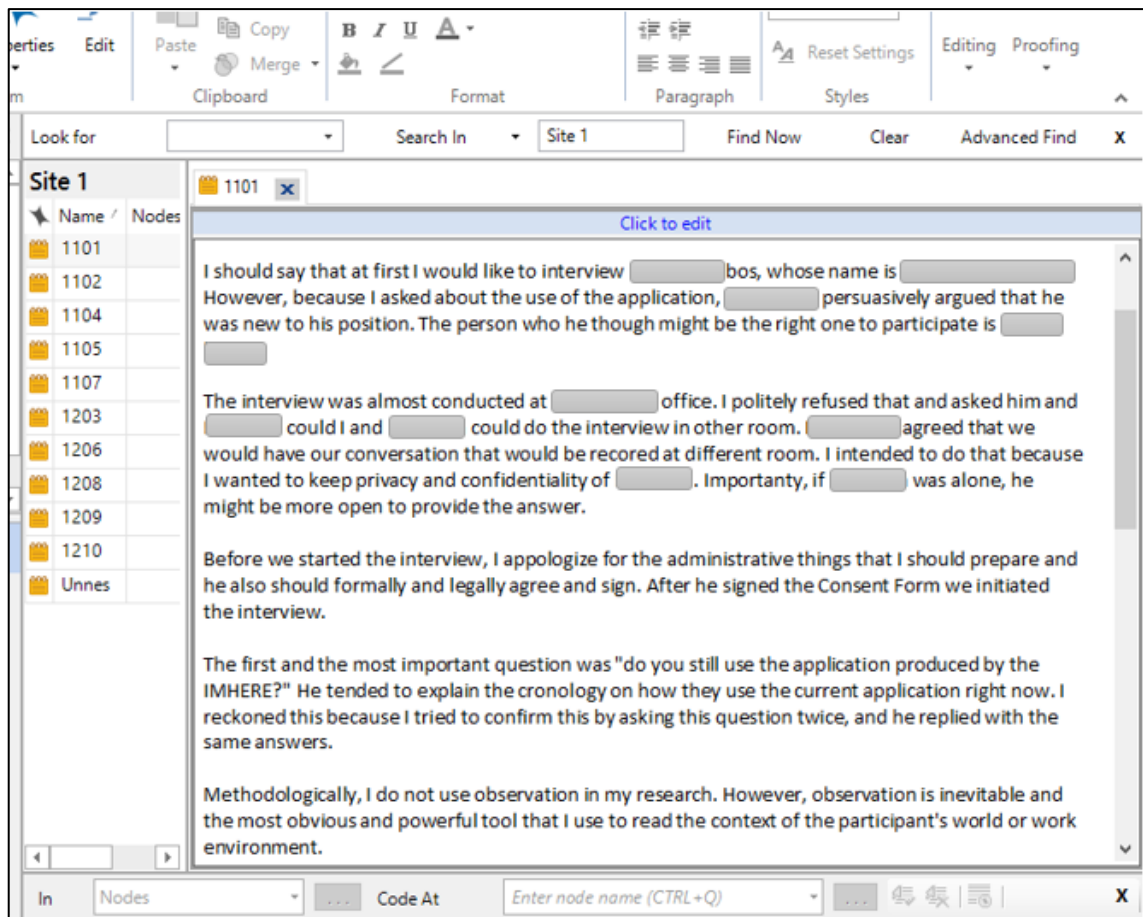
Figure 3.11   Example of memo writing in Nvivo (Participant 1101)

After the interviews ended and the researcher left the site, memos still played a role for additional data. During the early process of analyses, memos assisted in examining the adequacy of the data that was gathered from the interviews. Follow-up interviews over the phone were then conducted between December 2016 and March 2017 to gather additional information and to conduct further interviews. The participants were informed about these follow-up actions if their responses required more elaboration.

3.7.2.3 Interview Results

The interviews resulted in 16 digital recordings, labelled according to the participant labelling system, as indicated previously. Labels were also used for the transcript of each research participant, along with notes for every participant. In other words, memos accompanied the transcripts.

The transcripts of all participant responses were communicated to every participant formally by providing them with a consent form that was officially signed by each participant. Importantly, the consent clearly emphasised confidentiality.

The total duration for transcribing the interviews was three months, which resulted in a total word count of 57,190 words. These transcribed words were then used for the analysis process, as elaborated in Section 3.8.

3.8   Data Processing

Data processing is the first stage of data analyses that produces selective themes. This stage consists of two main coding processes[14]: (i) open (initial); and (ii) focused (selective) that is the sequential step to producing similar themes that are then clustered into more selective groups according to the closest and relevant categories theoretically. In other words, while data analysis covers the third step of coding (theoretical coding), data processing consists of open (initial) coding and focused (selective) coding.
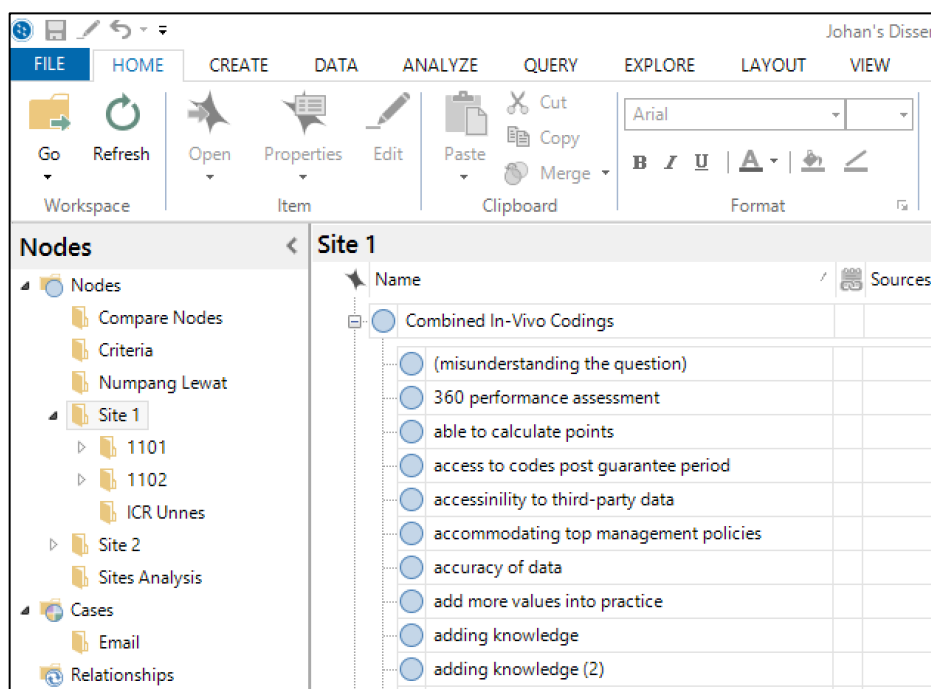
Figure 3.12   Initial coding in Nvivo

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[14] These processes were heavily relied on NVivo. This research used NVivo Pro 11 for data analyses.

The first stage, initial coding, was conducted by using a line-by-line approach (Figure 3.12) That was conducted to every line of the transcribed interviews. This process produced 625 lines from Site 1 and 748 lines from Site 2 (Appendix 5 and Appendix 6). These lines were placed through the data cleaning process, which omitted unnecessary words in the Indonesian language and repetitions that had been coded earlier.

The second stage of the coding process was focused coding (Figure 3.13), which was carried out on lines that had been produced by the first stage. It was conducted three times until the lines were clustered into thematic categories and moved from general themes into focused (selective) ones. The process resulted in 60 codes (themes) for Site 1 and 71 for Site 2 (Appendix 7 & Appendix 8).
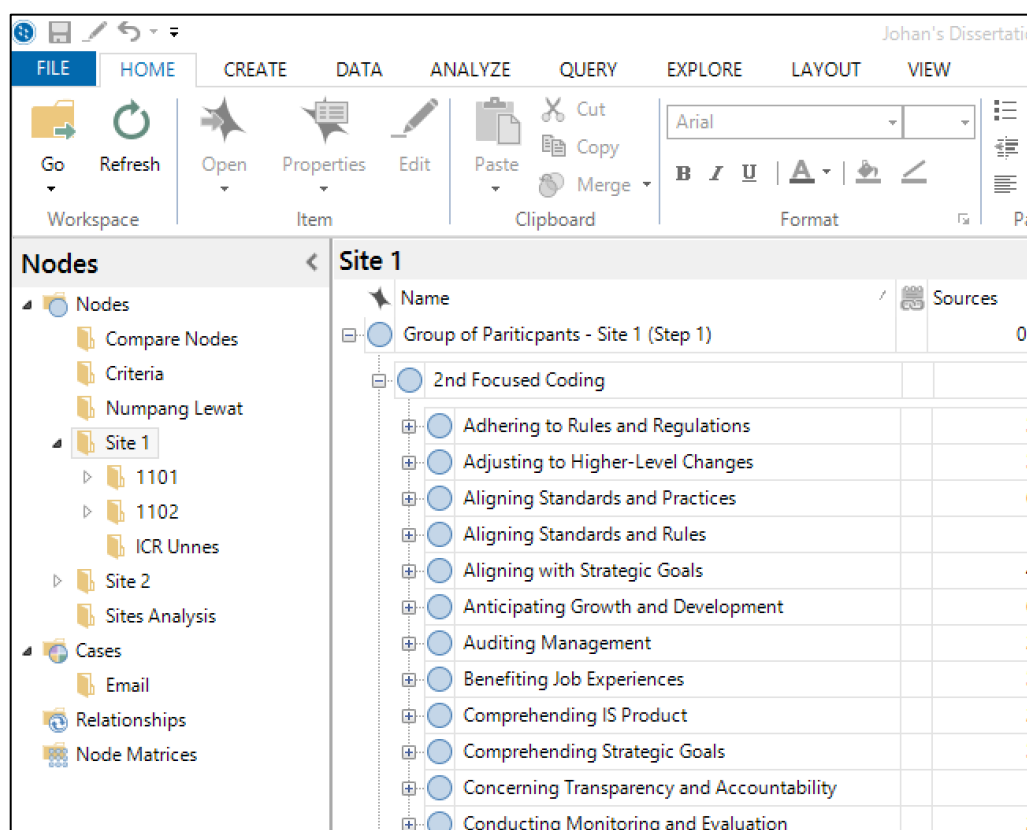
Figure 3.13   Focused coding in Nvivo

To produce these codes, constant comparison was an essential step especially to overcome differences in the language. While raw data (transcripts) were in the Indonesia language, analyses and their results were in English. Constant comparisons were carried out to ensure an equal and appropriate translation from the recorded words into coded lines and focused themes.

Up to this stage, focused coding separated the results for each site and mixed the themes for both success criteria and success factors. By separating the themes, this stage was intended to reveal any differences between those clusters of themes identified at each participating site. In other words, the processes allowed the possibility of identifying themes that perhaps were found at one site but not at the other.

In terms of mixing the themes for success criteria and success factors, this step focused on themes found at both sites. This separation was used in theoretical coding so that success criteria and success factors can be identified if they differed from one site to the other.
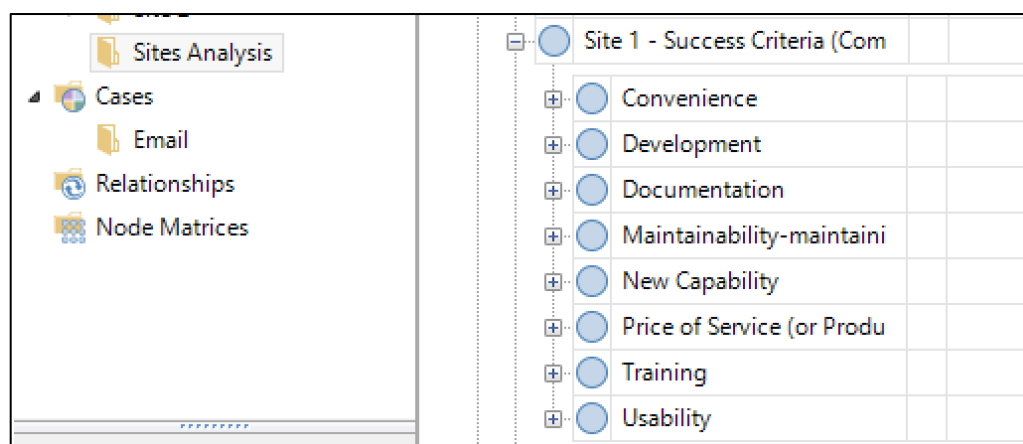
Figure 3.14   Theoretical coding in Nvivo

The third stage of the process was theoretical coding (Figure 3.14). Extant literature was used as the basic theory for clustering the themes into success criteria and success factors. The most significant source was the literature that had been reviewed in Chapter 2. To ensure the most appropriate category of a success criterion and success factor, along with the review of the literature, constant comparison was carried out to review any alignment between the literature and raw data (participants' definitions) of one particular success criterion and success factor (Figure 3.15). Figure 3.15 illustrates the practical use of the linear process of the CGTM, as indicated earlier in Figure 3.6.

Figure 3.15 identified 10 themes as success criteria: (i) convenience; (ii) development; (iii) documentation; (iv) maintainability; (v) new capability; (vi) new technology; (vii) performance; (viii) price of service or product; (ix) training; and (x) usability, that were resultant from previous coding processes, constant comparisons with their original data (transcripts), and more importantly,

the literature (Atkinson, 1999; Cooke-Davies, 2002; Turner & Zolin, 2012). From these criteria, however, only New Technology and Performance were identified by participants in Site 2.

Similar processes of coding were also conducted for identifying the critical factors. Based on the coding processes of constantly comparing to the original data, along with relevant literature (Carol & Sang Ok, 2008; Cooke-Davies, 2002; Diallo & Thuillier, 2005; Dong et al., 2009; Hermano et al., 2013; Ram et al., 2013; Struyk, 2007; Turner & Zolin, 2012; Veiga et al., 2014), eight success factors were identified: (i) collaboration; (ii) learning; (iii) leadership style; (iv) organisational support; (v) organising; (vi) user acceptance; (vii) user engagement; and (viii) trust. Interestingly, only Leadership Style was identified by participants of Site 2.
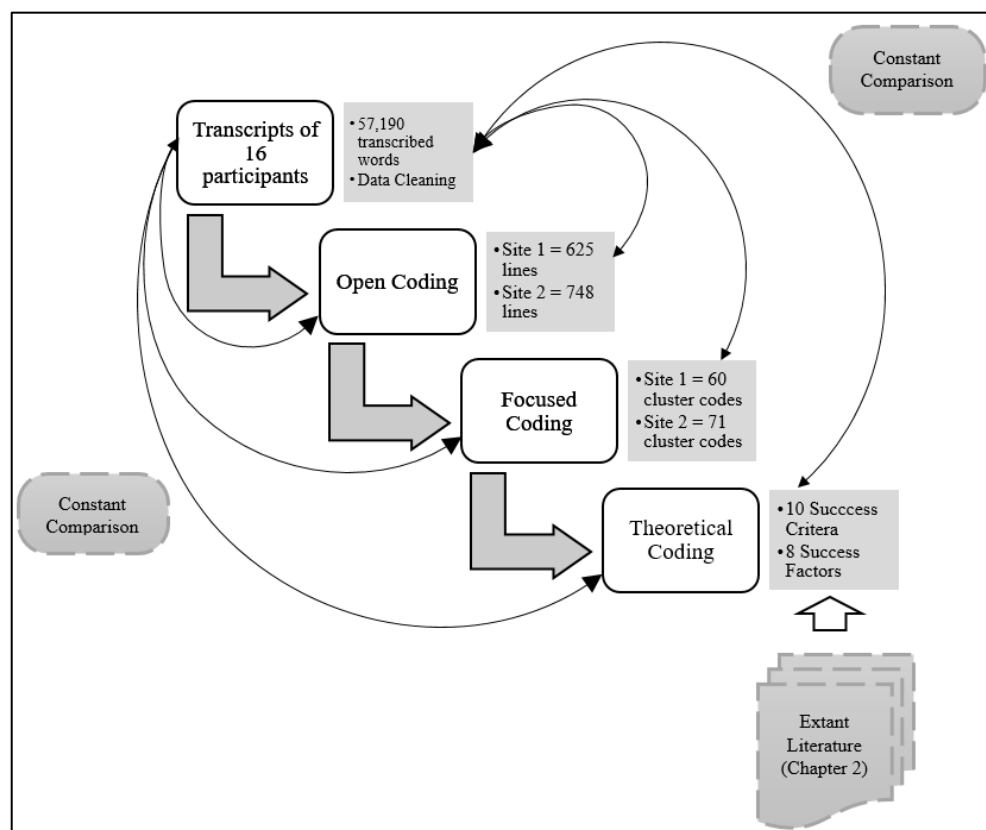
Figure 3.15   Coding processes

The identified success criteria and success factors were separated in each participating site to allow the identifications of similarities and dissimilarities of the identified success criteria and their critical factors. This separation also showed that some themes were not identified at Site 1, such as New Technology and Performance for success criteria, however, they were identified at Site 2. Similarly, Leadership Style was only identified by participants at Site 2. These themes were

omitted from the discussion the following chapters because the elaborations needed more solid descriptions of definitions from the participants of both participating sites. The themes that were only found in one site were considered to have one-side argument for describe the contextual definition of success criteria or critical factors.

3.9   Chapter Summary

This chapter is divided into two fundamental sections. The first section discusses the rationale for using grounded theory, and the second briefly highlights how the method being used was based on grounded theory. Chapter 3 opened the first section by providing an overview of grounded theory (Section 3.2), as well as elaborated on how grounded theory was introduced by its founders, Glasser and Strauss, who eventually split up after arguing about their own epistemological stance, causing the original version of grounded theory to be criticised. One of many critiques concerned the lack of constructivism in grounded theory based on the researcher and research participants.

Chapter 3 also includes discussions about the constructivism stance within grounded theory, called as constructivism grounded theory. This researcher used CGT, a method based on Charmaz's seminal approach on using the original version of Glasser and Straus, however, added constructivism theory, especially on how to interpret reality.

The second section in this chapter explains the justification for employing the CGTM. Two main reasons are behind its use in this research: (i) benefits evaluation was not conducted since the I-MHERE funding scheme ended; and (ii) the CGTM was used as the main method of EPPE (Ex-Post Project Evaluation) (Chapter 2).

Once justification for employing the CGTM was explained, demonstrating the use of the CGTM followed. This chapter briefly discusses data collection, initial (open) coding, focused (selective) coding, theoretical saturation, constant comparative analysis, memo writing, validity and reliably concerns, as well as explains about flaws of grounded theory.

All in all, data collection and data processing are discussed in this chapter. Data collection entailed the collection of secondary and primary data consecutively. Relevant documents were collected as secondary data that led to a selection of participating institutions and potential research participants. During data collection, human ethics was also considered. Importantly, the results of

data collection were transcripts from interviews of 16 research participants from two participating HEIs as former funding scheme recipients. Transcripts started to be processed in accordance with the CGTM sequential processes, covering initial, focused and theoretical coding processes, along with constant comparative analysis, and memo writing. During data processing, validity and reliability were the most essential elements because they ensured that the next process was useful for analysis. Chapter 4 discusses the analysis and codes that arose from data processing.

CHAPTER 4:
IDENTIFIED SUCCESS CRITERIA

4.1 Introduction

Following on from Chapter 3, Chapter 4 discusses success criteria and their critical factors identified at the theoretical coding stage. Both categories have been considered the concept generating stage.

Theoretical coding previously identified eight success criteria[15] from both participating sites: *(i) convenience; (ii) development; (iii) documentation; (iii) maintainability; (iv) new capability; (v) new technology; (vi) performance; (vii) price of service or product, training;* and *(viii) usability.* Two success criteria were also identified: *(i) new technology;* and *(ii) performance* by Site 2 participants, however, the analysis omitted them from the discussions.

Figure 4.1   Level of responses: Identified success criteria

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[15] The alphabetical order was automatically produced by NVivo and does not represented the level of importance.

The discussions in Chapter 4 are elaborated based on Figure 4.2. This figure was generated by analysing the highest responses provided by all 16 research participants in identifying and defining the eight success criteria. Nevertheless, discussion of the findings were limited to the four highest response. Discussions started by discussing *usability*, followed by *development*, *documentation*, and *new capability*.
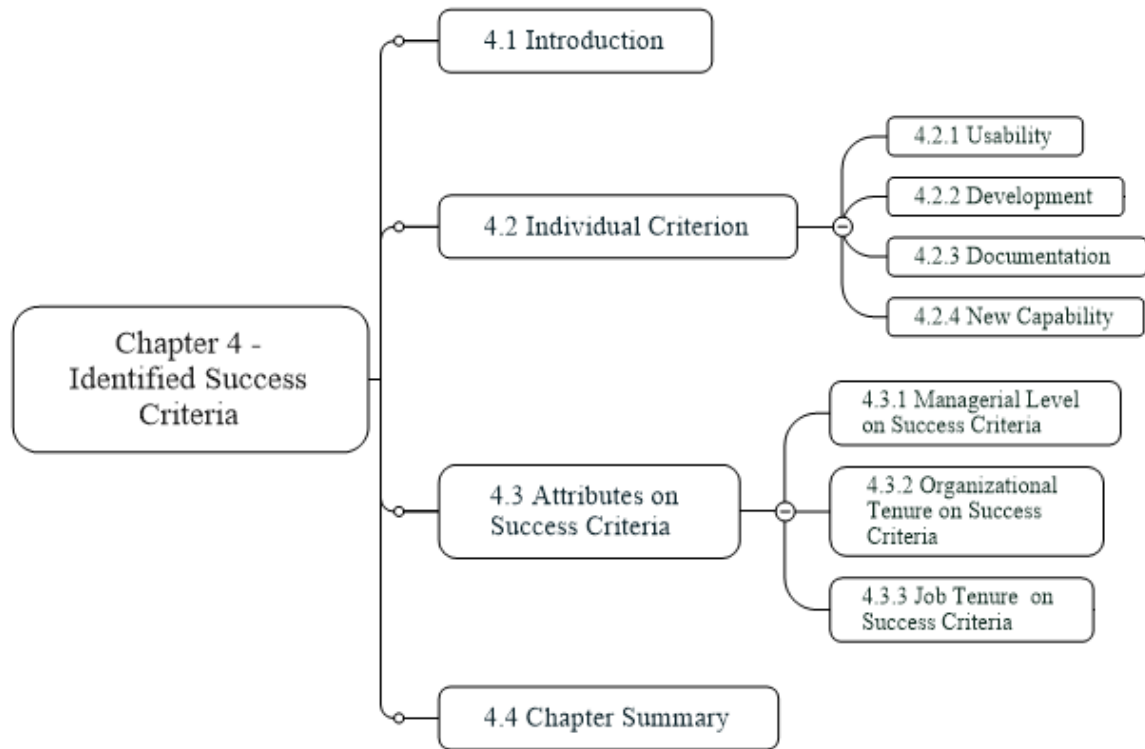
Figure 4.2   Overview of Chapter 4

Based on these criteria, the sequence of the elaboration for this chapter was carried out (Figure 4.2). Firstly, the chapter discusses each criterion individually. Once all criteria are discussed, research participants' overall judgement will be highlighted. The third section explores variations of responses based on three different institutional attributes: (i) managerial level; (ii) organisational tenure; and (iii) job tenure. Discussions are summarised at the end of the chapter.

4.2   Individual Criterion

Concept generating uses two types of analysis. Word frequency analysis was used to indicate the highest terms surfaced from participant responses for a particular criterion. The other analysis referred to Yin's (2003) approach that promotes analysing the contextual data. In this research, this approach is known as contextual analysis as it allows the analysis to be thoroughly engaged with

data and conveyed the unstated meaning that were implied from it. These meanings were based on the participants' daily experiences and memos. The analysis used clusters analysed from theoretical coding in their original sentences and paragraphs, which then formed sub-categories, elements or areas of concerns under a success criterion that emphasised the shaping of a definition. They led to differences in defining a certain criterion, as identified by the participants, as well as being supported by the most relevant evidence or excerpt. In other words, although certain participants had identified a criterion, their definitions could differ.

Contextual analysis allows differences to be revealed that can lead to conceptual definitions and provide an overall judgement of success. In short, while theoretical coding was limited at the identification stage, contextual analysis focused on the elaboration of the definition. Importantly, contextual analysis will demonstrate variations in the definitions provided by the participants from the sampled sites. These variations are also expected in defining critical factors.

In conducting contextual analysis, an English monolingual dictionary was used. The use of a dictionary is expected to expertly cover the meaning of a word without influence by certain areas of discipline. As well, meanings from a dictionary were used to provide boundaries that cover the descriptions from the interviewees. Importantly, the use of a dictionary for meanings was to minimise biases in defining certain words or phrases by the researcher, who was also the translator.

Nevertheless, contextual analysis was not conducted for two of the identified success criteria by Site 2 participants: (i) new technology; and (ii) performance. Discussions highlighted the tendency of the criteria that appeared only from both participating sites, therefore, *new technology* and *performance* are omitted from the discussions.

This chapter also discusses how these criteria were used to define the participants' institutional backgrounds that included managerial level, organisational tenure and job tenure. The discussion is expected to identify variations of the provided responses.

4.2.1 Usability

The use of word frequency analysis highlighted several relevant words, including training, using, external, program, process, period, information, requirements, results, output, contribution, management, position, implementation, knowledge, and adding. These words indicated three aspects that formed the definitions of usability: (i) sampled outputs; (ii) job tenure relevance; and (ii) much adding or contributing to knowledge.

In terms of the output sample, most were *information systems* and *training programs*. The participants referred the usability of the outputs, such as the academic IS or Mirkotik training program, at the post-handover stage. The usability of the (*sampled*) *outputs* related to job tenure where the participants used the outputs *since they were handed over to perform their jobs*. Its usability was also measured in terms of contributions to *add knowledge* to the users (participants).

Furthermore, the use of contextual analysis revealed two types of usability: (i) *individual usability*; and (ii) *institutional usability*. In terms of *individual usability*, this research defines that outputs provide beneficial contributions at the post-handover stage only at the individual level. In other words, even though outputs were beneficial, the benefits could only be experienced by the participants and the institution did not gain any wider benefit, especially at the post-handover stage when outputs were expected to assist the institution in delivering its strategic objectives.

Evidence of individual usability was provided through Participant 1210's responses (Excerpt 4.1). Although the training program he attended was excellent, the implementation post-training was undone. However, from the training program, Participant 1210 understood how IT products are launched in the market, as well as their relevance to the needs of an organisation. Two lessons were experienced by Participant 1210: (i) types of database products, and (ii) database target market.

So, it wasn't implemented right away, because [the training program] introduced Product B. But, I became aware the relation between Product B and Product A, what it looked like. In business, it turned out um … why should be Product A, Product B. Evidently, it was a business. So, they launched Product A as a free product. When people started to enjoy it, later … in fact there were flaws. Therefore, [people needed] to use Product B. I became aware of it … that was the reason … Product B was like that.

Kalo langsung dipraktekan ndak, karena yang pake Product B. Tapi saya jadi tau hubungan antara Product B dan Product A itu seperti itu apa. Dalam bisnis saya jadi tau a ternyata e.. kenapa harus ada Product A, ada Product B. Ternyata itu ya itu bisnis. Ternyata ada kaitannya cara … cara berbisnis. Jadi kita lempar Product A yang free. Ketika orang sudah merasakan enaknya, nanti kita … ternyata ada kekurangannya. Nah pakailah Product B. Saya jadi tau, ternyata itulah … itulah tujuannya oo … Product B seperti itu

Excerpt 4.1   1210's response on usability

Another example of individual usability was also shown from Participant 2206's responses (Excerpt 4.2). This participant was a user of an academic IS. He defined the usefulness of outputs was limited without realising his part in the overall information flow within the institution.

For Admin Staff at School, we just input (set) the [teaching] schedule. For grading, it is done by each lecturer. […] Umm … 2207. It is a sort of report to 2207.

Kalo Adminstrasi Prodi anu Pak hanya masukan jadwal aja. Untuk masukan nilai ke pengajarnya masing-masing.[…] Hmh 2207. Istilahnya yang laporan. (iya.) 2207

Excerpt 4.2   2206's response on usability

In terms of institutional usability at the post-handover stage, outputs were expected to demonstrate long-term beneficial contributions. Participant 1107 implied (Excerpt 4.3) usefulness of the training program that was funded by I-MHERE, related to his current position. This position allowed the participant to demonstrate the usefulness of the training program, not only for long-term, but also for a higher level institutionally.

So if [we] learn, learn, and learn from [other] people that are knowledgeable about the details of … if it is … honestly I need to learn, learn to know how [the process of] proposals submission, how after the announcement [of successful] proposals, until they are funded and sort of thing until the submission of final report in Research [unit]. So, I need to know how to document the drafts, how to [keep] learning. I need to be enlightened.

Jadi kalo belajar belajar dan belajar sama orang orang yang udah mengetahui tentang seluk beluk kalo di.. terus terang ya saya harus belajar belajar tentang bagaimana toh mengumpulkan proposal bagaimana nanti setelah proposal turun nah bagaimana nanti didanai dan lain sebagainnya sampai dengan terakhir sampe pengumpulan laporan akhir kalo di penelitian. Jadi saya kan harus tau harus mendokumen draft draft nya bagaiamana harus belajar aku di ajar.

Excerpt 4.3   1107's response on usability

Moreover, another example was used to illustrate institutional usability. Site 1 used the I-MHERE funding scheme to establish SOPs for procurement. The benefit of SOPs is depicted in Excerpt 4.4. According to Participant 1104, long-term benefit was due to long-term relevance of SOPSs to higher-level rules and regulations.

The SOP relating to Asset Management is still useful and still being used until know.

Yang kaitannya SOP Pengelolaan Aset ya masih berguna (dan masih dipake sampe sekarang?) dan masih dipake sampe sekarang

Excerpt 4.4   1104's response on usability

While the responses of Participant 1107 and Participant 1104 provided evidence of institutional usefulness in a positive way, other participants had different opinions. Although these following examples represent individual responses, the participants were able to describe the low level of usefulness of the outputs, particularly at the post-handover stage.

Participant 1203 provided an illustration of this situation. As a user of an inventory management system, produced by I-MHERE, Participant 1203 argued that outputs of this IS were limited to internal use only when analysing the number of inventory usage. Officers at the unit needed to produce additional analyses and reports for formal reporting, particularly, when using a standard provided by the Ministerial for national reporting.

Just [for] our analysis. Because we [need to] purchase them [the inventory]. So the purchase [process] here at [our unit was only] submitting the quotes. Therefore, it could be [used] for [analysis] … yes for other [purchases, which] mean [predicting/analysing] how much [we would need].	*Hanya analisa kita aja. Karena kita kan kalo untuk pake itukan beli. Jadi yang belanja kan sini pengajukan RAB-nya. Jadi itu bisa untuk (analisa) iya yang lainnya maksudnya kurang lebihnya berapa.*

Excerpt 4.5   1203's response on usability

Another dissatisfied reaction of output contribution was provided by Participant 2108 who judged that project outputs could not satisfy his expectation, therefore, the IS was considered a failure. This consideration led to the participant evaluating the usefulness of the IS (Excerpt 4.6).

We then tested [the information system] in two thousand and fourteen. But because of the trial results could not meet the criteria or requirements … that we need, therefore we did not use it anymore since two thousand and fifteen. So, in two thousand and fifteen we totally stopped using it.	*Kemudian baru kita uji coba tahun dua ribu empat belas. Namun karena hasil dari uji coba tersebut tidak memenuhi e … kriteria atau persyaratan yang kami butuhkan sehingga kami tidak menggunakan lagi sejak tahun dua ribu lima belas. Jadi dua ribu lima belas kita totally sudah berhenti menggunakan.*

Excerpt 4.6   2108's response on usability

Additionally, Participant 2103 also viewed several outputs from I-MHERE as failures. According to this participant, even though there were many ISs developed by the I-MHERE project, most could not be used. Therefore, these ISs were discontinued, leaving only a few being used today.

However, at that time … according to ICT fellows … at that time there were many [ISs] that were not aligned with our business [process] here at SITE 2. Therefore, not all the [information] systems could be used at that time. [The IS that] can be used were the scholarship IS and library IS, as well as our website. These three could be used right away.

Namun waktu itu menurut teman-teman yang mengelola TIK waktu itu bahwa banyak yang tidak sesuai dengan proses bisnis yag ada di SITE 2 gitu. Oleh karena itu tidak semua sistem bisa digunakan yang waktu itu. Digunakan adalah Sistem Informasi beasiswa dan Sistem Informasi Perpustakaan serta web perguruan tinggi. Ada tiga yang langsung digunakan.

Excerpt 4.7   2103's response on usability

All in all, the participants provided responses that identified *usability* as the highest concern criterion. By using word frequency analysis, *usability* referred to delivered outputs, job tenure to assess the usefulness, and how useful outputs were in adding knowledge for the users. By using contextual analysis, two main types of usability were specified: (i) *individual usability*; and (ii) *institutional usability*. The former was defined when output benefits were experienced individually; the latter definition was based on participant descriptions on how useful the outputs were institutionally constituted. In other words, benefits of I-MHERE funding scheme outputs were experienced across the institution beyond their delivery stage.

Participant responses also allowed the analysis to construct three levels of usability: (i) *fully useful*; (ii) *moderately useful*; and (iii) *not useful at all* that were generated by participant responses that led to two types of usability: (i) individual usability; and (ii) institutional usability. Outputs of the I-MHERE finding were expected to be used widely across the institution, but unfortunately when they were perceived to have limited contribution, the impacts were only experienced personally.

The analysis was aimed to examine how these types were considered in general. In other words, an output could be personally experienced, but only in the long-term. On the contrary, ISs could be used widely across the institution, but outputs are either marginally useful or not useful at all, leading to a potential for further development. For analysed and generated responses, refer to Figure 4.3.
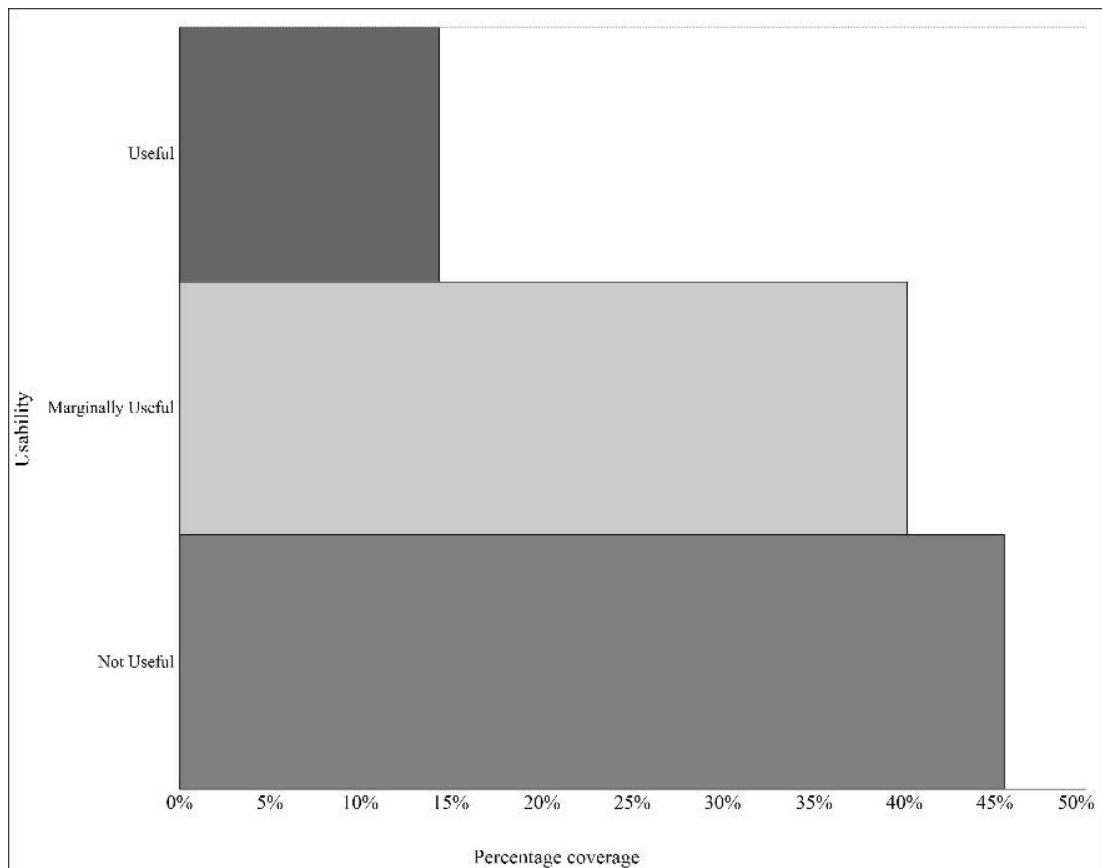
Figure 4.3   Level of usability

4.2.2 Development

The analysis examined the most frequently used terms by the participants which resulted in a number of interesting words (Appendix 10), such as 'development'. Another word the analysis focused on was the word 'need'. With the combination of these two words, the analysis perceived there was a *'need for development'*. Whether outputs were still being used or completely abandoned at the post-handover stage, the need for development was obvious. In other words, the analysis did not interpret using a single word, but also considered several words that appear from the analysis and could provide more comprehensive meanings.

The need for development was further investigated through analysing the participants' responses. Contextual analysis indicated two types of development: (i) *further development*; and (ii) *new development*. For those who defined continuous benefits of I-MHERE outputs, they needed better improvement or further development on the existing outputs. For this, it was viewed as defining development for change, continuous development, or anticipating growth while new development

tended to be defined by those who were dissatisfied with outputs after the delivery stage. These participants preferred outputs to be discontinued and new ones developed in its place.

In terms of further development, Excerpt 4.8 portrays how a participant expected changes in development to achieve better results. Changes did occur during the integration of several existing ISs at Site 1, funded by I-MHERE. During the integration process, flaws from existing ISs were identified, adjusted and revised to allow for a smooth integration process.

In fact, we want to … not keep … using means stagnant. There has been a development. It is always every year we make changes. The changes of course changes [for] good, which are based on evaluation of implemented systems, if necessary. We will find this during the integration [of the systems]. There are weaknesses … we will do it for change.	*Bahkan kita kepinginnnya juga tidak tetap menggunakan berarti stagnan kan sudah ada perkembangan. Selalu setiap tahun kita lakukan perubahan. Perubahan tentu perubahan kebaikan itu juga didasari atas evaluasi dari implementasi sistem pada perlu perlu . Ini akan kita temukan di diintegrasi penggabungan ini masih ada yang kurang ya kita lakukan untuk perubahan.*

Excerpt 4.8   1102's response on development

Another example of further development is explained in Excerpt 4.3 when a training program focused on archival management benefited the continuous development and professional competence of the participant. This participant admitted to increasing his experience in his recent job.

However, dissatisfaction of MIS performance outputs was experienced when Site 2 replaced its MIS (Excerpt 4.7). The information provided by Participant 2103 (Excerpt 4.9) describes the inconvenience of using the I-MHERE output. According to this participant, the institution became aware that this system did not work and they needed to develop their own IS in-house.

The use of the IS … was tested … So at … tested by potential operators [(admin staff)], potential users. When implemented for [the wider] users, [the problems] occurred, like the Academic one … it was like that. When it was tested, there were no problems, but we … we followed … meaning we used [how] the system flew.	*Penggunaanya ini artinya model e … uji coba ya namnaya ya. Jadi yang di … di … menguji adalah calon operator, calon pengguna. Begitu kita terapkan di khalayak, itu muncul. Seperti yang akademik itu juga begitu, ketika diuji coba nggak ada masalah. memang proses binsisnya universitas tapi kita kita ikutilah artinya coba kita ikuti alur sistemnya kemudian waktu itu memang sudah di yang aka.. khusus yg akademik sudah dibelokan supaya mengikuti proses bisnis yang di Site 2.*

Excerpt 4.9   2103's response on development

Another indication of the need for new development is illustrated in Excerpt 4.10, which implies that development of a new IS was needed to manage the academic data of students from the previous year. An interesting finding from this situation was the subtleness of the need. Participant 2206 was aware about discontinuance of using the old IS. The participants as users of the system expected to apply the new version because it would have better features in managing academic activities. During the interview, Participant 2206 stated that the new IS would be internally developed by the ICT Unit, as already expressed in Excerpt 4.7.

The old IS was probably used to [managing data of] the [last-year] Bachelor Students, which still used [ACIS1[16]] … including [ACSI3] … similar to [ACIS2] … [ACSI3] and [ACIS2]. They would probably be replaced. That's so.	*Lah itukan aplikasi yang lama … kemungkinan unutk menghabiskan yang D empat inikan ikutnya kan masih [ACIS1] … yang [ACIS3] e … yang [ACIS2] sama … ([ACIS3] sama [ACIS2]) jadi kemungkinan kan nganu pak mau diganti sistem aplikasnya kemungkinan gitu..*

Excerpt 4.10   2206's response on development

While the excerpts were expressed by IS users, new development could also be defined by those who attended training programs. By attending a database management training program, Participant 1210 anticipated the growth of database management for Site 1. During a training program, he was introduced to another database platform that he hoped could handle the large amounts of data at Site 1. However, this new proposal was not support by Site 1 management, as Excerpt 4.11 states.

[The manufacturer of] Product A is the same. I though Site 1 would be heading using this Product B … would be used it. It turned out until now it has been … how long is it now? Two thousand and nine to two thousand and sixteen. It has been six years, hasn't it?	*Product A server juga sama. Ee … saya pikir Site 1 nantinya akan mengarah ke ini Product B, akan dipake. Ternyata sampe sekarang belum. Sudah … berapa tahun ini? Dua ribu sembilan sampe dua ribu enam belas. Kan sudah hampir enam tahun ya?..*

Excerpt 4.11   1210's response on development

Excerpt 4.11 also implies that Participant 1210 was disappointed when he realised that the institution continued to use the existing database management and indicated that no further action

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[16] ACIS stands for Academic Information System. Site 2 had three separated ACIS.

would be taken to alleviate the increase in data to be managed in the future. This participant also expressed the need for new development in the area of database management.

To conclude, the analysis indicated that all participants expressed the need for development. By using this research as the central point of analysis, the responses pointed to two types of development: (i) *further development*; and (ii) *new development*. Further development means to create a new system from the previous one produced by the I-MHERE funding scheme. New development demonstrates the need to built new outputs due to dissatisfaction in using current outputs.

From responses and early findings, the analysis constructed three levels of development: (i) *well developed*; (ii) *marginally developed* ; and (iii) *undeveloped*[17] that refer to how outputs are developed after they have been handed over. The level of responses that generated these three level of development are illustrated in Figure 4.4.

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[17] The most relevant meaning for the condition is where no more development was conducted, that is, was undeveloped. While 'underdeveloped' is defined as 'not fully developed' (Oxford Dictionary, 2018, para. 4), this definition could be similar to 'marginally developed'. The analysis used 'undeveloped' as one of development levels of the outputs at the post-handover stage.
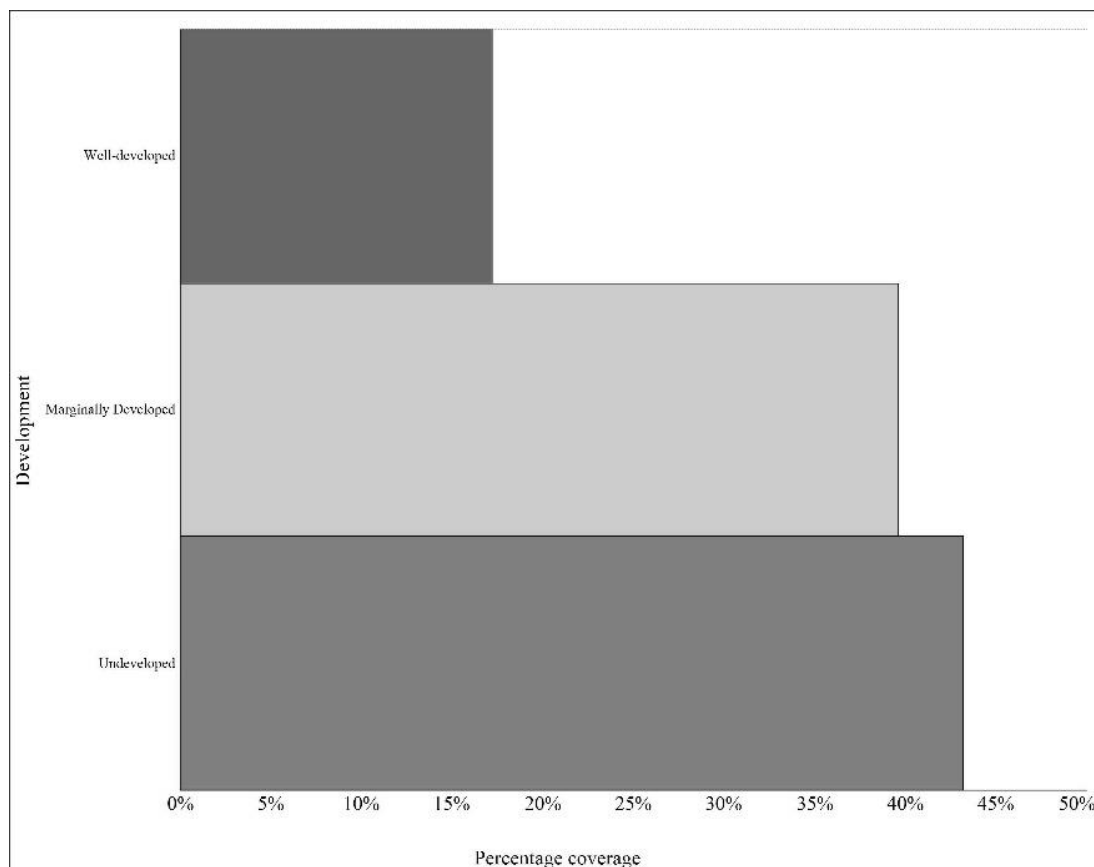
Figure 4.4   Level of development

Figure 4.4 clearly shows that the outputs were mostly perceived to be *undeveloped* and *marginally developed* at the post-handover stage. These levels indicate a very limited development was conducted beyond the handover stage. The participating institution had used the outputs for some time but then decided to stop using them because they could not meet their organisational needs in general. In short, Figure 4.4 verifies the need for new development of the outputs. To conclude, at the post-handover stage, outputs of the I-MHERE funding scheme were considered to be *marginally developed*.

Interestingly, this tendency verifies the previous findings, where most output were considered *not useful* or *marginally useful* at the post-handover stage. Due to overall concerns of the outputs, it is likely that they also considered outputs at the post-handover stage and decided to develop new ones.

4.2.3 Documentation

Documentation was considered crucial although limited details were acknowledged and recorded, either from the project's final reports, ICR or LAKIP. Therefore, the analysis perceived participant

responses to play an essential role in evaluating the documentation process. This analysis, using word frequency analysis, highlighted several words of importance, such as *training, management, information, system, program, external, assessment,* and *performance*. They were considered relevant because participants were interviewed to examine how they documented or recorded outputs after they were delivered.

Not surprisingly, the most focused aspects surfaced from the analysis, such as MIS, training program, performance assessment, and external parties. In other words, the analysis highlighted how these participants documented the outputs related to the type of output there were using.

Furthermore, contextual analysis explored the definition of *documentation* at the individual level – that is, the ability of the users to document the contributions of the outputs throughout project lifecycle. The definition of documentation was perceived as more professional descriptions rather than personal notes. In this analysis, documentation was described as professional information or evidence that was conveyed individually. Hence, the information provided could not be considered official, that is, representing the institution, however, importantly the analysis viewed this criterion as user documentation.

