

Chapter 12

Model Representation through UML and SPEM

ABSTRACT

Establishing strategic fit dynamically between information systems and information technologies for having a well managed IT acquisition life cycle in the organization is quite challenging. Despite advancements in software engineering process modeling techniques and the existence of maturity in handling multi-disciplinary challenges in designing appropriate information systems, there is growing popularity in developing model-driven methods. This chapter discusses application of a model-driven method that aims to use software engineering process modeling. It also aims to showcase the appropriateness of the application of the model in software engineering. The chapter discusses the role of SDLC-driven approaches for IT services acquisitions and relates to the UML and SEPM principles while discussing the deliverables of the model.

INTRODUCTION

The conceptualized, designed and developed model recognises the fact that each organization is unique and its requirements are dynamic. Thus generic IT infrastructure and services have to undergo process re-engineering adequately before deployment. Such a process needs internal capabilities to organize issues related to development and management of IS with an aim to capture dynamic needs in an organisation. The model also includes many factors such as understanding the

process itself, aligning technology to the process, IT usage, and usability contributes to the success of IT acquisition. These factors, even if addressed properly do not necessarily lead to successful IT acquisition. While discussing various stages of the acquisition process and understanding the roles of various stakeholders, the model recognized that organization and service providers work collectively and collaborate. In order to make this collaboration successful, there should be a level playing situation to derive synergic effects. It is, therefore, pertinent to understand the issues that might affect the success of IT acquisition in an organisation. Software engineering principles iden-

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tify these issues to be analysis, design, construction, verification, and management of technical entities. However, understanding other soft issues like user's attitude and acceptability at each stage of acquisition are perhaps less addressed. Models available in the software engineering discipline can be chosen depending on their suitability and applicability to a project. But, at the organisation level, these processes could be many and atomic. This situation creates a complex buyer-supplier relationship where the IT cell in the organisation assumes the buyer's role and leads the entire process of acquisition.

Quality models though are available to understand the supplier behaviour as well as to keep control over the acquisition process, are again process specific. It is often argued that quality in the IT acquisition process might not lead to producing quality product. But adherence of quality in all stages of IT acquisition—definition, development, and maintenance—would provide some indications about the product being produced (Jiang *et al.* 2001). Mostly organisations become complex as they grow. This growth coupled with dynamic ambient conditions does impose limitations to the quality process attributes adopted for IT acquisition. On the other hand, suppliers who mostly are technology and service providers do not have prior exposure to the issues relevant to the organisation and might not be interested in doing so. The simple intention might be to execute and sign off for the next project. Capability of the service provider/supplier is of paramount importance that could have a direct bearing on the IT acquisition process. It is also apprehended that acquisition of a quality certified product and engaging a quality certified service provider could be costly.

A successful IT acquisition must deliver business value, whether it is on project mode or otherwise. This business value is possible even if IT acquisition is late, over budget, and delivers expected functionality only partly. A project delivered on time, on budget, but without any business value will be termed as ineffective and

consequently a failure. Therefore, it is pertinent to understand that any IT acquisition is not simply a project, but a sizable organisational paradigm. It is invariably seen that failures in IT acquisition is not because of tools and/or technology termed as the hard issues, but soft issues like rightly choosing the technology and/or tools, organisational planning, and communication among the supplier and the acquirer. It is also argued that different technologies and/or tools chosen depending on the expertise of the acquirer/vendor who are actively involved in the process would not affect business value if adequate planning is done.

Despite the challenges and limitations in capturing user capabilities, software engineering principles are deployed constantly in organisations. The organisation goes through various Systems Development Life Cycle (SDLC) driven projects to acquire IT infrastructure. Though SDLC driven projects have their advantages for a project management and other various models do provide project management techniques, they are not free from limitations in capturing organisational business value at macro level (Jiang *et al.* 2001; Lamb and Kling 2003). These limitations include failure of user to educate the developer and vice versa. SDLC recognises the fact that ultimate success of any IT infrastructure acquired would depend on the way end-users use it. End-user competence and their attitude towards the IT usage have direct impact on its successful use. Thus there is a scope to understand user's involvement in the IT acquisition process. This is a complex phenomenon since users span across all layers in the organisation, they involve in technology driven processes and also liaise with technology providers.

SDLC APPROACH

During the early stage of IT acquisition, managing IT activities relating to operation, programming, and data collection were the major areas of concern. In later stages the focus was on establishing

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