

CHAPTER 8

ESTABLISHING PRELIMINARY INFORMATION TECHNOLOGY INFRASTRUCTURE FLEXIBILITY (ITIF) MATURITY MODEL

8.1 Introduction

An initial IT Infrastructure Flexibility (ITIF) Maturity Model was a result from a combination of quantitative and qualitative approaches that was adapted from the case studies in Chapter 7. This chapter explains the adjustment and modification from the initial model in order to produce a refined-practical preliminary ITIF Maturity Model, based on the approach taken by previous researchers such as Tapia (2007), Maier, et al (2009), Alshawi & Arif (2001), Niazi, et al (2003), and Jochem, et al (2011). The modifications include the words syntax and description in maturity progresses – all to suit the construction industry.

8.2 Model Adjustment and Modification

Changes to descriptions for each factor in the initial ITIF Maturity Model were made based on the real scenarios experienced by the organizations involved and consistent

remarks from respondents during the case study. As accord in Table 7.43 (in Chapter 7), all these cases studies managed to verified all the factors involved, in all levels of maturity. Thus, the factors were triangulated in order to achieve a refine assessment of each factor. Please refer to Appendix D as it represents the detail of adjustment made for each factor in every level.

Table 8.1 shows the summary of the model's adjustments and modifications. In general, only two factors, namely Critical Success Factor and Data Management did not involve with any modification as the maturity levels identified from the initial findings are consistent with findings from case studies. However, the remaining factors were affected with adjustments and modifications. Additional words and changing terms were made to the description that affected various levels in all remaining factors. This was done to create accuracy of the maturity levels' descriptions as reflected from the real-life findings resulted from case studies. Some descriptions in various levels in all remaining factors were rephrased in order to convey precise meaning to the users. Further, some descriptions were simplified due to inaccuracy to some terms used in the initial model, for example, as affected by Teamwork.

The File Format Standardization has a total change for description in Level 1, 2, and 3 as findings in the initial model was obsolete and need some adjustments to suit with current technology climate. The Integration Interval was re-levelled as actual setting in the construction industry shows was not well reflected by the initial model; hence modifications were made to the descriptions in all levels accordingly.

Table 8.1: Summary of model’s adjustments and modifications

Critical Success Factors	Adjustments and modifications
File Format Standardization	<ul style="list-style-type: none"> • Additional descriptions were made for Level 4 and Level 5. • Some words were modified for description in Level 4. • Total change for description in Level 1, 2, and 3.
Integration Interval	<ul style="list-style-type: none"> • All levels were re-levelled. • Modifications were made to the descriptions in all levels accordingly.
System Design	<ul style="list-style-type: none"> • Some words were modified for description in Level 4 and 5. • Descriptions in Level 3 and Level 5 were rephrased for a more accurate meaning. • No adjustment made for descriptions in Level 1 and Level 2.
Teamwork	<ul style="list-style-type: none"> • Additional descriptions were made for Level 5. • Description in Level 2 was rephrased for a more accurate meaning. • Description in Level 4 was simplified due to inaccuracy to some terms mentioned in the initial model. • No adjustment made for descriptions in Level 1 and Level 3.
Independence and Pro-activeness	<ul style="list-style-type: none"> • Additional description was made for Level 4. • Descriptions in Level 3 and Level 5 were rephrased for a more accurate meaning. • No adjustment made for descriptions in Level 2 and Level 1.
IT Awareness	<ul style="list-style-type: none"> • Descriptions in Level 2 and Level 3 were rephrased for a more accurate meaning. • No adjustment made for descriptions in Level 1, Level 4, and Level 5.
IT Learning Commitment	<ul style="list-style-type: none"> • Descriptions in Level 3 and Level 5 were rephrased for a more accurate meaning. • No adjustment made for descriptions in Level 1, Level 2, and Level 4.
Willingness on Change	<ul style="list-style-type: none"> • Additional description was made for Level 3, Level 4, and Level 5. • Descriptions in Level 3 and Level 5 were rephrased for a more accurate meaning. • No adjustment made for descriptions in Level 1 and Level 2.
Hybrid Skills	<ul style="list-style-type: none"> • Additional description was made for Level 2. • No adjustment made for descriptions in Level 1, Level 3, and Level 5. • Some terms were changed in descriptions Level 4.
Critical Success Factors	<ul style="list-style-type: none"> • No adjustment made for this factor, as the maturity levels identified in the initial maturity model suit with the findings from case studies.
Connectivity	<ul style="list-style-type: none"> • Some terms were changed in descriptions Level 1. • No adjustment made for descriptions in Level 2, 3, 4 and 5.
IT Security Management	<ul style="list-style-type: none"> • Additional description was made for Level 1. • No adjustment made for descriptions in Level 2, 3, 4 and 5.
Data Management	<ul style="list-style-type: none"> • No adjustment made for this factor, as the maturity levels identified in the initial maturity model suit with the findings from case studies.
IT Project Management	<ul style="list-style-type: none"> • Some terms were changed in descriptions Level 3. • No adjustment made for descriptions in Level 1, 2, 4 and 5.