As user documentation, the analysis further indicated two types of documentation: the ability of *documenting the process* and *documenting the results*. In *documenting the process*, the analysis showed the participants' ability in understanding and documenting reasons for their involvement or participation by keeping records as evidence. In terms of *documenting the results*, it was perceived that they were able to document the benefits beyond the delivery stage, and the reality of the institution's recent condition compared with what they had experienced or were taught.

Although *documenting the results* was considered relevant at the post-handover stage, *documenting the process* demonstrated understanding by the participant regarding his involvement during the implementation of the I-MHERE funding scheme. This understanding allowed benefits to be reviewed. Some participants were able to relate their job description and skills that were offered during the programs. In other words, they recognised the need for the job and content of the training program, even though this situation was personally documented. For example, Participant 1208 explained that the training program was for performance assessment, benchmarked from a host institution. He implied that this was the reason he was selected to attend the training program. He also claimed the reason was to learn how the host institution managed their process performance assessment (Excerpt 4.12).

I was … what was called … before [our] performance assessment [system/model], we at the host institution, they had had concept for employees' performance assessment. So, the performance assessment at the host institution was … the concept was assessments from superiors and co-workers.	*Saya itu dulu itu kan istilahnya sebelum ada penilaian pegawai kita di [Host Institution] itu sudah mempunyai konsep penilaian pegawai. Jadi penilaian pegawai kalo di [Host Institution] itu dulu itu waktu di sana itu konsepnya penilaian itu dinilai atasan dan teman sejawat.*

Excerpt 4.12   1208's response on documentation

Another evidence was used as proof of *documenting the process*. Participant 2101 was an attendee of a training program funded by I-MHERE. He proudly showed a photograph of all attendees of Site 1's middle and top management, including himself (Excerpt 4.13). This training program was targeted to managerial levels in preparation for an autonomous type of HEI management.

At that time, [the attendees were included down] until Heads of Sub-Section of Department. So only them, … [(taking and showing a picture)], Director … Director … Director … Deputy Director … Deputy Director … First [and] Second Deputy Directors … there should be Deputy Director … The attendees were First Deputy Director, Second Deputy Director, Heads of Sub Department … Heads of Sub Department, Heads of Sub-Sections of Department … Heads of Sub-Sections of Department. That's all. Not included Heads of School.	*Waktu itu sampe Kasubag. Jadi hanya beliau … ini adalah (taking a photo) Direktur … Direktur Direkrut (o..Pak Direktur), Wadir, Wadir Wadir. Wadirnya satu dua … harusnya ada Wadir … yang ikut Wadir Satu Wadir Dua. ini Wadir Satu, Wadir Dua, Kabag, Kabag, Kasubag, Kasubag, Kasubag, Kasubag. Lainya Kasubag. Sudah itu saja. Sampe je jurusan tidak. (yang jurusan tidak ya) a a.*

Excerpt 4.13   2101's response on documentation

To further explain *documenting the results*, Excerpt 4.14 is used. Participant 2103's responsibility allowed additional information of implementing the project's outputs with regard to *documenting the process*. The ways of defining documentation also allowed the institution to learn and develop, as described earlier.

In general, all [(fourteen)] IS [under the Institution-Wide IS Program], had been … developed … and actually starting from two-thousand and thirteen [they] should be implemented. But, at that time, according to ICT colleagues, there were many unmatched process with business process of Site 2.	*Secara umum kesemua sistem informasi ini telah selesai dimple … dibangun dan e … sebenarnya mulai tahun dua ribu tiga belas harusnya sudah langsung diterapkan. Namun waktu itu menurut teman-teman yang mengelola TIK waktu itu bahwa banyak yang tidak sesuai dengan proses bisnis yag ada di [Site 2] gitu..*

Excerpt 4.14   2103's response on documentation

In *documenting the results*, it was challenging for the training programs. Nevertheless, responses from Participant 1107, who had attended a training program, indicated an ability to document benefits in the long-term (Excerpt 4.15).

In there [(the host institution)], we learned about Human Resource. The most prominent [aspect that we learned] there was … its Human Resource [Management] which had been well managed. I could say, in my mind why should we were brought to [(host institution)] because this institution has advanced [in Human Resource Management] which was why we were brought here. The goal was to improve [our] capacity in Human Resource Management sector so that [we would] be better.	*Nah di sana ya kita belajar masalah kepegawian di sana. Yang paling e..menonjol kalo di sana memang untuk SDM-nya e.. memnag sudah tertata dengan bagus. Istilahnya dalam hati mnegapa kita kesana karena [Host Institution] itukan Universitas yang sudah maju sehingga kita dibawa ke sana. Tujuannya adalah supaya unutk meningingkatkan kapasitas di bidang kepegawaian itu agar lebih maju unutk menuju e.. yang lebih baik itu tentunya seperti itu*

Excerpt 4.15   1107's response on documentation

Furthermore, as the definition was viewed as documenting benefits, documentation was also referred to as documenting the reality of a recent condition. This type of documentation implies that some participants compared the expectations of outputs contribution at the recent condition. When these outputs were delivered, they had certain expectations. However, when the expectations were not realised, they became disappointed.

Participant 1210 indicated this situation when he defined documentation as documenting the reality of a recent condition. He had attended a training program for a database product. Due to different implementation approaches in the training program regarding the software Site 1 was currently using, Participant 1210 appeared less interested in elaborating more about the content (Excerpt 4.16). Excerpt 4.16 also indicates the ability of Participant 1210 to document the post-training period, when he accepted the fact that contents of the training program and its results and expectations after attending the course did not match.

By chance, at that time [of training program], [we were] trained [using] Product B, so it was different [to what we were using right now].	*Nah kebetulan pada saat itu yang dilatihkan Product B, jadi agak berbeda.*

Excerpt 4.16   1210's response on documentation

To conclude, an overview of information in the ICR or LAKIP was insufficient and led the analysis to further explore participant responses that were essential sources to evaluating how well they carried out the documentation process.

Exploring responses by using word frequency analysis indicated several highlighted words documented or recorded by the participants on outputs after delivery. Contextual analysis deepened the investigation on this meaning and identified two types of documentation: (i) *documenting the process*; and (ii) *documenting the results*.

Documenting the process signifies the ability in documenting the reasons for involvement or participation, the implementation process, evidence (keeping records). *Documenting the results* demonstrates an ability to document the benefits beyond the delivery stage, and reality of an institution's recent condition in comparing what it had experienced or was being taught. The analysis senses a connection between these two types of documenting process because they indicate a sequential process. By understanding the initial goal of an output or activity, *documenting the results* is more relevant.

The ability of participants allowed the analysis to construct three levels of documentation: (i) *well documented*; (ii) *marginally documented*; and (iii) *undocumented*. Responses from 14 research participants helped to shape these levels (Figure 4.5). Figure 4.5 shows a high level of responses that pointed out the I-MHERE funding scheme was well documented with regard to implementing the process and contributing to results at the post-handover stage.
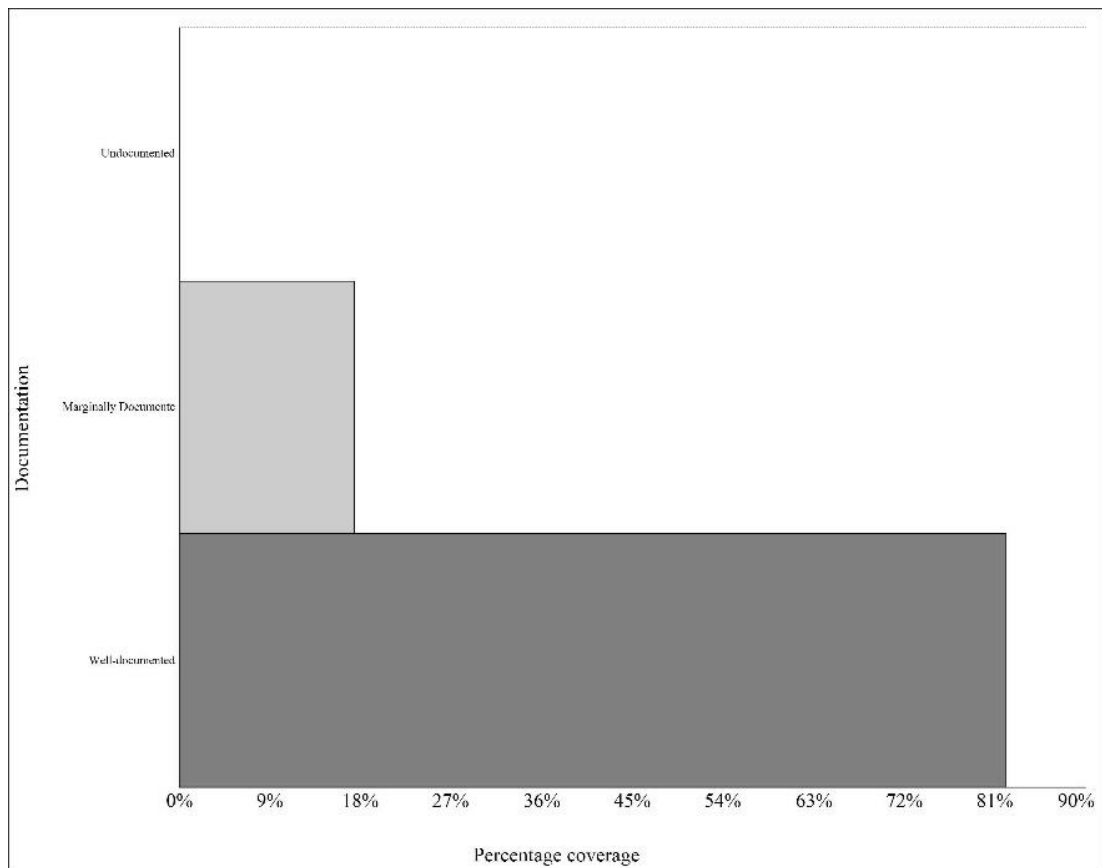
Figure 4.5   Level of documentation

4.2.4 New Capability

The analysis used word frequency (Appendix 12) to highlighted several words, namely, *assessment, programs, system, performance, budgeting, implementation, reporting,* and *process* that introduced new systems for performance assessment or a budgeting performance reporting system. For either context, new capability was gained by implementing outputs of the I-MHERE funding scheme.

Furthermore, contextual analysis investigated the responses, resulting in two major types of capability: (i) *human resource capability*; and (ii) *technological capability*. In terms of human resource capability, the outputs added new capabilities in analysing and evaluating, comprehending processes, and technical capability. For technological capability, the output led to increased system capability that were considered successful. In other words, they were able to add new capability in the areas of human resource and technology.

The analysis suggested that human resource capability includes analysis and evaluation while performing work. An example of this context came from Participant 1208, who attended a training program that focused on non-academic staff performance assessments at a host institution. The participant analysed and evaluated how this system was implemented at the institution compared to the host institution. Participant 1208 concluded that a Site 1 performance assessment was not entirely similar to the system implemented at the host institution. According to Participant 1208, Site 1 implemented a combination of a new rule commencing nationally by Central Government and including parts of the assessment model that had been implemented at the host institution, as highlighted in Excerpt 4.17. The participant's elaboration was well described after attending the training program

Um.. finally we did not a hundred percent implemented SKP model from the [Host Institution], but [by] using the [new] regulations [that detail the assessment method].	*A … akhirnya kita memang gak seratus persen menerapkan data model SKP-nya yang dari [Host Institution]tetapi disesuaikan dengan Undang-undangnya yang dikeluarkan undanga-undang SKP itu yang ada.*

Excerpt 4.17   1208's response on new capability

Furthermore, by analysing and evaluating output benefits, new capability are indirectly gained. One concern about the benefits of the system was the archival management at the research centre unit of Site 2. As research proposals were submitted in hard copy, documents started to occupy the unit's storage area. Therefore, it urgently needed a reliable IS, such as archival management, providing to be a benefit from the outputs (Excerpt 4.18).

Because we realise [that] by using online system, all will be easier. All become what is it called? … archival … from archival point of view will be condensed. You can see here. In a year, this [storage room] has been full; while in a year were need to through [these documents] again … and others will come to the storage again …	*Karena ya kita sadar dengan sistem online semuanya menjadi lebih mudah semuanya menjadi apa namanya e.. arsip dari sisi arsip juga e..lebih ringkas. Anda lihat sendiri disini. Ini dalam setahun ini sudah penuh gitu loh. Padah`al setahun kita harus buang lagi ke ar.. masuk ke gudang nanti masuk lagi..*

Excerpt 4.18   2108's response on new capability

Participant 2108 implied a new capability in terms of evaluating the IS and how output should align with its business process. Archival management was one of the concerns in anticipating change in managing the research centre unit. This anticipation led to a request for internally developing a new

IS for research management at Site 1. In other words, the analysis and evaluation had allowed new knowledge to improve, for example, better performance of internally-developed ISs.

Another type of human resource capability was technical ability. The majority of investments of I-MHERE was to establish the infrastructure for IT, including software for several ISs to be developed by hiring external developers. Once the guarantee period ended, the institution found it difficult to repair any issues when the system was implemented widely. This condition led internal resources, especially the ICT Unit, to be ready for the technology so they could minimise its dependency on external developers. In other words, the existence of outputs led institutions to increase its technical capability of their human resources.

Participant 2103 from Site 2 provided an example. As Head of the ICT Unit, he admitted that staff currently at one unit were mostly non-academic employees. During the development of several ISs, these staff members were young programmers who possessed the skills to develop the system, but they lacked experience because they were in the learning stage of the development process, as conveyed in Excerpt 4.19.

Now, we are looking for programmers who are not lecturers, yes [non-academic] staff. We have these three internal programmers here, and they are still young. So, perhaps in analytics systems, [they] are not as good as lecturers, but it can be polished.	*Sekarang kita cari programmer yang bukan dosen, ya staf. Kita punya tiga ini yang programmer internal di sini. Dan mereka masih muda-muda jadi apa.. mungkin dalam hal analisis sistem belum sebaik kalo dosen, tetapi bertahap bisa kita poles itu.*

Excerpt 4.19   2103's response on new capability

The second type of capability was technological capability. With additional funding from I-MHERE, Site 1 proposed the integration of several existent ISs, which included planning, financial management and accounting.

After the project ended, Site 1 escalated the system's capability. The integration had opened up an opportunity to build a new IS. In this case, the new capability was defined by implementing an IS for monitoring budgets (Excerpt 4.20), known as Prognosa, to demonstrate the new capabilities of the fully integrated planning, financial management and accounting IS, which was funded by I MHERE. Based on its success, Site 1 realised an opportunity to produce a budgeting monitoring system.

At that time … now, we are currently using a system that only transfer [information about activities]. These activities … but when [the activities are implemented] are unknown, the progress is unknown. Therefore, we will develop, this time, and receive Top Management's support, what is called Prognosa Budget Disbursement. This is to empower [the existing information] systems.	*Waktu itu juga sekarang ini yang masih berlangsung sistem ini hanya transfer begitu saja. Kegiatannya ini ini tapi kapannya tidak tau, progressnya kita tidak tau. Nah yang akan kita kembangkan sekarang ini dan mendapat support dari pimpinan namanya progrnosa serapan anggaran. Itu memberdayakan sistem ini sebernarnya.*

Excerpt 4.20   1102's response on new capability

Similar example were shown from Site 2. The I-MHERE funding scheme allowed the development of an IS for scholarship management. After the project ended, Site 2 escalated the system's capability by allowing access to the IS remotely through mobile phones under the android platform. As implied by Participant 2104, a new capability of accessing the IS was included as an added feature (Excerpt 4.21).

It can be accessed from outside. I tried from home … I tried … It was encouraged [to test] for one month, what the weaknesses were. It turned out mobile phones could also be used [to access the software]. So, no need for use PC. I tried using mobile phone, I did it evidently.	*Dari luar bisa. Saya coba dari rumah. Sempat dari saya coba malah disuruh coba dulu. Satu bulan itu kelemahanya apa, apa. Ternyata dari HP juga bisa. Jadi nggak harus pake PC (pake PC itu kan agak ribet). Saya coba pake HP ternyata bisa.*

Excerpt 4.21   2204's response on new capability

To access information remotely increased a user's flexibility. This function was made possible by an investment financed by the I-MHERE funding scheme. The final project report indicated a large investment on this area that was aimed to support institutional management as a whole.

In this instance, the analysis did not only perceive the capability merely in terms of technology, but viewed it as an enabler for an institution's capability or sub-criterion of *new capability* in general. This perception was the reason why *new technology* was omitted as a success criterion for discussion in this chapter. As well, *new technology* was identified from only one Site 2 participant.

In conclusion, the results of the words frequency analysis and contextual analysis from the responses were verified. The former indicated new capability was added as a result of implementing new systems for performance assessments or a budgeting performance reporting system. Meanwhile, the contextual analysis pointed out two major capabilities: (i) human resource; and (ii) technological.

The analysis also showed the construction of contributions at three levels of outputs used as labels to describe new capability: (i) *added*; (ii) *marginally added*; and (iii) *nothing*. In other words, at the post-handover stage, outputs of I-MHERE were considered to add, marginally add, not to add any capability at all. Figure 4.6 illustrates the tendency on how participants relate to outputs in adding new capability, as well as shows the highest responses that represent a new capability directly or indirectly gained by using or experiencing outputs of the I-MHERE funding scheme. In other words, participants identified new capability as a success criterion, where by directly or indirectly using or experiencing the outputs, a new capability was added
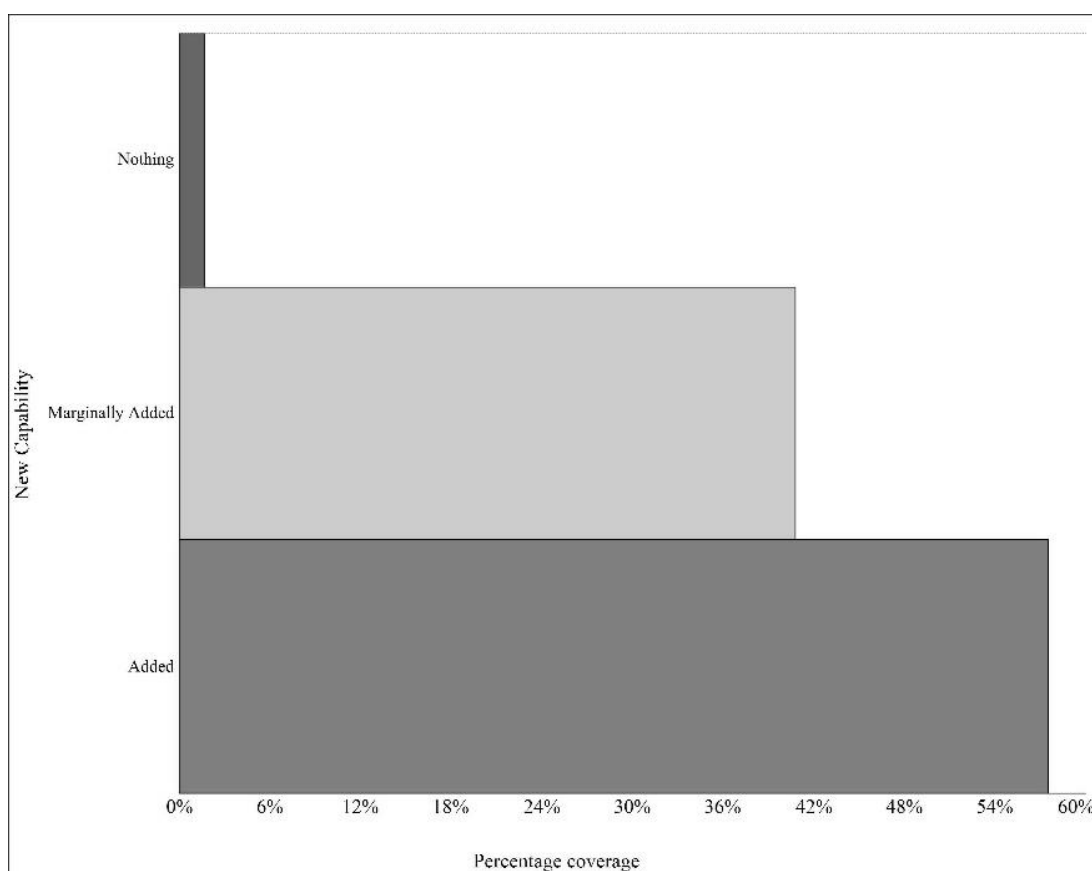
Figure 4.6   Levels of a new capability

As stated earlier, if outputs could add a new capability, they would be considered to be successful. The analysis showed that outputs of the I-MHERE funding scheme tended to add new capability for the participants. To conclude, the post-handover stage and the outputs were considered to be *successful* in adding new capability for the participants.

4.3   Attributes on Success Criteria

In the early data collection stage, Chapter 3 includes attributes of each participant, such as managerial level, organisational tenure and job tenure. During the analysis, this current research views each attribute to be responsible for shaping variations in defining success criteria.

The managerial level is responsible for assessing a participant's understanding on his/her institution's strategic direction. Organisational tenure strengthens the analysis on how comprehensive the participant is towards his/her strategic objectives based on the length of job tenure. And job tenures explains a participant's understanding of the specific needs of his/her workplace or job description. This section aims to discuss the relevance of these attributes to provide a perspective for participants to define success criteria.

4.3.1   Managerial Level on Identified Success Criteria

The analysis examined how the managerial level could shape success criteria at the post-handover stage, based on research participant responses from both sites. Managerial levels consisted of middle and lower management status. In Chapter 3, they are also named as Group 1 and Group 2. The analysis on how these groups explained variations in the definitions is illustrated in Figure 4.7[18].

As indicated in Chapter 3, more participants were categorised in Group 1 than Group 2, causing an unreliable result of participant responses due to the imbalance . The analysis then carried out data normalisation to minimise the disparity (Figure 4.7).

It was indicated in the analysis that most responses shaping the definition of success criteria came from Group 1. The result showed reliability when considering the level of response from these participants. Data normalisation suggested that this proportion was sourced from creditable responses, not necessarily because they outnumbered those from the lower management level. The analysis also showed that participants from both managerial levels had responses that defined the four success criteria.

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[18]   Data have been normalised based on the predecessor step shown in Appendix 13.
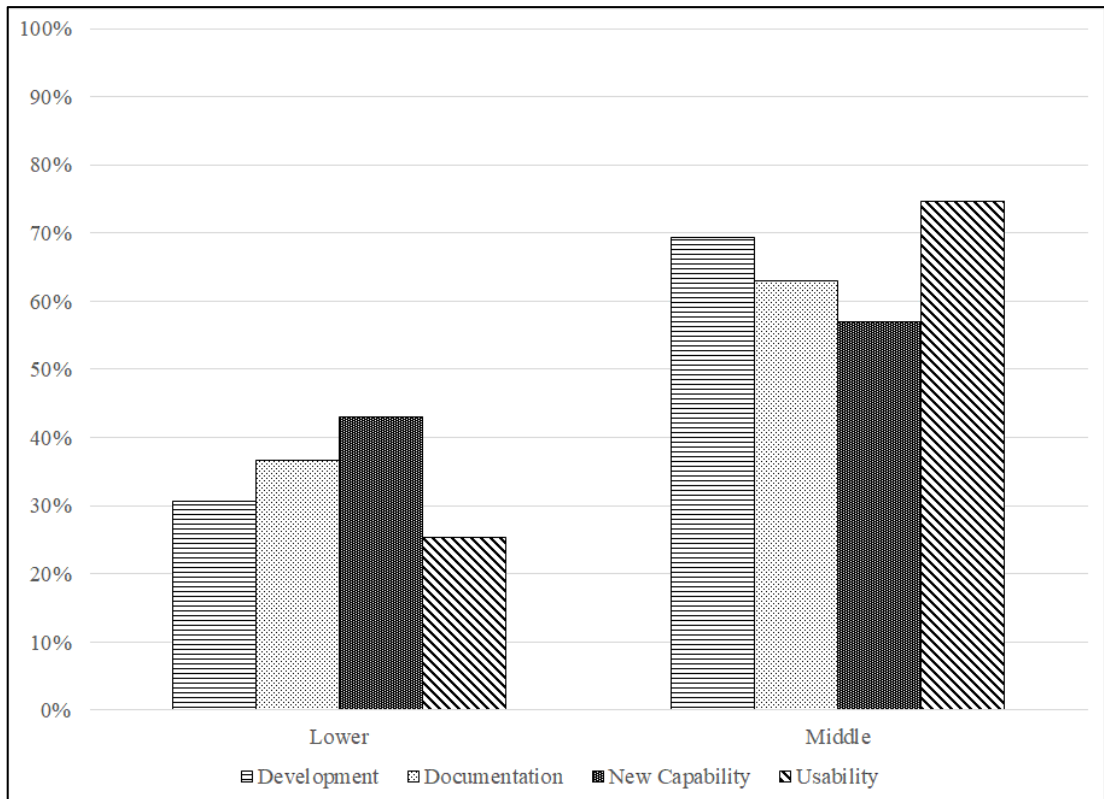
Figure 4.7   Managerial levels on success criteria

The consideration of these participants' position was also relevant in evaluating benefits of the I-MHERE funding scheme at the post-handover stage. Participants maintained a structural position within the institution to evaluate the effectiveness of top management policies being implemented across the institution and reaching the lowest level. Also from this position, the middle management position was able to evaluate how the needs from the lower level could be accommodated by their superiors.

Specific to I-MHERE's contributions, the participants' position allowed a two-way evaluation of the outputs. For the strategic level, middle management could evaluate how useful the outputs were as enablers to realise their institutional strategic goals. For example, participants had an opportunity to evaluate whether the research MIS was useful in providing reliable data for accreditation purposes.

The middle management level also allows the evaluation of the effectiveness of a training program, for instance, in the area of performance assessment. This evaluation was expected to provide data about the performance of academic and non-academic staff to these participants' superiors. At the same time, they could make a decision related to improving subordinate capacity.

Specific to variation in the responses from both managerial levels, Figure 4.7 shows that the widest gap occurred under the criterion of *usability*. This gap suggested that middle management tended to be more concerned about the usefulness of the outputs beyond their delivery stage. These participants' position led them to have a higher expectation regarding the outputs in realising their strategic objectives. Their position bridged between the actual use of outputs by their superiors (lower management participants) and long-term benefits of the outputs expected by their superiors (top management). In other words, while users from lower management much more concerned usability of the outputs in short-term, those from top management viewed usability beyond the delivery stage. This situation was expected to create a wide gap between the two managerial groups.

Based on the context of their position, these participants provided the highest number of responses to shape the definition of *usability* and importantly, judged the level of usability for the outputs. The I-MHERE funding scheme did deliver its outputs, but in the long-term, the level of usability determined the successful of the project. Either as individual usability or institutional usability, the responses from the participants can be used to draw the conclusion that outputs were *marginally useful* at the post-handover stage (Figure 4.3), and were considered to have a limited impact to the institution in the long-term.

Considering the position of middle management participants, the same argument above was used to explain the different levels of responses between the two groups. For example, because of their position, top management made recommendations about whether further development or new development was needed for an I-MHERE's output. Interestingly, this decision was based on the satisfaction of the highest responses of criterion: *usability*. If an output was considered to be useful, it tended to be developed further. The condition the reverse when the output was not useful. Earlier findings suggested that a judgement for outputs under this criterion was marginally developed (Figure 4.4).

4.3.2 Organisational Tenure on Identified Success Criteria

The next attribute of participants was their length of time working at the organisation which was considered essential in terms of assessing the level of understanding about their institution and how they defined the identified criteria.

Based on the earlier analysis in Chapter 3, organisational tenures were clustered into six ranges. These ranges covered the following years of tenure: seven to 11, 12 to 16 , 17 to 21, 22 to 26, 27 to

31, and 32 to 36, to be analysed against the identified criteria. The analysis generated in Figure 4.8[19] reflect the findings.

Figure 4.8 also displays tendencies based on participant organisational tenure. The higher responses emanated from those in the seven to 16 years of tenure groups, indicating a mix between two managerial groups and the direct users. Because of this combined grouping, an interesting finding was obvious under certain criteria.
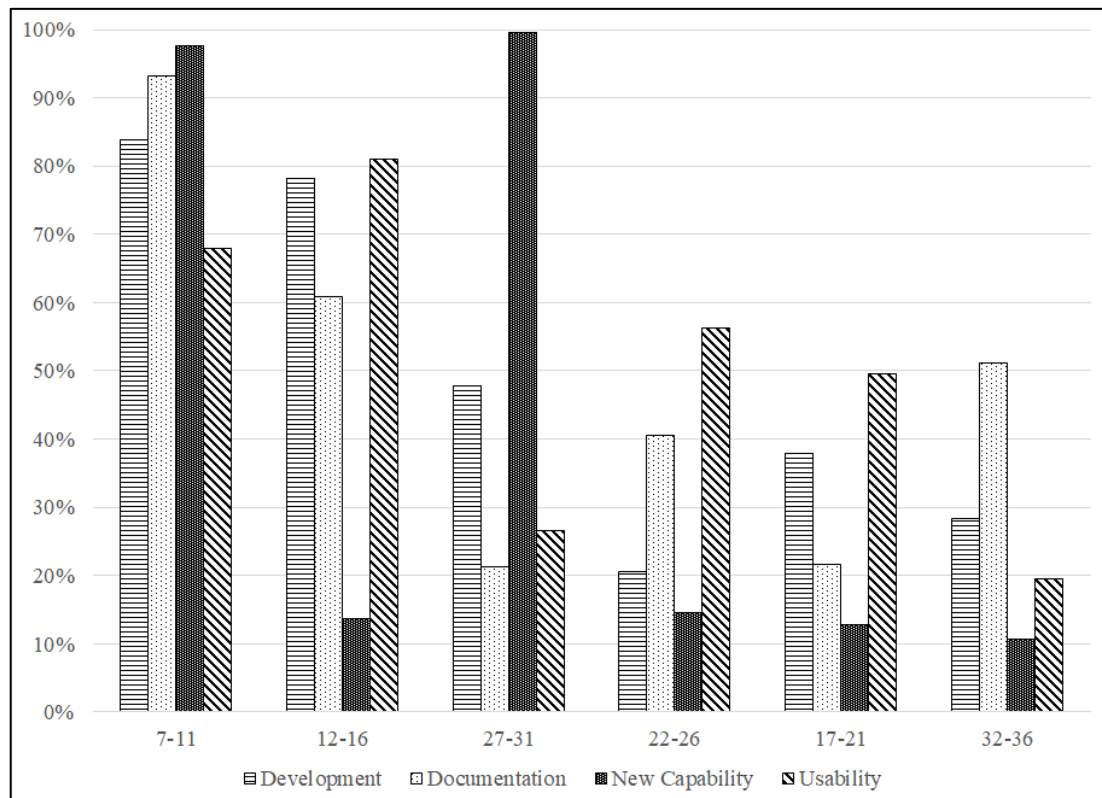
Figure 4.8   Organisational tenures on success criteria

The most interesting finding was under the criterion of *new capability*. Those who had lower levels of organisational tenure (seven to 16 years) had a similar level to those with higher tenure level (27 to 31 years). This finding suggests that beyond the delivery stage, both levels of organisational tenure expected that new capabilities could be gained from the outputs. If capability could be gained, then outputs were considered successful. Interestingly, earlier findings about the overall

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[19] Data have been normalised based on the predecessor step shown in Appendix 14.

judgement for *new capability* showed that participants implied that new capability had been added from I-MHERE's outputs (Figure 4.6).

A different tendency for both levels of tenure are noticed under *usability*. While *usability* tended to produce higher responses from those in middle management, under this attribute those who attained a lower level of organisational tenure had higher responses on *usability*. As mentioned earlier, a mixture of participant backgrounds was indicated. The findings suggested that this specific tendency for *usability* was caused by two aspects: (i) direct users; and (ii) recent job positions. For direct users, they were more focused on how outputs could assist them in performing their jobs after the delivery stage. For those who recently achieved their managerial position, ensuring the usefulness of the outputs was crucial. It was believed that participants under these tenure levels led the overall judgement of the usability as marginally useful.

Furthermore, direct users and recent job positions created a similar tendency under the criterion of *development*. While direct users provided facts on how useful the outputs were, middle managers provided suggestions and recommendations to top management regarding further development or new development. Participants under these conditions provided the overall judgement as *marginally developed*.

Based on these findings, it is suggested that participants could elaborate more in defining documentation. The analysis viewed the tangible aspects of the outputs had been well documented by the participants. Considering two types of documentation: (i) documenting the process; and (ii) documenting the results, as discussed earlier, it could be concluded that participants had documented the results or benefits of the outputs at the post-handover stage (Excerpt 4.12 & Excerpt 4.16).

Figure 4.8 also verifies that based on direct user experiences and individual documentation, their managers (Group 1 participants) had reason to suggest whether further development or new development for I-MHERE output was required.

For those who were recently appointed middle managers, they needed to have reliable facts to support the evidence. Their limited experience and knowledge led to narrow judgements. Nevertheless, their opinions based on facts and evidence were significant to support their suggestions and recommendations to top management in relation to the future of I-MHERE outputs. In other words, because they had fully documented the benefits, it was not surprising that they could describe the contextual definitions of development.

4.3.3 Job Tenure on Identified Success Criteria

The final attribute for the participants is *job tenure*. This attribute relates to the period when they held their position because their current position is considered important when I-MHERE handed over its outputs. Some rotations existed within their institutions. Nevertheless, their positions were expected to play an essential role in influencing their responses, especially when describing the contextual background as to why an output was proposed at the initiation stage and then produced.

While organisational tenures could provide a contextual background on how participants envision the strategic direction in assisting the I-MHERE funding scheme, job tenures were also expected to reveal variations in the responses by considering beneficial contributions to their specific unit or department recently.
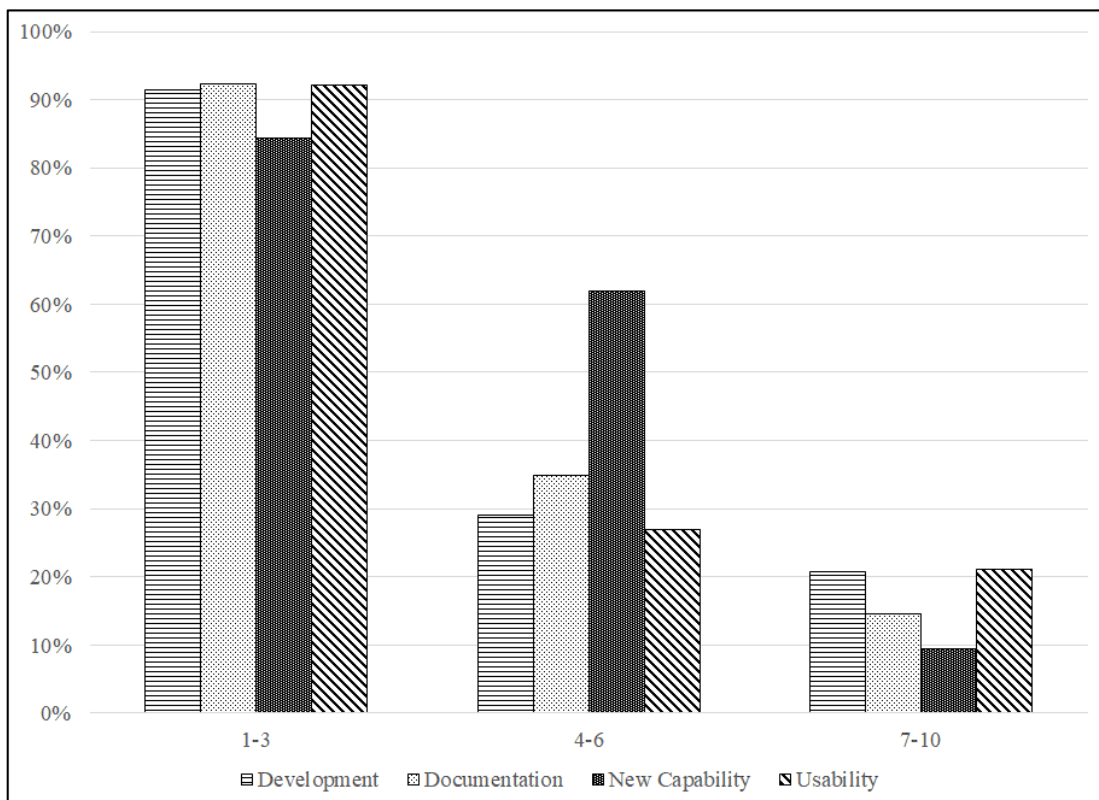
Figure 4.9   Job tenures on success criteria

Early analysis in Chapter 3 produced three groups of participants according to the number of years in their current job: (i) one to three years; (ii) four to six years; and (iii) seven to 10 years. The

analysis examined responses provided by participants based on each group (Figure 4.9[20]). Figure 4.9 verifies early finding under the previous two attributes, as well as shows that those who recently held managerial positions gave the higher number of responses for all identified success criteria.

This tendency verifies an earlier indication of job rotations that occurred before data collection when it showed several participants, new to their positions, with sufficient experience and knowledge to explain the implementation and benefits of the I-MHERE funding scheme. These participants could explain the outputs in terms of all four criteria. During the interview, some admitted that they had just been rotated, for instance Participant 1102 and Participant 1104. Although not all participants admitted they were new to their position, an explanation towards variances in responses level was needed (Figure 4.9).

The analysis indicated a tendency (Excerpt 4.14) for participants to be keen in convincing how beneficial the outputs to their departments were (Excerpt 4.4 and Excerpt 4.14). These participants were not involved at the initiation stage of the outputs, but they had to use them. The interviews indicated that by the time they started to use the outputs, they had their own expectations,. of which some were not covered during the initiation stage. This condition led them to provide deeper elaboration on how outputs should perform in assisting their unit or department in carrying out their jobs. In other words, their current position allowed them to provide further responses on most aspects of the success criteria.

Moreover, variations of responses were different to the tendency indicated earlier by considering the participant's managerial level. As the focus of this attribute is on job tenure, participant views on beneficial contributions to his/her unit were crucial. In other words, outputs were expected to demonstrate their contributions to a unit, which was managed or led by a participant.

Interestingly, Figure 4.9 reflects that *documentation* was slightly higher than *usability* and *development*. It also verifies the discussions above regarding the benefits of documentation, especially in relation to a participant's current position. Because of his/her current job, the findings suggested that these participants had higher responses in defining *usability*, *development* and *new capability*.

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[20] Data have been normalised based on the predecessor step shown in Appendix 15.

In terms of *new capability*, Figure 4.9 shows another interesting explanation, that is, the gap in the levels of responses for new capability between two groups – one to three and four to six years – was not as wide as other success criteria. This finding suggests that even with a longer job tenure, some participants still needed a new capability, one that was expected to be gained from I-MHERE outputs.

4.4 Chapter Summary

This chapter discusses success criteria that earlier had been explained in Chapter 3. The four highest responses of success criteria of the I-MHERE funding scheme were *usability, development, documentation* and *new capability.* They were discussed individually by using word frequency analysis and contextual analysis. While frequency analysis showed the highest terms surfaced from participant responses for a particular criterion, the contextual analysis allowed the analysis to engage with the data and convey unstated meanings that were implied from the data. Importantly, this analysis revealed differences that led to conceptual definitions, as well as provided an overall judgement for each criterion at the post-handover stage (Figure 4.10).

Discussions started with *usability* and ended by elaborating *new capability*. At the individual level, participants defined outputs that were useful for themselves or for their institution. Based on these definitions, the findings indicated that some participants described that outputs could be further developed, while others considered developing new ones. These types of development were believed to be based on participant documentation. The findings suggested that participants document both the process and results of the I-MHERE findings scheme. Furthermore, based on these documenting types, participants could determine two types of new capability: (i) human resource; and (ii) technological capabilities.

Four attributes of the participants' institutional background were also discussed which included variations of responses in defining usability, development, documentation and new capability. In terms of managerial level, those in middle management answered with higher levels of responses for the identified criteria. This level of response was made possible due to participants' standing in the institution that allowed them to evaluate the usability of outputs by two different tiers of management. Their position also enabled them to evaluate how outputs assisted their institution in realising strategic objectives at the higher level, and at the same time evaluating how these outputs could assist their subordinates to perform their daily tasks.
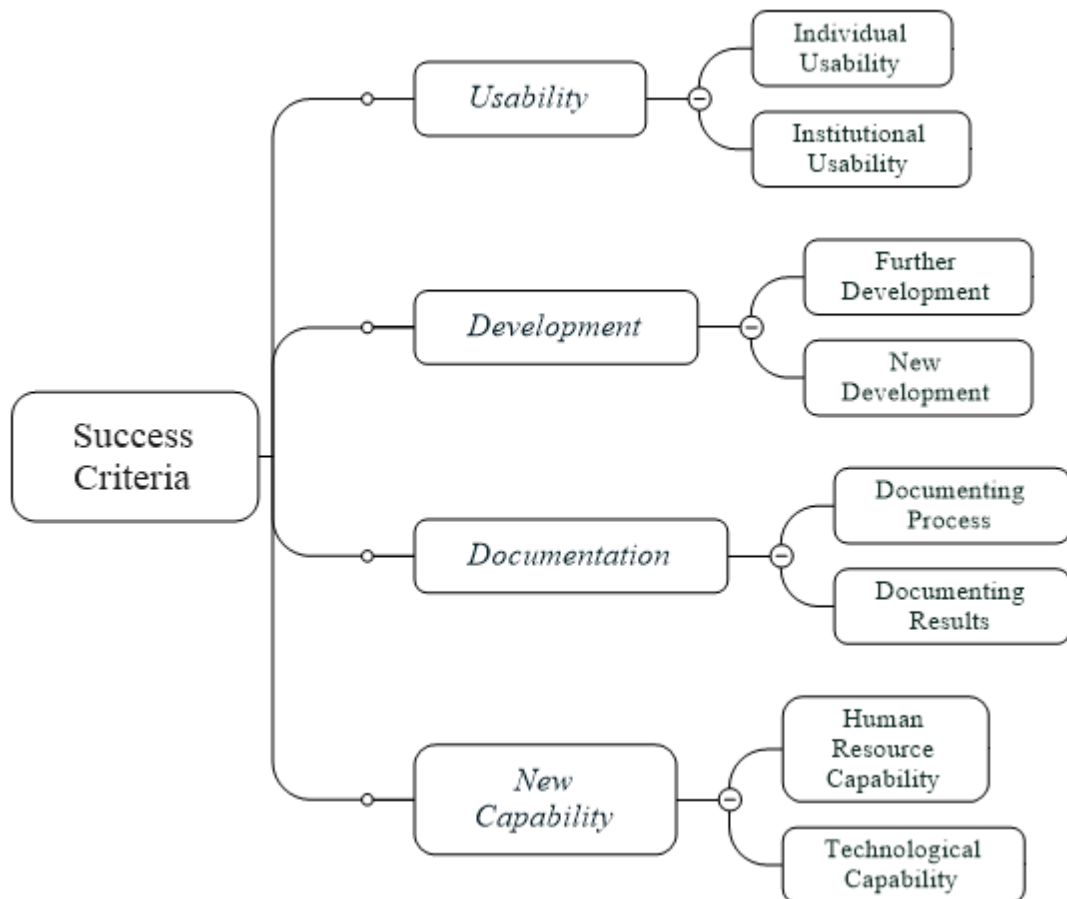
Figure 4.10   Findings on success criteria

Other findings were identified by analysing participant organisational tenures, suggesting that well-researched documentation of usability and new capability allow participants to provide suggestions and recommendations regarding I-MHERE outputs beyond their delivery stage. These outputs could be further developed or redeveloped from the ground up. Interestingly, the findings indicated that documentation has the ability to create change, as determined by organisational tenure. Organisational tenure is likely to indicate the level of experience and knowledge of those working within an organisation. By analysing this attribute, it allowed the definition of success criteria to be become transparent. The last discussion considered how job tenure influenced the definitions of success criteria. Higher responses were received from those recently employed in their current positions. The findings suggested that those newly appointed participants, were keen to convince management about the benefits (if any) of the outputs to their department. It was also established that some participants had not been promoted for four to seven years. This lengthy period allowed them to gain more experience after the outputs were delivered, Therefore, their responses were valuable to this research.

CHAPTER 5:
IDENTIFIED CRITICAL FACTORS

5.1 Introduction

This chapter aims to elaborate and discuss critical factors that have been identified in Chapter 3. Theoretical coding in this chapter investigates eight critical factors: (i) c*ollaboration* (ii) *learning*; (iii) *institutional support*; (iv) *organising*; (v) *user acceptance*; (vi) *user engagement*; (vii) *trust*; and (viii) *leadership style.* From the aforementioned factors, identified gaps suggested that discussions were to focus on five of the most significant factors only based on the highest participant responses (Figure 5.1[21]): (i) *learning*; (ii) *institutional support*; (iii) *organising*; (iv) *user acceptance*; and (iv) *user engagement*.
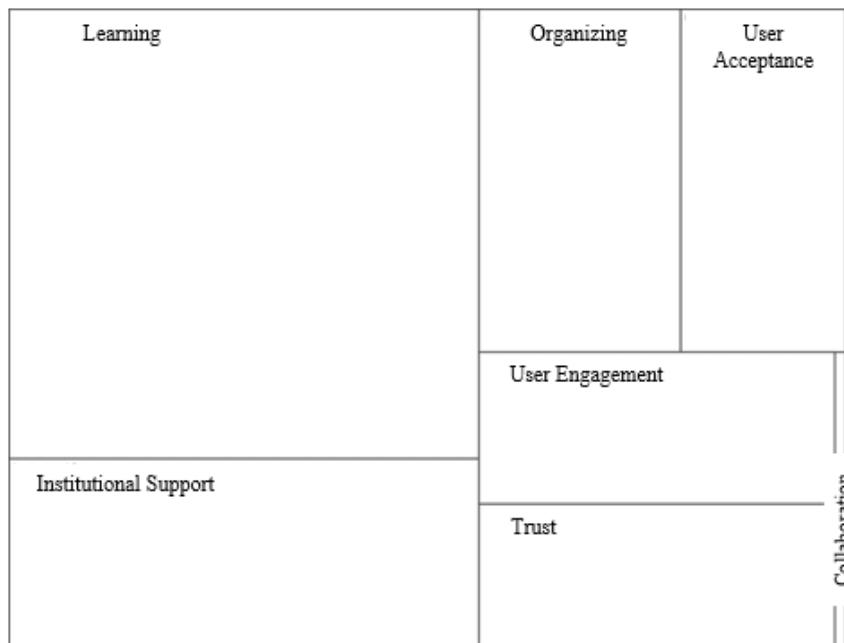
Figure 5.1   Level of responses: Identified critical factors

This sequence will be the main structure of Chapter 5, where individual critical factors will be the core of discussions. The structure includes the study of participant attributes, namely, managerial

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[21] Figure 5.1 was produced by using the hierarchy chart of Node in NVivo. Hierarchy charts visualise a ranking order to identify coding patterns or view attribute values of cases and sources (QSR International, 2018).

level, organisational tenure and job tenure that may affect their responses and define critical factors, as illustrated in Figure 5.2.
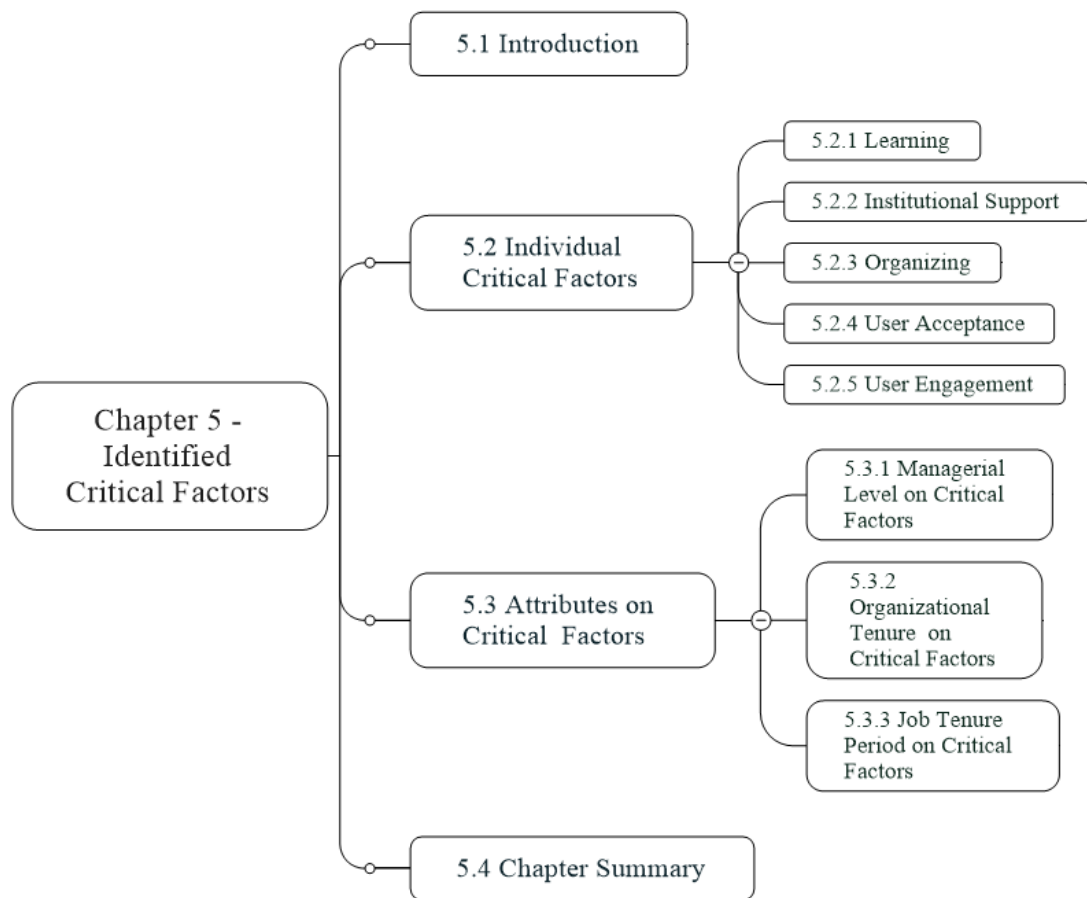
Figure 5.2   Structure of Chapter 5

5.2   Individual Critical Factor

Up to and including Chapter 3, critical factors have been identified and discussed, including an understanding of how participants define a particular factor based on its context. In this discussion, contexts mostly consist of daily tasks and job descriptions of participants. By using these contexts, it can be expected that one critical factor can be defined differently from others.

Similar to approaches in Chapter 4, discussions are based on two analyses used to explain each critical factor. Word frequency analysis indicates the most widely used terms from participant responses for a particular critical factor. Contextual analysis allows the analysis to engage further with the data and to convey unstated meanings derived from the data.

This particular analysis will use clusters resultant from theoretical coding in their original sentences and paragraphs that can represent their actual contexts, which will then form sub-categories, elements or areas of concerns under a critical factor. To provide additional support, a terminology or certain words used for naming a critical factor, as referred to their definition from plain English words, has also been utilised to define success criteria in Chapter 4.

5.2.1 Learning

An examination of responses for defining *learning* resulted in the highest one being carried out through the use word frequency analysis [22] (Appendix 16). This analysis demonstrated the most frequently words used by the participants. Appendix 16 displays several words that represent how participants defined this factor, importantly, concerning the first three words: (i) *using*; (ii) *developed*; and (iii) *process*. The first word, *using*, suggested the identification of learning as a critical factor to be made possible because participants, as direct and indirect users, had used the outputs of the I-MHERE funding scheme.

The analysis also indicated the verb, *developed*, in the past tense, where a work had been done before. This word represents how a participant had learned and then developed either the original output or implemented new ones. Certainly, this action occurred because participants used the outputs.

Another focus of the highlighted words was *process*. Indeed, learning had always been a process. The research participants who identified this factor defined *learning* as the process of evaluating how outputs perform at the post-handover stage. In other words, *learning* could be defined as a process of using outputs, evaluating them, and deciding on whether to further develop them or simply replace them after they had been delivered.

The highlighted words were also used to further analyse the responses on how participants defined *learning* based on its actual contexts. Specific to I-MHERE, learning could be defined as the *process* of acquiring knowledge from the outputs when users utilised (*using*) the outputs for certain periods for institutional development (*developed*) purposes. This context focused on the post-handover stage when the research aimed to explore long-term contributions of the outputs. Different contexts were highlighted by different responses, for example, the analysis pointed out two types of learning; (i) *wide context learning*; and (ii) *narrow context learning*. The former

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[22] The analysis used NVivo Pro 11™.

represents contribution of learning made in the wider scope that influenced participants to define success criteria. The latter was viewed as the scope when the learning process is only affected in limited situations, such as participants defining success criteria at the post-handover stage.

From the responses, *wide context learning* was more relevant when describing actual situations at the post-handover stage at a time when knowledge could be gained through an evaluation. At this point of the argument, the general definition above was intertwined with the evaluation's definition highlighted earlier in Chapter 2, particularly when '[c]onclusions made in evaluations encompass both an empirical aspect (that something is the case) and a normative aspect (judgement about the value of something)' (Fournier, p. 141).

The intertwining of the concepts between learning and evaluation allowed further discussions on participant response. While empirical aspects covered the findings that were relevant to the literature, the normative aspect considered and explored how participants defined the critical factors based on their contexts. These contexts had value in them that caused participants to provide responses to certain tendencies, especially in shaping definitions for critical factors.

Learning as a form of evaluation could occur by comparing the reality in using outputs and their expectations when they were handed over. Relevant examples were provided to represent the contextual background that shaped the definition. A real context was expressed from Participant 1107's responses, who showed that a training program had contributed to his professional life. This participant admitted that achieving a strategic goal and understanding certain areas of skills was essential. This comprehension was gained through a training program he attended.

The acquired knowledge allowed Participant 1107 to evaluate a similar system being practised in this institution. In other words, he had learned the practice of certain skills run by the host institution and compared it to Site 1 (Excerpt 5.1). This except indicates the participant's understanding towards Site 1's strategic target by evaluating its existing condition.

So it [(training program)] shows that we really want to learn towards the better one, what is it called? … [that doesn't meant] we have to be as good as the host institution but at least there would be a development heading to there [(better conditions as the host institution	*Jadi menandakan bahwa memang memang kita mau belajar yang untuk menuju lebih bagus untuk istilahnya bukan terus sama dnegan [Host Insution] tapi kita pengen paling tidak ya apa ada perkembangan untuk menuju ke sana.*

Excerpt 5.1   1107's response on learning

A combination of existing experience and new skills led to producing new knowledge. This knowledge included increasing the awareness of risks associated with job descriptions as one of the actual definitions of learning. An awareness was gained from the experience in performing tasks stated in job descriptions. The experience had increased the awareness of any possible risk that could happen while performing a job. The experience provided an understanding of risks associated with job descriptions. By increasing this awareness, performing a job would be safer and effective because an individual could avoid unnecessary events.

This situation was expressed by Participant 2102 who attended a training program aimed at improving managerial skills funded by I-MHERE. The training enriched the participant's awareness of associated risks in performing one's duties (Excerpt 5.2).

If we have indulged in our job, we certainly would be responsible with that no matter its risks. If we have decided for a decision, [let say] choosing A, I choose A, you certainly would be responsible with that decision.	*Kalo kita sudah menekuni suatu pekerjaan, tentunya kita akan bertanggung jawab dengan pekerjaan kita kan, apapun risikonya kan. Kalo kita sudah memutuskan suatu keputusan aku harus A, aku memlih A, tentunya panjenangan akan bertanggung jawab atas pilihan itu kan.*

Excerpt 5.2   2101's response on learning

The risk of performing a daily task could be a source of misconduct. This situation can occur when a process or system does not adhere to rules and regulations. To overcome this situation, the learning process, through enhancement, was deemed useful. For example, Participant 1104's situation in revising a SOP to adhere to higher-level regulations was indicated. The revision was conducted after implementation and the dynamic change of those rules and regulations were considered. The revision was part of a learning process and in this instance through an audit (Excerpt 5.3).

Because institutionally there's … what it's called Audit, isn't it? The audit would use which regulations. [In conducting an] audit we need to adhere to new regulations [which is in turn] certainly [similar to] the SOP [that] .would be revised like that.	*Karena dalam kelembagaan ini kan namanya ada audit ya. Audit ini nanti aturannya pake yang mana seperti itu kan. Kan kalo audit itu perarturan baru kita harus menyesuaikan peraturan baru tentunya SOP dilakukan revisi eperti itu.*

Excerpt 5.3   1104's response on learning

Although participants elaborated specific examples, they were able to demonstrate the effect of outputs to the institution, as well as their ability in evaluate and compare expectations from them

and their realities. This ability also included revising a system that had been produced by I-MHERE. Overall, the examples above demonstrate *wide context learning*.

For *narrow context learning*, the following examples could be used. Participant 2206 was a user of an academic IS produced by the I-MHERE funding scheme. Due to his routine tasks and experience, he was able to identify weaknesses of the IS, as well as how to overcome those weaknesses temporarily. Excerpt 5.4 also explains a short-term solution that could be used narrowly at the participant's daily job.

Yes, it's [done] manually again. I have um … arranged … have [told].. who was the 2013's staff of ICT Unit the other day? 'Sir, please … I suggest … [what if] the block mode that [runs] similar every week could be copied [and pasted]. He said 'I would be not [be like that]' or maybe it could not be like that yet. So I need to input it [(the block mode)] manually one by one [for the entire semester.	*Iya, manual lagi. Saya juga nganui pernah ngurus pernah sapa tuh kemaren 2103's staff (itu beliau dari mana?) TIK (TIK itu juga) anak buah nya 2103. Mas mbo ya saya usul seandainya block course itu minggunya sama bisa di-copy. Katanya ndak bisa. atau mungkin belum … belum bisa. Akhirnya ya saya masukin manual satu satu.*

Excerpt 5.4   2206's response on learning

To conclude, the analysis of all research participant responses provided contextual definitions of *learning*. The results from word frequency and contextual analyses indicated relationships among them in strengthening definitions at the post-handover stage. By also referring to a meaning from a dictionary, a conceptual definition could be drawn. The analysis viewed learning as a *process* of acquiring knowledge from outputs that occurred when users used (*using*) them for institutional development (*developed*) purposes.

By using this general definition, the analysis of response indicated two types of context learning: (i) wide; and (ii) narrow. Under wide context learning, the definition is intertwined with the definition of evaluation, as elaborated earlier in Chapter 2. Examples have been provided to indicate this interrelationship on how an evaluation allows a learning process. This situation included comparing the expectations to the realities, as well as revising a system that affected the institution widely. On the contrary, when an effect was considered limited, this condition emphasised the definition of narrow context learning. These various definitions were possible because users (participants) used I-MHERE's outputs and gained knowledge and skills from them. In short, this thesis considers that it is more relevant to define learning as a wide context learning at the post-handover stage..

5.2.2 Institutional Support

The second influential critical factor was *institutional support*. The success or failure of a project in delivering long-term beneficial contributions also depends on institutional support. This factor was shaped by analysing responses from 13 participants, seven from Site 1 and six from Site 2. These participants provided responses to reveal how they could be used to define institutional support based on real situations.

For their responses, word frequency analysis was conducted (Appendix 17) to produce the most frequent words mentioned by these participants in defining institutional support as a critical factor at the post-handover stage. Appendix 17 shows that these 13 participants mostly mentioned the words *management, support, top, aiming, expecting, need, implement,* and *commitment*. From these words, the finding suggest that top management supports their aims, needs, expectations, commitment, and implementation. However, the findings still need a more comprehensive understanding by exploring participant responses to define this critical factor.

The results from contextual analysis were slightly different to the indication of the institutional support definition drawn from word frequency analysis. The findings suggested two main elements in defining *institutional support* in the real context: (i) *formal approval*; and (ii) *encouragement*. The analysis showed that the first element was related to the formality of an approval towards a decision and an action, as indicated by hierarchical support from top management to the entire institution. This argument verified the findings derived from the frequency analysis, demonstrating the top three frequently mentioned words. Top management's formal approval usually contains institutional aims and needs, as well as top management expectations.

An overt response about institutional support, specifically formal approval, was given by Participant 1102. Excerpt 5.5 portrays how top management supports the development of financial systems,. as reflected by a strong commitment to improve financial management for strengthening overall institutional processes.

For so long, there have been many supports. The first is about the funding, of course. Because to build a system, it requires [a huge] investment. This means every … whatever of our initiatives [and] we proposed to top management, there're usually a green light to the implement.	*Selama ini dukungannya ya banyak ya pertama beban dalam hal dana tentunya. Karena membangun sistem itu kan memerlukan yang tidak sedikit. Artinya setiap apapun kreasi kita e … kita hasilkan ke pimpinan selalu disetujui untuk dilaksanakan.*

Excerpt 5.5   1102's response on institutional support

Another example of a response was an interesting one. In this regard, the factor (institutional support) was defined reversely. Participant 2103 showed that a formal approval was necessary to replace the use of I-MHERE's outputs, which resulted in dissatisfaction towards the outputs. The participant admitted that the unit proposed to replace some ISs produced by I-MHERE, and to develop newly, internally-built ones.

If you want to replace, go ahead. But it must have a strong reason. If you really want to use [the ISs], lets implement them. Finally, we address [to top management] about those ISs.	*Kalo memang mau diganti silahkan tetapi harus ada alasan yang kuat. Kalo memang mau digunakan ya ... mari kita implementasikan begitu. Akhirnya kami sampaikan itu dan ada beberapa sistem itu tadi*

Excerpt 5.6   2103's response #1 on institutional support

Both actions, replacement and development, needed formal approval from top management, who agreed to further develop or enhance the I-MHERE-developed IS as long as Participant 2103's unit could provide a valid and strong argument as to why ISs were perceived to be less beneficial (Excerpt 5.6). Therefore, further action was needed.

The next identified element of the definition was *encouragement*. The analysis perceived this element to be beyond a formal approval. Once approval was granted for the implementation of a new system, encouragement was expected, not only by top management, but displayed throughout the institution. The analysis then indicated two types of encouragement: (i) *formal*; and (ii) *informal encouragement*. *Formal encouragement* included follow-up announcements and letters. *Informal encouragement* can be in the form of person-to-person suggestive communications or individual persuasive efforts, especially by top management to lower level staff. Arguably, at the post-handover stage, informal encouragement or communication was perceived to be more effective with regard to continued benefits from I-MHERE's outputs. A personal approach was likely to be much more successful in encouraging an employee because he/she felt personally valued by his/her superior.

An example of formal encouragement is portrayed from Participant 1101's responses (Excerpt 5.7) who is a user of an IS for academic performance evaluation. He admitted that the implementation of the IS was fully supported by top management. The analysis indicated that communications by top management is sufficient in encouraging the implementation of a new system. This condition implied that formal approval for the implementation had been given for the IS to be used.

So far it was because [the IS was] the institutional target, in large. So [it had been] supported … supported. Because my question of whether the IS was implementable or not, actually the top management themselves who were very supportive.	*Sejauh ini dari iya karena itu juga targetnya Universitas secara besar. Jadi mendukung … mendukung karena dalam pertanyaan saya bisa jadi atau tidak ternyata pimpinan sendiri yang mendukung.*

Excerpt 5.7   1101's response on institutional support

A formal encouragement could also be indicated in the form of coercive instructions. The analysis used an example for this situation. After the I-MHERE funding scheme handed over its projects, a number of outputs were scattered around the institution. Unfortunately, some could not be used. Participant 2103 argued that this was because top management did not instruct users to apply the project outputs to their work. He also implied that this minimum push also indicated less support from top management in fully implementing ISs produced by the I-MHERE funding scheme (Excerpt 5.8).

When the project ended, it was still under previous management. It appeared that it was less push so the [information] systems should be used. After 2000 … late [2000 and] 13, the change in director and in early two thousand and fourteen, there were changes for [new deputies], these top management wanted that the ISs to be used so … ordered us [(ICT Unit])] to conduct further analysis.	*ketika proyek selesai masih manajemen pimpinan yang lama. Nampaknya kurang nge-push agar sistem ini digunakan. Setelah tahun dua ribu … tiga belas akhir itu pergantian bapak Direktur dan dua ribu empar belas awal itu pergantian Wadir. Itu pimpinan yang baru menghendaki agar sistemnya digunakna. Sehingga e … apa … memerintahkan kepada kami untuk mengkaji itu.*

Excerpt 5.8   2103's response #2 on institutional support

In terms of informal encouragement, an example was indicated by Site 2 Participant 2204 who a direct user of an IS at the lower management level. Excerpt 5.9 indicates a more individual approach from this participant's direct manager who asked him to use the IS that had been officially launched.

[2204's direct manager] said that just use it [(the IS)], meaning that the manager support that an IS to be used.	*[2204's direct manager]] e..bilang pake aja, berarti bahwa dari pimpinan itu mendukung untuk sebuah sistem itu dipake (mendukung).*

Excerpt 5.9   2204's response on institutional support

While formal encouragement tends to be conveyed by top management, informal encouragement can be expected from anywhere and anyone within the institution. For example, Site 2 Participant

2101 clearly required support, not only from top management, but also from various departments and their managers within the institution so that knowledge gained from the training program could be implemented throughout the organisation.

I gained knowledge which would gain comprehension [too], but I … within an organisation … to implement that … it required support and commitment as whole.	*Saya mendapat ilmu akan mendapat wawasan saya tetapi untuk dalam suatu organisasi untuk menerapkan ilmu itu … itu tadi perlu dukungan dan komitmen bersama.*

Excerpt 5.10   2101's response on institutional support

To conclude, the analysis was carried out to explore responses from 13 research participants by relying on word frequency analysis and contextual analysis. Word frequency analysis highlighted some words that could shape an early definition of institution support. Findings from this analysis suggest that top management support had aims, needs, expectations, commitment and implementation. By using contextual analysis and referring to meanings from a dictionary, a conceptual definition was drawn. The definition of institutional support was described as a support that is received across the institution in using outputs of the I-MHERE funding scheme after they are delivered.

Examples provided evidence for supportive and unsupportive top management, but neither support, further exploration of the responses. Further analysis also indicated two types of institutional support: (i) formal approval; and (ii) encouragement. Formal approval was defined as a support that was granted by top management in implementing a decision, including the use or discontinued use of an I-MHERE output. This decision was applicable to the entire institution. Encouragement was defined as a stage beyond formal approval. The finding was identified from responses regarding formal or informal encouragements that suggested that informal encouragement was probably much more effective to ensure a decision was implemented at the low level of an institution. In other words, informal encouragement could increase the likelihood of project success at the post-handover stage.

5.2.3 Organising

Figure 5.1 shows organising as the third largest proportion of responses from research participants. Further analysis by using words frequency analysis (Appendix 18) shows the tendency of certain words, particularly *position, management, current, top, job, period* and *development*. These words highlighted one of the participants' institutional attributes, job tenure, which was suspected to

influence participants in assessing I-MHERE output contributions over the period after they were delivered.

Highlighted words from the frequency analysis early demonstrated how participants defined *organising* at the post-handover stage. The words expressed by the participants pointed out that the definition of organising related to their current job position in organising resources to perform their daily duties. This process covered planning and arranging institutional resources. In this context, participants considered the outputs as their main resource or enablers to fulfil their job responsibilities over the period since the outputs were handed over.

Furthermore, the analysis was carried out to provide richer definitions based on real contexts of the participants' daily jobs. It reflected on two types of organisation: (i) *short-term*; and (ii) *long-term*. *Short-term organising* ability contributes in a way that an output is beneficial in the short-term. The output assists the users in performing their duties that produced immediate outcomes. The participants cannot view any possibility on how the output allowed them to arrange and plan available resources that could be used for longer.

For instance, an inventory information management produced by I-MHERE, allowed Participant 1203 to use and organise the flow information benefits. Excerpt 5.11 explains organising the output produced by the IS as a short-term benefit.

The report relates to budget disbursement, [I mean] how much money has been spent; [for certain] activities need [how much] inventory. Only for reporting.	*Pelaporan terkait dengan pencairan dananya keuangannya itu sudah menghabiskan dana sekian. Kegiatannya misalnya untuk persediaan berapa untuk SIMAK-nya berapa seperti itu. Yang pelaporan saja*

Excerpt 5.11   1203's response on organising

Site 2 Participant 2206 also illustrates this circumstance (Excerpt 4.2). As a direct user of the academic IS, he was fully aware of the flow of outputs produced by the IS. He viewed that current positions allowed them to use the outputs to organise required resources to perform their duties, even though limited in the participant's department.

For *long-term organising*, the analysis viewed how participants defined strategically organised available resources in a more strategic perspective. An example of this situation is pointed out by

Participant 1102 (Excerpt 5.12), who defined organising as a long-term arrangement of resources for future use. This participant was able to comprehend the required resources and circumstances, and then to plan for future needs as the institution was about to change its business model[23].

Because we became a state-owned enterprise [(*Badan Layanan Umum* – BLU)] in two thousand and nine. Then, due to this status, financial management must be self-managed suddenly; [we] suddenly managed revenues without depositing them to the Treasury Office. We were thinking how to manage them and its information [which] should be available online.	*Sehingga kemarin karena kita menjadi satker BLU pada tahun dua ribu sembilan. Lalu karena dengan satker BLU itu pengelolaan keuangan harus dikelola langsung tiba tiba kita harus mengelela mengelola uang tidak disetor ke kas negara. saat itu yang kita pikirkan bagaimana uang ini dapat dikelola dan informasinya bisa dapat disajikan secara online.*

Excerpt 5.12   1102's response on organising

Another example of long-term organising was indicated by a direct user, Participant 1206, who perceived the reason for sustaining benefits is due to alignment between the functionality on the I-MHERE developed IS and a ministerial one[24]. Excerpt 5.13 highlights the planning required to improve the existing IS so that sustainability could be achieved. In other words, Participant 1206 planned on how to organise additional information to further develop the IS. By implying that an understanding is required by the user on how to organise the current IS and the expectation for it to be developed in the future.

In the future, there will be menu for [research] performance, similar to the one on SIMLITABNAS [(ministerial-IS for Research Management)], and apparently, [our] plan aligns with three pillars of HEI. So we expect that all research's and community devotion' outputs will be available in there.	*ke depan ini nanti ada menu kinerja yang mirip dengan yang SIMLITABNAS dan ternyata e … berkesinambungan dengan yang dari perguruan tinggi itu tri dharma perguruan tinggi pak. Jadi semua luaran-luaran peneliitan pengabbdian masuk di situ.*

Excerpt 5.13   1206's response on organising

All in all, by highlighting the most frequently used words, it has shown that the definition of *organising* related to a participant's current job position where he/she could organise resources to

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[23] State higher educational institutions, especially universities, had been striving to change their business model from conventional ones to more autonomous institutions. This new business model was termed as the Public Enterprise Agency (*Badan Layanan Umum* (BLU)), implemented under Government Regulation Number 74 of 2012. The focus of this change was on financial management.

[24] The Ministry of Science, Technology, and Higher Education launched its Information System for Research and Community Devotion (*Sistem Informasi Penelitian dan Pengabdian Kepada Masyarakat* – SIMLITABNAS).

perform daily duties. In using contextual analysis, a theory-based process was used to arrange human and other physical resources to carry out tasks that pointed to two types of organising: (i) short-term learning; and (ii) long-term organising. The former could be defined as the ability to arrange and plan available resources to perform or satisfy job description at certain times. The latter was viewed similarly but the emphasises was on the ability to organise resources for future use. This tendency aligns with the focus of this thesis where the critical factor is viewed to be more relevant at the post-handover stage.

5.2.4 User Acceptance

To elaborate the definition of *user acceptance* at the post-handover stage, several words were obvious when using word frequency analysis. As listed in Appendix 19, these words, including *rules, level, higher, change, management, SOP, aligning* and *requirements*, provide definitions of *user acceptance* shaped by participants who accepted the outputs if they were *aligned* with *higher level rules* or *regulations*, translated into their daily practices in the form of SOPs and satisfied the *requirements* of the user's job description.

The analysis also explored participant responses by using contextual analysis. *User acceptance* demonstrates how direct and indirect users implement project outputs, especially at the post-handover stage. At this stage, the use of I-MHERE outputs were expected to assist the delivering of the institution's strategic objectives. In other words, user acceptance could be simply defined as the acceptance of both direct and indirect users towards I-MHERE's outputs.

In more detail, the contextual definition revealed three elements of acceptance, as explained in the dictionary: (i) adequate; (ii) valid; and (iii) suitable. Most responses expressed the definition of *user acceptance* as a fact of *suitability* for the use of outputs over the delivery stage. The analyses demonstrated this element either as suitable or unsuitable for delivered outputs. An example of suitable outputs was provided by Participant 2204 (Excerpt 5.14) who indicated that the IS was suitable after its outputs were delivered.

Now, I … I guess … [the IS] is quite helpful. Because for reporting, I gather from it. Whether in Excel [format], it can be generated directly. Maybe before there were many troubles [with the IS]. Maybe. Maybe there have been revised.	*Kalo sekarang saya ... saya rasa e.. cukup membantu Pak. Karena untuk laporan saya ngambil dari situ juga bisa. Mau dibentuk Excel juga langsung bisa. Mungkin kalo sebelum saya dulu mungkin masih banyak kendala pak. Mungkin Pak ya. Mungkin sudah ada perbaikan-perbaikan.*

Excerpt 5.14   2204's response on user acceptance

Unsuitability of the I-MHERE's output was pointed out in terms of how inflexible the IS performed during the research proposal submission. As displayed in Excerpt 5.15, Participant 2108 complained that the IS could not by modified. In other words, the IS was unsuitable in performing its functionalities as expected.

So we wanted to delete requirements on the system, [we found it] difficult [to do that]. Meanwhile, we wanted to add other requirements that we really needed for proposal application on that IS, we could not do that.	*Nah kita mau menghapus persyaratan-persyaratan tadi yang di sistem itu kesulitan. Sementara kita mau memasukan persyaratan yang sebenarnya diperlukan untuk pengaujan proposal di sistem informasi tidak bisa dilakukan.*

Excerpt 5.15   2108's response on user acceptance

Furthermore, analysis also pointed out *adequate* as another essential element of *user acceptance*. The participants who provided responses for this factor expressed how outputs were either adequately or inadequately helpful to satisfactorily perform their daily tasks since they were handed over. Participant 1101 explained how an I-MHERE output was adequate for him to perform his work. He admitted that work colleagues had unrealistic goals at the time; hence their expectation needed to be downgraded (Excerpt 5.16); and I-MHERE additional funding allowed them to produce the intended IS.

Along the way in 2015 … and 2016 we changed the approach in developing the IS. We downgrade [our expectations]. We wanted the IS to be able to process credit points of academic staff. We had not collected from other existing ISs. It was important to see how it looks like … how it could calculate [those credit points] … was able to process the promotions of academic staff. That was my target. Thank God it had been realised.	*Terus berjalananya waktu akhirnya di tahun dua ribu lima belas.. enam belas ini kita rubah pola pembuatan sistemnya itu. Kita turunkan grade sedikit. Kita pengen sistem itu bisa memproses pak nya dosen. Kita belum mengambil ke semua sistem yang ada yang penting ini bentuknya ada dulu sudah bisa menghitung sudah bisa proses kenaikan pangkatnya dosen kenaikan jabatannya itu nah ini udah target saya itu. Alhamdulillah sudah bisa terwujud sistem itu .*

Excerpt 5.16   1101's response on user acceptance

Moreover, an example provided by Site 2 Participant 2102 indicated an inadequacy of outputs to contribute to the institution in the long-term, implying that top management did not acknowledge long-term benefits of the training program (Excerpt 5.17).

If there were follow-up actions, and then discussed what they should look like … here … that conditions would be beneficial.	Kalo ada tindak lanjut kemudian di bahas sebaiknya seperti apa? Di poli atau kondisinya seperti itu ya sangat bermanfaart.

Excerpt 5.17   2102's response on user acceptance

Apart from *suitability* and *adequacy*, the dictionary definition also indicates *valid* as another nature or element of acceptance. Based on the site visit and participant responses, it drew attention to two types of validity of the outputs: (i) *physical*; and (ii) *process validities*. *Physical validity* is a formal acknowledgement toward I-MHERE's outputs acceptance physically. At the delivery stage, these outputs were handed over from the project implementation unit (Higher Education Implementation Unit) to the host institution. Physical outputs, such as hardware for the infrastructure of the IS, were officially listed as the institution's assets. Since most former recipients were state HEIS, outputs were listed and reported annually as state-owned assets (BMN, *Barang Milik Negara*). This situation could be described as the physical validity of outputs, also referred as the acceptance by the institution as the user.

In terms of *process validity*, some outputs were not listed as physical assets. However, the Higher Education Implementation Unit formally reported to the institution regarding its non-physical outputs. Considering that outputs also assist performing institutional management systems, they should be validated as a process. This validity was determined based on the alignment with higher level rules and regulations, such as implementing SOPs that could also become outputs of the I-MHERE funding scheme.

Arguably, a SOP is a product that could be in the form of a physical document. However, the focus of SOPs was to ensure the practical *process* aligned with higher level rules and regulations. SOPs are instruction manuals and guidelines that could be transformed into a number of ISs once they had been accepted, for example, a rector's decree. For efficiency of a process, SOPs are translated into an IS, including academic IS, research MIS or scholarship MIS.

Up to this point, *validity* emphasised its relevance to the process. This condition led the analysis to indicate *validity in the development process* and *validity in the process as a product*. The establishment of SOPs and the process of translating them into a number of ISs set the example of satisfying *validity in the development process.*

In terms of the *validity in the process as a product*, during the development of SOPs and the IS, these two outputs had to be aligned with rules and regulations. Although SOPs had accommodated

practical aspects that were detailed in those rules and regulations, the team who developed the IS had to ensure that these products referred to them. By doing this, either SOP or IS outputs would be validly acceptable.

Participant 1104 indicated an example of validity, having used SOP of quality assurance that adopted International Organisation for Standardisation (ISO). The nature of acceptability relied on how relevant the SOP was beyond the handover stage. In other words, the SOP remained valid for daily implementation. The acceptance of this SOP was expressed by Participant 1104's answers toward SOP's dynamic change, yet still relevant. The relevance implied a continual acceptance of the SOP throughout the years up to the post-handover stage (Excerpt 5.18).

[Although there are] problems [in implementing the SOP], at least there are asset management guidelines at SITE 1 according to the job descriptions. Even though … along the way we are still adhering to state-owned assets regulations, which is changing so quickly … its management [regulations]. Because of all these changes, which are so dynamic, for me [the SOP] is still relevant in practice … um … job descriptions and the management of state-owned assets.	*problemnya dengan aturan ini minimal ada rambu-rambu pengelolaan aset yang ada di lingkungan [SITE 1] sesuai dengan tupoksi. Walaupun nanti diperjalanan kita tetap memperhatikan regulasi pengelolaan BMN. Kan regulasinya ini kan cepat sekali mas pengelolaan BMN. Kaitannya dengan perubahan regulasi peraturan dari Kementerian, pmk dan sebaginya itu kan cepat sekali ya diatur di sana karena prosedur ini menurut saya ,masih relevan dalam pelaksanaan ee.. tupoksi dan pengelolaan pengadaaan pengelolaan bmn nya seperti itu ya*

Excerpt 5.18   1104's response on user acceptance

To conclude, the analysis of Participant 1104's responses indicated that user acceptance could be defined as the acceptability of outputs if they were *aligned* with *higher level rules* or *regulations* and translated into their daily practices in the form of SOPs to satisfy the *requirements* of the user's job description.

Further analyses found that elements of acceptance included adequacy, validity and suitability, as well as found elements of user acceptance definitions in different contexts. The finding also suggested that contextually user acceptance was mostly defined as suitability. Not all outputs of the I-MHERE funding scheme were suitable in assisting users to complete their daily job tasks beyond the handover stage.

Other responses indicated the acceptability level in terms of adequacy. Users accepted the outputs because they were adequate in assisting them to perform their daily duties beyond the delivery

stage. However, some responses were negative about the level of acceptance based on the element of adequacy.

It is interesting to note that the findings revealed one participant who raised the definition of acceptance by referring to *validity*. Findings suggest two types of validity: (i) *physical validity*; and (ii) *process validity*. Interestingly, two forms of process validity were also identified: (i) *validity in the development process*; and (ii) *validity in the process as a product*. Once the outputs satisfied SOPs, rules and regulations, the process and outputs could be considered validly acceptable. SOP was strong evidence in this discussion in terms of user acceptance beyond the delivery stage. In short, validity as an element in defining *user acceptance* was relevant to the context of the institutions where state-owned HEIs had to be in line with higher-level rules and regulations. At the post-handover stage, the process and product must be valid and current, and to remain so for a period of four years.

5.2.5 User Engagement

Based on the use of word frequency analysis, *involvement, users, development,* and *requirements* appeared to be the most frequent used words (Appendix 20). These words strengthened the influence of user engagement to an identified success criterion: *development*. Since I-MHERE's outputs were handed over, some had been further developed. Hence, according to the highlighted words, user engagement at the post-handover stage could be defined when users involved in output development ensured that they satisfied the requirements.

Furthermore, by using contextual analysis, two types of engagement were recognised: (i) *active engagement*; and (ii) *passive engagement*. Active engagement describes users who essentially initiate themselves to *involve* and *participate* through the design or the initiation stage. The engagement was much more active as these participants would not only use the outputs but importantly they initiate or provide concepts on how outputs should be working. In this nature (active engagement), the analysis pointed out that users certainly had a sense of belonging and engagement throughout the period beyond the output delivery stage.

A confession of self-initiation is shown in Excerpt 5.19 where Participant 1101 acknowledges that the system was designed by the participants. The analysis refers this condition as an active engagement in providing a basic idea on how the system should work before translating it into an IS. It was believed that active engagement of participants at the post-handover stage for further development would be higher.

The implementation of the IS um … at that time, the IS … I, myself, did design the IS.	*Implementasi untuk IS-01-nya. ee … . waktu itu untuk memang IS-01 saya sendiri memang yang merancang saat itu.*

Excerpt 5.19   1101's response on user engagement

Another indication of active engagement was surfaced from the interviews. According to Participant 2204 (Excerpt 5.20), he was asked to detail requirements that should be satisfied in performing his daily tasks. In other words, Participant 2204 became involved and participated with the external developer during the developmental stage of the system. Again, at the post-handover stage, he had a tendency to become more active during the development of the existing system.

It was before I was here. I had been asked to have a chat. We proposed … Proposing. Then [we proposed] the requirements were like these … like these …	*Kalo dulu awalnya sebelum saya disini saya memang pernah e..ya diajak ngobrol. Itu kita ngusulkan pak. Mengusulkan. Terus kriterianya seperti ini, seperti ini, seperti ini.*

Excerpt 5.20   2204's response on user engagement

Although users tended to be 'forcefully' involved during the implementation of, or used, outputs, they tended to be reluctant to comment on how outputs should be maintained or further developed. As a part of I-MHERE funding activities, some users were asked to be involved during the implementation stage, as well as beyond the delivery stage. In this regard, the analysis pointed out two reasons. The first reason was due to the limited engagement of potential users at the design stage. It was argued that some I-MHERE outputs were 'ready-to-use' or 'turn-key' products. As the products were being purchased, potential users were not included in the decision-making process on requirements to be met. Therefore, it came to no surprise when users were dissatisfied about the end result after the outputs were delivered. Because of this neglect, users tended to pay less attention to whether the outputs were suitable or contributed to the post-handover stage.

Site 2 Participant 2108 provided an example of this reasoning by pointing out that an external developer did not involve his unit in the design of the IS, however, users were forced to use it upon delivery (Excerpt 5.21). This lack of involvement occurred because the IS was a ready-to-use established system, that is, it was not customise-built.

As a result of dissatisfaction, the IS ceased operations, only to be developed internally. It was indicated that Participant 2108 and research centre staff faced a huge engagement throughout the process, which resulted in reviewing the use of the output beyond its delivery stage.

But at that time we … were … what it was called … we didn't … didn't … what it was called … did not understanding about the IS. So we couldn't use it. Actually, the important thing was … if we … we … let's say … we were asked to discuss what we needed, then did the trials.	*Tetapi waktu itu kita kan apa namanya e … kita … jadi kita nggak … nggak istilahnya tuh nggak belum paham dengan … dengan sistem informasi tersebut. Jadi kita nggak bisa menggunakan itu. Sebenarnya yang paling penting kalo kita … kita itu misalnya kita diajak diskusi yang dibutuhkan apa, terus di coba.*

Excerpt 5.21   2108's response on user engagement

The second reason for passive engagement beyond the delivery stage occurred when the output was no longer being used. Since the I-MHERE's output was discontinued, a potential user and Participant 2108 were engaged to make system refinements to a new or future development.

An example could be used to refer to this situation. Participant 1210 from Site 1 was an attendee of a training program that focused on database management. His involvement was part of his job description as a lecturer who was also appointed to manage the Site 1 sub-unit of ICT department at another campus. The latter position indicated the level of engagement with his concerns (Excerpt 5.22), especially with data management of Site 1.

[Data] transfer would be expensive. Just imagine if [the data size] has been massive [and] need to be re-work. Unless, we [has provided] from the beginning … [database network] has been excellent. Later, for [data] migration would be easier. Like … when we use Product A [which] will be getting … it's already massive … the ISs use Product A, when [the data] will be transferred by using Product B, it will be difficult. That's something that has not been done at Site 1.	*Perpindahannya itu mahal. Bayangkan kan kan sudah sudah___ gini o harus rombak lagi. Kecuali kita sudah dari awal sudah bagus. Itu nanti untuk migrasi ke manapun mudah. Seperti tadi ketika pake Product A makin.. ini udah terlanjur besar. Sistem-sistem pake Product A ketika mau pindah Product B kan berat. Kalo ngagak di awal dari hal kecil-kecil dulu. Itu yang belum dilaksankan di Site 1.*

Excerpt 5.22   1210's response on user engagement

Excerpt 5.22 explains the reality of managing a database at Site 1. Although the program had promoted a reliable system, Site 1 needed to use the existing database product to manage limited amounts of data. Due to contradiction in the situation, Participant 1210 did not appear concerned about the latest investment prepared by Site 1 with regard to database management. In other words, he showed passive engagement in acknowledging the effects of the training program at the post-handover stage.

To conclude, *user engagement* beyond the delivery stage was well defined when *users* needed to be *involved* in output *development*, especially in ensuring that the *requirements* are satisfied. Further analyses indicated two types of engagement: (i) *active*; and (ii) *passive engagements*. Active engagement was indicated when users were involved at the design stage over the period. Once they became actively engaged during the development, they would also become active when the output was further developed. On the contrary, when users were not engaged at the initiation stage, they tended to be dissatisfied because their requirement could not be accommodated. As a result, when the output needed some refinement or even to be developed further, their experience of disappointment led them to passively engage at the post-handover stage. These two types of engagement related to *development* as an identified success criterion. The findings suggested that at the post-handover stage, further development was contributed by active engagement, while passive engagement tended to be seen at the early stage of a newly-developed system.

5.3 Attributes on Critical Factors

Participant responses were also analysed to identify if a response variation in terms of managerial level, organisational tenure and job tenure existed. It was important to consider managerial levels because they may have placed a different perspective towards the critical factors, similar to defining criteria. Organisational tenure was important to understand, because it provides a proxy measurement of interviewees' comprehension of an institution's strategic objectives, determines how well project outputs become impact enablers, and acknowledges knowledge about critical factors. The number of years employed for participants was important, as it was expected to relate to their comprehension of the critical factors. The investigation of these attributes used word frequency analysis and displayed in bar charts[25].

5.3.1 Managerial Level on Identified Critical Factors

As indicated in Chapter 3, research participants were predominantly from the middle management group. The analysis explored variations in responses between middle and lower management levels (Figure 5.3). Figure 5.3 focuses on gaps in discussions that indicated greater or lower variations in defining responses by participants from each level. Analysis viewed those gaps as variations of

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[25] The results in the following figures had been normalised. With regard to data normalisation, Siegert (2018, para 18) stated, 'Of you're counting the frequency of occurrence of the same phenomena in two different population with different size and you want to compare them, you have to normalise both, because otherwise you do not know how big the influence of your phenomena is in relation to the total number of cases. Thus, normalisation is needed, when comparing populations/phenomena of different size but with the same origin.' In this analysis, populations are responses based on the managerial level and responses used to define critical factors.

responses that could be more obvious than referring to the number of participants (Appendix 22). In particular, the discussions did not elaborate on variations between the critical factors. Instead, the variation of responses occurred under one particular critical factor from different managerial levels.

Figure 5.3 leads the discussion by focusing on wide and narrow gaps of a critical factor, as defined by these two groups of participants. While the widest gap between them occurred under *institutional support*, the narrowest gap could be noticed for *user acceptance*.

In explaining the widest gap, the findings suggested that middle management participants have a two-way vision towards their institutions, especially in assessing institutional support. A two-way vision demonstrated an ability or inability of these participants to evaluate how top management support reached and affected those at the lower level. In the meantime, they could also see how those from the lower managerial level supported policies from top management, including the implementation of I-MHERE outputs across the institutions.

In contract, those who were from the lower managerial level tended to define institutional support as top management support. Their definition was understandable because of their managerial level position. Importantly, these participants tended to have limited choices unless implementing policies from the upper management level. This situation led them to have the lowest responses, specifically in defining institutional support.

Another interesting finding was the narrowest gap from Figure 5.3[26]. This tendency was noticed under *user acceptance*. It had been identified that participants defined *user acceptance* in terms of adequacy, suitability or validity. It was believed that the first two natures or elements of the definition was applicable to explain the responses provided by those groups. Both groups defined how they could accept the outputs if they were adequate or suitable to their needs and expectations. This tendency led to a narrow gap between the two groups.

However, the findings suggest that participants from middle management are more concerned about the validity, especially with the process validity, as discussed earlier. They certainly strived to minimise any misconduct under their unit or department. Outputs must ensure that they had been produced under a valid process and could produce valid results (Excerpt 5.3 & Excerpt 5.18).

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[26] Figure 5.3 is based on a predecessor analysis that demonstrates data normalisation (Appendix 21).

These concerns led more insight into the responses from middle management participants. As a result, they tended to provide a higher level of responses in defining user acceptance under the category of middle management than under the category of lower management. In other words, this reasoning explains the different tendency for the same critical factor but defined by different groups of participants.
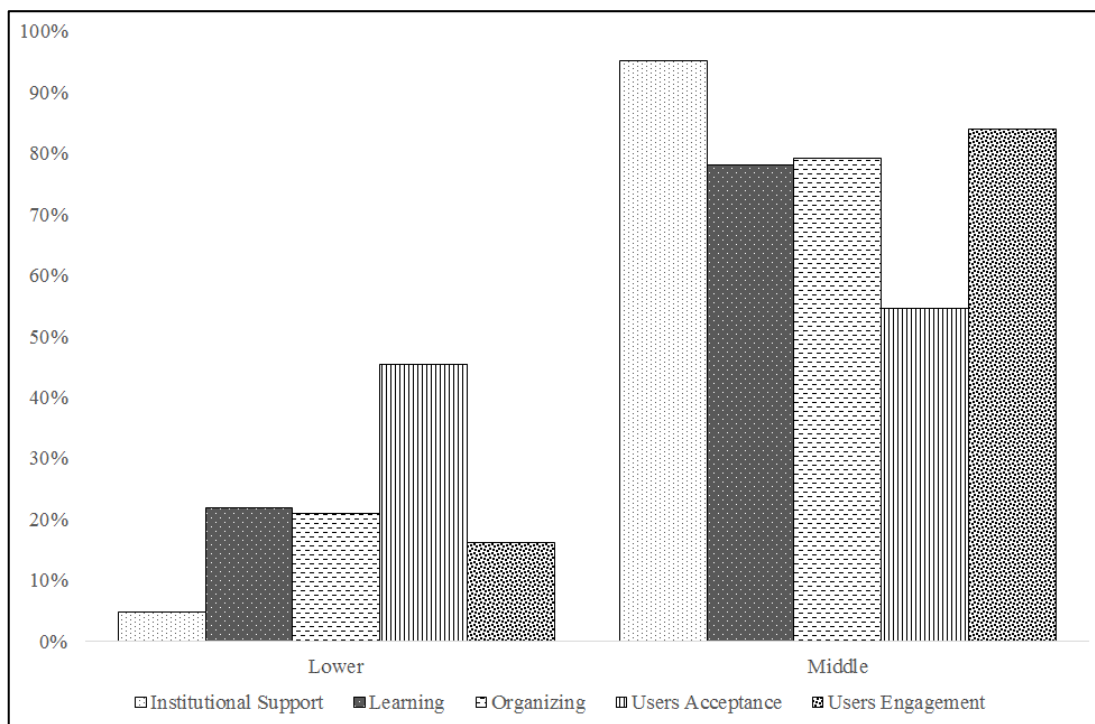
Figure 5.3   Managerial level on critical factors

5.3.2   Organisational Tenure on Identified Critical Factors

The analysis of participant organisational tenures was aimed to explore variations in responses based on the number of years in employment. This attribute was expected to measure the participant's comprehension of the institution's strategic objectives, determine how project outputs became impact enablers, and identify knowledge about critical factors.

In Chapter 3, six groups of organisational tenure have been clustered, covering the number of years participants have been employed at their current workplace: (i) seven to 11; (ii) 12 to 16; (iii) 17 to 21; (iv) 22 to 26; (v) 26 to 31; and (vii) 32 to 36. The analysis was aimed to identify whether variations existed in responses because of different organisational tenures (Figure 5.4).

Figure 5.4 shows variations in the level of responses for defining critical factors. It was believed that participant organisational tenure led to these variations because of their years of experience. As well, knowledge could be also acquired from work experience. The findings then suggested that the longer the tenure, the more experienced and knowledgeable the participants became. This knowledge covered their comprehension about institutional strategic objectives. By understanding these objectives, they evaluated how well I-MHERE's outputs had assisted their institution to realise its strategic objectives. Comprehension also included identified factors that had contributed to those realisations.

Discussions of the findings focused on two contrasting groups of organisational tenure that relied on significant differences of tenure, as well as higher responses compared to other groups of tenure. As shown in Figure 5.4, the first two groups, seven to 11 years and 22 to 26 years of tenure produced a significantly difference.

Those who had been working longer tended to generate higher responses for institutional support and learning. In particular the institutional support criterion had the widest gap between the two tenure groups. Years of experience and knowledgeability allowed these participants to define institutional support, not only in the form of formal approval, but also to use the system.

Participants who had been working longer could view beyond the formality of a decision in its practical implementation. These participants realised that follow-up action in the form of encouragement was essential. They wanted to ensure that the decision was actually implemented and a change could be sincerely embraced. Specifically, they believed in informal encouragement, where acknowledging the significant effect of a personal approach to encourages others, especially subordinates, to use a new system, such as an IS for academic performance.

For these participants, their institutions needed to support them by being able to see the 'big picture' and by defining learning in the wider context. These participants also considered that institutional support allowed a conducive learning process and saw this process as a strategic approach towards institutional learning. This consideration led participant responses for institutional support to be higher than for learning.