8.3 Establish Preliminary IT Infrastructure Flexibility (ITIF) Maturity Model

The modified and refined preliminary ITIF Maturity Model is produced after analysing case studies, which can be found in Appendix E.

8.4 Guidelines for Implementation

The construction organizations who chooses to use the ITIF Maturity Model will need to carry out the assessment process on their own in order to determine in which maturity level they currently reside in. By using this model, the organizations will be able to define the improvement process that is needed to be implemented to achieve the intended maturity level. With reference to the maturity model, the level of improvement is not necessary to be accomplished sequentially, or in series. Certain levels can and do overlap; its magnitude is based upon amount of risk the organization is willing to tolerate (Kerzner, 2001). The following recommendations are listed as a guideline for the use and implementation of the model:

- As an evolutionary type model, its assessment requires the investigator to obtain the past (history), current organizational situation and future prediction. Therefore, this model is a useful assessment tool prior the development of an IT project, or prior the appointment of in-house or external developer – when the project starts and when the project is completed - to track its progress and for improvement.
- The investigation can be conducted in two ways. Firstly, model mapping can be done through an investigation that is conducted by tracking and recording the progress of

the IT project. The investigator can track the gradual progress of the project and identify any problems that arise during the implementation. The second way is by freely gathering historical information of the organization without looking at a specific IT system as a change agent. The views, problems, and experience of the people involved in the organization are compared against the model. From here, the gap can be determined.

- Prior to the investigation, it is essential for the IT Department understand the concepts of the model.
- The investigator must identify which department of the organization is a target of study. Then, an assessment will begin by obtaining overall information of the department of study, such as structure, type of work, number of related departments and employees, current views on IT infrastructure, and etc.
- The assessment can be carried out in various methods, depending on the availability of information. For example, interviews, documentary evidence reviews, and observations.
- The characteristics in the preceding levels of the model must be adequately addressed before proceeding to the subsequent levels. For an example, characteristics in Level 1 must be discussed before proceeding to Level 2.
- It is not compulsory for all factors to be at the same level of maturity to be considered as a successful IT implementation. This is because that the required state of characteristics for each factor may be different for any given IT project, and the nature and requirements could vary from one organization to another. This requires attention from IT experts, who have better knowledge and understanding to identify the precise and specific requirements needed.
- The model can also be used to determine the IT capabilities between different units or departments within the same organization, as the levels of maturity could vary due to

different resources and requirements. In this context, this model is able to provide management insights into areas that require particular attention.

8.5 Conclusion

This chapter presents the refined preliminary model of ITIF Maturity Model. The modifications were listed to show in changes made form the initial model. In the later part, a guideline for the model's practical implementation is provided. The guideline assists the user how to use the model and it also could help the user to customize the model based on their organization's setting.

Reference:

Kerzner, H. (2001). *Strategic planning for project management using a project management maturity model*. New York: John Wiley & Sons.