For those considered to be 'newcomers', the analysis sensed that limited experience, knowledge and one-way vision existed that led to their limited ability to define institutional support, compared to those who had been working longer. Furthermore, they mostly defined institutional support as top management support.

Once formal approval was made available, the decision for implementation by these participants was immediate. They viewed assistance from their peers and managers to be limited in defining institutional support, which was formally approved by top management. This context led participants to judge institutional support as considerably low responses. In other words, this context could be the reason for the variation in defining institutional support by those from different organisational tenures.
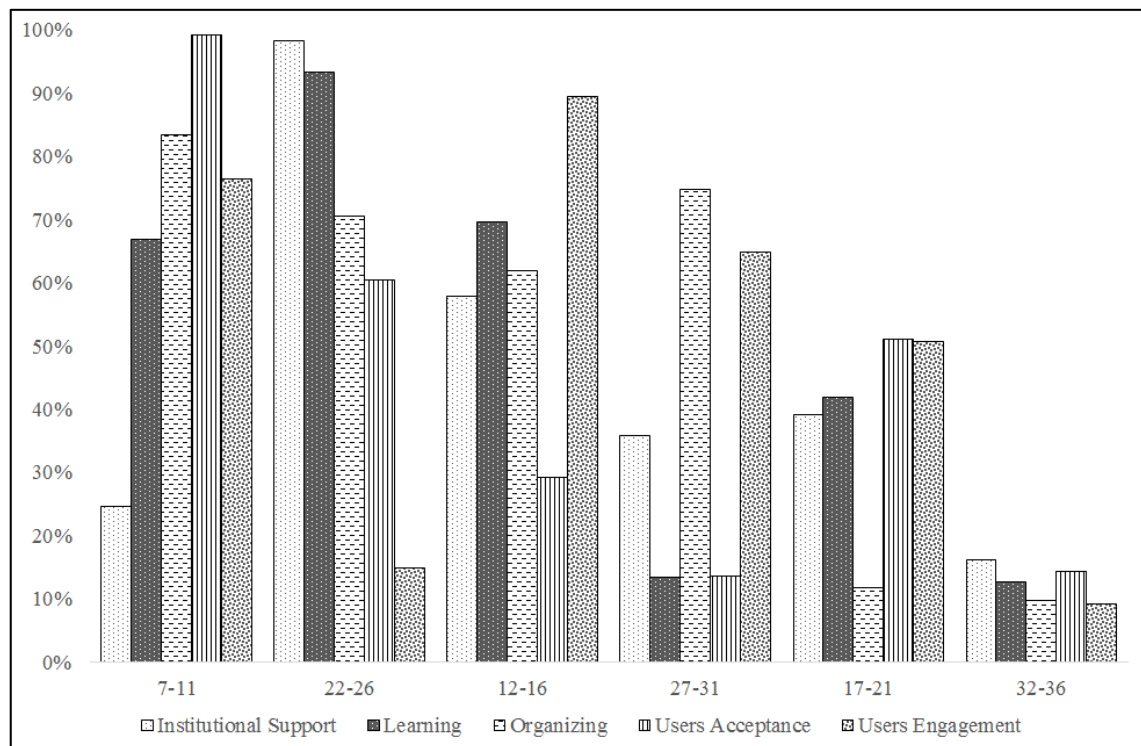
Figure 5.4[27]   Organisational tenure on critical factors

Furthermore, since the organisational tenure implied the level of experience and knowledge, this attribute also verified the previous findings on managerial levels. For those who had worked in a managerial role, contextual definitions of the critical factors also aligned. Those who had been working between 22 and 26 years in an institution, they seemed to have similar tendencies as those from middle management. These participants had higher responses in defining institutional support.

As experience and knowledge gave participants the opportunity to work at the middle management level, they could have a two-way vision about their institution. As discussed earlier, a two-way

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[27]   Figure 5.4 is generated from a predecessor analysis that demonstrates data normalisation (Appendix 23).

vision allowed them to have effective positions in defining both success criteria and their critical factors. This ability included strengthening the influence of certain critical factors over others.

For the other criteria, *organising*, *user acceptance*, and *user engagement*, newcomers (seven to 11 years of tenure) provided higher responses. In fact, the higher level of response for user engagement had the widest gap among the three criteria. This verification was possible because *user acceptance* was defined as a lesson from these participants' experiences when using outputs after a certain period. So when outputs were further developed or newly-developed, participants probably demanded higher engagement during the development stage, which was essential to ensure that outputs satisfies their daily needs. Their demand for more engaged could be considered reasonable and relevant. It was also believed that these participants were the ones who emphasised active engagement, as indicated earlier.

The analysis then viewed the level of engagement to determine levels of acceptability. The more potential users were engaged, the more likely they accepted the product. In this context, higher responses for user acceptance became higher responses for *user engagement*. This tendency could also be noticed from Figure 5.4. The highest percentage of participant responses could be seen for those who had been working between seven and 16 years in their current position. The analysis considered this group as newcomers and probably demanded participation and involvement during system development by the institution.

5.3.3   Job Tenure on Identified Critical Factors

The analysis also examined research participant responses based on their most recent position. In relation to the previous attributes, the analysis viewed that their experience and knowledge led to some participants being appointed as managers. The number of years working in the same position was important in terms of how it could be used to comprehend the critical factors, in particular, those related to benefits of I-MHERE outputs and departmental needs after they are handed over.

At the delivery stage, outputs mostly satisfied the requirements, especially when the I-MHERE funding scheme was audited by BPKP. Even though this audit was more focused on the financial aspects, especially budget disbursements, it also reported physical achievements of the outputs. After they had been satisfied, it then could be assumed that outputs also satisfied user requirements.

However, as time passed, I-MHERE's outputs started to reveal their real contribution. As explained earlier, some outputs had been beneficial and some had been discontinued because they could not perform as expected. Importantly, expectations simply included the increase of efficiency and

effectiveness in performing daily tasks. This situation led the analysis to examine how participant job tenures could assist in explaining critical factors at the post-handover stage.

The result of analysing research participant current position periods is portrayed in Figure 5.5. As indicated in Chapter 3, three groups of period were identified: (i) those who had been in their recent positions for one to three years; (ii) four to six years; and (iii) seven to 10 years. The analysis considered those with one to three years job tenure as newcomers in their current position.

Nevertheless, it appears from Figure 5.5 that this first group provided more responses than the others. In other words, higher responses were received from those who had recently been employed in their position. Newly-employed did not imply that a participant was a newcomer or was from a lower managerial level. The responses indicated that they had sufficient comprehensions about the outputs and their benefits specifically to their unit or department.
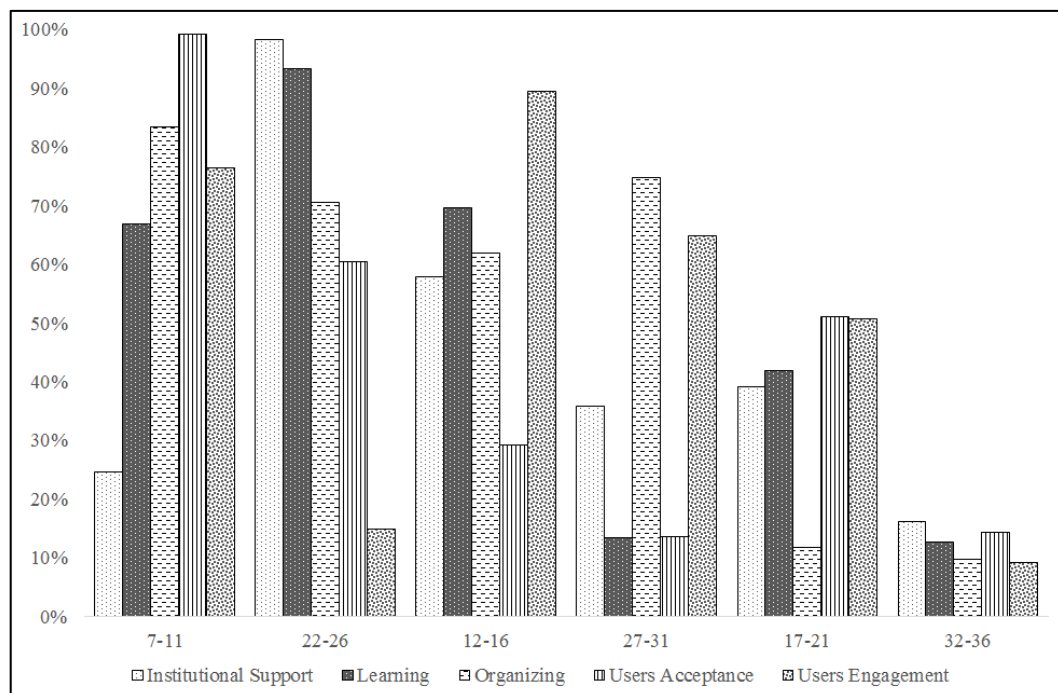
Figure 5.5[28]   Job tenure on critical factors

Although showing a higher level of responses for those who were new to their position, Figure 5.5 also indicated the highest response from the group of seven to 10 years job tenure. It is interesting

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[28]   Figure 5.5 is generated from a predecessor analysis that demonstrates data normalisation (Appendix 24).

to note that these participants are at the lower managerial level, as well as direct users. As a result, they paid extra attention on how outputs could be used to organise resources to assist them in performing their daily tasks.

The early finding indicted that participants defined organising as short- and long-term organising. Considering their position as direct users, the findings suggest that these participants shaped the definition for short-term organising. They had used the outputs for planning and arranged institutional resources to perform their jobs on a daily basis.

An interesting tendency about this group of tenure (7-10 years) was that they provided lower levels of responses for other criteria, including user acceptance and user engagement. The findings suggested that they were more concerned about how outputs could be used, rather than interested in the development process. This tendency differs from the four to six year job tenure group.

5.4   Chapter Summary

Chapter 5 discusses critical factors that are identified in Chapter 3, however, discussions were limited to the five highest responses that covered: (i) *learning*; (ii) *institutional support*; (iii) *organising*; (iv) *user acceptance*; and (v) *user engagement* (Figure 4.10). The discussions in providing conceptual definitions used word frequency analysis and contextual analysis, which resulted in different perspective at the individual level. At this level, learning consisted of narrow and wide context learning; institutional support was viewed as formal approval and encouragement, which consisted of formal and informal encouragement.

Participants also defined organising as short- and long-term organising. For user acceptance, three natures of acceptance were defined: (i) adequate; (ii) suitable; and (iii) valid. While *adequate* and *suitable* natures have reverse meanings such as inadequate or unsuitable, validity could be defined as physical validity and process validity. A valid process was defined as validity in the development process and validity in the process as a product. For user engagement, participants defined this factor as active and passive engagement.

Chapter 5 also discusses the influences of managerial levels, organisational tenure and job tenure toward the participant responses. Under managerial level attributes, the widest gap occurred between both managerial groups under institutional support. Participants positioned as middle managers were permitted to describe in-depth institutional support, as well as allowed to evaluate how the support that top management gave, particularly in the implementation of I-MHERE

outputs across the institution. At the same time, these participants evaluated their subordinates' support in using I-MHERE outputs. Middle management participants tended to have greater understanding of institutional support than those lower down the corporate latter one who tended to define support as merely 'top management support'.
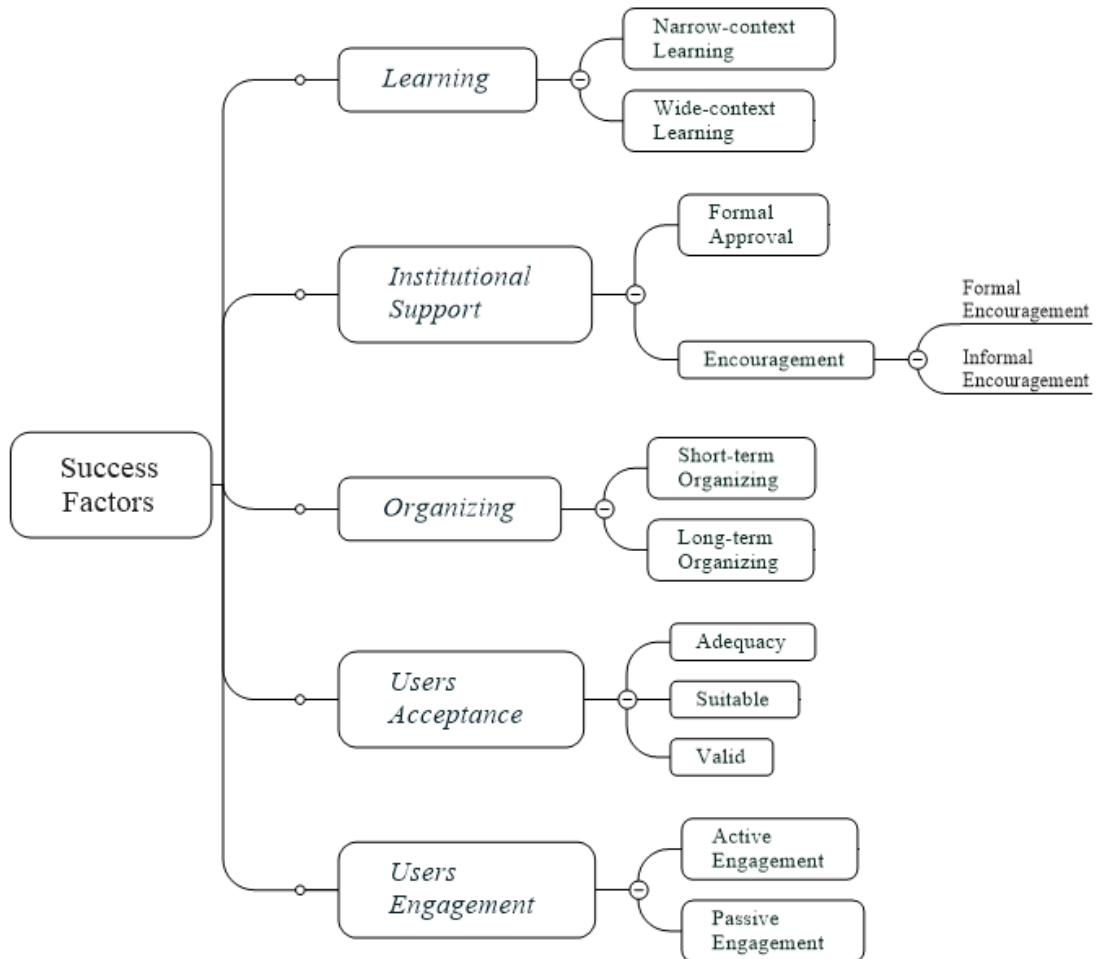
Figure 5.6   Findings on critical factors

Another interesting finding was the narrow gap between the two managerial levels in defining user acceptance which suggested that both groups were concerned about the acceptability of outputs beyond the delivery stage. While lower management participants viewed outputs specifically related to their daily work, middle managers were concerned about validity aspects to minimise misconduct within their unit.

In terms of organisational tenure, the findings indicated that those who were newly-appointed in their career also held managerial positions. Interestingly, they tended to be more engaged in

developing systems. A similar explanation is reflected in Chapter 4 where those who were new to their job tended not to be interested in outputs yielding benefits. However, consistencies with the previous attribute's results could still be noticed for institutional support and user acceptance under the two significantly different tenures. The lower level of tenure tended to make participants, even managers, more engaged in developing the system, such as an academic IS. These participants wanted to ensure that the benefits were delivered and sustained for the long-term.

Finally, in terms of job tenure, an interesting finding was discovered concerning some participants who had been in their position for at least seven years. Considering their position as a direct user, the findings suggested that they have shaped the definition for short-term organising. They had used the outputs for planning and arranged institutional resources to perform their daily work.

CHAPTER 6:
DISCUSSIONS

6.1 Introduction

This chapter aims to discuss how the findings of this thesis related to the relevant literature. Importantly, this discussion will indicate how findings address the research gaps, as highlighted in Chapter 2, as well as demonstrate how they contribute to the pool of knowledge and generate theory building.

The discussion is then structured to discuss the findings under the category of success criteria and their critical factors (Figure 6.1). Participant attributes, namely, managerial level, organisational tenure and job tenure will also be discussed. The CGTM is relevant to methodological aspects. It is expected that through discussing these findings, some contributions can be made for future research and those who intend to use the original CGTM.
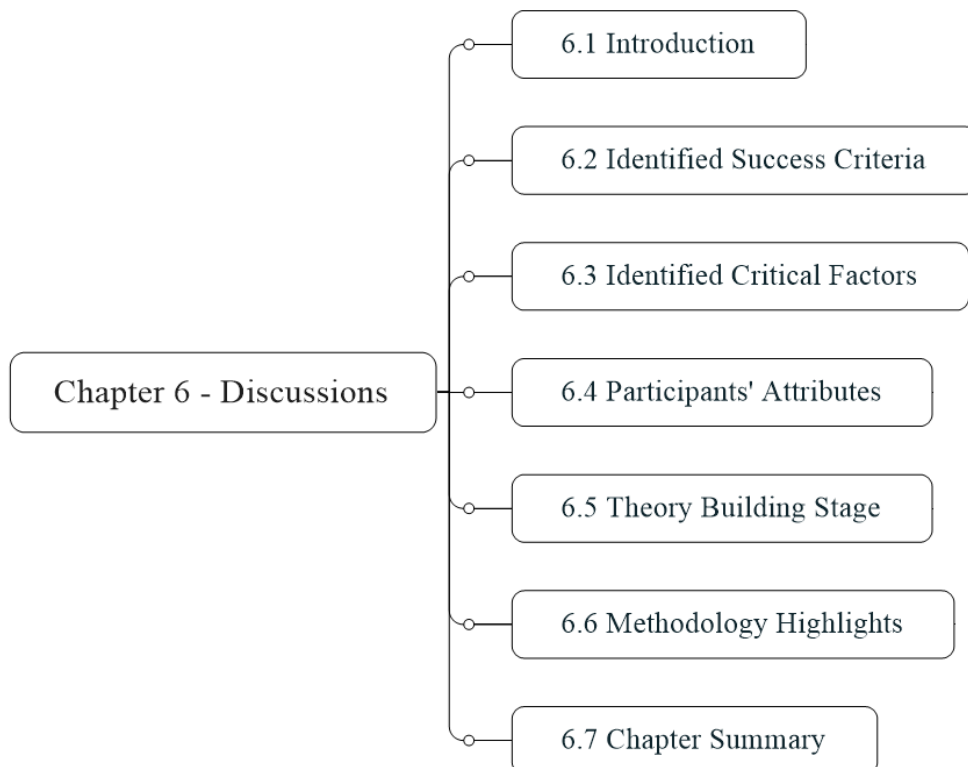
Figure 6.1   Overview of Chapter 6

6.2   Identified Success Criteria

Identified success criteria surfaced in Chapter 3, consisting of *usability, development, documentation, new capability, maintainability, training, convenience,* and *price of service or product*, and their involvement in the research are conducted in Chapter 4. However, early analysis in Chapter 6 indicates different levels of responses with regard to each criterion. Discussions then focus on the four highest criteria: (i) *usability*; (ii) *development*; (iii) *documentation*; and (iv) *new capability*. By using word frequency analysis and contextual analysis, participants provided different definitions for each success criterion, as discussed under each criterion in relation to the extant literature.

6.2.1   Usability

By using Turner and Zolin's (2012) project success model, theoretical coding identified usability as a success criterion at the post-handover stage. Analysis at this coding stage also indicated that the users (participants) considered usability as the most significant criterion (Figure 4.1). Previous studies by Wateridge (1995, 1998) and Venkatesh and Davis' (2000) technology acceptance model (TAM) 2 consider *usability* as a criterion at the delivery stage.

However, Turner and Zolin's project success model clearly groups *usability* at the outcome phase. This model was used by this research because it emphasised the timeframe to evaluate project benefits in the long-term. Earlier works by DeLone and McLean in 1992 also differentiated perceived usefulness after project outputs are handed over. In other words, their study implicitly considered the timeframe that was made clearer in 2012 by Turner and Zolin.

Beyond the delivery stage, *usability* could be defined as the 'real' success of a funding scheme. Some studies have indicated similar findings, for example, Thomas and Fernández's (2008) study found this criterion after conducting both ex-ante and ex-post evaluations. In this thesis, success criteria were indicated by conducting a post-project evaluation (Chapter 2).

In defining usability at the delivery stage and post-delivery stage, Nelson (2005) pointed out two types of success criteria: (i) process-related criterion; and (ii) outcome-related criterion. *Usability* was identified as the criterion under both categories. This research views that *usability* as a process-related criterion was categorised under the output stage, while *usability* as an outcome-related criterion was identified at the outcome phase where usability can demonstrate the actual success of a project.

The analysis found three aspects that led participants to define success criterion: (i) sampled outputs; (ii) relevance of job tenure; and (iii) adding or contributing to knowledge. The first aspect relates to sampled outputs that were currently used by the participants. Studies highlighted actual project success as simply demonstrating 'product use' (McLeod et al., 2012b). In this perception, the term *use* was focused more on the system (output), and not on what users feel about a project's outputs. However, Seddon (1997) emphasised the attitude of users toward the outputs. By using a grounded theory approach, this thesis found an alignment with Seddon's approach and emphasises *usability* based on the users' attitudes in different contexts, therefore, allowing participants to respond differently in defining usability.

The second aspect relates to job tenure that allows participants to define *usability* of the outputs at the post-handover stage. From job tenure, it refers to two elements: (i) performing jobs; and (ii) the transition period from delivery to outcome. DeLone and McLean (1992) indicated this by highlighting the reciprocal relationship between use and user satisfaction, but a one-way approach from user satisfaction to individual impact.

Responses and judgements in Chapter 4 implies the level of user satisfaction and individual impact, which represent users (participants) performing and using outputs since they were delivered. These uses and experiences indicate a timeframe from the handover stage to the post-handover stage when participant responses and opinions were captured.

The third aspect, adding or contributing to knowledge, in defining *usability* covers the first two aspect. This was made possible when participants used the (sampled) outputs in performing their daily tasks (signifying job tenure).

The third aspect is discussed extensively in the literature (Kimmerle et al., 2010; Ng & Feldman, 2010), however, this research highlights the process of adding knowledge from an individual level. Hence, defining usability under this aspect could be interpreted differently. In short, outputs are considered useful when they can contribute to adding knowledge for the user. This is made possible when the user utilises the outputs when performing their daily tasks throughout their job tenure.

> While the literature generalises the aspect of adding knowledge from using project outputs, this thesis signifies the difference in defining usability under the aspect of adding knowledge. This thesis emphasises this difference because of the different types of outputs used and the level of job tenure.

Furthermore, the analysis distinguished between *individual usability* and *institutional usability*. While individual usability was defined as the usefulness of outputs that only affect a participant at a personal or individual level, institutional usability was defined as the usability of an output that was not only beneficial for an individual, but also for the institution. Some participants considered the usefulness was just for themselves, while others considered the outputs to be useful beyond themselves and could be widely beneficial across the institution.

DeLone and McLean (1992), and Chien and Tsaur (2007) argued about the escalated impact from the individual to an institutional level. However, their studies were not able to clarify the perspectives of individuals as output users. This thesis argues that the attitude of individuals could hinder the affect at the institutional level. For example, an operator of a research IS might use the system to manage information about research in one's institution. This employee might not realise that the data would be very useful for institutional accreditation, and could argue that only he/she can perform the job, thus, not necessarily indicating the awareness for institutional usability. In other words, not all individuals perceive that the benefits in using a system (output) can create a wide impact. This finding clarifies the types of usability in Turner and Zolin's model and strengthens the importance of users' attitude, as pointed out by Sheldon earlier.

> This thesis identifies the reason for an escalated impact from individual to institutional level. This escalation is possible because there are institution' members who are able to recognise institutional usability of the delivered outputs.
>
> The findings could also suggest that this condition allows the accumulation of individual learning to form of institutional or organisational learning. On the contrary, because of individual usability, the formation of intuitional learning could be hindered.

To conclude, findings strengthen usability at the highest level of responses provided by the research participants. However, the high level of responses did not necessarily mean that the outputs were useful or successful in delivering benefit for the long-term. The high level could also indicate a high level of concerns about the outputs. Furthermore, the findings showed that under this criterion of *usability*, most research participants judged the outputs to be impractical at the post-handover stage. Project output usability should be acknowledged to judge the success of a project, made possible through a benefits review (Figure 6.2).
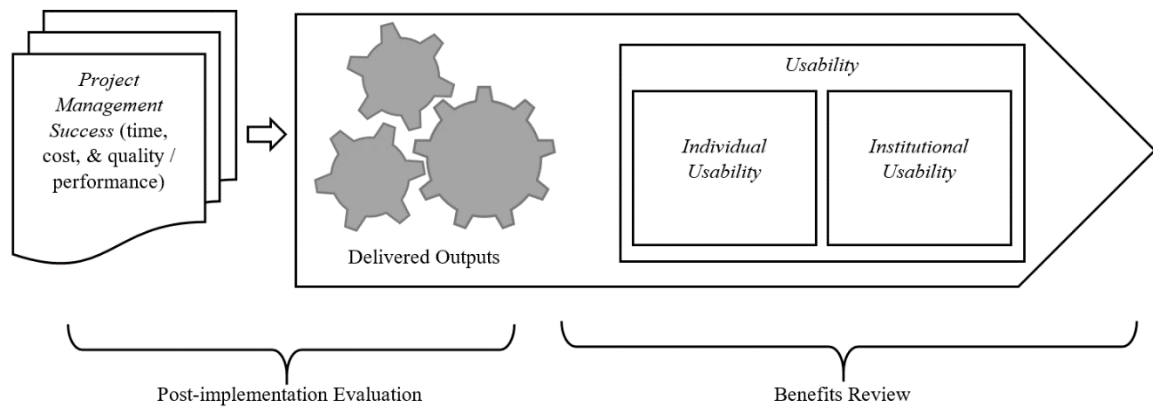
Figure 6.2   Usability as a success criterion

6.2.2 Development

Based on the results of word frequency analysis, *need* was the most frequently mentioned word by the participants. This thesis views this word as the *need* for development, as well as the *need* for continuous improvement. The findings suggest that continuous improvement indicates the 'real' success of a project. Because project outputs are only enablers to deliver strategic goals, efforts should be made to provide continuous improvement to outputs after delivery. By doing this, they can demonstrate long-term contribution to the institution. This condition is defined by Cooke-Davies (2002) and Wateridge (1998) as 'real' project success.

> 'Real' project success at the individual level could be in the form of a need for development of the delivered outputs.

With the use of contextual analysis, two types of development were defined: (i) *further development*; and (ii) *new development*. If outputs were useful, institutions tended to decide on further development in addition to their existing systems. Under this condition, benefits could be continuously sustained and enhanced (Letavec, 2014; Ward & Daniel, 2012). The synthesis in Figure 2.6 indicates the outcomes and impacts of the post-handover stage that benefits were not only reviewed, but also needed to be sustained. The process of developing and sustaining benefits leads to long-term success.

However, when outputs are not functional, users tend to suggest to top management that new output need to be developed. Up to this point, the emphasis on a manager's responsibility was made clear. By referring to Turner and Zolin's (2012) success model, development tended to be

identified by the customer and not mentioned by the user (Table 2.1). Based on the position of a manager, this thesis views him/her as a representative for the institution and therefore are considered as customers when dealing with external parties.

Turner and Zolin's (2012) development model was identified as a success criterion at the post-handover stage (outcome and impact). Considering the decision to develop new systems, this thesis views that development should belong to the impact phase. The decision to replace outputs and build new ones was not decided during the transition period at the outcome phase. It was made by managers at the impact phase because they did not experience the usefulness of outputs delivering institutional strategic objectives in the long-term.

Actually, both types of development tended to be determined by managers. Because decisions to stop using outputs were more visible than to proceed with further development, management played a significant role in identifying the need for a new system to be developed. This definition of development was derived from disappointed or dissatisfied users. As indicated earlier, the previous success criterion (*usability*) indicated that most participants judged outputs to be impractical. In other words, the findings for this criterion (*development*) could explain the overall judgement for *usability*.

This finding is clarified by DeLone and McLean's study in 1992 and also their updated research in 2003. For the earlier work, this thesis provides more evidence as to why individual usability could not be accumulated to form institutional usability. In their earlier study, DeLone and McLean indicated that the impact from individuals would lead to their institution. However, this thesis indicates that not all individuals could realise their ability to affect the institution. At the direct user level, outputs could be judged to be useful, need to be further developed, or not useful at all.

With regard to these types of development, DeLone and McLean's (2003) updated version of the model is used to indicate a loop (highlighted by dashes) (Figure 6.3). According to Badewi et al. (2013), this loop can be viewed as illustrated in Figure 6.4. This thesis argues that participants in this research have passed the first 'user satisfaction' requirement.

Based on participant definitions and the stage where success was judged, Figure 6.5 illustrates a crucial step formed between the first 'user satisfaction' and second 'intention to use' (highlighted by dashes). Unfortunately, the loop of DeLon and McLean's system success model in Figure 6.3 does not indicate an effort to ensure quality after a system is used. In other words, there is no

indication from the loop about efforts that have been made in order to satisfy the three aspects of quality: (i) information quality; (ii) system quality; and (iii) service quality.
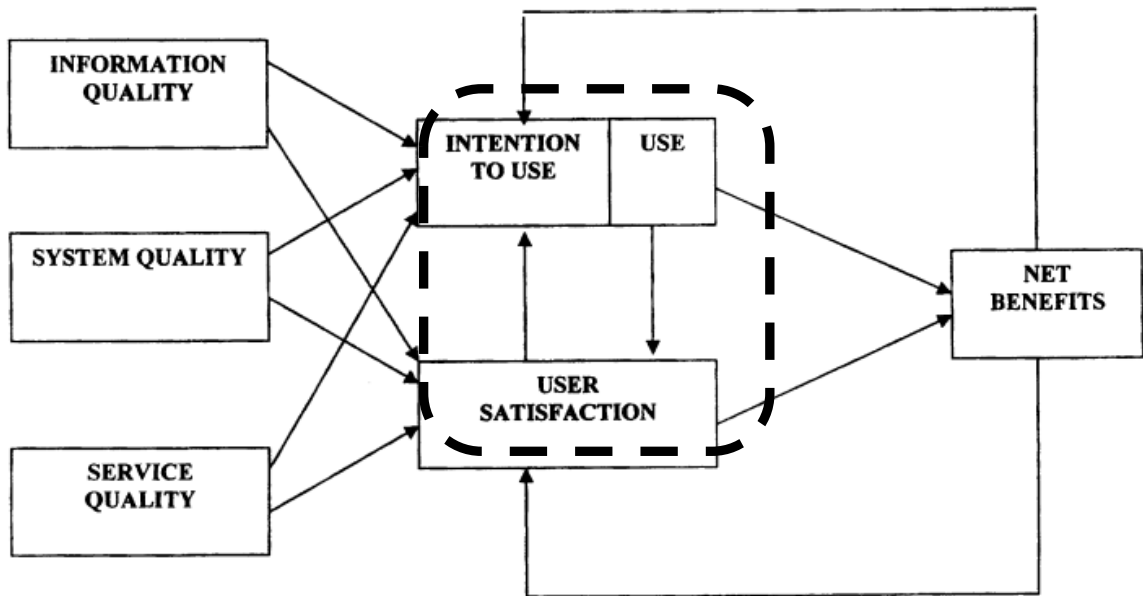
Figure 6.3   Updated version of the system success model (DeLone & McLean, 2003, p. 27)
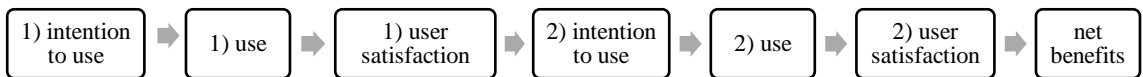
Figure 6.4   System development process

Satisfaction of these quality aspects will then lead to a second user satisfaction. The loops in Figure 6.3 and Figure 6.5 do not show any adjustment or revision from its originally delivered outputs until the outputs achieve the expected net benefits. Their updated version might be extensively used in the literature in ensuring system success. However, results in this thesis indicate that there is a missing process in decision-making regarding the delivered outputs.
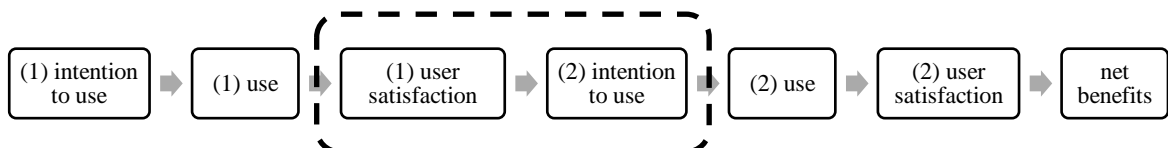
Figure 6.5   Focused process

This missing process covers an early benefits review to allow the institution to make a decision about the need for further development. If the outputs were useful, the institution tended to enhance the existing system. Learning from previous successes, existing users could use the updated or revised version until outputs produce 'net benefits'. Before reaching the outputs' net benefits, the loop (dashes) in Figure 6.5 demonstrates 'benefits exploitation' (Ashurst & Hodges, 2010). Nevertheless, when they were not, new development was to be proposed instead.

In short, DeLone and McLean's (2003) model is viewed as having missed the decision-making step of whether to aim for further development or implement a new development. Either would lead to the next stage of using the outputs until net benefits are achieved. By highlighting this crucial step, the thesis emphasises the lack of communication during the transition period from project management to benefits management. This missing gap was identified earlier when a separation concept between post-implementation evaluation and benefits review existed (Archibald et al., 2012; Irani, 2010; Legovini et al., 2015; Lehtonen, 2014; Song & Letch, 2012).

- The findings indicate the need for a bridge to comprehend the transition from project management success to project success.
- This thesis clarifies development as a success criterion under the Turner and Zolin model that should be in the form of further development.
- As a success criterion, further development aligns with the basic idea of continuous improvement.

While literature on project management tends to emphasise post-implementation evaluation, literature on benefits management defines this concept as a benefits review. In other words, post-implementation evaluation is used to understand project management success, whereas benefits review is used to understand project success (Figure 6.6).
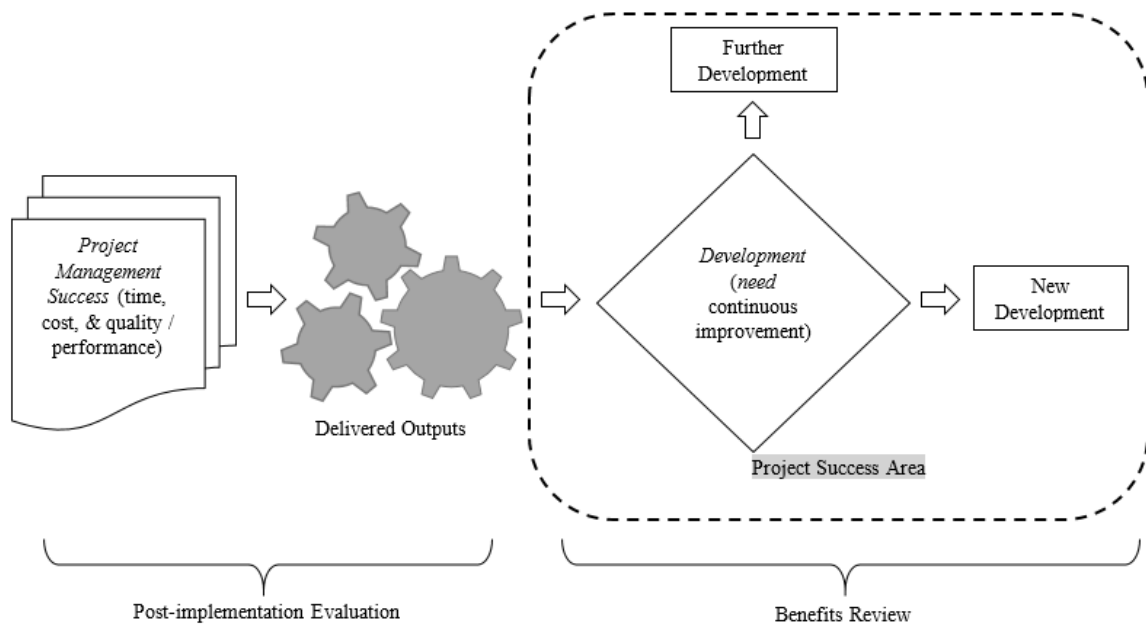
Figure 6.6   Development as a success criterion

6.2.3 Documentation

The ability to produce a judgement might be possible through documentation, which was the reason why documentation was included as an identified success criterion in the research. As earlier indicated, participants had an unplanned review on the benefits delivered at the post-handover stage. In other words, the benefits review allowed them to determine the usefulness of the outputs at the post-handover stage. Their decision could be based on evidence that was well documented (Myreteg, 2015).

Furthermore, it is argued that significant inclusion in discussing documentation. By referring to Turner and Zolin's project success model, documentation was classified under the output stage. This thesis includes documentation as a criterion at the post-handover stage for a reason. It has been explained earlier that most participants considered that I-MHERE outputs were still at the outcome phase of the post-handover stage. This was indicated by a majority of identified success criteria that were classified under the outcome phase based on Turner and Zolin's model.

This thesis considers the outcome phase as a transition period, as illustrated in Figure 2.6. At this period, outputs are in the process to be adopted and adapted as new sources for the institution, therefore, documentation to define the processes by users (participants) is considered necessary.

This thesis views that the responses provided by the users (participants) are reviews of the output benefits . Participant responses were mostly provided by personal records since the time of implementation and delivery until the outputs were operational. Besides, the overall judgement of usability being documented became another essential success criterion.

The analysis then used word frequency and contextual analysis. Findings from word frequency analysis provided several words for an early indication of contextual definition. These words led to the perception on how participants documented or recorded outputs after they were delivered. The highlighted words also included sampled outputs, such as ISs and training programs.

From these highlighted words, the analysis continued by further exploring the responses. With the use of contextual analysis, participants defined documentation as the *documenting process* and *documenting results*. Although analysis was conducted at the post-handover stage, the findings suggested how participants considered documentation to be an important crucial element during the implementation process. This significance is highlighted in practical context, including two project management guidelines: (i) PMBOK; and (ii) Project In Control Environments (Ivanov, 2016; Wideman, 2002).

Nevertheless, this thesis found an interesting tendency. While two guidelines referred to an institutionalised process, defining *documentation of the process* at the individual level provided another perspective. Some participants were attendees of the training programs while others were involved during output development. During these processes, it was indicated that personal records were kept. It is believed that because of their ability to document the process, participants could review the benefits. This review was strengthened by *documenting the results*. Both types of documentation were seen as 'strong' evidence for reviewing benefits, therefore, documentation was viewed to be 'more useful than the analysis [which] then often follow' (Oliver & Singer, 2006, p. 1143).

Documenting results of a project strengthens the ability to review benefits of the delivered outputs.

This analysis by middle managers could provide suggestions to top management, for example, stop using the outputs and internally develop *new systems* or *further development*. In other words, well documented results allowed participants to judge whether the outputs were useful. This thesis found that documentation should be included under the output stage, as well as implemented across the outcome and impact phases of the post-handover stage.
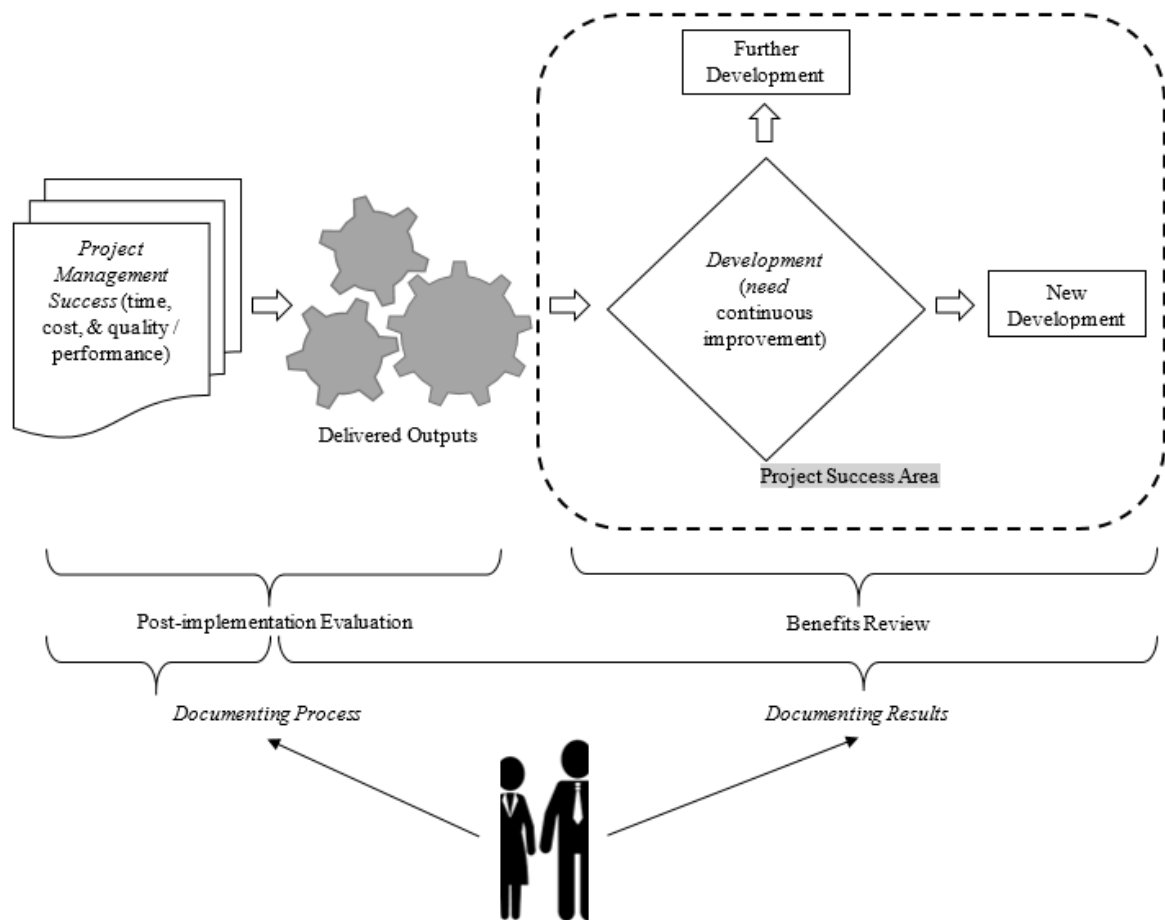
Figure 6.7   Documentation as a success criterion

Documentation was considered crucial during the transition period from project management success to project success and benefits management processes. This thesis strengthens the significant of documentation through its findings earlier, namely, *documenting process* and *documenting results*. It also believes that this criterion allowed participants to make an overall judgement for each success criterion and to increase the clarification of project management success and project success (Figure 6.7).

6.2.4 New Capability

New capability was identified as the fourth highest level of responses provided by the participants. In Turner and Zolin's project success model, new capability was expected by various stakeholders, including users. The findings were derived from two analysis approaches. By using word frequency analysis, new capability was indicated in the form of introducing an IS as a result of developing existing ones.

This thesis also explores how participants defined new capability based on their contexts. Contextual analysis was used to explore these responses which resulted in identifying two types of capabilities. While *human capability* related to new capability experienced by human resources, *technological capability* resulted from outputs that led to an improvement of the system technologically. An early definition from word frequency analysis might indicate this technological capability.

An example is provided by the scholarship MIS produced by the I-MHERE funding scheme that has recently upgraded its capability. This system could be accessed from outside the campus by using mobile application from the Android™ platform, however, this upgrade was not funded by the funding scheme because its output made it possible. The upgrade introduced new capability, specifically technological capability. In the literature, this tendency might have been termed as 'technochange' (Markus, 2004).

In a broader concept, according to Ashurst and Hodges (2010) the upgrade could also be seen as evidence of benefits realisation capability. Interestingly, the identification of any additional capability as a result from a project's outputs was recognised by conducting a benefits review. In this thesis, a benefits review is viewed as a post-project evaluation and was aligned with the impact phase (Figure 2.6) where I-MHERE outputs were expected to deliver their benefits. During this evaluation, an indication of new capability in the form of technological capability was identified.

Although the upgraded IS was an insignificant example, in terms of benefits management processes Melton et al. (2008) defined it as linking business change outside of project scope. The institution realised how mobile students (customers) were in the learning and teaching process. Adjustments needed to be carried out, and an I-MHERE output made this possible.

Most sampled outputs were ISs. These outputs were expected to 'automate (efficiency), informate (effectiveness), transformate (new business)' (Ward et al., 1996, p. 216). These ISs were expected to save time in performing the users' daily tasks and to produce results effectively. In terms of 'transformate', the findings demonstrated that from both participating institutions, only Site 1 transformed its business process.

However, this transformation occurred before the existence of the I-MHERE funding scheme. As mentioned earlier, the I-MHERE funding scheme for the Sub-Component B.2a was to ease the transition process from a conventional HEI to an autonomous one. This scheme was beneficial in terms of enhancing institutional management capability. Prognosa (budgeting performance IS) was

an example of using funding by integrating the existing IS. For Site 2, transformation never occurred as it continued to operate as a conventional HEI. It is believed that both *human* and *technological capabilities* satisfied the nature of 'transformate', as pointed out by Ward et al. (1996).

> This thesis strengthens Turner and Zolin's model regarding *new capability* that was identified at the impact phase, as well clarifies this criterion under the model by dividing it into *human capability* and *technological capability.*

These types of capability have not precisely been mentioned in Turner and Zoling's model. Since the majority of investment went to establishing IT infrastructure and software development, new technological capability was expected to influence how the institutions run their business. This tendency was known in the literature as *technochange*. Nevertheless, this should also be followed by new *human capability*, as summarised in Figure 6.8 .
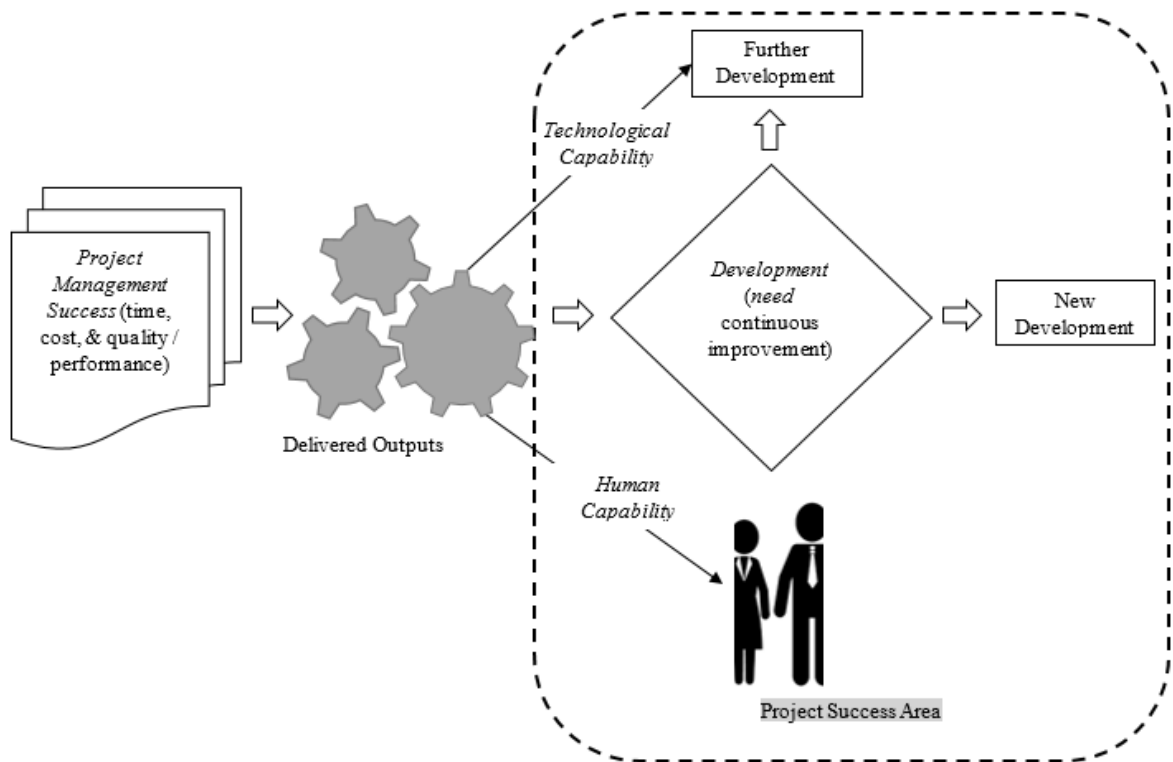
Figure 6.8   New capability as a success criterion

6.2.5   Restructuring Identified Success Criteria

The discussions above point to the interaction between each identified criterion. The findings suggest that at the post-handover stage, *usability* and *new capability* could be identified because the participants documented the process and results of I-MHERE outputs. In particular, this documenting process allowed the analyses to clarify *usability* into individual usability and institutional usability, as well as human capability and technological capability for describing *new capability*. Through documentation, participants (users) were able to provide suggestions and recommendation for either further development or new development. The overall interaction between the identified success criteria is depicted in Figure 6.9.

Details of these findings were highlighted by conducting a benefits review, as illustrated earlier. This research argues that a review was possible because, even at the individual level, participants documented both the process and results of the outputs, which allowed them to evaluate I-MHERE outputs in detail.
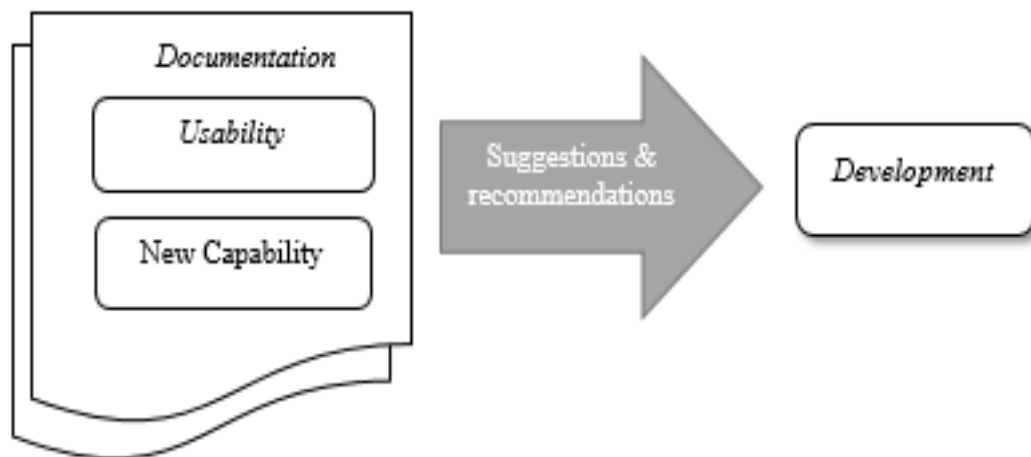
Figure 6.9   Overall definition of success criteria

Participants who provided the highest level of response demonstrated their concerns about the *usability* of the outputs at the post-handover stage. Nevertheless, the use of grounded theory and literature indicated underlying *documentation* as the core criterion. Although the analysis was carried out at the individual level, *documentation* portrayed that these participants still expected outputs to be sustained and *further developed* (Figure 6.7). These expectations were partially satisfied and contributed by a number of factors, as elaborated in Chapter 5.

Documentation also allowed participants to evaluate whether outputs added *new capability*. *New capability* was the only criterion that was categorised under the impact phase by users in its original project success model. All participants from both managerial levels and different levels of organisational tenure showed similar tendencies on whether new capability could be added by using I-MERE outputs in the long-term. These concerns led to an early analysis to emphasise new capability that should be included at the impact phase, as shown in the Turner and Zolin project success model. This thesis strengthens this model by clarifying the criterion into *human capability* and *technological capability*. These capabilities indicate that outputs are able to demonstrate their impact throughout the institution.

Finally, the discussions emphasised the position of *development* that was grouped under the impact phase in accordance with Turner and Zolin's model. Nevertheless, this criterion was identified by the customer, according to the model. As mentioned earlier, middle management could also be perceived as a customer's position. This thesis views that this position allowed participants to strongly suggest to upper management that further development or new development was necessary. This condition verified development as the result of whether the other criteria was satisfied (Figure 6.9). These criteria were defined by participants who documented the process and results.

6.3   Identified Critical Factors

This section aims to discuss how the findings in Chapter 5 existed in the relevant literature. Theoretical coding has introduced seven identified critical factors: (i) *learning*; (ii) *institutional support*; (iii) *organising*; (iv) *user acceptance*; (v) *user engagement*; (vi) *trust'* and (vii) *collaboration* that were driven from the relevant literature (Carol & Sang Ok, 2008; Cooke-Davies, 2002; Diallo & Thuillier, 2005; Dong et al., 2009; Hermano et al., 2013; Ram et al., 2013; Struyk, 2007; Turner & Zolin, 2012; Veiga et al., 2014). However, discussions on the findings were focused on the five highest levels of responses that shaped the identified critical factors.

6.3.1   Learning

The findings in Chapter 5 indicate that *learning* received the highest number of responses from the participants (Figure 5.1). In this finding, *learning* is defined as the process of acquiring knowledge from the outputs when users used (using) the outputs for certain periods for institutional development (developed) purposes.

Furthermore, in Chapter 5, the definition of learning is intertwined with the definition of evaluation, as highlighted in Chapter 2. By referring to the dictionary meaning of learning and evaluation definition in the literature review, the intertwining lies on two aspects. While *empirical aspects* cover the findings that are relevant to the literature, the normative aspect considers and explores how the participants defined the critical factors based on their contexts. In other words, an evaluation could be seen as the learning process itself.

Furthermore, the discussions on success criteria referred to the synthesis approach (Figure 2.6). Here, the benefits review was carried out at the post-handover stage. It was then suggested that a benefits review could identify critical factors of those success criteria, as discussed in Chapter 4. In other words, the benefits review identified learning as a critical factor at the post-handover stage (outcome and impact).

In this thesis, the analysis found that participants unintentionally conducted a benefits review. This review had not only identified *learning* as a critical factor, but also recognised the highest influential critical factor in realising the achievement of identified success criteria. In other words, because of the benefits review, participants *learned* about how beneficial outputs are in realising their institutions' strategic objectives. As well, the benefits review had been an opportunity for participants to contribute to their institutional learning. Oliver (2009) suggested that '[i]t is important for the organisation to create the environment that will encourage individuals to learn, which, in turn, may lead to organisational learning' (p. 554).

Oliver's study might be used as an entry point to discussions of learning as a critical factor, indicating individual *learning* as the core element of organisational learning. This thesis generates the findings based on the analysis from the individual. Although organisational learning was a collection of individual learning (Kim, 1993; March, 1991), this thesis might emphasise the definition differently.

This emphasise is resultant from the analysis in Chapter 5 that strengthens *learning* as a critical factor. Although the definitions of learning were generated from the individual level, this thesis could not generalise that responses were used to shape the definition of individual learning. The findings from word frequency analysis suggest that *learning* could be defined as the process of acquiring knowledge from outputs when users use (using) outputs for certain periods for institutional development (developed) purposes. By using contextual analysis to explore deeper meanings of learning, the findings suggest that participants defined learning as *narrow context learning* and *wide context learning*. These two types of learning determines how an individual

defines the learning process which could be limited to himself or herself (*narrow context learning*); or could be used to acquire knowledge for organisational learning (*wide context learning*).

In this thesis, participants as the users derived these definitions of *learning* from a benefits review. This thesis signifies that a benefits review is seen as an opportunity for organisational learning (Ashurst et al., 2008; Ward & Daniel, 2012). Ashurst and Hodges (2010) suggested that organisational learning could also be seen as a long-term process of learning. The participants who defined this learning beyond themselves tended to think about their institution in the future. In other words, their learning process enabled the benefits review to sustain for the long-term.

This thesis considers that a benefits review is equals to benefits evaluation. Benefits evaluation is mainly focused on classifying types of benefits, exploring the essence of evaluation methods, and justifying techniques for the identification and evaluation of potential benefits (Li & Wang, 2003). Several studies have used the terms *benefits review* and *benefits evaluation* interchangeably (Sapountzis et al., 2009; Schwabe & Banninger, 2008). Interestingly, the discussions above indicate an intertwining definition between evaluation and learning. Therefore, if an evaluation is seen as a review, then the review is perceived as a learning process in itself. In this thesis, through a benefits review, participants (users) have learned the outputs and made judgements about them (Figure 6.10). This emphasises earlier findings when *learning* received the highest level of response from the participants.

Furthermore, it has been well documented that organisational learning is a collective of individual learning (Kim & Stoner, 2008; Kimmerle et al., 2010; Ricardo et al., 2007). Individual learning is referred to as 'an ongoing work-related process of undertaking activities that leads to change in cognition or behaviour, or both' (Meirink (2007) in Seezink et al., 2010, p. 230). Seezink et al. (2010) also pointed out that an individual becomes aware of his/her implicit opinions and beliefs. Wang et al. (2015) also defined individual learning as 'the ability to build knowledge through individual reflection about external stimuli and sources' (p. 737). This thesis perceives that the stimulus was driven from using or experiencing I-MHERE outputs, and the responses were reflections on output benefits at the post-handover stage.

In this thesis, the definition of *learning* is explored at the individual level. In the analysis, some participants defined learning narrowly, while others defined it in a wider context. In other words, although learning might still be at an individual level, the benefits of acquired knowledge could be different. Certain individuals assumed that the benefits were for them only with no further effect on their unit or department; while others viewed that knowledge could be useful throughout the

institution. The findings in this thesis about narrow and wide context learning highlight the nature of individual learning.
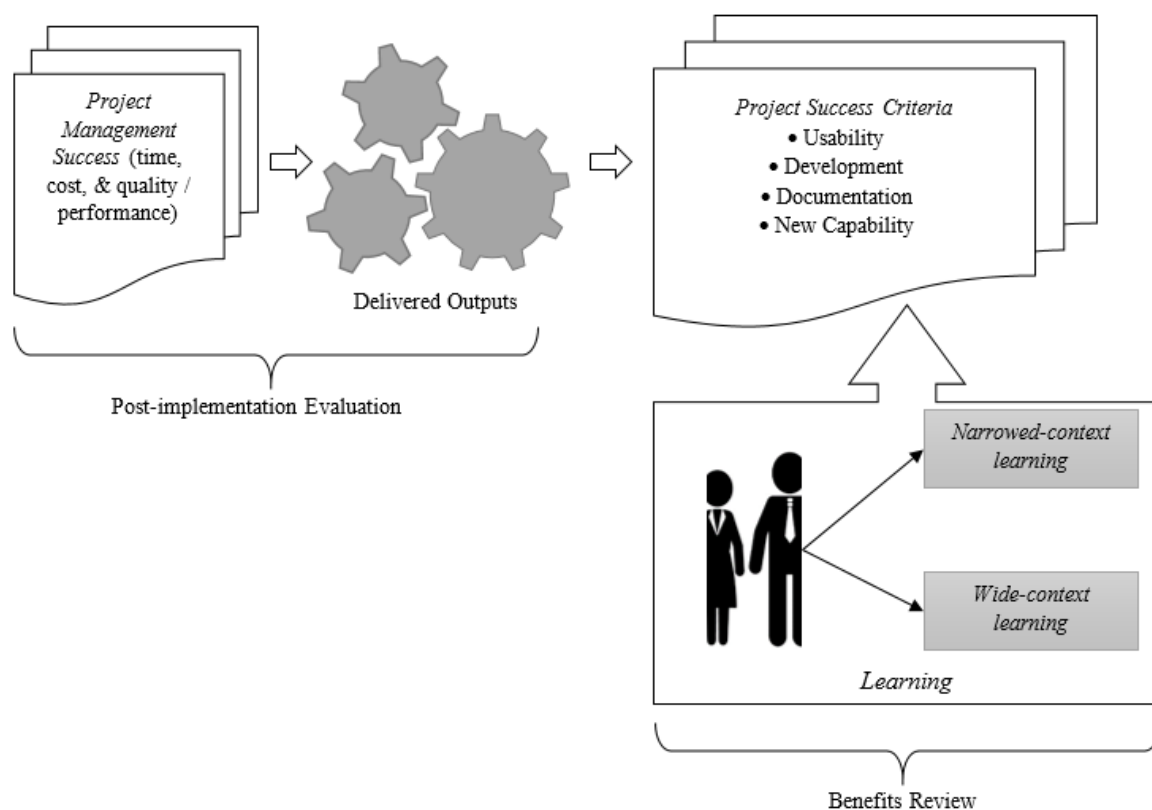
Figure 6.10   Learning as a critical factor

This thesis found that narrow and wide context learning could explain the reason for the unsuccessful accumulation of individual learning to form institutional or organisational learning.

Not all individuals contributed to the learning process at the higher level. 'Individual learning does not guarantee organisational learning, but without it no organisational learning occurs' (Perez Lopez et al., 2005, p. 149). In short, this thesis does not generalise the findings as individual learning. Instead, it points out differences in the learning process that affected individuals.

6.3.2   Institutional Support

Further analyses of institutional support showed variations in defining *institutional support*. Earlier analysis indicated that most participants referred to institutional support as top management support. This tendency aligns with a study by Young and Jordan (2008) who concluded that most studies define this support as top management support.

Because of this tendency, contextual analysis is used to deepen the analysis. The findings suggest that this support was not only received from top management but also from others within the institution. In this context, support in using I-MHERE outputs after they were handed over was received across the institution. This context is similar to a study by Veiga et al. (2014) that demonstrated an overall support across the institution to enable outputs to be used widely.

The analysis indicates that institutional support was defined in the form of formal approval and encouragement. It has been argued that encouragement is beyond the formal approval required to ensure higher levels of commitment and support, especially from top management. Top management support is 'expected to be integral to encouraging the practices and behaviours that lead to quality performance throughout the organisation' (Flynn et al., 1995, p. 664). In other words, while formal approval from top management support is necessary, encouragement can be received from everywhere and everyone within the institution, therefore, encouragement is not necessarily from top management but also from colleagues and subordinates. In this regard, the findings suggest two types of encouragement: (i) formal and (ii) informal. This is the reason for this thesis to define this support as institutional support rather than top management support. Importantly, it is necessary to consider institutional support as a critical factor at the post-handover stage.

In the literature, discussions tended to use perceived organisational support (Rhoades & Eisenberger, 2002; Settoon et al., 1996). Eisenberger et al. (1986) defined organisational support as 'the extent to which the organisation values their contributions and cares about their well-being' (p. 501). As the analysis was conducted at the individual user level, this definition provides a solid argument for aligning the findings with the literature. The analysis found that the some participants had complained about top management in perceiving long-term benefits of the output. This example surfaced, particularly from those who attended training programs conducted by the I-MHERE funding scheme. As former attendees, they criticised that top management only affirmed the programs for temporary benefit only because no further support was actioned or deemed necessary.

Another participant looked for other supports from colleagues or subordinates unofficially. He expected that knowledge from the training program could be sustained, even though no support from top management was received. An in person dissemination was also taken to ensure benefits of the training program were sustained. From the analysis, it is noticed that former attendees realised that the benefits were only for themselves. Both the spread of knowledge and further benefits showed an inverse description of the definition provided by Eisenberger et al. (1986)

above. However, those situations strengthened the need for the support that came from top management other members within the institution.

> This thesis clarifies encouragement that strengthens a wider scope of institutional support than top management support.

In other words, the findings suggested to refer support as institutional support. The scope of this support was widened because I-MHERE not only funded IT investments, but also other forms of activities, such as conducting training programs and establishing instruction manuals, guidelines and SOPs. In addition, because of institutional support, the participants could make a judgement on the success of I-MHERE outputs at the post-handover stage.
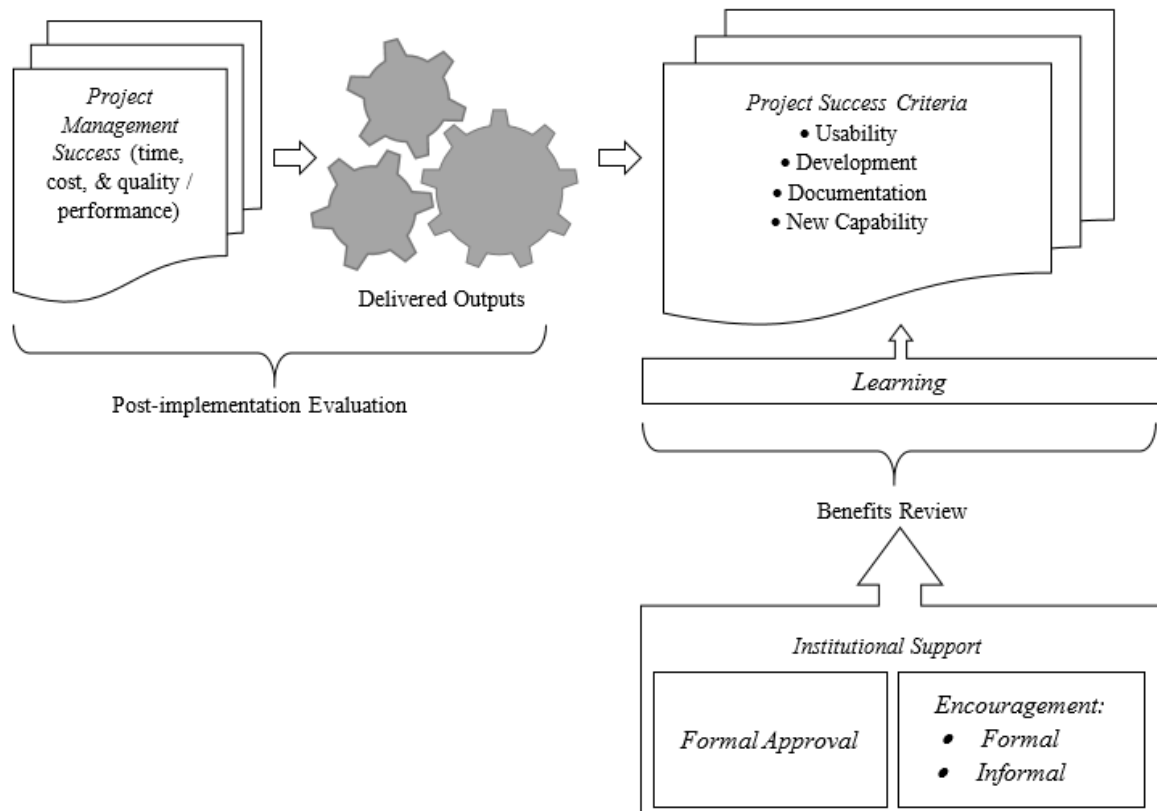
Figure 6.11   Institutional support as a critical factor

The participants also judged the support they received from their institution concerning the sustainability of benefits for the long-term. It is also believed that this thesis strengthens the importance of providing encouragement to ensure that management is willing to implement a new

system. In short, overall discussions on institutional support is portrayed in Figure 6.11. While the benefits review allows a learning process to proceed, institutional support provides an opportunity to review long-term benefits of the delivered outputs.

6.3.3 Organising

Organising is a critical factor identified as the third highest response received from participants. Early analysis by using word frequency indicated that participants considered the definition of organising related to their job tenure for them to organise resources to perform their daily duties. Interestingly, job tenure was one of the attributes that was believed to influence participant responses.

Organising skills were essential to ensuring the outputs were optimally beneficial. Because of organising skills, participants performed their jobs to a high standard (Hsieh, 2016; Sanders, 2003). They determine the usefulness of I-MHERE's outputs. It can be expected that the longer an employee's job tenure, the more skilful they are in organising resources. Importantly, the organising skills can be enhanced as a result of using I-MHERE's outputs, such as the research or scholarship MIS.

Moreover, as organising was defined at the post-handover stage, the institutions (main beneficiaries) needed to demonstrate their benefits management capability. Ward and Daniel (2012, p. 8) defined benefits management as '[t]he process of organising and managing such that the potential benefits arising from the use of IS/IT are actually realised'. This basic definition is considered relevant to this thesis because a large proportion of the investment and sampled outputs were ISs. The outputs were enablers that aimed to realise the strength of institutional management under I-MHERE Sub-Component B.2a.

While the above analysis indicated the relevance of organising skills and job tenure, contextual analysis identified *short-term organising* and *long-term organising*. The former was defined by participants who considered that organising skills were for planning and arranging resources to complete their daily tasks in the shortcoming days. The latter was defined as skills in planning and arranging by institutions for future use. This thesis considers that these participants defined organising to optimise the benefits. The ability to organise existing resources for future use was the long-term benefits itself. In introducing project benefits management, Badewi (2016) suggested that organising should be included in the transition period to ensure predefined benefits are delivered. This transition period is illustrated in the synthesis in Figure 2.6.

Either short- or long-term organising allowed the participants to organise resources by using I-MHERE output. As indicted by Ward and Daniel (2012), organising was an essential process in benefits management. This thesis demonstrates its findings in support of their definition of benefits management and the benefits management process. While the benefits management process tends to be of concern for upper management, this thesis specifically demonstrates that from the user's level, they could determine the essence of organising, not only in demonstrating the use of outputs, but also as an effort to sustain benefits for longer.

> This thesis found that types of organising could indicated the intention to maintain the benefits even at the individual (a user) level.

Organising strengthens its influence by determining how useful outputs are at the post-handover stage. This condition strengthened the reason to include organising as a critical factor. This emphasis may have decreased Škrinjar and Trkman's (2013) concern about the lack of underlying theory of CSFs in business process management. As a critical factor, participants could use *organising* as a success factor for success criteria to make an overall judgement about the success of I-MHERE outputs. Also under this condition, participants could determine whether outputs could be sustained. At this point, participants reviewed the need for *further development* or *new development*. The use of grounded theory strengthened the perspectives of actual users (Figure 6.12).
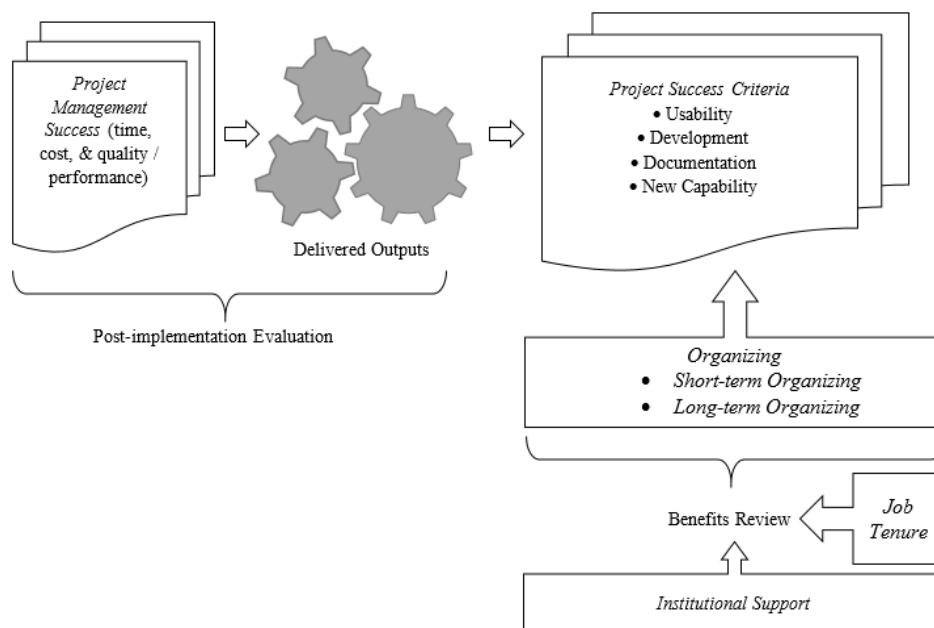
Figure 6.12   Organising as a critical factor

6.3.4 User Acceptance

The findings suggested that participants identified *user acceptance* as a critical factor, as well as determined that once users accepted the outputs, this implied they were satisfied. Satisfaction occurred because outputs met the user's requirements. This basic assumption needs to be examined based on participant responses.

An earlier analysis of using word frequency analysis indicated that acceptability related to the alignment of delivered outputs with higher level rules or regulations. If they were in line, they could be translated into daily practices in the form of SOPs to satisfy the requirements of the user's job description. This context implied a concern for participants (users) about the manual aspect of the system *before* they were translated into an IS. In other words, acceptance should be reached while requirements are still in the manual form. This situation was assumed once manuals and guidelines were satisfied in bridging high level rules and regulations and their practical and technical contexts, at which time potential users would not have difficulty when manuals were transformed into an IS. This situation was depicted as a result of reviewing the benefits of I-MHERE, such as ensuring consistency and relevance between SOPs and ISs.

This context may be reversed with regard to the literature. Most studies indicated that users tended to be satisfied if products, including ISs, were accompanied by an instruction manual (Adam Mahmood et al., 2000; Davis et al., 1992; Park, 2009). It has been uncommon in the literature to emphasise the importance of instruction manuals or guidelines that were agreed upon and accepted before they were implemented, including into ISs. This thesis highlights this concern and provides evidence on the importance of instruction manuals and guidelines before outputs are transformed into automated systems.

The concern about the effectiveness of instruction manuals and guidelines was reasonable. This was because the guidelines would determine the acceptability of the next processes. This concern also indicated potential inconsistencies in the instruction manuals and guidelines. Panjkovic et al. (1992) pointed out three causes for these inconsistencies: (i) incompleteness; (ii) ambiguity; and (iii) insufficient knowledge. They further suggested that incompleteness and ambiguity of the instruction manuals could be reduced by updating them.

Specific to I-MHERE, SOPs need to be updated to maintain relevance to the latest rules and regulations. For the third cause, inconsistency could be minimised through an intensive training program. Here, a user can keep up-to-date with knowledge gained from using the instruction

manuals (Panjkovic et al., 1992). Once a user is considered to be sufficiently knowledgeable, continuous training on the job would be more appropriate. In short, this thesis highlights the importance of instruction manuals and guidelines before they are transformed into automated systems.

This assurance was extremely crucial when systems were implemented in government agencies and other public sectors. The alignment of rules and regulations was essential to avoid misconduct. This alignment is necessary under the system's acceptance theories. According Badewi et al. (2013, p. 226), these theories 'focus on why, and how, do user, or organisation, accept or reject new system'. This thesis then emphasises this acceptance at the level of the individual user.

Because of this level, contextual analysis was used, resulting in the suggestion of three emphasises of acceptance. Participants defined acceptability in the form of *adequacy*, *validity*, or *suitability*. The findings suggest that while *adequacy* and *suitability* tended to refer to the alignment of job requirements, *validity* was more concerned with the alignment of rules and regulations. This last form of acceptability was consistent with the result of word frequency analysis.

Considering the context of the participating institutions, the discussion in this section focuses on *validity*. Under this form, the analysis indicated validity in terms of physical and process. Further analysis also identified under a valid process consisted of validity of the development process and validity of a product from the process. These levels of validity were identified as a result of preventative efforts made under a government institution, including HEIs. For instance, using IT in the public sector and maintaining its alignment with rules and regulation had been a concern as pointed out by previous studies (Hoegler & Schuster, 2002; Pieterson et al., 2007; Sonntag & Wimmer, 2003) where government agencies attempted to use their e-government systems to serve the public. However, they needed to address legal aspects by aligning with higher level rules and regulations.

> This thesis strengthens a context of institutional background that pays more attention on validity as an aspect of *user acceptance*.

Their highlights were relevant to this factor. The participating institutions had been striving to transform their business model. In an autonomous business model (BLU), they highly relied on managing their business using ISs. They intended to increase their effectiveness and efficiency in running their businesses. They needed to balance between flexibility in adopting new technology

and ensuring that this technology would not have legal implications. In other words, before an IS could be used, it had to be legally accepted.
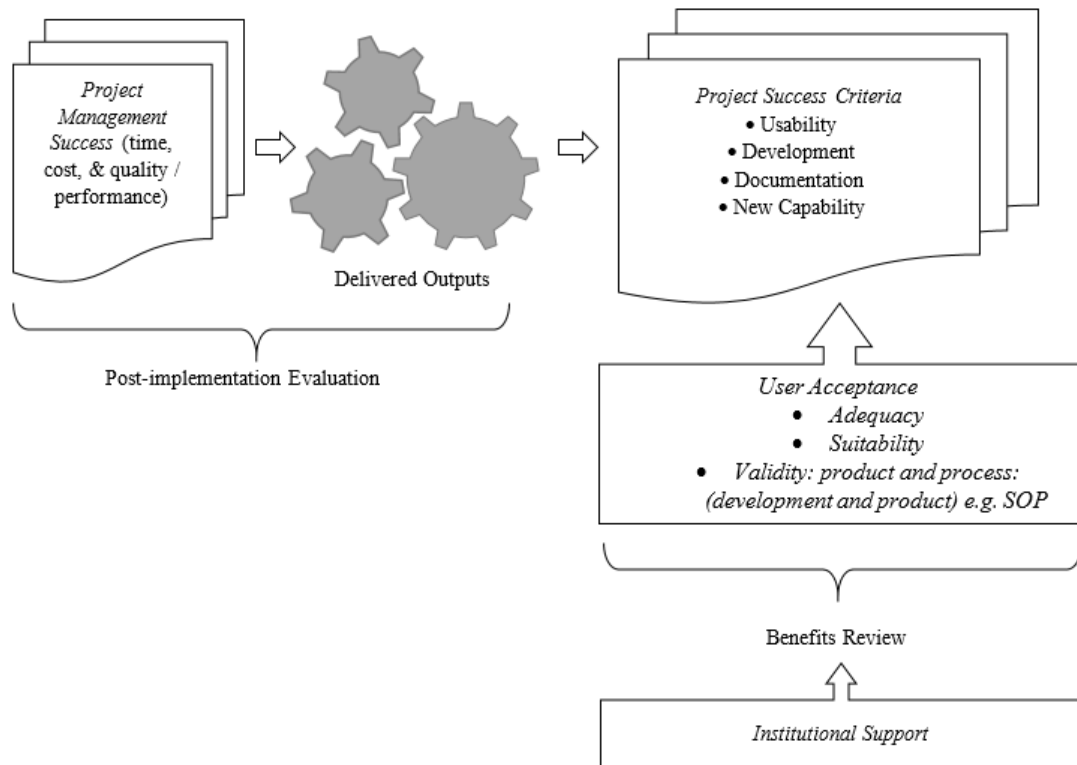
Figure 6.13   User acceptance as a critical factor

In general, government agencies expect user acceptance to be legally accepted. Although the findings were generated from the lowest level, this thesis demonstrates participant concerns about the legal aspects in performing their jobs. User acceptance as a critical factor at the post-handover stage is portrayed in Figure 6.13.

6.3.5   User Engagement

In project management literature, *user engagement* usually occurs before an output is handed over (Barki & Hartwick, 1989; DeLone & McLean, 1992; Hwang & Thorn, 1999). This thesis, nevertheless, defines *user engagement* after the output was handed over. Earlier analysis of using word frequency indicated that at the post-handover stage, users needed to be *involved* in output development, especially in ensuring that they have satisfied the *requirements*.

Contextual analysis found two types of *user engagement*: (i) *passive*; and (ii) *active*. Active engagement occurs when a user initiates himself/herself through the design or initiation stage. For

passive engagement, the user tends to be 'forcefully' involved during the implementation or use of the outputs. These users tend to be reluctant and passive in ensuring whether outputs should be maintained or further developed. Based on this finding, the discussions intend to explore how these types exist in the literature by researching earlier studies in the IS area.

In 2013, Badewi et al. explained about system acceptance theories and system success theories. This thesis views that *user acceptance* as a critical factor at the post-handover stage is more relevant under system acceptance theory. Interestingly, Hwang and Thorn (1999) included *user engagement* under the system success area. While this thesis considers *user engagement* as a concept, Hwang and Thorn's study viewed *user engagement* into two types: (i) user participation; and (ii) user involvement. Actually, this separation has been long identified in earlier studies (Barki & Hartwick, 1989; Kappelman, 1991). Barki and Hartwick (1989, p. 53) argued that user participation is 'a set of behaviours or activities performed by users in the system development process' and user involvement is 'a subjective psychological state reflecting the importance and personal relevance of a system to the user'.

Based on the two definitions, this thesis needs to set its position in the literature because the context of user engagement is defined at the post-handover stage. At this stage, outputs had been used and reviewed for some time. The review resulted in a ruling on how useful the outputs were. The findings in success criteria indicated that some outputs were further developed but most stopped using and developing new systems.

> This thesis signifies that the timeframe (post-handover stage) leads to a basic difference between user participation and user involvement.

At the post-handover stage, the definition of user engagement was based on participants' previous experiences in using delivered outputs. These experiences led them towards passively engagement, while others were actively engaged. The definitions of user participation and user involvement were also applicable to both passive and active engagement. However, because the analysis was conducted at the post-handover stage, each type of user engagement had different tendencies for different types of system development.

> Active engagement is likely to be seen in *further development*, while passive engagement can be expected from *new development*.

In other words, active engagement indicates a higher level of user involvement, to be followed by user participation. It can be noticed that participants who actively engaged during the development process perceived the currently developing system to be 'important and personally relevant' to them. As well, active engagement could be viewed to be aligned with empirical findings by Kappelman (1991) and Hwang and Thorn (1999). However, Kappelman (1991) indicated a better understanding of user satisfaction due to involvement rather than only participation. Hwang and Thorn (1999) identified a larger correlation between system success and user involvement than user participation.

> Active engagement indicates a higher level of user satisfaction and re-intention to use.

These seminal studies indicate that 'psychological engagement' results in better satisfaction and increases the probability of system success. In other words, the greater the engagement, the more likely the system becomes successful (Barki & Hartwick, 1989; Hwang & Thorn, 1999). Importantly, this thesis stands in its finding that differentiated from previous studies.
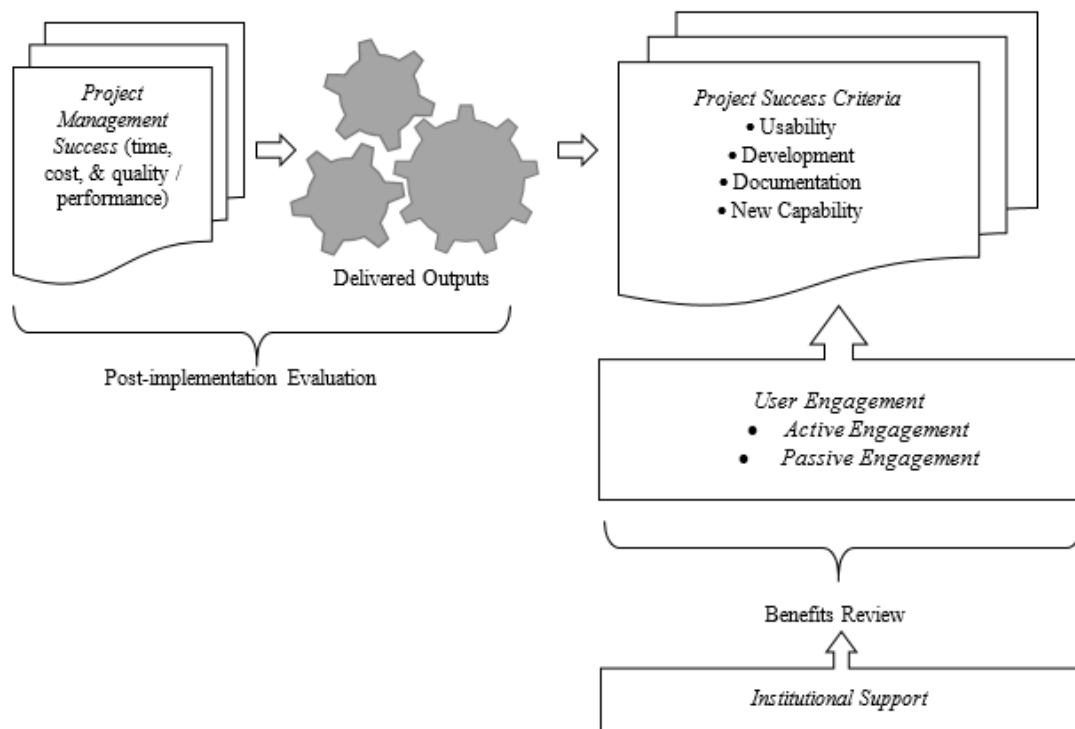
Figure 6.14   User engagement as a critical factor

While the Kappelman (1991) study indicated 'later-phase' user participation, this thesis covers the engagement definition from 'early-phase participation' because of user experiences. It is believed that this context tends to occur when a system had already been implemented and reviewed. The review triggers the behaviour of whether potential users should passively or actively engage in further development or new development.

To conclude, at the post-handover stage when outputs being used and reviewed, the perception on user engagement could differ. The more active the potential users, the more accommodating are their requirements. Their active engagement is aimed to ensure their requirements relate to job satisfaction and accommodation. It was expected that outputs would be more useful and helpful in job performance.

6.3.6 Critical Factors: Individual to Institutional Level

The findings indicate that learning received the highest level of response from participants and discussions highlighted individual definitions on *learning* as a critical factor. At the post-handover stage, *learning* has been identified as the most critical element to enable expected success criteria to be satisfied. From the discussions, it indicated relationships between all identified critical factors at the post-handover stage, as illustrated in Figure 6.15.

Figure 6.15 is similar to Figure 4.1 with regard to overall responses for critical factors in that it shows that learning received the highest response from participants at the post-handover stage. However, Figure 6.15 demonstrates critical factors as layers, indicating their relationships. Change in the perceptions towards these critical factors is possible by discussing the findings with the relevant literature. For example, Figures 6.10 to 6.14 portray the identified critical factor as a relationship as opposed to a level of responses.

Earlier in the discussions, it was mentioned that learning has an intertwining definition with evaluation. While this thesis treats evaluation and review equally, a benefits review provides an opportunity to learn. I-MHERE outputs have been an opportunity for users to evaluate success at the post-handover stage. Nevertheless, evaluation as a learning process was possible when participants used and experienced outputs in assisting them to perform their daily tasks. In other words, outputs needed to satisfy the usability criterion.
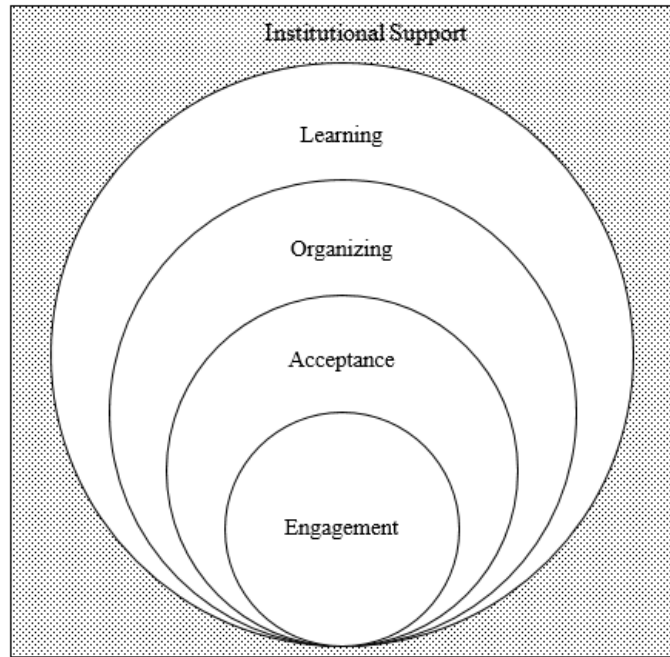
Figure 6.15   Relationships of identified critical factors

Once outputs were satisfactorily usability, participants were able to identify and define development as the second highest level of response for a success criterion. At the post-handover stage, whether further development or new development was required, users needed to be actively or passively (forcefully) engaged. As discussed earlier, user engagement needs to ensure that requirements are satisfied in the improved or new system. The more the engagement, the more likely systems will be accepted. Upon acceptance, participants can use them to perform their jobs by organising resources for the short-term and/or long-term. These processes then enriches the learning process and becomes a continuous learning process that leads to organisational learning. As mentioned earlier, a benefits review is an opportunity for organisational learning. The processes in this research certainly needed institutional support.

This thesis also views the relationships between critical factors are better explained by those who were more *experienced* and *knowledgeable* about their institution. This condition suggests that the longer an individual is employed at the organisation, explanations of the relationships are more insigtful. This also explains why the participants' institutional background was included in the analysis.

6.4 Addressing Research Gaps

Up to this point, discussions have elaborated findings, in particular, their contribution to the literature. These can also present an opportunity to address research gaps, as identified in Chapter 2 and summarised in Figure 2.7. Addressing these gaps is briefly elaborated in Table 6.1.

Table 6.1   Addressing research gaps 1a and 1b

Research gaps	Addressing statements
1a) Studies have paid limited attention on the importance of a timeframe in assessing project success.	This thesis addresses this concern by indicating that clarifying the timeframe in measuring project success lead to the different level of significant for success criteria (Figure 4.1).
1b) A wide gap in the literature to explore project success at the post-handover stage for ID projects is obvious.	For ID projects, development is one success criterion that is determined by the requirements of adding new capability and usability. The satisfactions of two criteria are possible if the user documents the process and the use of project outputs.
1c) Literature have paid limited attention on exploring critical success factors at the post-handover stage for ID projects.	Although the identified factors might be similar to ones in the extant literature, this thesis identified different levels of significance for project success factors (Figure 4.1) at the post-handover stage. At this stage, a success factor can be defined differently by different users. When a project sponsor and the implementing agency are not present, the main beneficiaries rely on the ability of learning and organising, as well as staff acceptance and engagement for developing the delivered outputs. These factors are influenced by institutional support.
2a) The use of post-implementation evaluation is usually limited to understanding project management success.	This thesis indicates a similar condition in project management literature, specifically under the area of ID projects. For ID projects, this thesis refers to the ICR as evidence of this gap. The ICR is limited to the iron triangle: (i) time (three years: 2010-2012); (ii) cost (total budget: US$80 million); and (iii) performance (achievement of national-level KPIs.
2b) The literature has insignificant discussions on post-project evaluation that comprehensively evaluates project management success and project success for ID projects.	In addressing this gap, this thesis contributes to the literature by promoting the use of a benefits review as an evaluation at the post-handover stage as a form of a comprehensive post-project evaluation. The use is shown in discussions above and through Figures 6.2, 6.6, 6.7 and 6.8 for the use of exploring success criteria, and Figures 6.10 to 6.14 for its critical factors. This evaluation also refines an earlier proposed EPPE (Ex-Post Project Evaluation) by Fahri et al., (2015).
3a) Benefits management is still perceived in the literature as a separate concept from project management.	This thesis provides evidence for this gap and promotes the use of a benefits review as an element of benefits management to complete a conventional post-implementation evaluation, which is mostly used in project management.

Research gaps	Addressing statements
3b) Limited studies have been conducted that demonstrate the use of a benefits review to explore 'real' project success.	This thesis demonstrates the use of a benefits review to explore project success at the post-handover stage in the area of ID projects. Addressing research gap 1c) also addresses gap 3b) for ID projects
3c) For ID projects, studies have paid less attention on how effective these projects can increase the level of maturity of the main beneficiaries while the project sponsor and implementing unit limit their evaluation up to the handover stage.	This thesis addresses this gap by defining the success criteria and their critical factors at the post-handover stage. Under success criteria, the increase of the institutional maturity level can be indicated through elements of institutional usability, further development, documenting results, and technological capability. These sub-themes of criteria have a positive impression on the increase of the level of institutional maturity. Under critical success factors, this thesis found wide context learning, informal encouragement, long-term organising, validity acceptance, and active engagement. These elements also indicate how an institution can increase its level of maturity.
3d) The topic of project benefits management indicates a wide gap in the area of ID projects in bridging two major concepts (i) project management; and (ii) benefits management.	The use of a benefits review in this thesis addresses the gap and demonstrates an effort in bridging the two concepts by providing a more comprehensive post-project evaluation for ID projects.

6.5   Participants Attributes

This section aims to discuss definitions of success criteria and their critical factors that influence participants' institutional attributes on their responses, that is *managerial level*, *organisational tenure*, and *job tenure*. While these attributes are discussed separately in relation to success criteria (Chapter 4) and critical factors (Chapter 5), in this section, they are discussed as one focus area, participant attributes, in order to gain thorough explanations.

The findings suggest that *the longer their organisational tenure, the more experienced and knowledgeable they become*. Finding are aligned with previous studies (Davis et al., 2003; Dunham & Burt, 2011; Fried et al., 2001; Ng & Feldman, 2010) that indicate that organisational tenure is one institutional demographic of members that leads to rich experiences and knowledge about their institution. It is suggested that more experienced and knowledgeable participants are more likely to be promoted (McEnrue, 1988; Sturman, 2003; Tesluk & Jacobs, 1998), including as managers. A manager's position allowed one participant to be included in the middle management level. This position also described the participant's job role. Overall, sequential relationship is illustrated in Figure 6.16.

> This thesis explains that organisational tenure is the core attribute for other institutional demographic attributes, such as managerial level and job tenure.

This finding strengthens an indication from a study of Gladstein (1984) who admitted that job tenure and organisational tenure is not highly correlated. In other words, she implied a correlation between the two but in a less significant level. This thesis emphasises the correlation, as well as demonstrates the significance of organisational tenure as a core attribute.

Over two decades ago, Igbaria and Siegel (1992) and Quińones et al. (1995) indicated a similar highlight. Quińones et al. (1995, p. 893) specifically stated that 'organisational experience can vary depending on the amount of time spent in a given organisation'. A more recent study also suggested a similar emphasis on organisation members' experiences and organisational tenure when Huo et al. (2016) suggested that organisational tenure 'reflects one's organisational experience' (p. 55). This highlight surfaced during a study on managing conflict during the implementation of a project. Experiences were used when project team members were facing conflict throughout the project implementation phase. During this time, organisational tenure referred to project team member experience, not user experience.
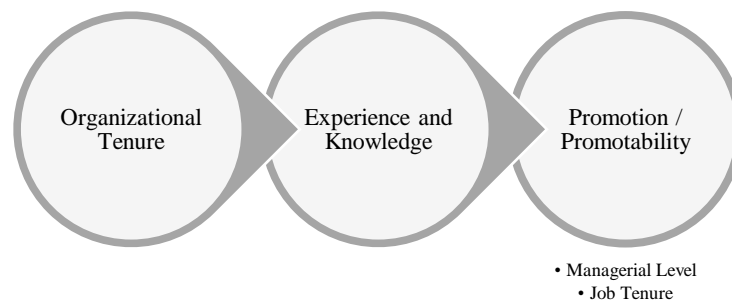
Figure 6.16   Identifying core attributes

These studies indicated how organisational tenure enriches organisational experiences. However, they rarely indicate how this attribute affects other aspects within the institution. This condition includes less discussion on the affects toward the user's ability in identifying and defining success criteria and their critical factors at the post-handover stage. This lack of attention is also indicated in project management and the benefits management literature.

> Organisational tenure can explain variations in defining success criteria and their critical factors at the post-handover stage.

Moreover, earlier findings indicated the ability of reviewing benefits to allow participants to identify and define success criteria and their critical factors. This thesis emphasise its explorations on variations of the identification and definitions based on individual experiences. These variations have led to contextual definitions on both success criteria and critical factors. Exploration in this research is in line with suggestion made by Quińones et al. (1995, p. 901) who stated that 'work experience has focused on the individual as the unit of analysis' and at the individual level with varied definitions.

According to Ng and Feldman (2011, p. 530), 'by staying longer with an organisation, employees gain greater knowledge about organisational goals and therefore can make more constructive suggestions accordingly'. Organisational tenure as a core attribute was expected to enhance the ability to constructively suggest, including review benefits of I-MHERE outputs at the post-handover stage.
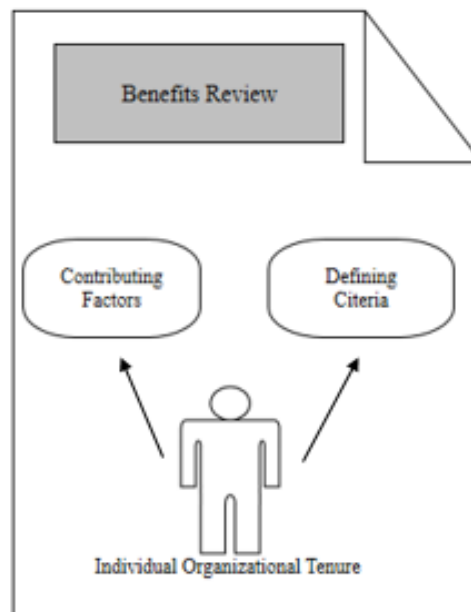
Figure 6.17   Organisational tenure on identified categories

This thesis argues that the higher the level of organisational tenure, the more insightful the responses become, including defining success criteria and their critical factors (Figure 6.17).

Unfortunately, limited studies have paid attention on this context. Therefore, this thesis explores this missing relationship in the literature.

In exploring the literature, a logical sequence should be set. Figure 6.17 provides a reverse sequence in the literature on the influence of organisational tenure. From a benefits review, success criteria and critical factors are identified and defined. This review was made possible because participants (users) performed their job using the outputs. In other words, there was an indication on how job performance provided an opportunity for users (participants) to review the benefits (Figure 6.18).
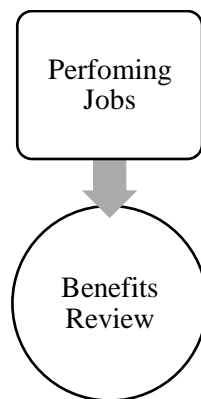
Figure 6.18   Job performance on a benefits review

In the literature, the reason to perform a job using a new system was because the system was perceived to be useful. This context was known as perceived usefulness (PU) triggered by perceived ease to use (PEU). A study conducted by Hu et al. (2007) empirically showed this strong causality, PEU and PU possessed control variables for job performance. In other words, to perform a job by using a system, a user perceives that the system is easy to use. If the system is perceived easy to use, then it is also perceived to be useful. The basic rationale of this causality and many similar studies was based on TAM 2 by Venkatesh and Davis (2000).

> This thesis suggests that a review of an output's benefits is possible after performing or using the outputs.

This thesis also found a similar tendency but with different terms and discrepancies. This thesis uses *convenience* to describe PEU and *usability* for PU. PEU and PU are more appropriate for describing the attitude of potential users before they use the outputs. Venkatesh and Davis's TAM

2 model clearly pointed out this highlight. As well, both PEU and PU, as part of TAM 2, are supported by Badewi et al. (2013) under systems acceptance theories, not system success theories. On the contrary, participants already used and experienced the outputs and not at the 'perceived' level. These dissimilarities were mainly based on the timeframe used to identify success criteria and their critical factors. This difference was strengthened in Turner and Zolin's successful project, where convenience and usability were listed as success criteria at the post-handover stage.

The difference lies in the terminology and its logic. This thesis also highlights the importance of the timeframe in identifying the success criteria. TAM 2 model and the finding from Hu et al. (2007) showed that PEU lead to PU. Although the findings in this thesis cannot explicitly indicate the direction of the relationship, they demonstrate a different tendency that lies in a reverse direction from PU (*usability*) towards PEU (*convenience*). The tendency was indicated by the highest level of response from participants in identifying *usability* and the second lowest for *convenience* (Figure 4.1). This finding demonstrates the focus of users (participants) on how *useful* the outputs were. Because participants had used the outputs for some time, they were able to review the benefits, including determining how *convenient* the outputs were in assisting them to perform their jobs. In other words, reviews enabled the identification of *convenience* to be carried out *after* participants had used and experienced the outputs.

This thesis finds that usability or usefulness of delivered outputs at the post-handover stage can be more prioritised by users than convenience.

Up to this point, discussions still reached the context of job performance that allowed a benefits review. The extant literature indicated a weak and direct relationship between organisational tenure and job performance (Ng & Feldman, 2010). Interestingly, the literature indicated an intermediary relationships. Although very limited studies have shown a direct relationship between the two, the concept of commitment may mediate this relationship.

Organisational tenure implies a period of commitment by an employee to his/her organisation or institution. On the other relationship, it could be explained that an employee performs his job because he/she commits to do so. In other words, to explain the relationship between job performance and organisational tenure, discussions should elaborate on how the commitment that leads to job performance (Figure 6.19). One might argue that employees should have a commitment towards review benefits. However, a review is only possible if they use the system.

Using the system means that employees perform their job so they can actually experience how the system works in practice. This experience enriches their reviews.
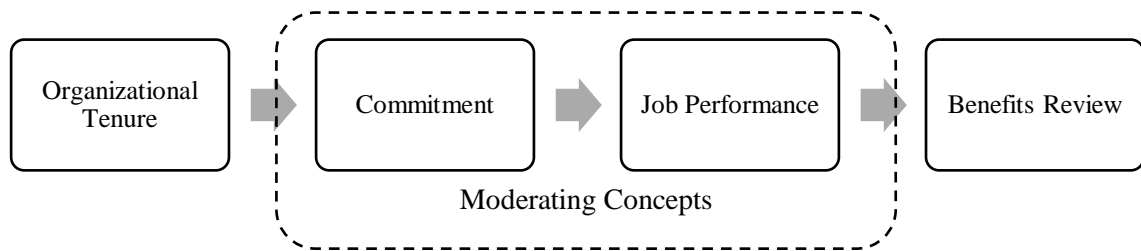
Figure 6.19   Moderating concepts

Discussions then continued by elaborating on the relationship of mediating concepts between commitment and job performance (dashes in Figure 6.19). In this thesis, commitment was considered by users or employees, not top management commitments. The literature indicated that different levels of tenure could lead to different levels of commitment. Meyer and Allen (1984) differentiated the types of commitment into affective and continuance. Meyer et al. (1989) explained that 'employees with a strong affective commitment remain with the organisation because they *want* to, whereas those with strong continuance commitment remain because they *need* to do so' (p. 152).

In their seminal study, Meyer et al. (1989) pointed out several interesting findings. Firstly, a positive correlation was found between affective commitment and job performance. When employees have sincere commitment, they perform better. Secondly, a negative correlation occurred between continuance commitment and job performance. When commitment is 'forced' on employees, they perform poorly. Lastly, the relationship between commitment and job performance could not be explained because of the difference in age and tenure.

The focus of the discussions was more on the third finding of Meyer et al.'s (1989) study which found a weak moderating effect on organisational tenure to explain the relationship between commitment and job performance. This weak indication could be a result of combining both tenures (job and organisational) in explanations made by participants. Importantly, the analysis indicated a close difference between the average of organisational tenure and job tenure existed. As explained earlier, job tenure was possible because a participant has a higher level of tenure in the organisation. Those who were highly experienced gained rewarding positions in their institutions.

Moreover, the analysis pointed out a wide gap between organisational tenure and job tenure. This gap was indicated from clusters for each tenure. While organisational tenure has six clusters of periods (seven to 11, 12 to 16, 17 to 21, 22 to 26, 27 to 31, and 32 to 36 years), job tenure only has three tenure periods (one to three, four to six, and seven to 10 years). Due to this difference, this thesis argues that when someone is new to the position, it does not necessarily mean that this person is new to the institution or has a short period of organisational tenure. Job rotations could support the argument for this conditions. Hence, again organisational tenure will represent experience and knowledge of an institutional member more than job tenure. These clusters represented the participants' work experience or knowledge about their jobs (Quińones et al., 1995; Sturman, 2003) and knowledge about their institutions (Bird, 1996).

> This thesis indicates that organisational tenure can contribute to commitment.

This significance has also been identified by Ng and Feldman (2011) who indicated that the longer the tenure, the less committed the employee becomes. Their finding highlighted:

> As time passes and individuals become more familiar with [the] environments, additional tasks which newcomers readily took on early in their careers now seem more boring or less enticing. (Ng & Feldman, 2011, p. 535)

This condition leads to a contradictory commitment by the organisation. Another interesting point of their study was the type of commitment. They argued that organisational tenure affects contradiction to affective commitment. This finding strengthens the results of their previous study, which indicated a contradictory relationship between organisational tenure and job performance.

Although a contradictive relationship exists, the literature signifies this relationship (Greenhaus et al., 1990; Meyer et al., 1989; Ng & Feldman, 2010). As well, these studies strengthens the illustration in Figure 6.19. While commitment influences job performance and organisational tenure affects job performance, commitment is necessary to facilitate the relationship between organisational tenure and job performance. Because of the position of commitment (Figure 6.19), the role of organisational tenure becomes significant. This tendency was likely to challenge Meyer et al.'s (1989) finding of the weak moderating aspect of organisational tenure.

This thesis develops an illustration to discuss the findings from previous chapters. Table 6.*2* summarised the results of Meyer et al. (1989) and Ng and Feldman (2011) works. This table

partially points out the relationship between organisational tenure and affective commitment to job performance.

Table 6.2   Original studies on organisational tenure, affective commitment and job performance

Ng and Feldman (2011)	organisational tenure ↑ affective commitment ↓
Meyer et al. (1989)	affective commitment ↑ job performance ↑

This thesis then synthesises the results based on the view of Figure 6.19. Table 6.3 highlights two tendencies, where those who had a higher level of tenure tended to have a lower commitment, which in turn tended to result in lower performance. On the other hand, those with a lower level of tenure had a higher commitment which led them to perform better.

Table 6.3   Synthesis model

Synthesis	organisational tenure ↑ affective commitment ↓ job performance ↓	Higher level tenure
	organisational tenure ↓affective commitment ↑ job performance ↑	Lower level tenure

Table 6.3 is used to discuss the findings. The synthesis above could sufficiently and simply explain the tendency of the levels of responses. *As organisational tenure gets lengthier, responses tend to become lower*. The discussions elaborate each category of success criteria and their critical factors. For success criteria (Figure 4.8), lower tenure participants tended to have higher levels of response in almost every criterion. Certainly, because these participants were considered new, they were often direct users. Not surprisingly, they provided higher responses in usability and were also concerned about tangible aspects, including the convenience of the outputs. Besides, these participants responded well to define organising. As direct users, the ability of outputs to organise resources was their main concern.

However, *new capability* has an interesting tendency under the attribute of organisational tenure. This criterion was considered to be equally important to the seven to 11 year and 27 to 31 year tenures (Figure 4.8). For seven to 11 year tenure participants, they tended to be excited about learning *new* capabilities, and for 27 to 31 year tenure participants, it was firmly believed that they expected to gain further information about their institution because they had already spent considerable time in their workplace gaining that knowledge, however, less seemed to have been

gained (Kim & Stoner, 2008; Ng & Feldman, 2010). This knowledge and experience were expected to be gained from I-MHERE's outputs. Importantly, the tendency under the attribute of organisational tenure for *new capability* was also believed to influence the highest level of responses to define *learning* as a critical factor.

> While participants with a shorter tenure period needed new capability because they were *actually* new to their workplace, long tenure employees expect new capability because they had already learnt much about their organisation and nothing was new to them.

Learning has received the highest level of response as a critical factor that enables both different tenure groups to acquire new capabilities (Figure 5.4). It is interesting to note the tendencies in Figure 5.4 and synthesis in Table 6.3 are in line.

Moreover, by using the synthesis (Table 6.3) and findings (Figure 5.4) based on organisational tenure, it demonstrates that those who with a lower organisational tenure are highly committed in collaboration by maintaining trust. These participants also committed to ensuring the development of the outputs (further or new) could be accepted by accommodating their requirements. In realising this, these participants also needed to commit and engage during the development. On the contrary, longer tenure participants tended to be less engaging (Ng & Feldman, 2010, 2011).

As discussed earlier, if participants (potential users) could be more engaged, the level of acceptability would be higher. The level of acceptability could be achieved once their requirements were not met. These requirements ensured that they could perform their jobs optimally. This assurance was necessary to short tenure participants because most were direct users. As well, because their organisational tenure was lower, they were highly committed to ensuring critical factors were well documented as lessons learned. Lastly, as their organisational tenure was higher, they had less commitment to ensuring that at the post-handover stage outputs would contribute to their job performance.

> The longer an employee works at his/her workplace (organisational tenure), the less committed he/she is.

All in all, this thesis emphasises the influence of organisational tenure on the ability of a benefits review by users. A participant's organisational tenure allows him/her to identify and define success

criteria to make an overall judgement for each criterion, as well as identify and define critical factors to those success criteria.

6.6   Theory Building Stage

As pointed out by Eisenhardt and Graebner (2007), it is important to state the significant of research question in order to highlight an inductive research. Importantly Chapter 2 identified research gaps for the literature. Meanwhile, Chapter 6 discussed the findings based on earlier discussions and identification of the gaps in Chapter 2 but importantly added new references from the literature as the findings emerged from that data that needed to be explained theoretically.

More specifically, while Chapters 4 and 5 considered the stage of concept generating, in Chapter 6, discussions enable the creation of a middle-range theory building. The basic approach of grounded theory is to allow the building of middle-range theory by comprehensively analysing data (Charmaz, 1996; Glaser et al., 1968). The constructivism aspect of grounded theory provides an opportunity for the researcher to contribute to the shape of middle-range theory (Charmaz, 2014b; and Im & Chang, 2012).

Furthermore, according to Shepherd & Suddaby (2016), there are five key elements of a good story for theory building: conflict, character, setting, sequence, and plot and arc. From these elements, by using the I-MHERE funding scheme, this thesis was able to build theory as the 'case' could satisfy conflict, setting, and sequence elements.

One of the narrative conflicts is problematizing, where "[c]hallenging the value of a theory and/or focusing on its weaknesses highlights the need for new thinking on the topic" (Shepherd & Suddaby, 2016, p.62). It is believed that this thesis was basically departed from challenging the theory in the area of success criteria which are mostly discussed up to the handover stage. The criteria are rarely elaborated at the post-handover stage, especially in the area of ID projects, considering their uniqueness as discussed in Chapter 2 earlier. In other words, this thesis sheds a light for a conflict in the literature.

The second element in building theory that was aligned with this thesis is setting. According to Shepherd & Suddaby (2016, p.66), a narrative setting to build theory is viewed as "shifting the way a theorist conceptualizes the nature of phenomena (ontology) can provide a new perspective from which to theorize but also requires a corresponding shift in epistemology". In this thesis, the I-

MHERE funding scheme was a specific setting to accommodate an initiative of Indonesian government to strengthen its higher educational institutions' capacities.

New perspective can also be derived from the actual users in defining the success criteria. The results in Chapter 4 were generated from the actual definitions of success criteria from both direct and indirect users of the I-MHERE funding scheme's outputs at the post-handover stage. In other words, the I-MHERE allowed the identification and definition of success criteria at the post-handover stage (ontological aspect) and also promote the discussions of these findings in the extant literature (epistemological aspect).

The last element is simply viewed by Shepherd & Suddaby (2016, p.71) as "the order in which events occur and brings together the different components of the story". This thesis viewed this description as measuring success criteria as the post-handover stage. As discussed earlier, at the post-handover stage, a project demonstrates its 'real' project success by delivering organizational strategic objectives. This stage is also discussed under the area of benefits management, demonstrating the ability of an organization to manage long-term benefits of a project's outputs. The post-handover stage then provides different component in building theory, especially in the area of ID projects. The I-MHERE funding scheme was used as a general example to highlight sequence element of a good story for theory building.

The discussions above show an interesting contribution with regards to organisational tenure and points to a missing gap when explaining how organisational tenure influences the ability of reviewing benefits. In this review, success criteria and critical factors of the I-MHERE funding scheme are identified. Based on Figure 6.17, a more comprehensive illustration of building a middle-range theory is illustrated in Figure 6.20.

In general, Figure 6.20 is explained as follows. Benefits review is one of the benefits management processes. This review aims to ensure that benefits are delivered and sustained, if possible. The review can also be used to evaluate how outputs enter their transition period. In project management literature, this transition period is defined as the outcome phase. At this phase, the actual use of a project's outputs are reviewed in the real context of the user. Because of using them, the user has an opportunity to highlight his/her expectations in the real contexts. These expectations are defined as success criteria which are different to those implemented up to the delivery stage.

By reviewing the benefits, the user identifies output success criteria that should be satisfied better than when outputs were handed over. The identification of success criteria of outputs at the post-

handover stage should be followed by identifying their critical factors. At the low level, a user may have different definitions of success criteria and critical factors.
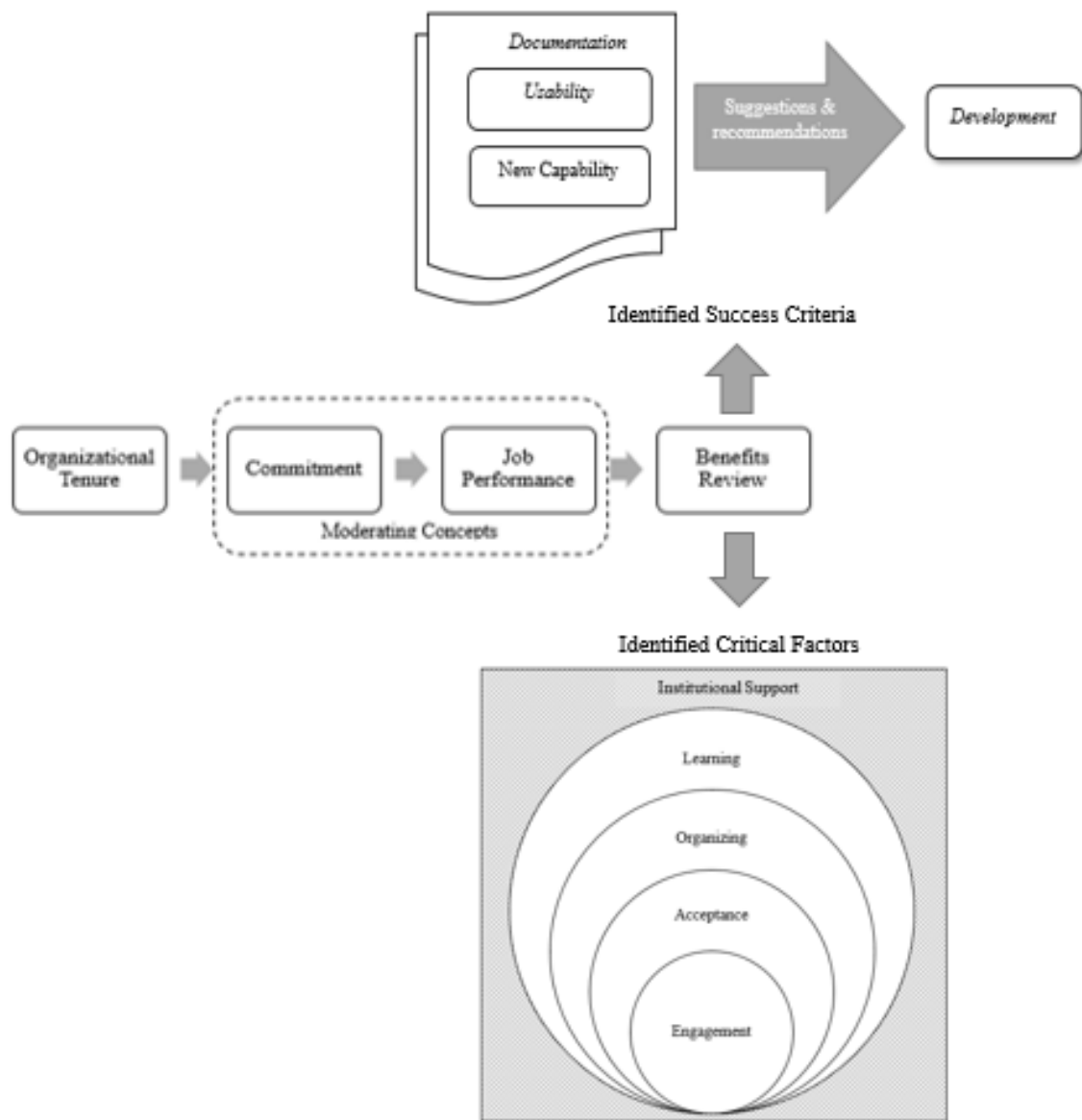
Figure 6.20   Overview of theory building

The ability to identify and define success criteria and critical factors requires users to be experienced and knowledgeable about their institution to enable the ability to review benefits. A user can gain experience and knowledge after a lengthy organisational tenure. However, because the existing literature cannot indicate a direct relationship between organisational tenure and the ability to review benefits, this thesis draws this relationship by including commitment and job performance as moderating concepts.

Benefits can be reviewed if a user uses an output. The use of an output in a real situation implies that the user has committed to performing his/her job. This commitment can be driven by the length of organisational tenure by the user, that is, the lengthier the tenure, the higher the commitment, leading to longer performance of the job and resulting in more insightful reviews of the benefits.

> The higher the level of organisational tenure, success criteria and critical factors at the post-handover stage are more insightful.

The highlighted findings above are possible by conducting a benefits review. In this thesis, a benefits review was unintentionally conducted by participants as the users. Nevertheless, the use of the CGTM has allowed this review, which resulted in identifying and defining success criteria and critical factors at the post-handover stage.

Importantly, CGTM has also demonstrated another contribution on advocating the debate on literature review in a grounded-theory research. Up to this point, some references were introduced to discuss the definitions of success criteria and critical factors emerged from the data. To explain them as well as the middle-range theory, literature needs to be re-reviewed. In other words, although the literature review was discussed earlier in Chapter 2, in this chapter additional yet crucial references were still needed. The emerging concepts and their supporting literature in this chapter have demonstrated that the concepts, particularly definitions of success criteria, critical factors, and the middle-range theory, were emerged from the data rather than to force them in perceived categories (Charmaz & Belgrave, 2007; McGhee, et. al, 2007). It is then the reason for discussing the use of the CGTM in the next section.

6.7   Discussions on Methodology

This section discusses several findings as a result of using the CGTM (Figure 3.2). From this figure, Chapter 3 covers data collection up to the theoretical coding phase, followed by Chapters 4 and 5, which carries out the analysis to generate concepts about success criteria and their critical factors at the post-handover stage. Chapter 6 draws on a middle-range theory where organisational tenure points to the ability of a benefits review.

While concepts and middle-range theory results in discussing the findings with the relevant literature, findings in using the CGTM could also be identified in two main areas: (i) data collection; and (ii) data processing. These findings need to be discussed in terms of their relevance to the literature in methodology. It is expected that discussions can highlight some contributions to the literature, especially for those who have interest in using grounded theory.

6.7.1 Data Collection

This thesis highlights one common issue in most research, especially within qualitative studies where the researcher is the main instrument for collecting data. A chosen methodological approach is crucial and is certainly influenced by the researcher's background, which has extensively been discussed in the literature (Creswell, 1994; Jensen, 1989; Krefting, 1991; Malterud, 2001). Because the chosen approach is the main instrument of data collection, trust must be built between the researcher and those being researched.

In this research, building trust was challenging, because this thesis was viewed by participants as a post-project evaluation. Studies have indicated that post-implementation evaluations tend to be used as an opportunity to blame people for less successful projects (Disterer, 2002; Schroeder, 2013; Serafeimidis & Smithson, 2000). This situation led to a tendency that this thesis would evaluate individual and organisational performance in implementing the I-MHERE funding scheme at their institution.

In dealing with this situation, the researcher needed to relate his situation. That is, he was more focused on how to relate his professional experience to the participants. A study by Dwyer and Buckle (2009) was considered to clarify the position of the researcher. According to this study, a researcher could place him/herself as an insider or outsider in relation to one's research. By doing so, he/she would be considered an 'insider'.

Although the researcher was not from either participating institution, two former positions enabled this connection. First, the researcher was a former project manager of the I-MHERE funding scheme at one institution. He used 'we' to express the similar understanding that those former project managers might feel. He also convinced two former project managers that the 'project' had been audited and the ICR had already been submitted to the World Bank through the DG Higher Education Implementation Unit as the implementing unit at the national level, and thus formal evaluation was considered to be complete. Importantly, the researcher needed to convince those former project managers that benefits of I-MHERE relied on the ability of 'our' institutions to

maintaining and sustaining them. The researcher found that this approach was successful for obtaining the required data.

The second position was to position the researcher as a user. He was also the former head of a department at one institution. The explanation of this position was used to approach potential interviewees. He related the experience on judging a project's output. He also found that this approach was effective for gaining trust. Once users trusted him and understood the objectives of the research, they were willing to participate and sign the consent form. It was a crucial point in building trust, as pointed out by Englander (2012).

In short, while literature has pointed out the influences of a researcher's experience and knowledge in one's research, limited discussions might be able to specify the combination of the two to increase the level of trust in the early stage of data collection. This thesis emphasises a similar experience of the researcher to gain the participants' trust. The researcher used experiences gained from his previous roles as a project manager and head of department. As a project manager, he showed the side of those implementing the project, and as head of department, he was able to relate to those who were users of the project's outputs.

> A researcher's background is crucial in selecting the appropriate methodology for a qualitative study, as well as important at the early stage of building trust.

6.7.2   Data Processing

In terms of data processing, this section covers substantive and technical aspect in using the CGTM. The substantive aspect lies on the difference between languages. While the original data (transcripts) were in the Indonesia language, the targeted language is in English. One might argue that this issue was more technical than substantive. However, '[n]ot being able to interpret the actual words limited the depth of [the] analysis' (Esposito, 2001, p. 576). As coding escalated, the challenges of losing meaning in 'colloquial phrases, jargons, idiomatic expressions, words clarify, and word meanings' (Oxley et al., 2017, p. 613) would be inevitable. Studies have indicated a limited attention on this methodological aspect (Elderkin-Thompson et al., 2001; Oxley et al., 2017). Other studies proposed solutions and recommendations, including using records (or memos), to analyse data in their original language, and translate at the thematic level, paying greater attention to different dialects (Al-Amer et al., 2016). Van Nes et al. (2010) suggested discussions with other researchers who conducted qualitative studies in the non-English context,

but published their studies for the English-speaking audience; while (Esposito, 2001, p. 577) recommended employing 'credentialed interpreters'.
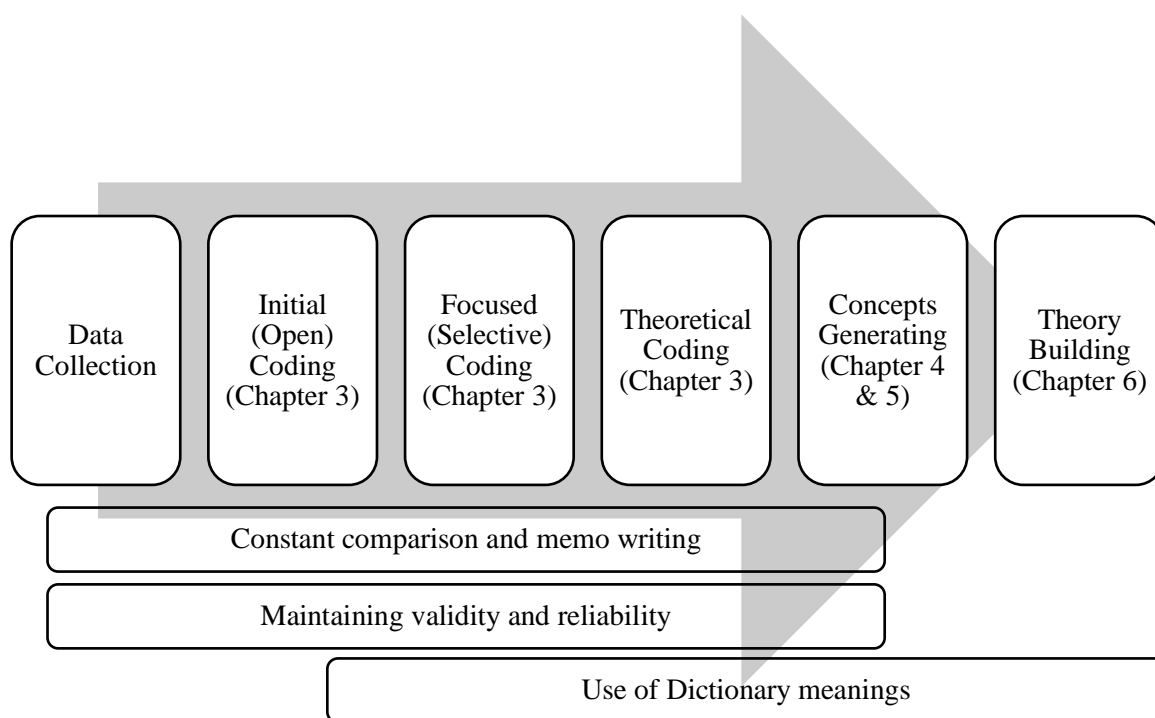
Figure 6.21   Actual use of constructivist grounded theory

This thesis uses a basic tool to minimise the loss of meaning during the translation process. Although the researcher is a native Indonesian and has sufficient proficiency in the English language, as coding escalated, an English monolingual dictionary was used. The use of the dictionary covered the meanings of words as accurately as possible without being influenced by certain areas of discipline. Importantly, the use of dictionary meanings was to minimise the bias in defining certain words or phrases by the researcher, who was also the translator. Although the use of the dictionary is highlighted in Chapters 4 and 5 as a part of contextual analysis, this approach has been used since the initial coding started (Figure 6.21).

This thesis demonstrates a deep anticipation to increase validity during data analysis by translating phrases at the line-by-line coding stage with the use of an English monolingual dictionary.

In fact, this approach was more anticipative than the recommendation from Al-Amer et al. (2016). Their translating stage was conducted at the thematic level, compared with data processing in this

thesis, which is parallel with the translation at the line-by-line coding stage. Although the approach of this thesis carries a similar idea, it is believed that this approach increases validity of the results. In short, in parallel with constant comparative analysis, this thesis demonstrates a more rigorous and practical approach in dealing with translation issues between the original and translated data.

The second highlight in data processing is the technical aspect. Following the substantive aspect of data processing, the technical aspect might be still relevant with the 'spoken' language. The researcher was fully aware that responses were provided grammatically incomplete, therefore, he considered this issue as normal spoken sentences. However, this issue needed to be well addressed, especially when dealing with transcribing errors (Easton et al., 2000).

This thesis is fully aware these errors are a result of spoken sentences. The interviewees used the Indonesia language, including local language expressions being pronounced. However, the Javanese dialects highly influenced the way they spoke. Certainly, dialects could only be heard and could not be transcribed. This condition had been discussed in several studies regarding phonetic challenges (Moreno & Mariño, 1998; Pineda et al., 2010). According to these studies, even though some applications were available to overcome these phonetic issues, most of these apps recognised people who spoke English clearly.

In this thesis, overcoming this phonetic concern basically relies on an iterative process of constant comparative analysis. As suggested by Al-Amer et al. (2016), memos are crucial at this process in providing the context of an interview. This parallel and iterative process was carried out along with using the dictionary as coding processes commenced (Figure 3.15 and Figure 6.21). In other words, the literature tended to generalise the terms of 'constant comparison' without including the transcribing process as a part of it. In fact, transcribed versions of interviews would determine the validity and reliability of data and their analyses. Hence, this thesis argues that transcribing processes should be considered as an important stage in constant comparative analysis.

> An iterative process of constant comparative analysis and the use of memos can minimise transcribing errors caused by phonetic differences.

6.7.3   Addressing Reliability and Validity Concerns

Reliability and validity are the main concerns in a qualitative study. In terms of reliability (Chapter 3), this thesis uses Long and Johnson's (2000) types of reliability: *stability*, *consistency* and *equivalence*. In their study, stability is established when identical questions are asked of an

informant at different times to produce consistent answers. However, in this thesis, variations of responses define one particular success criterion or critical factor, indicating that *stability* could not be entirely satisfied. Although a success criterion, such as development, is identified, the analysis indicated that it is defined as further development and new development.

Long and Johnson's (2000, p. 31) concern on *consistency* referred to 'the integrity of issues within a single interview or questionnaire, so that a respondent's answers on a given topic remain concordant'. In this thesis, *consistency* is maintained by using similar interview probing questions (Table 3.3 and Appendix 4) for all participants (interviewees). Importantly, consistency has been in parallel with constant comparative analysis and memo writing. As well, the use of a dictionary was another approach to maintain consistency of meanings referred by the participants about a certain criterion or critical factor as coding processes escalated. The researcher's supervisors also reviewed results of the interviews.

Lastly, the element of Long and Johnson's (2000) reliability is equivalence. This element is 'tested by the use of alternative forms of a question with the same meaning during a single interview, or by concurrent observation by two researchers' (p. 31). This element was also considered to be satisfactory. Firstly, apart from the main interview questions, the use of probing questions was for expanding short answers and setting boundaries for longer answers. As a result, overall meanings of a topic could maintain their equivalence from one interviewee to the next. Secondly, substantive coding (initial and focus coding results in Appendices 5 to 8) was through an iterative constant comparative analysis with the original data (transcripts) and reviewed by the researcher's supervisors.

In terms of validity, this thesis refers to techniques highlighted by Whittemore et al. (2001). Earlier in Chapter 3, they identified four main types of technique for maintaining validity: (i) design consideration; (ii) data generating; (ii) analytic,; and (iv) presentation. Details of these techniques and how this thesis satisfied each technique are summarised in Table 6.4.

Lastly, although the early objective of this thesis was to investigate success criteria and critical factors at the post-handover stage of ID projects, the results have demonstrated another contribution to the evaluation theory. The use of a benefits review as a benefits evaluation bridged two main concepts: (i) post-project evaluation; and (ii) benefits management. In particular to this thesis, the use of a benefits review as a benefits evaluation is emphasised as the basic methodological framework. This emphasis demonstrates the benefits role as academic and outcome patterns (Table 6.5).

All in all, evaluation in a broader perspective requires experience and knowledge. At the individual level, these elements are crucial and highly contributed by a higher level of organisational tenure.

Table 6.4   Validity test (based on Whittemore et al., 2001, p. 533)

Type	Technique	This thesis
Design consideration	Developing a self-conscious research design	The researcher's experience, knowledge and networking contacts were used for collecting primary and secondary data. For data analysis, he used the CGTM. While basic grounded theory allowed the emergence of theory from the data, constructivism allowed the researcher to sharpen concept-generation and theory-building.
	Sampling decisions (i.e. sampling adequacy)	Sampled sites related to the researcher's background, that is, a project manager of I-MHERE funding sub-component B.2a. Besides this context, this sub-component had the highest number of recipients (28 HEIs) of the funding scheme across the country. Then sampling steps in Section 3.7.1 narrowed down the number of potential participating HEIs to 13, of which two sites provided formal approval. Under this sites, 18 participants from both sites were sampled, however, two refused their interviews to be recorded.
	Employing triangulation	Findings from two participating institutions could be used as a form of triangulation. The LAKIP was also used for triangulation, as well as the World Bank report for the I-MHERE project, although it generalises the achievements at the national level.
	Giving voice	Constructivism in the use of grounded theory provided the researcher to use his experience and knowledge in constructing and generating the concepts.
	Sharing perquisites of privilege	(N/A)
	Expressing issues of oppressed group	(N/A)
Data generation	Articulating data collection decisions	Data collection commenced by gathering secondary data that identified overall institutions as the population and potential participating sites (ICR). Once the participating sites provided approval, 18 participants were interviewed and 16 transcripts were produced for data analysis.
	Demonstrating prolonged engagement	The interviews were conducted at site visits throughout September to November 2016. Gaining access and early data collection commenced in March 2016, followed by approaching the World Bank office in Jakarta with former project team members at the Ministry of Research, Technology, and Higher Education, and BPKP. Once access was granted to conduct the study, the researcher visited the participating institutions in early September 2016. Finally, follow-up interviews were conducted from December 2016 to March 2017.

Type	Technique	This thesis
	Demonstrating persistent observation	Apart from conducting interviews during the three month site visit, the researcher observed the actual use of the outputs.
	Providing verbatim transcription	Data analyses were based on verbatim transcripts from the interviews. Chapter 4 and Chapter 5 include excerpts in both languages.
	Demonstrating saturation	When the responses tended to be similar from one participant to another, the third participant would be asked to comment on another I-MHERE output. Data saturation is demonstrated in Appendices 5-8.
Analytic	Articulating data analysis decisions	Chapter 3, Section 3.4 and Section 3.5 illustrated the overall data analysis process (Figure 6.20). This was at the end of theoretical coding. Chapter 4 and Chapter 5 explain the concept generating stage to define success criteria and their critical factors.
	Member checking	Feedback was conducted by sending participants their quotes by email for comment and agreement on what they had provided.
	Expert checking	(N/A)
	Performing quasi-statistics	Analyses mainly relied on quasi-statistics, the results of which were used to describe tendencies of the data.
	Testing hypotheses in data analysis	This thesis does not specifically use hypotheses because they need to be proved or disproved. Instead, this thesis aims to explore project success at the post-handover stage (outcome and impact) for ID projects that have not been widely explored in the existent literature. The exploration resulted in addressing the identified gaps in Chapter 2.
	Using computer programs	NVivo Pro 11 started to be used from data collection to theoretical coding (Figure 3.6). Microsoft Excel was used to run data normalisation produced by NVivo and to produce graphs.
	Drawing data reduction tables	Data reduction tables are summarised in Appendices 5-8.
	Exploring rival explanations	Concept generating in Chapters 4 and 5 indicates different definitions of a certain sub-category. Comparisons between outputs were funded by a similar type of expenditure. For instance, under staff development, one site used this expenditure for sending people to a training program, while the other site hired an instructor for in-house training.
	Performing a literature review	Chapter 2 discusses gaps in the literature that led to the research question. Discussions in Chapter 6 address those gaps.

Type	Technique	This thesis
	Analysing negative case analysis	(N/A)
	Memoing	Along with constant comparisons, memo writing (Figure 6.20) indicates the importance of memoing to maintain consistency of the data throughout the coding process.
	Reflexive journaling	Daily journals entries were for personal use only but considered useful in reflecting on a particular condition of an interview.
	Writing an interim report	(N/A)
	Bracketing	Memo writing (memoing) was used for bracketing.
Presentation	Providing an audit trail	(N/A)
	Providing evidence that support interpretations	Excerpts are provided in Chapter 4 and Chapter 5 where the original excerpts are displayed side by side with the translated version in English.
	Acknowledging the researcher perspective	The researcher has clearly stated the influence of his research experience and knowledge early in research design, collecting and analysing data (Chapter 3), generating concepts (Chapter 4 and Chapter 5) and producing middle-range theory (Chapter 6).
	Providing thick descriptions	Rich descriptions are divided into Chapter 4 for success criteria and Chapter 5 for critical factors.

Table 6.5   Implementing evaluation patterns

Pattern (Shadish & Epstein, 1987, pp. 576-580)	Description	This Thesis
Academic pattern	Initiated to satisfy basic science interests and to serve long-term social theory and social problem-solving purposes, in which questions and program effectiveness criteria are developed from relevant literature or the nature of the program itself are considered.	Scientific research setting that covered data collection and data analysis were based on a relevant qualitative methodology. In particular, data analysis heavily used the basic grounded theory approach.
Outcome pattern	The evaluator saw the purpose of the evaluation as a judgement of program effectiveness and worth; saw the evaluator's role as that of a methodological expert, educator of evaluation clients, and judge of program value; used program monitoring and traditional quantitative methods; and tried to facilitate the use of results by providing written and oral reports of final results complete with action recommendations.	Constructivism allowed the researcher to use his experience and knowledge to sharpen the concept generating and theory building, including inferring the overall judgement of the I-MHERE funding scheme made by participants for each identified success criterion (program effectiveness) at the post-handover stage.

6.8   Chapter Summary

This chapter discusses the findings from Chapters 4 and 5 with regards to their position in the literature. As a result, contributions are highlighted, including how they address the identified research gaps (Chapter 2). Chapter 6 also discusses findings that were indicated while using Charmaz's CGTM. These findings strengthen several contributions resultant from this thesis. An important part of Chapter 6 was the introduction of a middle-range theory.

In terms of exploring success criteria, this thesis highlights contributions based on each one of the criteria: *usability*, *development*, *documentation* and *new capability*.

- In discussing *usability*, this thesis found that this criterion relates to adding knowledge. Its condition is supported by two types of usability: individual; and (ii) institutional. The delivered outputs could be useful for individual only or be spread across the institution. The definition of usability is believed to be significant in the literature to ensure a higher level of project success.

- This thesis clarifies the Turner and Zolin model by including *development* as a success criterion at the post-handover stage. It found that further development should be clearly defined because it carries an idea of continuous improvement that demonstrates the intention to sustain benefits.

- In terms of *documentation*, this thesis strengthens and clarifies the Turner and Zolin model. It identifies the *documenting process* as a success criterion at the implementation stage, when *documenting results* occur at the post-handover stage, This information is limited in the existing literature.

- For *new capability*, this thesis strengthens the Turner and Zolin model regarding *new capability*, which is included at the impact phase. Nevertheless, this thesis clarifies this criterion by dividing *new capability* into *human capability* and *technological capability*.

- Because some criteria are identified at the outcome phase while others originate from the impact phase, this condition explains the reason for this thesis to use the term 'post-handover stage'. At this stage, this thesis concludes the identified success criteria relationship. Through documentation, particularly documenting results, participants (users) could define the level of usability of outputs and determine whether outputs added new capability. By reviewing this, participants could decide whether delivered outputs should be further developed or cease being used so that new ones could be developed.

In terms of critical factors, contributions were indicated through discussing each factor – *learning*, *institutional support*, *organising*, *user acceptance*, and *user engagement*.

- By indicating an intertwining definition between learning and evaluation, and interchangeable uses of evaluation and review in some studies, this thesis defines that a benefits review is a learning process in itself. As well, this thesis establishes that narrow and wide context learning could explain the reason for unsuccessful accumulation of individual learning to form

institutional or organisational learning. It is believed that this finding has been rarely discussed in the literature.

- For institutional support, this thesis signifies a wide scope of top or senior management support, similar to earlier studies. This was possible as a result of identifying informal encouragement, which was not necessarily received from upper management, but from anyone within the institution.

- In terms of organising as a critical factor, this thesis suggests that using delivered outputs to organise a resource could indicate the intention to maintain benefits for longer. This factor as a part of benefits management is believed to be rarely discussed in the literature.

- For user acceptance, this thesis signifies earlier studies on how users define user acceptance at the public sector. Validity was a crucial element of user acceptance in relation to the user's institutional context.

- This thesis signifies that timeframes lead to the basic difference between user participation and user involvement, under the discussion of user engagement. This finding provides an alternative explanation about the differences between the two.

The discussions also highlight the relationship between identified success factors. This thesis suggests this relationship y indicating that *user engagement* is needed to ensure that requirements be satisfied in improved or new systems. The more they engage, the more likely systems are to be *accepted*. Once systems are accepted, participants can use them to perform their jobs by *organising* resources for short- and/or long-term purposes. These processes can then enrich the *learning* process and become a continuous learning experience that can lead to organisational learning. It is believed that little studies have been conducted to explore this relationship.

Furthermore, the elaboration and discussion on findings in the literature led this thesis to address identified research gaps (1a to 3d) (Chapter 2). Importantly, the discussions above could address the main research gap – *very limited study have explored project success at the post-handover stage (outcome and impact) in the area of ID projects*. By exploring this, this thesis explains different levels of significance of identified success criteria and critical success factors at the post-handover stage, for example, *usability* or usefulness of delivered outputs can be better prioritised by users for convenience.

As well, this thesis contributes to the promotion of a benefits review (an element of benefits management) to overcome weaknesses of post-implementation evaluation (an element of project management). A contribution is also clearly made in the area of ID projects by indicating the use of the basic idea of project benefits management in this thesis.

Moreover, by discussing participant institutional attributes, this thesis suggests that organisational tenure is the core attribute for other institutional demographic attributes – managerial level and job tenure. This finding emphasises the importance of organisational tenure that tends to be perceived as a latent variable in the area of human resource management studies.

The most significant contribution of this thesis is the introduction of a middle-range theory. It found that the higher the level of organisational tenure, definitions of success criteria and critical factors at the post-handover stage are more insightful. This finding are able to be identified after uncovering the relationship between organisational tenure (commitment) and job performance. This has been comprehensively explored in the literature.

This thesis also indicates some refinements in using the CGTM, especially in dealing with different languages. While earlier studies translated phrases into English at the thematic level, the analysis in this thesis translates phrases at the line-by-line coding stage, employing an English monolingual dictionary. This was to anticipate the validity concerns in maintaining the meaning during the translation process. As well, this thesis signifies that an iterative process of constant comparative analysis and the use of memos can minimise transcribing errors caused by phonetic differences. This effort has been clearly mentioned in earlier studies.

CHAPTER 7:
CONCLUSIONS

7.1 Introduction

The journey in this thesis departs from a very basic question of whether outputs of a project provides benefits beyond the handover stage. To answer this question, this thesis also needs to review the existing literature as covered in Chapter 2, which elaborates on three main topics: (i) project success; (ii) post-project evaluation; and (iii) project benefits management. The review strengthen the question by identifying several gaps under each section. Each section also discusses how its relevance to the context of ID projects.

Furthermore, the question above is magnified in the area of ID projects where a project sponsor and the implementing agency tend to limit their evaluation at the handover stage. In existing literature, they focused predominantly on the success of project management, while 'real' project success can be assessed at the post-handover stage (outcome and impact phases). At these phases, project success becomes the main beneficiary's responsibility to ensure benefits of outputs are managed for long-term sustainability.

The aim of the research was to explore whether outputs of an ID project have continuously received benefits beyond the handover stage. It can be confidently concluded that the research aim was achieved. With the unique characteristics of ID projects as extensively elaborated in the literature, this thesis realises two main factors that have the potential cause a project to fail. One factor is multi-layered stakeholder institutions. While literature have exhaustively discussed the challenges in conducting post-implementation evaluation, ID projects magnify the challenges of the evaluation on project success at the national level, particularly at the post-handover stage. Another factor is how main beneficiaries perceive financial sources. ID projects are usually financed through foreign loans. While the government of a recipient country strives to pay back these loans, the main beneficiaries have less obligation on this because the financial scheme is called a 'grant'. As a result, sustaining benefits of delivered outputs from a grant will not be as intense as those funds emanating from a loan. Under this condition, the opportunity to deliver 'real' project success will be lowered.

To portray a real condition, this thesis uses the I-MHERE funding scheme, which was sourced from US$80 million loan from the World Bank, run for three years (2010-2012 inclusive), and implemented in 65 HEIs across Indonesia. This thesis focuses on Sub-Component B.2a because it

had the highest population of HEIs and its main objective was to strengthen institutional managerial systems. These HEIs were in the transition period from non-autonomous to autonomous institutions in terms of financial, facility, asset and procurement management systems. By focusing on this context, this thesis reviews the literature on this subject to identify research gaps and strengthen the research question.

The I-MHERE then provided context for the relevance of the research question, which led this thesis to conduct an exploration in an area that has had little discussion. This thesis then set its research design by firstly setting its position in the research paradigm. The context of this thesis is considered suitable under an interpretivist paradigm that carries its main goal in describing and explaining a phenomenon through diagnostic assessment and understanding. By setting this position, this thesis uses the CGTM. Importantly, this method was an implementation of highlighted gaps in the literature (Figure 7.1).

The research design also elaborated the actual use of the CGTM and explained how data were collected and processed for further analysis. Secondary data was firstly collected in the form of project documents, in particular the ICR published by the World Bank. This report navigated this thesis to focus on potential HEIs under Sub-Component B.2a. Thirteen HEIs were selected based on their physical and budget disbursement achievements.

They were then further approached, resulting in two HEIs to provide formal approval that allowed the current research to be conducted at their institutions. Site visits were conducted within three months (September to November 2016) to select potential participants for interviews. Eighteen participants agreed to participate, although two refused their interviews to be recorded. The interview transcripts interviews are the primary data in this thesis for early analyses. By implementing the CGTM – substantive coding (initial and focused) and theoretical coding – 10 success criteria and eight critical factors were identified.
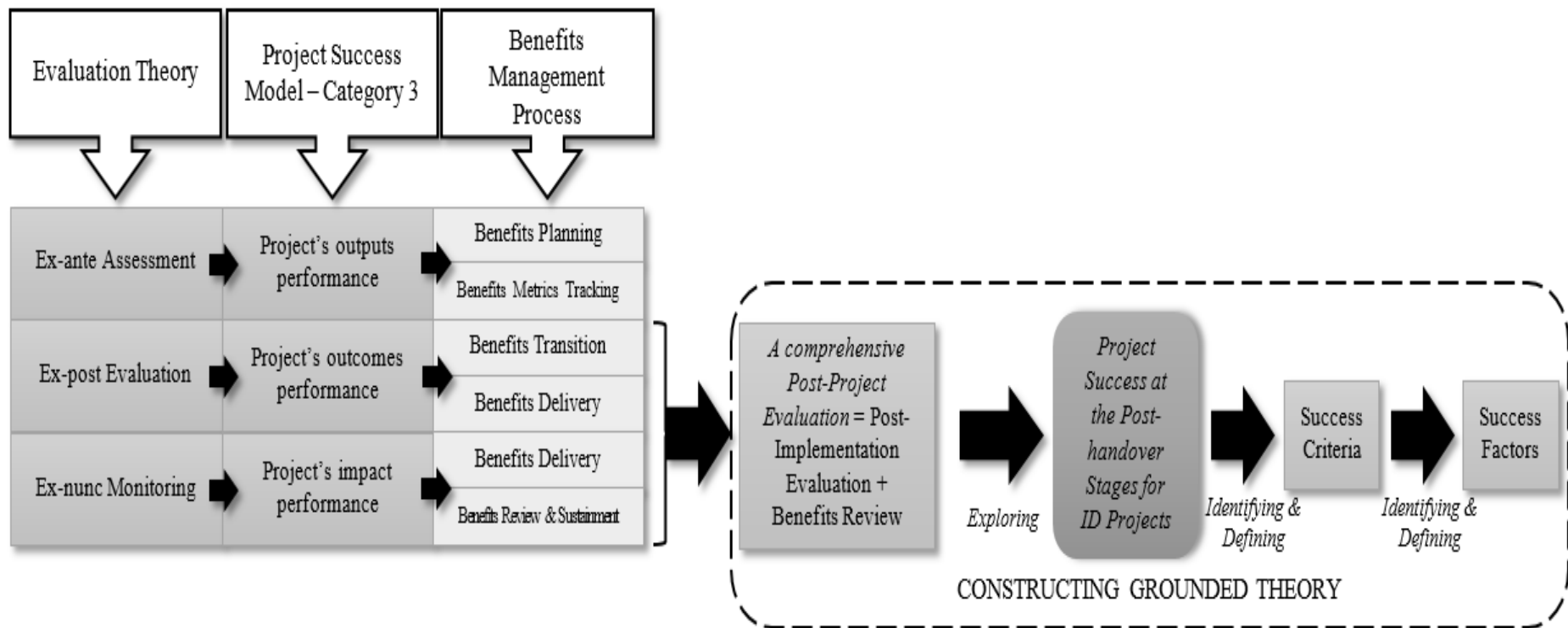
Figure 7.1   Underlying methodology

7.2   Highlighting the Findings

Earlier analyses identified 10 success criteria and eight critical factors. The analyses resulted in answering the main question of the research by identifying and defining success criteria and critical factors at the post-handover stage. Analyses continued until the most significant success criteria and critical factors at the post-handover stage were identified, namely, usability, development, documentation and new capability.

For critical factors, *learning*, *institutional support*, *organising*, *user acceptance*, and *user engagement*, the analyses for their most significant success criteria were to explore how participants, as users, defined them. Various definitions resulted from these analyses which used word frequency and contextual analysis as an approach towards a case study. Analyses were also conducted to examine how participant institutional attributes – *managerial level*, *organisational tenure*, and *job tenure* – influenced variations in defining success criteria and critical factors.

7.3   Summarising the Contributions

Although both success criteria and critical factors have been discussed in the literature, this thesis discusses several significant findings. At the post-handover stage and at the individual level, the level of significance of those success criteria showed different tendencies. One in particular was between *convenience* and *usability*. While at the implementation stage users ensured outputs were *convenient*, they decided they were *useful* at the post-handover stage, therefore, *usability* was more prioritised than *convenience* as the success criterion. Based on this judgement, users could review outputs to either further develop them or cease using them to develop new ones.

For overall success criteria, this thesis explains that due to *documenting results*, participants (users) were able to make a judgement on *usability* and *new capability*. As a result, they could suggest and provide recommendations either for the outputs to be *further developed* or to *develop new ones*. It is believed the findings on these success criteria and their relationships have been rarely discussed in the literature.

In discussing identified success criteria, this thesis signifies several findings. Because there was an intertwining definition between learning and evaluation, and since present studies used evaluation and review interchangeably, this thesis argues that *a review is a learning process in itself*. This finding is believed to have been discussed sufficiently in the literature, however, this thesis adds

into it. This was in line with earlier analysis that indicated that learning received the highest responses from participants.

Another contribution of this thesis is shown by enriching the definition of *institutional support*, where *informal encouragement* was not only received from upper management but could be from anyone, which would allow the chance to increase the success level across the institution. The thesis findings also contribute to the literature by indicating the sustainability of project benefits under the definition of *long-term organising*.

This thesis also strengthens the context of institutions that were in the public sector and concerns *validity* as a crucial element of *user acceptance.* While literature have indicated the difference between user participation and user involvement by recognising the timeframe in defining *user engagement*, this thesis adds another reason for differentiating between the two.

By including participants' institutional attributes – *managerial level*, *organisational tenure* and *job tenure*, the analysis resulted in an interesting finding. It was found that organisational tenure is the core attribute for the other two. As a result, *organisational tenure* is also the core attribute that explains variations in the definition of success criteria and critical factors. Even at this level, this thesis could argue that the findings contribute to the literature, where most studies have placed *organisational tenure* as a latent variable to explain a phenomenon in an organisation or institution.

This finding was a surprising one because it led to the theory building stage. By referring to the extant literature, other theories were needed to reach this stage. As mentioned earlier, success criteria and critical factors were identified and defined through a benefits review of the delivered outputs. A review is possible if an employee performs his/her job using the output. Performing a job is also possible when an employee commits to doing so. The literature have sufficient discussions on how organisational tenure affects commitment. Hence, *moderated through commitment and job performance, organisational tenure produced an insightful benefits review that could identify and define success criteria and the critical factors at the post-handover stage*. This is the main contribution from this thesis (Figure 6.16), which is crucial for ID projects where benefits management is the responsibility of main beneficiaries after a project sponsor and implementing agency end their evaluation at the handover stage.

This thesis also indicates some contributions as a result of using the CGTM, in particular, the result of coping with the difference between the language of the original data (Indonesian) and the targeted language (English). This thesis suggests that while earlier studies translated phrases into

English at the thematic level, the analysis in this thesis translate phrases at the line-by-line coding stage, with the use of an English monolingual dictionary. This was to anticipate validity concerns in maintaining the meaning during the translation process. In terms of dialectic issue, this thesis also signifies that an iterative process of constant comparative analysis and the use of memos can minimise transcribing errors due to phonetic issues. This effort has not been clearly mentioned in earlier studies.

By providing contributions and addressing research gaps, this thesis satisfies its main objective, as mentioned earlier in Chapter 1, where *to explore whether outputs of an ID project have continuously received benefits beyond the handover stage*. Various definitions of the identified success criteria and critical factors indicate that at the user level some outputs still delivered benefits beyond the handover stage, while others had to be replaced because they could not satisfy the expected criteria.

The findings also address the objectives, including defining success criteria and critical factors, demonstrating their level of significance at the post-handover stage, and indicating that organisational tenure was the participants' core attribute that influenced a variety of success criteria and critical factor definitions. Importantly, contributions also indicate how this thesis satisfies its aims and objectives (Chapter 1).
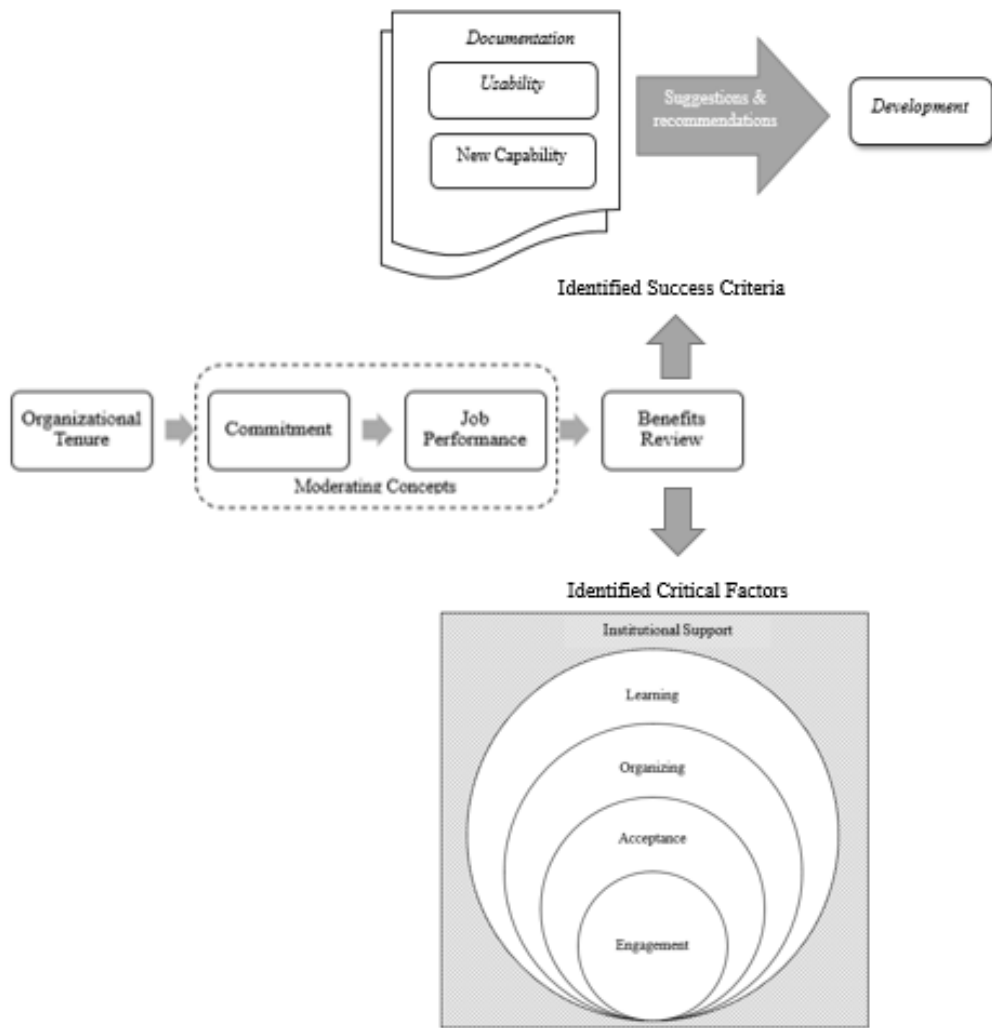
Figure 7.2   Main contribution

7.4   Limitations and Recommendations for Future Studies

This research acknowledges several limitations, of which the fundamental one is the limited number of participants and institutions. Furthermore, even though constructivism allowed the use of the researcher's experience and knowledge, excessive subjectivity may have led to weakened concept generation and theory building. This tendency included the assumption in the relationship between sub-categories (success criteria and critical factors). As well, this thesis does not include data analysis to be verified by external auditors, who could have increased the validity of data dealing with translation issues.

From these limitations, opportunities for further studies are recommended. These studies can focus on how organisational tenure influences the organisation's benefits review submitted by members.

Arguably, these members, especially those at the lower management level, are essentially benefits owners. Their benefits reviews can be accumulated as an overall benefits review at the organisational or institutional level. They can also be examined by analysing direct and indirect relationships between organisational tenure and the benefits review to be carried out partially based on two moderating concepts: (i) commitment; and (ii) job performance.

Moreover, the scope of this thesis did not deeply cover different elaborations on success criteria based on the managerial level. Hence, future research might elaborate more on whether interviewees from middle-management have different definitions on a certain criterion than those who are lower managerial level.

Future studies can be conducted using a substantial number of respondents from public and private sectors, and sufficient numbers of institutions or organisations, particularly, for different types of ID projects. These future studies can include indicators of success criteria and the level of impact by critical factors expected to increase external validity (generalisability).

Another future study can also be conducted to specifically explore sustainability as a success criterion. The elaboration in this thesis only explained sustainability as an element of development, which was more abstract term of a success criterion at the post-handover stage, especially in the context of ID projects.

As well, this thesis is an opportunity to introduce an alternative approach to reviewing benefits for projects that are funded by foreign loans. It is necessary to promote the inclusiveness of a benefits review into the LAKIP. The inclusion of a benefits review is expected to increase the ability of government agencies and institutions in managing benefits for longer. Improved benefits management will increase the public accountability of agencies and institutions.

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APPENDICES

Appendix 1 Research Ethics Approval

Johan Fahri

Sent: Wednesday, February 17, 2016 10:04 AM
To: Julien.Pollack@uts.edu.au; Johan.Fahri@student.uts.edu.au;
Research.Ethics@uts.edu.au
Subject: HREC Approval Granted - ETH15-0051

Dear Applicant,

The UTS Human Research Ethics Committee reviewed your application titled, "Benefits Evaluation in the context of International Development Project", and agreed that the application meets the requirements of the NHMRC National Statement on Ethical Conduct in Human Research (2007). I am pleased to inform you that ethics approval is now granted.

Your approval number is UTS HREC REF NO. ETH15-0051 Approval will be for a period of five (5) years from the date of this correspondence subject to the provision of annual reports.

Your approval number must be included in all participant material and advertisements. Any advertisements on the UTS Staff Connect without an approval number will be removed.

Please note that the ethical conduct of research is an on-going process. The National Statement on Ethical Conduct in Research Involving Humans requires us to obtain a report about the progress of the research, and in particular about any changes to the research which may have ethical implications. This report form must be completed at least annually from the date of approval, and at the end of the project (if it takes more than a year). The Ethics Secretariat will contact you when it is time to complete your first report.

I also refer you to the AVCC guidelines relating to the storage of data, which require that data be kept for a minimum of 5 years after publication of research. However, in NSW, longer retention requirements are required for research on human subjects with potential long-term effects, research with long-term environmental effects, or research considered of national or international significance, importance, or controversy. If the data from this research project falls into one of these categories, contact University Records for advice on long-term retention.

You should consider this your official letter of approval. If you require a hardcopy please contact Research.Ethics@uts.edu.au.

To access this application, please follow the URLs below:
* if accessing within the UTS network: https://rm.uts.edu.au
* if accessing outside of UTS network: https://remote.uts.edu.au , and click on "RMENet - ResearchMaster Enterprise" after logging in.

We value your feedback on the online ethics process. If you would like to provide feedback please go to:
http://surveys.uts.edu.au/surveys/onlineethics/index.cfm

If you have any queries about your ethics approval, or require any amendments to your research in the future, please do not hesitate to contact Research.Ethics@uts.edu.au.

Yours sincerely,

Professor Marion Haas
Chairperson
UTS Human Research Ethics
Committee C/- Research & Innovation
Office University of Technology, Sydney
E: Research.Ethics@uts.edu.au
Ref: E11

1

Appendix 2   I-MHERE Funding Scheme's Outputs and Outcomes of Site 1

Outputs and achievement status	Outcomes
Key Performance Indicators	

KPI-1) *Efficiency and internal productivity*
 	
    KPI-1.1) Academic Manuscript for statutes: delivered.
    KPI-1.2) Documents Statute Site 1 2010-2014: delivered.
 	
 KPI-1.3) Implementation Rules and Guidelines of BAI, BPM, and BPM: delivered.
	KPI-1.1 & KPI-1.2 ➔ vision and a new mission as stipulated in the Statute provides strong motivation for academicians to come forward.
	
	 KPI-1.3 ➔ 1) Increased absorption of funding and declining number of findings; 2) Obtained ISO 9001: 2008 and IWA 2: 2007; 3) Passing of monitoring and evaluation systems in every department and unit; and 4) The proper functioning of GPM / unit

KPI-2) *Financial Management System*
 	
    KPI-2.1) Planning Guidelines: delivered.
    KPI-2.2) Finance and Accounting Guidelines: delivered.
 	
 KPI-2.3) Completion and Testing of Unit Cost of Study Programs: tested and completed.
 	
 KPI-2.4) Document of SPI (Internal Oversight Unit) Management: delivered.
	KPI-2.1 & KPI-2.2 ➔ 1) Both documents have been approved and published Regulations Rector Rector, and referred to by the working units in Site 1; 2) Implementation of the document give effect to all work units to carry out as well as possible; and 3) Planning and Finance will follow the guidelines and SOPs have been published and approved by the Rector. Site 1 planning management ahead can always be maintained on the track.
	
	 KPI-2.3 ➔ 1) The impact will be gained from this activity is the completion of unit costs Prodi used as a guide to the cost of education in Site 1; 2) Unit costs will be referred to the study program on an ongoing basis by all existing courses in Site 1. Whoever becomes officials will refer to these guidelines on an ongoing basis; and 3) In accordance with the development Higher Education regulations, the unit cost of Prodi called Single Tuition Fee (UKT). Involvement and mentoring TA has successfully set UKT Site 1.
	
	 KPI-2.4 ➔ 1) The development SPI management becomes more clear and the Internal Supervision has a clear roadmap with an audit charter; 2) internal Supervisors, Inspectors finance and accounting managers to function better, it can be seen from the mistakes made will be lower when performed examination of a; and 3) awareness of financial management unit in SITE 1 about the importance of internal controls in the management of a good university, this awareness can be felt more open work units receiving internal auditor in the audit.

Outputs and achievement status	Outcomes
KPI-2.5) Internal Oversight General Guidelines: delivered.	KPI-2.5 ➔ 1) perception Site 1 management related internal control concept is based on the perspective of the Internal Control System in accordance with Government Regulation No. 60 in 2008; and 2) lesson learned for Site 1 Internal Audit Agency, related to the preparation of the documents required in the process of Internal Oversight

KPI-3) *Human Resource Management System*
 	
    KPI-3.1) Personnel Management Policy Document: delivered.
 	
    KPI-3.2) Personnel Management Regulatory Documents: delivered.
 	
    KPI-3.3) SOP Document for Management Personnel: delivered
	KPI-3.1, KPI-3.2, & KPI-3.3 ➔ 1) Preparation of personnel management documents GUG Site 1 consisting of rules and SOP draft must go through a testing phase to fit the needs and conditions of the real field that can be applied
	
	with optimal; 2) jumps or transformation of existing condition towards Good University Governance (GUG) in need of guidance documents and SOP application that will make it operational so easily done by the user.

KPI-3.4) Personnel Competence: certified	KPI-3.4 ➔ The implementation of management GUG personnel must be accompanied by the readiness of personnel competent HR manager managing system GUG personnel management.
KPI-4) *Information Management System* KPI-4.1) Availability and alignment of Blue Print of ICT, road map a framework with ICT Management;	KPI-4.1 ➔ 1) Preparation of a policy on IT will provide the IT development direction Site 1. The application of IT is going to make the campus Site 1 geographically dispersed into coherent whole digitally so that it will improve the effectiveness and efficiency of management. The blueprint that has been established in a reference document in the development of ICT in the formulation of strategies that have been formulated in the Roadmap to achieve the ideal conditions of ICT in supporting the implementation of Site 1 towards Good University. Strategies to attain this ideal one to take measurements both infrastructure and ICT performance Site 1, it is necessary for a series of activities to accommodate the input of Management Site 1 especially Information and Communication Technology Centre Site 1 to develop ICT framework Site 1. 2) Document IT plan has been the basis of changes in UPT Puskom be BPTIK Site 1. BPTIK organisational structure refers to the governance contained in the Blueprint.
KPI-4.2) IS integrated and applicable	KPI-4.2 ➔ Just implemented in 2012 with continually dynamic coordination with BPTIK for any necessary corrections in accordance with the demands of Higher Education Information System.
KPI-4.2.1) Research and Community Devotion Information System: implemented	KPI-4.2.1 ➔ This information system enables the process of managing research and community devotion at LP2M to be more efficient and be easier to monitor, ranging from proposals submission to reporting.

Outputs and achievement status	Outcomes
KPI-4.2.2) MIS of Finance, HR Management, and Assets: integrated	KPI-4.2.2 ➜ The system has been already integrated and enabled finance management and financial reporting more efficient
KPI-4.2.3) Assets Information System: integrated	KPI-4.2.3 ➜ This information system enables the process of managing assets to be more efficient.
KPI-4.2.4) SIMPAKDOS (Credit Point Information Systems): tested and finalized	KPI-4.2.4 ➜ This information system allows the process of assessing and calculating credit points of academic staff to be more efficient and easier to monitored, starting from the submission to the final announcement.
KPI-4.2.5) Transactional data: integrated	KPI-4.2.5 ➜ The system enables Web Service to bridge data exchange between existing information systems in Site 1.
KPI-4.2.6) Internal Audit Information System: implemented	KPI-4.2.6 ➜ This information system enables the Quality Assurance Unit to measure and generate reports on the condition of the entire university based on data derived from all the existing information systems in Site 1
KPI-4.2.7) Server	KPI-4.2.7 ➜ Server and additional hardware accelerate access to existing information systems in BPTIK (IT Department)

Auxiliary Performance Indicators

API-1) Business Strategic Plan 2010-2014 documents of FIP, FBS, FIS, Science Faculty, FT, FIK, FE, FH, and Post Graduate School. Documents: delivered.	API-1 & API-2 ➜ Planning and Implementation program in each unit refers to the objectives of strategic planning; as well as awareness program based budgeting and goal achievement
API-2) Business Strategic Planning documents 2010-2014 BPM, BP, BPTIK, LP2M, and LP3. Documents: delivered	
API-3) SOPs on Quality Policy and Quality Standards Academic for Faculties: delivered.	API-3 & API-4 ➜ Improved quality of service Academic; and Increasing the number of accredited study programs.
API-4) Document Quality Academic and Non-Academic Faculty: delivered.	
API-5) Proposal on Potential Business Unit delivered.	API-5 ➜ Set directions for developing Business Unit Development around Site 1, as a higher education legal entity.
API-6) HR Systems Development	
API-6.1) Human Resource Problems: identified.	API-6.1 ➜ Any activities the personnel management system development should be based on the evaluation of existing conditions that exist for the efficiency and effectiveness of the planning system development program and personnel management.
API-6.2) Document Transformation Mechanism for GUG (Good University Governance) HR Management delivered.	API-6.2 ➜ Leap or transformation of the existing conditions towards GUG required guidelines and SOP IS that will make the transformation more operable which in turn would be easily done by the users.
API-6.3) Understanding Transformation Mechanisms of Personnel GUG HR Management	<not information>

Outputs and achievement status	Outcomes
API-6.4) Database and Network Security Competency, certified.	API-6.4 ➔ PTIK (ICT Department) staff training programs were continued by the dissemination in the form of knowledge transfers to the administrative staff of ICT faculty so that these activities benefit to the network administrative staff of each faculty in the management of ICT infrastructure in Site 1. In some situations, improvements in faculty computer network have been able to be handled by each faculty ICT staff.
API-7) Development of Information Management System API-7.1) Genset (Generator Set): purchased.	API-7.1 ➔ The electrical grid can be guaranteed to be supplied 24 hours a day so that the system can continue to run ICT information, accessed by academicians can be done anytime, especially for a system that only can be accessible on Site 1 campus.
API-8) Development of Financial Management System API-8.1) Problems on Management Planning: identified.	API-8.1 ➔ management planning in Site 1 had not been thoroughly evaluated primarily on the existence of plans. Overall the new Site 1 meet the 40,08% of the documents that supposedly exist.
API-8.2) Document of Planning Management Policy: delivered. API-8.3) Regulatory Document Planning Management: delivered API-8.4) Guidance Document for Planning Management: delivered. API-8.5) SOP Planning Management: delivered.	API-8.2, API-8.3, API-8.4 & API-8.5➔ to develop Site 1 planning management, planning documents need to be well and thoroughly coordinated involving leaders of all units in Site 1 so the results can be used to formulate an efficient and effective guidance for Site 1 Planning Management.
API-8.6) Draft Document of Unit Cost per Study Program (Department or School): delivered	API-8.6 ➔ Each unit until the smallest ones involved in the study program cost unit formulation to facilitate determination of cost. The existence of this document facilitates units' leaders when there is demand as a DGHE to calculate a single tuition fee (UKT) because the data were also obtained from each Head of Department/School, Vice Dean II, several institutions and units in Site 1 as materials to prepare unit costs of Study Program (Department/School) at Site 1.
API-8.7) Document of Unit Cost per Study Program or Single Tuition Fee (UKT): delivered	API-8.7 ➔ All study programs and other units in Site 1 already have a reference for calculation UKT. The UKT has been tested its validity and finalized at all units in Site 1.
API-9) Development Asset Management System API-9.1)Documents of Evaluation and Completion of Asset Management System: delivered.	API-9.1 ➔ Site 1 asset management system has a SOP clear and in compliance the ISO;
API-9.2) Identification of the existing condition of Asset Management: identified.	API-9.2 ➔ The asset managers have a better insight about the PMK (Regulations of Finance Ministry) for state-owned assets management as a reference in solving the problem assets in practice.

Outputs and achievement status	Outcomes
API-9.3) US$ Analysing existing condition of Asset Management System: analyzed and results delivered.	API-9.3 → The development of asset management Site 1 more clearly.
API-9.4) Policies, Regulations, Guidelines and SOP Asset Management: delivered.	API-9.4 → Motivation of asset managers which are mainly operators to learn about asset management are increasing.
API-9.5) Competency in Assets Management: certified.	<no information>

Appendix 3　　I-MHERE Funding Scheme's Outputs of Site 2

Program	Outputs and Achievement Status
Program A Strengthening Governance [SITE 2] Towards Autonomous University	A1) SPM (Minimum Standard Services) Document: delivered A2) SOTK (Organisational Structure and Governance) Document: delivered A3) Strategic Plan: <undelivered>
Program B Structuring Asset Management	B1) Asset Planning Documents: delivered. B2) Asset Documentation and Valuation: documented and valued. B3) Grand Design Assets Infrastructure: delivered. B4) Integrated Asset Guidelines: delivered. B5) Textbook Guidelines with ISBN): delivered B6) Database Development: delivered
Program C Human Resources Planning	C1) HR Planning: delivered. C2) Workload and Job Title Planning: <undelivered> C3) Grand Design HR needs: delivered. C4) Promotions and/or Sanction Guidelines: delivered. C5) Managerial Leadership Competency Enhancement: conducted C6) Employee Performance Guidelines: delivered C7) Remuneration Guidelines: delivered. C8) Academic Performance Guidelines: delivered. C9) Code of Conduct: delivered. C10) Code of Corporate Culture: delivered C11) Management Information System for Academic Performance Evaluation: delivered.
Program D Financial Systems Development and Internal Audit System Development	D1) Financial Management Systems: delivered. D2) Establishing SAI (Internal Audit Unit): <undelivered>. D3) Guidelines for Internal Audit: delivered. D4) Dissemination of Financial Audit Guidelines: <undelivered>. D5) Workshop on Financial Audit Guidelines: <undelivered> D6) Cash Flow Management Guidelines: delivered. D7) Mapping Component of Input and Output of Activity Performance Indicators (CCI) To Achieve Strategic Goals: <undelivered>.

Program	Outputs and Achievement Status
Program E Quality Improvement on Procurement Management System	E1) Guidelines for Long-Term Plan and Annual Procurement: delivered. E2) Internal Audit Guidelines for Procurement: \<undelivered\>. E3) Guidelines for Procurement Reporting System: delivered. E4) Establishing Procurement Unit: delivered. E5) Improving HR Procurement Competence: \<undelivered\> E6) Academic Quality Guidelines: delivered. E7) Developing Quality Assurance Information System: \<undelivered\>.
Program F Integrating Management Information System	F1) MIS Master Plan Development: delivered. F2) Implementation Workshop on Integrated Management Information System: delivered. F3) Hardware Procurement: delivered F4) Software Procurement: delivered F5) Implementing MIS Smart Campus: delivered.

Appendix 4   Interview Protocols

Entering Phase	Fase Memulai
Introductory Stage	***Tahapan Perkenalan***
Thank you for your time and being the participant to my research	*Terima kasih Pak/Bu atas kesediaan dan waktunya untuk menjadi partisipan dalam penelitian saya ini.*
Obtaining Consent	***Memperoleh Persetujuan***
This interview will be recorded so I need your written consent by signing this form.	*Proses wawancara ini akan direkam sehingga saya memerlukan persetujuan tertulis bapak/ibu dengan menandatangi formulir yang telah saya sediakan.*
Do you mind to be recorded?	*Apakah bapak/ibu bersedia untuk direkam?*
If you do, please read the form beforehand. This form is written in Indonesian language and English. Please sign on the assigned place on both versions of the form	*Apabila bersedia, silahkan untuk bapak/ibu membaca formulir yang telah disediakan. Formulir ini dibuat dalam dua bahasa: Bahasa Indonesia dan Bahasa Inggris. Silahkan ditandatangi pada bagian yang telah disediakan pada kedua versi formulir.*
Can we start now, sir/mam?	*Boleh kita mulai Pak/Ibu?*
I now turn on the recorder	*Saya hidupkan alat perekamnya sekarang.*
Interview Phase	***Fase Wawancara***
For information system and standard operating procedures. I come to you because the I-MHERE project report (ICR) tells me that [name of IS OR standard operating procedure] was delivered for this unit and you are the user. Are you still using the output produced the I-MHERE project? Why? [Or why not?]	*Untuk output berupa sistem informasi dan prosedur operasi baku (POB).* *Saya datang kepada Bapak/Ibu karena dalam laporan proyek I-MHERE Project menyebutkan bahwa [Nama dari sistem informasi atau POB diserahkan ke unit ini dan Bapak/Ibu adalah penggunanya. Apakah Bapak/Ibu masih menggunakan output dari I-MHERE tersebut? Mengapa masih menggunakannya ? Atau mengapa tidak lagi menggunakannya?*

For Training program	*Untuk output berupa program pelatihan.*
I come to you because the I-MHERE project report (ICR) tells me that you were an attendee of [name of training program] funded by the project. Is [name of training program] still beneficial until now? Why? [Or why not?]	*Saya datang kepada Bapak/Ibu karena dalam laporan proyek I-MHERE Project menyebutkan bahwa Bapak/Ibu adalah peserta dari [Nama pelatihan] yang dibiayai oleh I-MHERE. Apakah pelatihan tersebut masih bermafaat sampai sekarang? Mengapa masih dirasakan manfaatnya? Atau mengapa tidak lagi dirasakan manfaatnya? [Nama dari sistem informasi atau POB*

Probing Question (See Appendix 4)	
Exiting Phase	***Fase Mengakhiri***
I think you have covered the topics that I wanted	*Saya rasa Bapak/Ibu telah menjawab topik-topik yang saya inginkan*
I will turn off the recorder now.	*Saya akan matikan alat perekamnya sekarang.*
Please allow me to contact you again for further clarifications about the answers or responses that you have given.	Saya mohon Bapak/Ibu tidak berkeberatan apabila saya menghubungi lagi untuk mengklarifikasi jawaban yang telah diberikan
Thank you for your time.	Terima kasih sekali lagi atas waktunya.

Appendix 5   Open Coding (Site 1)

(misunderstanding the question)

360 performance assessment

able to calculate points

access to codes post guarantee period

accessibility to third-party data

accommodating top management policies

accuracy of data

add more values into practice

adding knowledge

adding knowledge (2)

adding personal knowledge

additional responsibility

additional rules

adjusting to current development

admit to have limited knowledge

admitting internal HR capability

advantages and weakness of product

advantages of licensed product

agreed yearly workload

aim of selling product

aiming for comprehensive IS integration

aiming for GUG by improving HR management system

aiming for testing further to final report

aiming to grow and develop

aligning with mission of HEI

aligning with high-level rules

aligning with ministry's standard IS

all-level support

analogy in developing a new IS

analysing FYI only

analysis only

anticipating overload capacity

archival structuring was the most relevant lesson

asking assistance to expert from different fields

asking for help

assessment by superiors

assuming direction of change

assuming that archiving is part of HR management

attempt to evaluate training program benefits

attempting to remember

attending career development training program

audit unit existence

auditing based on initiated plan

avoiding generalisation

avoiding mass disruption to system

avoiding repeating process

avoiding teaching in-absentia

avoiding to repeat inputting the same data

avoiding wasting time

awaiting for ownership transfer

aware of the existing IS due to previous position

awareness of existing IS

aware of obstacles

based on organisational commitment

basic data

basic financial rules and regulations from the government or ministry

basic for IS development

basic obstacles in using web-service

basic position

basic principle of pioneered systems

basic rules for assets re-listing

basic rules for auditing

basic rules for performance assessment implementation

benefit gained by attending training program

benefit of previous position experience to help other

benefits of job or position rotation

beyond guarantee period

BLU method to managing finance

bottom-up planning process

capacity in restoring massive data

capacity of HR management as the focus of the training

challenges in data migration

challenging in requesting data from faculty and lecturers

change in focus on asset management

change in log in information

change in nomenclature

change to a BLU (a public entity institution)

changes are based on the evaluation of system implementation

changes in IS codes

clarity of the owner

collecting from existing ISs

collecting from various existing ISs

combining with previous program with I-MHERE and implementing it

comparing managerial system

comparing pioneered system

comparing to licensed product

compete to have a job promotion

computable system with organisation

completing each other

concept and designing

conditions for hiring external developer

concerns toward land and property ownerships

confidentiality issues

confirming using of I-MHERE product

connecting the three existing ISs

consequence of valid information

constant complaint by users

constantly learning

content self-development

content of database

continual development of IS

continual effect

continual improvement on SOP

continual revising in previous systems codes

continual use of assets procured by I-MHERE Projects

continuous improvement of the IS

conveying selected problems and concerns

convincing top management

coordination

coordination between users of inventory IS

coordination problems

cost sensitive

covering research and community devotion outputs

covering text books and papers

covering whole organisation

current achievement

current achievement for setting the next target

current assets management practice

current challenges in managing income sources

current condition

current job description

current job position

current needs of data capacity

current position

current position (2)

current position (3)

current practice of ISO still considers the higher level rules

current practice of performance assessment

current practice of the system

current use of ministry's standard IS

customized-specific IS for human resource

data for planning purposes

data migration due to ministerial change

defining early design

delay data updating

delay in launching new version of ministry-made IS

delay in ownership enactment

delay in ownerships enactment

dependability to other units and users

descriptive section of reporting

designing

developed IS-04 due to managerial requirement

developed IS-04 then IS-02

developing by third or external party

developing the existing ISs

different current model to pioneered system

different developers between IS

different needs for reporting

different performance assessment model

different purposes of products

different standards apply

different training program material

disagreement on using third or external party

dissimilar model to the pioneered one

doubling workload

downgrading IS expectation

dynamic change

dynamic change of higher-level assets management rules and regulations

dynamic rotation of top management at national level

dynamic systems to improve performance

early challenges in using IS

easy to adjust

effect of exclusive source of income

effort to include all income sources

elements and units of accreditation

empowering existing systems

enactment of higher-level rules

end product of system

ensuring the use of ISO

errors and delays during proposal registrations

ethical concerns in forcing ideas

evaluating budgeting process

evaluating proposed programs

evaluating the system or integration effect

examine the causes of problems in planning the budget

example of asset

example of detail information of asset

example of the use of data

example use of inventory IS

examples of ministerial-standard IS limitation

excellent service

exclusive source of income

existence of oversight unit

existing IS for budgeting disbursement

existing responsibility

existing SOP

existing implementation of SOP

existing IS inventory

existing performance assessment system

existing stored documents

expect newer IS

expectations toward auditing system

expectations toward ministerial units

expectations towards the new system

expected data provided by ministry-made IS

expected lessons learned from I-MERE funded training program

expecting early development

expecting for improvement of inventory IS

expecting for performance reporting

expecting improvement of IS from ministry

expecting internal developer involvement

expecting more attention from top management

expecting more comprehensive integrations

expecting new capability of ministerial-standard IS

expecting perfect results

expecting perfect results 2

expectation toward internal administrator

expenses based on planning

experience in financial management

explaining existing product or system

explaining GUG

external developer

external developer made

fair assessment of information validity

fight for job promotion

financial statement that follows standards and rules

financial support

first period to handling data

flexible in various position

flexibility to modify system

focus of training program

focus on quality service

focusing more on money spent

focusing on academic staff

follow top management policies

follow up the result

following existing SOP

follow-up action of evaluation

force by top management

force to use I-MHERE's IS inventory

forceful system for employees

forget training program

fully supportive

further evaluation of the system

gathering points from different areas

geographical location of external developer

grades as the final outputs

GUG as basic aim

handling data

high-cost data migration

higher level benefits for top management

higher-level rules

higher-level rules enactment

highlighting research and community devotion performance

hiring external ISO reviewer for quality assurance

hiring third party

hold information

honesty toward self-capability

host institution as well-established one

host institution increases motivation

how to implement lessons gained from training program

how to manage the finance and provide its reliable information

HR IS

HR management as a stand out sector at host organisation

imagining work from the beginning

I-MHERE as an example of exclusive source of income

I-MHERE financial contribution

I-MHERE hired external party

I-MHERE Projects contribution

I-MHERE-developed IS

imperfection of training program

implementing assessment procedures for academic staff

implementing maintenance procedures as an example

implementing proposed programs

importance of work agreement

improvement in 2017

improving quality on managing income sources

inclusive financial management system

increase information validity

increase work efficiency

increasing in number of assets

increasing institution quality

increasing internal needs

increasing of users as the reason for updating IS

ineffective comparative studies

inevitably to deal with HR tasks

information validity

information validity

initial idea of the system

initial surveys conducted

inputting detail information to IS

institutional accreditation

institutional, strategic target

integrating planning and financial management into the system

integrating with HR IS for remuneration payment

integrating with other existing ISs

integrating with teaching IS

integration for work efficiency improvement

internal development effort

internal developer

internal effort to develop the system

internal meeting to overcome budgeting cumbersome

internal use only

internal use only (2)

internal-programmer capability

initiating basic idea by users

introducing a new budgeting system

individual development of the systems

involvement during systems integration

involvement in the project

ISO involvement in SOP development

job rotation

just tailoring or integrating them (the ISs)

know about the system

knowledge about elements of accreditation

knowledge about existing ISs

knowledge about other unit's JD

knowledge about system

large initial investment

learn from other experts

learning from experience of previous position

learning how the process works

learning the rules

legal charter required for assets ownerships

length of activity

length of training program

length of tenure in previous position

less attention of top management

less beneficial contribution

less confidence with self-capability

less prioritizing of asset management

limitation of current practice

limitation of I-MHERE-developed IS

limitation of IS inventory

limitation of ministerial standard IS

limited ability of I-MHERE-developed IS

limited budget for comprehensive assets listing

limited contribution by I-MHERE Project

limited information about asset management

limited information about auditing that used ISO

limited information about HR SOP

limited information about project implementation

limited information about SOP & ISO

limited information in the contract

limited operating staff

limited quality of information provided

limited results in integrating the systems

limited scope of I-MHERE output

limited scope of performance assessment implementation

limited staff

limited understanding toward the project contribution

limiting to checking compulsory documents

listing sources of income

log in issues

log in test for full access

loophole of rules and regulations

lower level units determine efficiency of SOPs

lower-unit & job descriptions representation to follow training program

lower-unit base

lower-unit or bottom-up budgeting system

managing archives

manual action for inputting

massive assets to be re-listed

maximizing space for archives

maximize use of free product

measuring time lag

ministerial expectations due to nomenclature change

ministerial host transfer

ministerial IS for research & community devotion

ministry's standard IS for assets reporting

MIS is the SOP itself

misunderstand of I-MHERE focus

money-spent reporting only

more useful

name of current position

narrowing gap

need for large resource capacity

need for learning

need for more integration

need for more systems integration

need for specific IS

need for top management support

need to learn from others

needs for coordination

new financial management system

new government, new cabinet or ministries'

new host-ministerial

new menus on ministry-made IS

new menus similar to ministry-made IS

new owner of assets

new position

next process of procurement

next target

no direct benefits

no major problems in reporting

nomenclature change causes problems

not directly involved

number of IS produced

obligation to implement new performance assessment

occurring

odd proposed programs

offer to participate

online approval by superiors

online version of performance assessment

open for revision according to new higher-level regulations

openness to databases

opening mind for development

opinion on developing a new IS

other unit job description

other unit's job descriptions

outdated inventory IS

output of I-MHERE for inventory management

output of national and international publications

participating in comparative study

pension age as an example

performance assessment by superiors

performance assessment in-practice

performance assessment relating to accreditation

period at current position

period of current position

periods of workload

pilot institution

pioneered system

pioneering performance assessment

pioneering system

plan to develop

planned programs should follow strategic plan

planning and validation process of budgeting

planning budgeting will be used by financial department

position at central level

postpone responses to the next period

predicting budget disbursement by the end of fiscal year

preference on free product

preference to choose

preparing for higher-level audit

preparing for listing land and properties

previous concept of performance assessment

previous position

previous position (2)

previous position (3)

previous position (4)

previous training to attend the other training program

prioritize urgency of problems

prioritizing targets of assets listing

procedural seminar

process flow of budgeting documents

process of evaluation

process of research and community devotion

processing information from available data

procurement management system and its higher-level rules

progress of budget disbursement

project product is still used

proposed SOP by unit

proposing budget

providing analogy

providing example of problem in asset management

providing foundation rules and regulations

providing information

providing more comprehension towards basic management

providing suggestions and inputs

quick response action

rank of host institution

readiness for higher-level rules

realising the need for huge investment for ICT

reality of system (product) use

realizing changes of rules

realizing IS benefits

realizing one fourth of the system

real time information for top management

reason for using I-MHERE-developed IS

reason to be chosen as a trainee

reasons for developing IS inventory

reasons for inclusive sources of income

recalling memories on program

recalling the year of initiating the IS

recent job rotations

referring to periods of benefiting project outputs

referring name of previous manager

referring to aim of training program

referring to manager

referring to online version of SOP

referring to other source

referring to other staff

referring to other unit

referring to pioneered performance assessment system

referring to staff for IS inventory

regular update of ministerial-IS

relating to IT

relating to needs

relevancy to current job description

relevancy to job position

relevant contents of training program

reluctant to use at hand over stage

removing system during system implementation

repeating previous-period mistakes

repeating process of performance assessment

repeating routine programs (copy paste habits)

report as an instrument for evaluation

reporting system by ministry

requesting for full access

requirements as a BLU

requirements for comprehensive data'

requiring first step for assets re-listing

requiring more detail data

result of audit for land ownerships

resulted in high motivation

results of audit of assets listing

revising SOPs due to new regulations

revisions toward proposed programs

role of units as users

rooms for improvements

routine task to produce descriptive report

rules and regulations in HR management area

rules follow era

satisfying agreed tasks

satisfying subject requirements

scheduling for teaching

scope of I-MHERE output

scope of quality management SOP

self-development only

self-capacity development

self-funding system development

self-management of financial system

sending people to follow training program

sequential steps for teaching process

sharing complaints

sharing knowledge to others

showing evidence of current development

shown performance assessment

signed performance agreement

signing process

Similar manufacturer

similar outputs produced

similarity in detail structure

similarity of required data

situational and conditional

skipping descriptive sections

small contributions by I-MHERE Projects

softcopy and hardcopies required

saluting host institution's HR management system

solve work problem by join cooperation between third party and internal IT department

SOP documents for assets management

SOP for using ISO

SOP produced by I-MHERE

source of information and suggestions

standard information system from ministry

staying at the same position

still a plan (an expectation)

still being benefited

still relevance

still relevance at a minimum level

still relevant with current job descriptions

strategic plan for establishing indicated targets

strategic plan in online version

stratified implementation of SOP

stratified reporting system

stratified rules and regulations

subject requirements

succeed to combine or integrate the systems

support from top management

supporting IS from ministry

supports

system by request

system implementation

system's domain location

taking time to implement

target for perfect result

target for promotion

target of top management

technical issue in operating IS

testing for registration

the effect of integration is sill experienced

the expectation in developing ISs and integrating them

the initial process of teaching system

the need for monitoring and evaluation

the start of I-MHERE Projects

third party assisting developing system

third party involvement

third party scope of work

tighter rules for professorship

time of achievement

timing for budgeting

top management direction

top management expectation

top management policies

top management support

top management willingness

troubleshoot in using third-party-developed IS

type of organisation

type of training program

types of data on ministry's standard IS

types of using goods

unable to insist post contract ended

unable to retrieve from other existing ISs

unavailability of host-owned performance assessment system

unaware financial information of I-MHERE by top management

uncertain about reason to be chosen as a trainee

uncertain about reasons for participating

unfinished tasks from previous periods

un-integrated systems

unit or department that proposed integration of the systems

unit's budget

unknown cause of change in planning

unmatched with current position

unmatched programs and theirs indicators

unmatched result between the internal and external products

unrealistic perfect expectations

upcoming IS from ministry

uploading subject requirements

urgency in reporting system

users' expectations

using I-MHERE product at hand-over stage

using ISO for research processes

using output for project accountability

using SOP

using SOP to assess achieved targets

validating existing information

validating information

validating standard costs

validating teaching information

valued by others

various components of academic credit points

various ISs can waste time

very supportive top management

weakness of un-licensed or free product

weekly teaching schedule

well-structured of HR management system

willing to constantly develop

willing to openly ask to others

willing to participate

willingness to implement

withhold professorship incentive

witnessing performance assessment system

work beyond guarantee period

yearly report of professorship performance

Appendix 6   Open Coding (Site 2)

[MIS2] as core business IS

[MIS2]'s scholarship IS

[SITE 2] web & alumni IS of [MIS5]

1) cannot be further customized

2 out 3 failed to provide benefits

3 ISs benefited

3 stages of implementation of [NAME OF MIS]

3-focused developed ISs

able to integrate between RCD IS and HR IS

academic arrogance

academic IS

academic staff tasks in ISAC2

academically smart, lacking managerial skills

access points rejuvenation

accidently indexed by Google

accommodating different requirements from different users

accommodating employees overtime

accommodation different scholarships requirements

accused as hypocrite

acknowledging imperfection results

acknowledging mentality factor

acknowledging of progressive process

acknowledging paternalistic system implemented

actual needs of users

adding and changing MIS

adding essential criteria on IS

adding knowledge by attending training program

adding knowledge only

adding manual activities

adding manual process

adding quota from central government

adding workload

additional developed modules

additional funding sources for MIS infrastructures

additional grant received by internal developer unit

additional management knowledge

additional requirements on IS

advantages of I-MHERE-output IS

affordable changes

affordable mistakes

agreeing on recommendations

aim of [MIS1]

aim of training program

aiming to implement long-term strategic plan

aiming to well serving top management

aligning with core business process

aligning with education background

aligning with users' needs

always internal since project ended

analysing external vendor for further development

analysis to 3-developed ISs

anticipating changes

anticipating new users' requirements

applauding pioneered company

applying for research funding

approval availability for providing result

as needed

assessing current conditions based on experience

associating with an established HEI

attempt by internal-developer

attempt to connect with researcher's organisational experience

attendees of training program

attending previous training programs

automatically calculated teaching overtime

availability of IS

available standards provided

avoiding dictatorship style

avoiding administrative work by academic staff

avoiding dependency to external resources

avoiding double researchers

avoiding persistent collisions

avoiding personal misconception

awareness of additional workload

awareness of poor management practices

awareness of resources limitation

awry managerial position

being a role model

benchmarking standard RCD IS

benefiting guarantee period

benefiting job experience

benefiting long-term contributions of training program

benefiting managerial skills

benefiting training program content

benefits gained

benefits influenced by types & characters of leadership

beyond technical issues

blaming each other

blaming middle management and subordinates

brainstorming needs and wants

central scholarship IS administrator

centralized verification

challenges of [MIS4-1] development

challenging of non-technical issues

chance to introduce external developed IS

changes in management styles

changing characters

changing habit of unfamiliar users

changing management, changing policies

changing management, changing policies & guidelines

changing mentality

changing mindset

changing service caused website hosting problems

changing vendor or external developer

changelings of internal developer

closing access

collective application submissions by institution

collective institution's legal basis for application

comparing to other units non-HEIs

completely stop using I-MHERE developed IS

completely developed in general

complexity of real situation

complicated process in standard IS

comprehensive overview needed

comprehensive process using standard IS

concern of government internal-audit agency

concerning workload

condition to experience benefits

confirming three different types of academic IS

considering contract period

considering students' fate

consistency in teaching activity – an example

consistency of applicants data & institution's decree

consolations with users during ISs development

consultation during guarantee period

consultation with internal developer unit

consulting with external developers

content of training program

continual alignment with rules & regulations

continual development

continual improvements of internal-developed RCD IS

continual improvised IS

continual maintenance of hardware

continual refining

continual refining of previous IS

continual upgrade of external-vendor security system

continuation of good program required

continual development of [MIS2-4]

contributing in analysis aspect

coordination with other units required

core problem to switch IS

cost sensitive

coverage of [MIS2]

crucial elements of MIS infrastructure

crucial of role model

current experience of training program benefits

current position

current position information

current used of project-output IS for HR

currently used of [MIS2] & [MIS4-5]

currently used of improved [MIS3-1]

currently used of new-developed [MIS2]

curriculum changes and adjustments

date change

daunting workload

deaf and blind leaders

deciding to internally develop [MIS5-1]

demonstrating good leadership

demonstrating professional commitment

dependency between ISs

dependency to external developer

detail information on menus required

development and improvement in year 3

developing IS needed

different functions of each IS

different interpretations from similar subject

different IS developers

different knowledge to training program content

different leaders, different styles

different management at project delivery stage

different of loyalty and integrity levels

different opinion of top management

different orientations in reality

different process for different type of scholarships

different standard platform

differentiating between user and administrator

difficult in deleting unnecessary requirements

difficult to implement

difficulties in changing habits

difficulties in managing people

discontinuing using project's output

discontinuing using [MIS5-2]

disliked by top management

dissatisfied results from trial period

dissimilar business process

distance of [SITE 2] to fieldtrip locations

double funding from standard IS

due dates awaiting

dynamic change in leadership

each stage development focus

early developed by external developer

early period of current position

early stage of application in standard IS

early stage of implementing working hours IS

ease the process

easy log-in process

easy to configure

easy to use by users

easy to use of standard IS

embracing academic and non-academic staff

emphasizing importance of communication

emphasizing individual leader's strengths and weaknesses

encouraging motivation and work spirit

end of contract issues

end of contract period

end of using [MISAC1]

end period of top leader

enforcing professional commitment

engaging users during development

essential of non-technical issues

evaluate implemented RCD IS

evidence of beneficial product of internal-developed [MIS2-4]

evidence of MISs

evidence of poor-management practice

exceeding available quota

existing IS in previous management period

existing manual process of correspondence

existing of basic platform and ideas

expected outcome of training program

expecting conducive work environment

expecting daunting workload

expecting early development

expecting expanding RCD IS service

expecting filling vacant position

expecting fluid relationships

expecting implementation at minimum level

expecting job promotion

expecting MIS for decision making process

expecting to commit to long-term strategic plan

expecting to use online version completely

expecting top management commands

experiencing benefits

experiencing collisions

experiencing obstacles in real situation

experiencing stagnant situations

experiencing various types of leaderships

explaining changes

explaining SOP to developer

expressing aggressive opinion

expressing dissatisfaction

expressing honesty and loyalty to top management

expressing scepticism

extending training attendees

external developer for new system

external developer noted & recorded users' requirements

external-developed ISs

external-vendor security concerns

extra-care of inputting data in standard IS

failed to provide benefits

failed to satisfy requirements

failure to protect access

fake listener

familiar users

fast-tracking process

filtered information

finally filling the position

financial consequences with external
developed post guarantee period

financial support needed

first 5 years of strategic plan

first-time lessons

five main MISs

focus of internal-developer area

focusing on 3-benefited ISs

follow procedures

follow top management commands

following SOPs

following system in practice

force to implement external-develop RCD IS

forced by top management to produce IS

forceful act needed

forcing from top management needed

forcing to use internal developed IS

forcing top management ideas and interests

forming research group

found idle IS

full-implementation in year 2

function of [MISAC3]

function of back office module

function of portal module

functionally working

funding required for RCD IS development

further analysis and development

further development & replacements

general information about training program

general specification platform

generalizing realities

given templates and rigid customisation

going into the jungle

good relationships with external developer
post contract

guarantee period by external developer

hardcopy documents as back up

helpful for reporting

high-cost refining process

highly effective of standard RCD IS

hiring external resources

holding position during study period

hosting issues of [MIS5-1]

identifying shortcomings by using internal
developed ID

idle capacity overlooked

ignoring development priorities by new
management

imagining workload

imbedded organisational culture

implementing and executing managerial
position

implementing different platform

implementing double standard

implementing learning unit

implementing training program content

importance of discussion with users

importance of providing good examples

impossibility to work alone

increase familiarity

indicating rebellion of current management
practice

indirect involvement

ineffective training results

inflexibility of ACIS3

influencing others

information from colleagues

information of available recipients

informing current position

initiating new branding of MIS

inputting teaching schedule

insufficient solutions through online discussions

insufficient time to comprehend external developed RCD IS

insufficient training program

insufficient trials during training

intensive communication due to data change

internal colliding between units

internal developed of [MIS4-1]

internal developer unit confirmed

internal funded research

internal programmer's comprehensions of users' needs

internal-developed [MIS3-2]

internal-developed [MIS5-1]

internal-developed MISs

internal-developed of [MIS4-1] & [MIS4-2]

internal-developed of [MIS5-1] to align with internal needs

in-theory only

initiating internal MISs development

involvement in early designing process

IS follows SOP

joining procurement IS with other institution

just fantasy

knowledgeable of real obstacles

knowledge about IS product

lack of information about project contributions

lack of managerial skills

lacking information of procured items

lacking capacity to accommodate needs

last semesters for using [MISAC1]

late information of procured information

leaders with minimum managerial skills

leadership characters influence management practice

learning different platform

legal basis of SOPs

legalizing policies

lending help

length of using internal developed IS

less appreciative top management

less efficient process

less pressure to use MIS from previous management

less supportive environment

lessons learned from MIS implementation

library IS and research IS of [MIS3]

limited coordination with users

limited information in real practice

limited involvement during project implementation

limited involvement in procurement

limited number of middle management attendees

limited scope of implementation

limiting applicants

limiting quota for next period

location of [SITE 2]

long-bureaucratic steps

longer trial periods required

long-term relevance

low work spirit

lower motivation occurred

main process still manual

maintaining communication & coordination with external developer

management change during long-term strategic development period

management period of attending training program

management practices influenced by top management characters

managing subordinates

manual process for research proposal review

manual process of [NEWLY-DEVELOPED IS-3]

manual system for back up

massive complaints received

massive number of applicants

methods of procuring external resources

minimize conflicts

minimizing hardcopy documents

minimum commitment

minimum complaints in other units

minimum knowledge relating to training content

minimum level of benefits

MIS as major point in HEI accreditation

MISs' shortcomings appeared in real situations

mixing job descriptions

more recent and current version of IS

more scholarship options on internal developed IS

multi-devices usage

multiple researchers proposal submitted

narrowing gaps between academic and non-academic staff

nation-wide coverage of standard IS

need follow up implementation

need for perfecting

need management commitment

needs for additional customisations

never involved in I-MHERE Projects

new better than repair

new contract required

new to current position

new to developing IS

new-in-progress developed HR IS

newly developed [MIS2-4]

newly launched ISs

newly-developed IS-3

no appreciation no support

no benefits to institution

no clue to fix

no complaints so far

no follow-up after evaluation

no follow-up implementations

no implementation in place

no information about I-MHERE contribution

no organisational commitment

no replacement

no trials during project implementation

no top management commitment – nonsense

no top management support

non-academic job description

not all ISs benefited

not involved not in the position yet

not used to new IS

not using external resources

not-entirely satisfied requirements satisfied by the end project

number of ISs

obstacles to implement

odd decisions

odd recruitment

offline reviewing process by reviewers

old-time practice

one month trial period

one time process of standard IS

one-time training

one-time trial opportunity

one-year guarantee period by external developer

online inputting by students

online process to entire organisation

online version as back up

open tender for working hours system

opportunity to utilize training program content

organisational commitment needed

other training program content

output compatibility to other format

outputs of IS

outside accessibility helpful

outside accessibility enabled

overwhelmed internal developer (PPTIK) during workshop

partner required by external-developed RCD IS

pay to invite external developer

people hate changes

percentage of current achievement of internal-developed MISs implementation

period for using new academic IS ([MISAC2])

period of development by external developer

period of developing ISs

period of management change

period of switching to new internal-developed RCD IS

period of using [MISAC1] and [MISAC2]

period of using [MISAC3]

period to build new internal-developed RCD IS

personal benefits gained

personal benefits only

personal character influenced

personal commitment

personal perception towards training

personally asked to supervise [MIS2-4] development

plenty of existing ISs

plotted budget for programmers

poor management practice in HEI environment

position at when attending training program

possibility to introduce new IS

possibility to use other platform (product)

possible troubleshoots in previous version of IS

post guarantee issues

post-contract training only

potential promotion

practical & align with needs

practicing poor communication management

predicting poor management of procured items

preparing for new job

preventing poor-practice by [NEWLY-DEVELOPED IS-3]

previous academic IS ([MISAC1]

previous management's responses

previous training content

prior mapping & expectation

prioritizing development MISs

producing manual analogue book

producing more satisfying IS

programmers not lecturers

progressive analytic skills development

progressive revisions of application requirements

progressive system migration

promised new position

promote self-service through online system

proposing solution

provided scholarship IS

providing analogy

providing clear due dates

providing data & information based on job description

providing evidence

providing example of further development

providing example of impracticality

providing examples

providing limited benefits

providing name and current position

providing one year guarantee

providing refining opportunity

providing researchers data

providing solutions

providing suggestions to program

providing unnecessary menus

providing user requirements

providing users' requirements

psychological capabilities

questioning scope of benefits

raising complaints

rarely use of internal development IS

RCD IS shortcomings still exist

RCD people was not involved

RCD unit's knowledge about researchers

reaching boring point

readiness to launch MISs

ready used, customized enabled

reality of implementing IS

reality of post training

realizing different expertise

realizing managerial level challenges

realizing online system effectiveness

reason to be involved

reason to participate

reasons for upgrading hardware

reasons of complicated standard IS

recalling memories on surveyor company

recalling memories on years of training program

recent training program attended

recent usage of internal development IS

receiving complaints

receiving financial support for internal MISs development

recommending changing and further development of MISs

reducing manual steps

reducing resistance to new IS

referring to former project manager

referring to online version

referring to other institution as example

referring to the next user

refining version

refuse to except corrections from middle management

refuse to use similar external developer

refusing continuing work

refusing to save work

relate to institution's recent conditions

relating to user discipline background

relevance to educational background

report after research proposal uploaded

report as final results

reporting discontinuation of using IS to top management

request for superior approval later

request to use MIS by new management

requested by [SITE 2] management

requesting to further develop [MIS3-1]

require to integrate with HR IS

requirement for accessing IS

requirements for application

requiring strong arguments for discontinuation in using MIS

research & community devotion (RCD) IS

research proposal indexed by Google

responsible person and unit

respect others

reversing operational system

reversing teaching activities

rigidity of standard IS for recipients' change

safely environment during training

salary continuing paid

satisfying internal needs only for [MIS4-1]

scrutinizing MIS elements of HEI

searching for unnecessary information

selection criteria

self-initiative to take action

self-implementation

serving top management

sharing information

shortcomings revealed in real situation

shortcomings revealed in real situation not during training

showing examples

similar steps to do

similarity of ISs

simplicity of manual processes

simplification of previous IS

simplifying archival management

simply users' requirements

single database information

site 2

slow process in using previous standard IS

slower the process

small amount budget of research

small number of complaints from students

small number of familiar users

softcopy provided

SOP at concept and design stage

SOP before IS

specific aimed group at organisational structure

specific skills

step-by-step implementation

stop using due to unmatched needs

strategic plan as main guideline

stratified structural position

strengths of external-developed RCD IS

students old-habits

sub-systems of [MIS4]

suggestion for more flexible IS

suggestion from IS developer

suggestion to start hiring external resources

suggestions from users

supervising IS development with users

suspending using internal-developed [MIS2-4]

sustaining basic ideas

sustaining project output

sustaining similar interface

switch to new internal developed RCD IS

switching from manual to online

switching internal-developed [MIS3-1] version

switching means development

system implementation in-practice

take notes of troubleshooting during trials

takes time to get used to

taking unnecessary steps

targeted year for full implementation

targeted year for major migration

teaching activities variation

technical and detail aspects relating to learned product

technical strengths of I-MHERE-output IS

tend to be deaf and blind

terminating relationship with external developer

theoretically knowledgeable

thumbs up for an idolized leader

time consuming activity

trials period and unsatisfactory results

too long to remember

top management dominance

top management as the root cause

top management collisions indicated

top management expectation to cut manual steps

top management support

top management support needed

top management trust to direct users

total of semester hours

tracing source of leaking

trainer information

training and education of [NAME OF MIS]

training as a part of guarantee period

training for IS operators

training for using newly-developed RCD IS

training program introduced tools only

translating SOP into IS

translating SOPs and top management policies & directions

translating SOPs into IS

treating subordinates

trial period of implementation

trials at large (institutional) scope

trials required

trials reveal weaknesses

trust in internal capacity for ISs development

trusted people for decision makers

two modules of [MIS2]

typical obstacles at HEIs

unable to accommodate HR system requirements

unable to add essential criteria

unable to implement due to lack of support

unable to record research activity processes

unable to save previous record or entries

unable to use external-developed RCD IS

unanticipated development

unavailable accountability report

unchanged inputting data from standard IS

unclear guideline used by external developer

unconducive situation

unconnected link between [MIS2-4] & [MIS-2]

undelivered vision and mission

underestimate other managers

unfinished output by I-MHERE Projects

unfollow HR procedures

un-informed changes

unintegrated academic ISs

unmatched business platform

unmatched MISs with business process

unmatched needs

unmatched platform

unmatched trials period

unmatched with business process

unnecessary steps required

unneeded data

unneeded partnerships

unresolved problems persist

unsatisfied users' requirements entirely

unsolid leadership

unusable ISs

unwillingly to use by previous management

uploading and reviewing research proposal online

useless efforts from subordinates

useless training due to no commitment

users group

users involvement

users' trials

using [MISAC1] for different group of students

using [MISAC1] for short-period of time

using [MISAC2] for different group of students

using academic IS

using ACIS3 to calculate teaching overtime

using calculator to ensure accuracy

using grading IS

using I-MHERE developed RCD IS

using new RCD IS for research registration

using product similar to training program content

using separated ISs

using standard IS

using standard RCD IS

using without sufficient knowledge

various hardware elements

various level of professional commitment

various needs of institution members

vendor of computing network

various versions for perfecting

wasting money

weakly teaching hours – an example

weakness of ACIS3

weaknesses of old academic IS

weekly tasks

well-informed to top management

well-informed to users

willing to change

willing to implement

willing to use MIS by new management

working hours system by I-MHERE Projects

yearly proposal submissions

year of implementing RCD IS

year of suspending using I-MHERE developed IS

yearly stages of strategic development

younger programmers

Appendix 7   Focused Coding (Site 1)

Adhering to Rules and Regulations

Adjusting to Higher-Level Changes

Aligning Standards and Practices

Aligning Standards and Rules

Aligning with Strategic Goals

Anticipating Growth and Development

Auditing Management

Benefiting Job Experiences

Comprehending IS Product

Comprehending Strategic Goals

Concerning Transparency and Accountability

Conducting Monitoring and Evaluation

Content of Training Program

Cost Sensitive

Current Position Information

Dealing with External Resources

Dealing with Rules and Regulations

Delivering Output

Demonstrating Motivation

Describing Existing Conditions in Managing Assets

Describing Previous Position

Describing Reality of IS Development

Ease of Building IS from the beginning

Experiencing Benefits

Experiencing Limited Benefits

Expressing Reluctance and Disinterest

Implementing Academic IS

Implementing Inclusive Financial Management System

Implementing New Management System (BLU)

Implementing Performance Assessment

Implementing Reporting System

Implementing SOP

Implementing Standard IS

Implementing Teaching IS

Initiating Concepts and Designs

Integrating Existing IS

Internal Coordination

Internal Coordination Issues

Internal Resources

Involvement in Project Implementation

Job Rotation

Lack of Information

Managing Assets

Managing Complaints

Managing Expectations

Need for Detail Information

Optimizing Internal Capacity

Organisational Commitment and Support

Promoting Excellent Service

Providing Real Examples

Requiring Similar Data

Selection Criteria

Sequential Process

Setting Next Target

Sharing Knowledge

Sustaining Benefits

Technical Issues of IS

Testing IS

Training Program Information

Transferring SOP into MIS

Appendix 8   Focused Coding (Site 2)

Acknowledging Resistance to Change

Adhering to Rules and Regulations

Aligning with Core Business

Aligning with Rules and Regulations

Anticipating Growth and Development

Awry Structural Level

Benefiting Job Experiences

Benefiting MIS

Changing Management and Leaderships

Coercive Power of Top Management

Comprehending IS Product

Comprehending Strategic Goals

Comprehending IS Product

Conducting Monitoring and Evaluation

Considering Non-Technical Issues

Cost Sensitivity

Current Position Information

Data and Information Concerns

Dealing with External Resources

Delivering Project Outputs

Developing New MIS

Discontinuing Usage

Dissatisfying Top Management Behaviour

Embracing Changes

Encouraging Personal Commitment

Engaging Users at Initiation Stage

Experience Limited Benefits

Experiencing Benefits

Experiencing Limited Benefits

Experiencing Routine and Repeating Process

Habituation

Implementing Manual Process

Implementing MIS

Implementing SOPs

Implementing Standard IS

Imposing Transparency and Accountability

Improving Efficiency

Inadequate Organisational Support and Commitment

Initiating Concepts and Designs

Integrating Existing ISs

Internal Coordination

Involvement in Project Implementation

Job Promotion

Lack of Information

Lack of Managerial Competence

Leadership Styles and Characters

Loyalty and Integrity

Maintaining Clear Information

Maintaining Good Communication

Management Stability

Managing Complaints

Managing Expectations

Optimizing Internal Capacity

Organisational Commitment and Support

Performing Middle Management Job Description

Practicing Poor Managerial System

Progressive Development and Learning

Project Implementation

Providing Real Examples

Revealing Individual Characters

Scholarships Application Process

Scope of Training Program

Selection Criteria

Sequential Process

Sustaining Benefits

Technical Issues of IS

Training Program Information

Translating SOP into MIS

Unsupportive Transition Process

User Engagement

Viewpoint Variety

Appendix 9   Word Frequency Analysis: Usability

Word	Count	Weighted (%)
training	76	7.46
using	35	3.27
external	35	3.01
program	29	2.91
I-MHERE	21	2.18
process	21	1.71
period	19	1.77
information	18	1.80
requirements	18	1.39
results	17	1.38
output	16	1.66
project	15	0.78
switching	14	1.45
work	13	0.57
limited	12	1.25
benefiting	12	1.09
unmatched	11	1.14
ISs	11	1.14
RCD	11	1.14
contribution	11	1.04
management	11	0.99
position	11	0.95
implementation	10	0.99
validating	10	0.90
different	9	0.93
knowledge	9	0.85
adding	8	0.83
system	8	0.83
trial	8	0.83
gained	8	0.48
taking	8	0.30
content	7	0.73
providing	7	0.73
time	7	0.73
entirely	7	0.66
still	7	0.66
due	7	0.65
continual	7	0.62
contract	7	0.56
end	7	0.44
aim	7	0.33
applicants	6	0.62
research	6	0.62
unable	6	0.62

Word	Count	Weighted (%)
level	6	0.55
teaching	6	0.49
existing	6	0.47
failed	6	0.44
expected	6	0.36
avoiding	5	0.52
current	5	0.52
new	5	0.52
relevance	5	0.52
scope	5	0.52
standard	5	0.52
top	5	0.47
guarantee	5	0.44
strengths	5	0.44
improvement	5	0.38
attending	5	0.31
stop	5	0.30
accountability	5	0.28
functionally	5	0.26
issues	5	0.20
accommodating	4	0.42
customized	4	0.42
funded	4	0.42
institution	4	0.42
manual	4	0.42
personal	4	0.42
previous	4	0.42
self	4	0.42
unnecessary	4	0.42
users	4	0.42
activity	4	0.36
available	4	0.36
remember	4	0.36
business	4	0.35
problems	4	0.35
focusing	4	0.33
imperfection	4	0.31
real	4	0.26
deal	4	0.22
academic	3	0.31
assessment	3	0.31
community	3	0.31
dates	3	0.31
early	3	0.31

Word	Count	Weighted (%)
hosting	3	0.31
inputting	3	0.31
insufficient	3	0.31
inventory	3	0.31
long	3	0.31
next	3	0.31
opportunity	3	0.31
quota	3	0.31
satisfied	3	0.31
record	3	0.26
ease	3	0.24
consultation	3	0.23
efficiency	3	0.23
procured	3	0.23
essential	3	0.21
practice	3	0.21
dependency	3	0.18
report	3	0.13
additional	3	0.12
calculate	3	0.12
confirming	3	0.10
analysis	2	0.21
attempt	2	0.21
budget	2	0.21
caused	2	0.21
collective	2	0.21
devotion	2	0.21
enabled	2	0.21
entries	2	0.21
experienced	2	0.21
financial	2	0.21
general	2	0.21
hours	2	0.21
inflexibility	2	0.21
introduce	2	0.21
just	2	0.21
lessons	2	0.21
minimum	2	0.21
miss	2	0.21
money	2	0.21
overtime	2	0.21
promotion	2	0.21
ready	2	0.21
refusing	2	0.21
repeat	2	0.21
save	2	0.21

Word	Count	Weighted (%)
shortcomings	2	0.21
small	2	0.21
spent	2	0.21
steps	2	0.21
suspending	2	0.21
technical	2	0.21
term	2	0.21
type	2	0.21
unusable	2	0.21
version	2	0.21
year	2	0.21
acis3	2	0.21
advantages	2	0.21
criteria	2	0.21
menus	2	0.21
mis5	2	0.21
misac1	2	0.21
trials	2	0.21
towards	2	0.21
amount	2	0.16
comprehend	2	0.16
consuming	2	0.16
comparative	2	0.14
completely	2	0.14
acknowledging	2	0.13
analyzing	2	0.13
core	2	0.13
fast	2	0.13
final	2	0.13
learned	2	0.12
comprehension	2	0.10
job	2	0.09
extending	2	0.08
last	2	0.08
referring	2	0.06
checking	2	0.05
going	2	0.05

Appendix 10 Word Frequency Analysis: Development

Word	Count	Weighted (%)	Word	Count	Weighted (%)
development	36	5.43	closing	6	0.74
need	21	2.61	platform	6	0.74
external	18	2.29	completely	6	0.65
expecting	16	1.96	dependency	6	0.65
use	14	2.10	expert	6	0.63
process	14	1.63	previous	5	0.82
system	13	2.12	resources	5	0.82
management	13	1.91	year	5	0.82
information	12	0.98	suggestion	5	0.74
new	11	1.80	evaluation	5	0.71
plan	11	1.43	performance	5	0.60
learning	11	1.39	number	5	0.54
training	10	0.61	take	5	0.44
example	9	1.47	first	5	0.41
source	9	0.74	budget	4	0.65
internal	9	0.71	different	4	0.65
asset	8	1.31	ISs	4	0.65
current	8	1.31	capacity	4	0.57
change	8	1.23	units	4	0.57
data	8	0.98	help	4	0.54
increasing	8	0.98	step	4	0.54
target	8	0.94	real	4	0.49
implementation	7	1.14	situation	4	0.46
improvement	7	1.14	points	4	0.42
income	7	1.14	effect	4	0.41
existing	7	0.98	expressing	4	0.38
comprehensive	7	0.90	limitation	4	0.30
initial	7	0.53	aiming	4	0.25
product	6	0.98	operators	4	0.22
providing	6	0.98	analogy	3	0.49
users	6	0.98	basic	3	0.49
integration	6	0.90	challenges	3	0.49
continual	6	0.86	constantly	3	0.49
listing	6	0.82	exclusive	3	0.49

Word	Count	Weighted (%)		Word	Count	Weighted (%)
migration	3	0.49		refuse	2	0.33
ministry	3	0.49		self	2	0.33
others	3	0.49		strategic	2	0.33
revealed	3	0.49		time	2	0.33
shortcomings	3	0.49		various	2	0.33
trials	3	0.49		version	2	0.33
vendor	3	0.49		willing	2	0.33
RCD	3	0.49		I-MHERE	2	0.33
toward	3	0.49		MIS	2	0.33
business	3	0.41		convincing	2	0.25
miss	3	0.41		finance	2	0.25
affordable	3	0.37		job	2	0.25
reporting	3	0.37		protect	2	0.25
focus	3	0.35		similar	2	0.25
beginning	3	0.25		community	2	0.22
act	3	0.16		evidence	2	0.22
full	3	0.16		land	2	0.22
academic	2	0.33		supporting	2	0.22
access	2	0.33		application	2	0.20
acknowledging	2	0.33		covering	2	0.20
aware	2	0.33		detail	2	0.20
collecting	2	0.33		openly	2	0.20
cost	2	0.33		period	2	0.20
dynamic	2	0.33		combining	2	0.16
experience	2	0.33		funding	2	0.14
financial	2	0.33		measuring	2	0.14
flexibility	2	0.33		capability	2	0.12
ideas	2	0.33		preparing	2	0.10
introduce	2	0.33				
inventory	2	0.33				
investment	2	0.33				
next	2	0.33				
percentage	2	0.33				
professorship	2	0.33				
quality	2	0.33				

Appendix 11   Word Frequency Analysis: Documentation

Word	Count	Weighted (%)	Word	Count	Weighted (%)
training	28	7.60	comparing	4	0.78
management	13	3.68	model	3	0.74
information	12	3.53	refining	3	0.69
system	12	3.31	well	3	0.69
program	11	3.09	accommodating	2	0.59
limited	10	2.94	aim	4	0.59
external	10	2.79	current	2	0.59
assessment	9	2.65	detail	2	0.59
performance	9	2.65	elements	2	0.59
institution	9	2.35	focus	2	0.59
pioneered	8	2.35	job	2	0.59
attending	7	2.06	memories	2	0.59
different	5	1.47	new	2	0.59
host	5	1.47	providing	2	0.59
period	5	1.47	quality	2	0.59
requirements	5	1.47	sop	2	0.59
accreditation	4	1.18	test	2	0.59
archives	4	1.18	year	2	0.59
contract	4	1.18	ISO	2	0.59
gained	5	1.18	I-MHERE	2	0.59
guarantee	4	1.18	relating	3	0.49
one	4	1.18	benefit	2	0.44
position	4	1.18	comprehensive	2	0.44
referring	5	1.08	examples	2	0.44
practice	5	0.98	purposes	3	0.44
capacity	3	0.88	planning	3	0.39
joining	3	0.88	procedural	2	0.39
knowledge	3	0.88	process	2	0.39
middle	3	0.88	coordination	2	0.37
number	3	0.88	established	3	0.37
relevant	3	0.88	full	2	0.25
structure	3	0.88	organisation	2	0.17

Appendix 12   Word Frequency Analysis: New Capability

Word	Count	Weighted (%)	Word	Count	Weighted (%)
assessment	15	7.65	obligation	2	1.02
programs	12	6.12	odd	2	1.02
system	9	4.59	online	2	1.02
performance	8	4.08	period	2	1.02
budgeting	6	3.06	requirement	2	1.02
implementation	6	3.06	signed	2	1.02
reporting	6	3.06	unit	2	1.02
process	5	2.55	data	2	0.77
proposed	4	2.04	fair	2	0.77
based	3	1.53	information	2	0.77
BLU	3	1.53			
change	3	1.53			
follow	3	1.53			
problems	3	1.53			
superiors	3	1.53			
yearly	3	1.53			
cause	3	1.28			
agreed	2	1.02			
agreement	2	1.02			
community	2	1.02			
disbursement	2	1.02			
effect	2	1.02			
lower	2	1.02			
management	2	1.02			
meeting	2	1.02			

Appendix 13   Managerial Level on Success Criteria: Normalised Percentage Coverage

Node	Managerial level	Percentage coverage	Mean	Standard deviation	Normalized percentage coverage
Development	Lower	30.60%	49.97%	20.37%	17.09%
Development	Middle	69.40%			82.99%
Documentation	Lower	36.59%			25.57%
Documentation	Middle	62.91%			73.74%
Maintainability	Lower	27.38%			13.37%
Maintainability	Middle	72.62%			86.69%
New capability	Lower	43.04%			36.69%
New capability	Middle	56.96%			63.42%
Usability	Lower	25.40%			11.40%
Usability	Middle	74.60%			88.66%

Appendix 14   Organisational Tenure on Success Criteria: Normalised Percentage Coverage

Node	Range of organisational tenure (years)	Percentage coverage	Mean	Standard deviation	Normalized percentage coverage
Development	7-11	29.88%	16.66%	18%	76.52%
Development	12-16	27.04%			71.48%
Development	17-21	12.54%			41.10%
Development	22-26	5.65%			27.38%
Development	27-31	15.89%			48.33%
Development	32-36	8.99%			33.76%
Documentation	7-11	36.59%			86.21%
Documentation	12-16	20.37%			58.03%
Documentation	17-21	6.12%			28.23%
Documentation	22-26	13.45%			43.05%
Documentation	27-31	5.97%			27.95%
Documentation	32-36	17.01%			50.77%
New capability	7-11	43.04%			92.54%
New capability	12-16	2.01%			21.17%
New capability	17-21	1.49%			20.36%
New capability	22-26	2.53%			21.99%
New capability	27-31	50.93%			96.95%
New capability	32-36	0.00%			18.13%
Usability	7-11	22.87%			63.30%
Usability	12-16	28.43%			74.01%
Usability	17-21	16.50%			49.66%
Usability	22-26	18.73%			54.52%
Usability	27-31	8.28%			32.35%
Usability	32-36	5.18%			26.52%

Appendix 15   Job Tenure on Success Criteria: Normalised Percentage Coverage

Node	Range of job tenure (years)	Percentage coverage	Mean	Standard deviation	Normalized percentage coverage
Development	1-3	66.60%	33.31%	28.04%	88.24%
Development	4-6	19.89%			31.61%
Development	7-10	13.51%			24.00%
Documentation	1-3	67.91%			89.14%
Documentation	4-6	23.91%			36.87%
Documentation	7-10	7.68%			18.03%
New capability	1-3	57.90%			80.98%
New capability	4-6	40.69%			60.37%
New capability	7-10	1.41%			12.76%
Usability	1-3	67.83%			89.08%
Usability	4-6	18.38%			29.72%
Usability	7-10	13.79%			24.31%

Appendix 16 Word Frequency Analysis: Learning

Word	Count[29]	Weight (%)[30]	Word	Count[29]	Weight (%)[30]
using	35	3.90	easy	6	0.71
developed	36	3.72	implementation	6	0.71
process	27	2.97	issues	11	0.71
standard	21	2.50	ministry	6	0.71
internal	20	2.30	miss	6	0.71
sop	17	2.02	time	6	0.71
position	17	1.74	activities	6	0.65
manual	13	1.55	job	7	0.65
providing	12	1.43	unit	6	0.65
research	12	1.43	academic	5	0.59
previous	11	1.31	changing	5	0.59
product	11	1.31	evidence	5	0.59
new	10	1.19	level	6	0.59
system	11	1.19	users	5	0.59
teaching	11	1.11	ISs	5	0.59
example	9	1.07	mis4	5	0.59
online	9	1.07	RCD	5	0.59
version	9	1.07	capacity	7	0.57
requirements	10	1.03	training	11	0.53
existing	8	0.95	scholarship	6	0.52
program	8	0.95	accessibility	6	0.48
management	9	0.92	adding	4	0.48
data	9	0.89	coverage	4	0.48
proposal	9	0.85	documents	4	0.48
reviewing	7	0.83	following	4	0.48
mis2	7	0.83	function	8	0.48
referring	8	0.81	module	4	0.48
availability	8	0.77	period	4	0.48
commitment	7	0.75	students	4	0.48
experience	7	0.74	technical	4	0.48
back	6	0.71	various	4	0.48
current	6	0.71	hardcopy	4	0.48

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[29] The number of times that the word occurs within the project items searched. If you adjusted the slider to include similar words, this count is the total for all the similar words (QSR International, 2018, para 49). The words that occurred only once in the analysis had been deleted.

[30] The frequency of the word relative to the total words counted. If you adjusted the slider to include similar words, a word may be part of more than one group of similar words. The weighted percentage assigns a portion of the word's frequency to each group so that the overall total does not exceed 100% (QSR International, 2018, para 50).

Word	Count[29]	Weight (%)[30]
mis5	4	0.48
aim	8	0.43
different	4	0.42
attend	4	0.40
based	4	0.40
knowledge	5	0.40
subject	8	0.40
approval	3	0.36
effective	4	0.36
encouraging	3	0.36
inputting	3	0.36
licensed	3	0.36
main	3	0.36
minimize	3	0.36
non	3	0.36
others	3	0.36
professional	3	0.36
recent	3	0.36
steps	3	0.36
types	3	0.36
weakness	3	0.36
weekly	3	0.36
iso	3	0.36
mis3	3	0.36
misac1	3	0.36
misac2	3	0.36
additional	3	0.30
calculator	4	0.30
content	6	0.30
correspondence	3	0.30
community	3	0.28
found	3	0.28
institution	3	0.28
solutions	3	0.28
focus	3	0.26
organisation	4	0.26
accuracy	2	0.24
assess	2	0.24
assets	2	0.24
bureaucratic	2	0.24
central	2	0.24

Word	Count[29]	Weight (%)[30]
complicated	2	0.24
comprehension	2	0.24
copies	2	0.24
database	2	0.24
detail	2	0.24
elements	2	0.24
ensure	2	0.24
entire	3	0.24
grades	3	0.24
group	2	0.24
hours	2	0.24
idle	2	0.24
information	4	0.24
later	2	0.24
length	2	0.24
long	2	0.24
made	2	0.24
manufacturer	3	0.24
mentality	2	0.24
network	2	0.24
quality	2	0.24
realities	2	0.24
request	2	0.24
satisfying	2	0.24
still	2	0.24
superior	2	0.24
tasks	4	0.24
uploading	2	0.24
MIS	2	0.24
misac3	2	0.24
offline	2	0.24
choose	3	0.19
care	2	0.18
confirmed	2	0.18
crucial	2	0.18
deciding	2	0.18
integrate	2	0.18
orientations	2	0.18
able	2	0.16
determine	4	0.16
considering	2	0.13

Appendix 17 Word Frequency Analysis: Institutional Support

Word	Count	Weight (%)		Word	Count	Weight (%)
management	22	5.94		less	3	0.86
support	14	3.88		new	3	0.86
top	13	3.74		obstacles	3	0.86
aiming	12	2.20		personal	3	0.86
expecting	11	2.73		proposal	3	0.43
need	10	2.44		resulted	3	0.86
implement	9	2.59		strategic	3	0.86
commitment	8	2.01		willing	3	0.86
mis	8	2.30		HEI	3	0.86
point	7	0.91		aligning	2	0.38
use	7	2.01		background	2	0.43
develop	6	1.72		basic	2	0.57
level	6	1.15		concerning	2	0.43
additional	5	1.44		core	2	0.57
audit	5	1.44		expressing	2	0.57
workload	5	1.44		follow	2	0.57
business	4	1.01		force	2	0.57
internal	4	1.15		funding	2	0.43
miss	4	1.15		hardware	2	0.57
plan	4	1.15		indicated	2	0.29
previous	4	1.15		knowledge	2	0.57
process	4	0.86		making	2	0.24
real	4	1.15		minimum	2	0.57
situation	4	0.96		opinion	2	0.57
unit	4	1.15		organisational	2	0.57
work	4	0.67		policies	2	0.57
based	3	0.72		promotion	2	0.57
capability	3	0.86		questioning	2	0.57
change	3	0.86		reaching	2	0.29
confidence	3	0.38		received	2	0.57
continual	3	0.86		request	2	0.57
establishing	3	0.53		self	2	0.57
financial	3	0.86		user	2	0.57
full	3	0.86		GUG	2	0.57
imagining	3	0.86		RCD	2	0.57
integrate	3	0.86				

Appendix 18   Word Frequency Analysis: Organising

Word	Count	Weight (%)
position	21	8.05
management	14	5.11
current	12	4.60
top	11	3.83
job	8	3.07
period	7	2.43
development	7	2.30
existing	6	2.30
internal	6	2.30
systems	6	2.04
data	5	1.92
expecting	5	1.66
different	4	1.53
integrated	4	1.53
apply	6	1.37
involved	4	1.28
level	4	1.28
connecting	3	1.15
description	3	1.15
managerial	3	1.15
new	3	1.15
report	5	1.15
rotation	3	1.15
covering	6	1.09
capability	3	0.96
aimed	3	0.89
effort	2	0.77
filling	2	0.77

Word	Count	Weight (%)
final	2	0.77
follow	2	0.77
knowledgeable	2	0.77
name	2	0.77
number	2	0.77
promotion	2	0.77
providing	2	0.77
responsibility	2	0.77
serving	2	0.77
version	2	0.77
workload	2	0.77
administrator	3	0.70
commands	3	0.70
executing	4	0.70
documents	2	0.57
possible	2	0.57
commitment	2	0.51
admitting	2	0.48
books	2	0.48

Appendix 19   Word Frequency Analysis: User Acceptance

Word	Count	Weight (%)	Word	Count	Weight (%)
rules	32	12.60	condition	2	0.79
level	12	4.72	continual	2	0.79
higher	9	3.54	delay	2	0.79
change	8	3.15	financial	2	0.79
management	7	2.76	foundation	2	0.79
sop	7	2.76	host	2	0.79
new	6	2.36	implementation	2	0.79
aligning	5	1.97	inventory	2	0.79
requirements	6	1.77	job	2	0.79
use	5	1.77	listed	2	0.79
assets	4	1.57	output	2	0.79
enactment	4	1.57	research	2	0.79
ministerial	4	1.57	revising	2	0.79
ownership	4	1.57	sustaining	2	0.79
standard	4	1.57	system	2	0.79
anticipating	5	1.38	top	2	0.79
basic	3	1.18	unit	2	0.79
due	3	1.18	users'	2	0.79
follows	3	1.18	ISO	2	0.79
ministry	3	1.18	RCD	2	0.79
nomenclature	3	1.18	practice	2	0.59
aiming	4	1.12	preparing	2	0.59
development	3	0.98	concept	2	0.52
additional	2	0.79	external	2	0.52

Appendix 20   Word Frequency Analysis: User Engagement

Word	Count	Weight (%)
involvement	19	7.13
users	14	6.51
development	13	6.05
project	13	4.88
requirements	13	4.34
system	7	3.26
initiating	7	2.79
limited	5	2.33
different	4	1.86
new	4	1.86
perfect	4	1.86
ISs	4	1.86
results	4	1.63
designing	5	1.40
early	3	1.40
idea	3	1.40
internal	3	1.40
providing	3	1.40
I-MHERE	3	1.40
directly	4	1.32
realizing	4	1.32
suggestions	3	1.16
accommodating	2	0.93
continual	2	0.93
contribution	2	0.93

Word	Count	Weight (%)
implementation	2	0.93
information	2	0.93
integration	2	0.93
process	2	0.93
recalling	2	0.93
specific	2	0.93
RCD	2	0.93
capability	2	0.70
conducted	2	0.70
department	2	0.70
effect	2	0.70
reasons	2	0.70
asked	2	0.62
management	2	0.62

Appendix 21   Managerial Level on Critical Factors: Normalised Percentage Coverage

Node	Managerial level	Percentage coverage	Mean	Standard deviation	Normalized percentage coverage
Institutional support	Lower	9.23%	50.00%	20.83%	2.52%
Institutional support	Middle	90.77%			97.48%
Learning	Lower	30.97%			18.05%
Learning	Middle	69.03%			81.95%
Organizing	Lower	30.07%			16.93%
Organizing	Middle	69.93%			83.07%
User acceptance	Lower	47.17%			44.59%
User acceptance	Middle	52.83%			55.41%
User engagement	Lower	25.69%			12.16%
User engagement	Middle	74.31%			87.84%

Appendix 22   Managerial Level on Critical Factors: Number of Participants
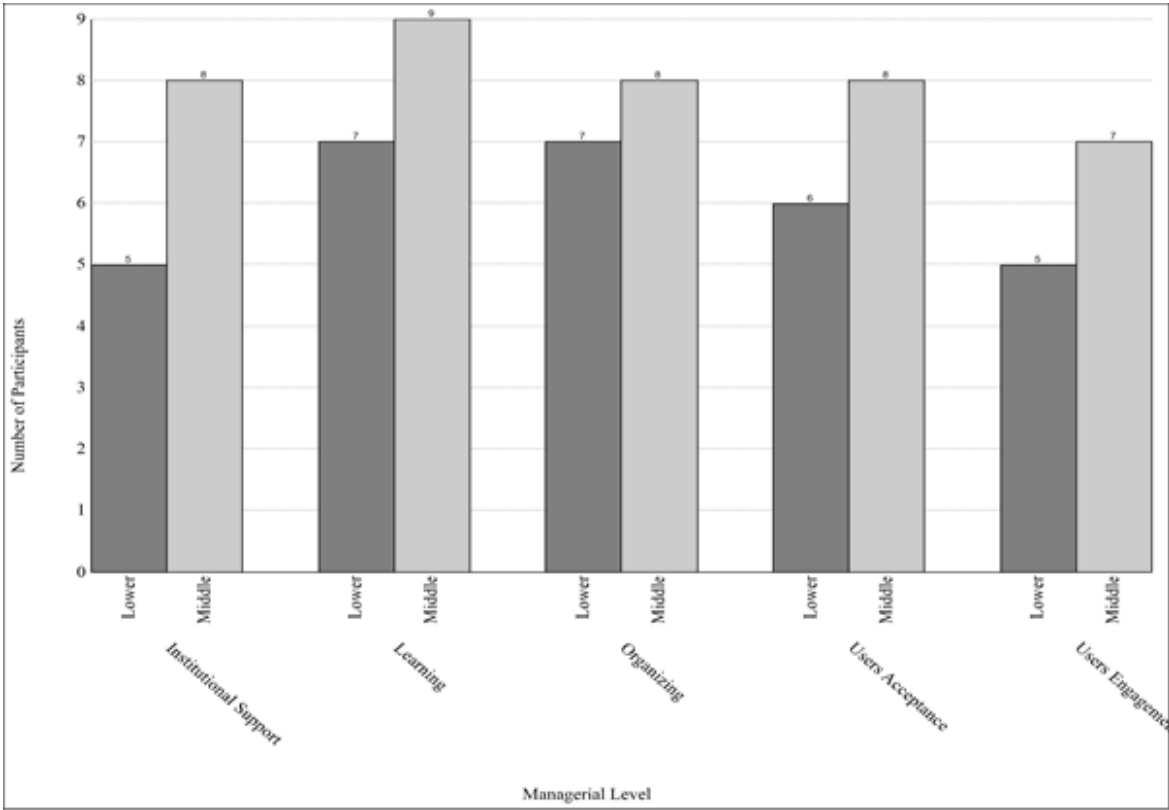
Appendix 23 Organisational Tenure on Critical Factors: Normalised Percentage Coverage

Node	Organisational tenure (years)	Coverage (%)	Mean	Standard deviation	Normalized percentage coverage
Institutional support	7-11	7.99%	16.67%	14.36%	27.29%
Institutional support	12-16	19.18%			56.95%
Institutional support	17-21	13.17%			40.39%
Institutional support	22-26	43.34%			96.84%
Institutional support	27-31	12.08%			37.47%
Institutional support	32-36	4.24%			19.33%
Learning	7-11	22.17%			64.91%
Learning	12-16	23.12%			67.33%
Learning	17-21	14.07%			42.83%
Learning	22-26	35.61%			90.64%
Learning	27-31	2.77%			16.66%
Learning	32-36	2.27%			15.80%
Organizing	7-11	28.91%			80.31%
Organizing	12-16	20.47%			60.45%
Organizing	17-21	1.78%			15.00%
Organizing	22-26	23.43%			68.13%
Organizing	27-31	25.09%			72.13%
Organizing	32-36	0.31%			12.73%
User acceptance	7-11	47.17%			98.32%
User acceptance	12-16	9.81%			31.65%
User acceptance	17-21	16.99%			50.90%
User acceptance	22-26	19.99%			59.15%
User acceptance	27-31	2.80%			16.71%
User acceptance	32-36	3.25%			17.50%
User engagement	7-11	25.69%			73.50%
User engagement	12-16	32.43%			86.38%
User engagement	17-21	16.88%			50.60%
User engagement	22-26	3.54%			18.04%
User engagement	27-31	21.46%			63.08%
User engagement	32-36	0.00%			12.29%

Appendix 24   Job Tenure on Critical Factors: Normalised Percentage Coverage

Node	Job tenure (years)	Coverage (%)	Mean	Standard deviation	Normalized percentage coverage
Institutional support	1-3	79.65%	33.33%	21.15%	98.57%
Institutional support	4-6	9.96%			13.45%
Institutional support	7-10	10.39%			13.91%
Learning	1-3	65.69%			93.69%
Learning	4-6	25.44%			35.45%
Learning	7-10	8.87%			12.38%
Organizing	1-3	55.94%			85.75%
Organizing	4-6	15.49%			19.94%
Organizing	7-10	28.57%			41.09%
User acceptance	1-3	57.81%			87.64%
User acceptance	4-6	32.74%			48.88%
User acceptance	7-10	9.45%			12.94%
User engagement	1-3	63.71%			92.45%
User engagement	4-6	31.46%			46.48%
User engagement	7-10	4.83%			8.89%