Chapter II

Intention Driven Conceptual Modelling

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Abstract

Conceptual modelling aims to capture the relevant aspects of the world on which it is necessary to provide information. Whereas conceptual models succeeded in telling us how to represent some excerpt of the world in informational terms, they failed to guide system analysts in conceptualising purposeful systems, i.e. systems that meet the expectations of their users. This chapter aims to investigate the issue of conceptualising purposeful systems and to discuss the role that goal driven approaches can play to resolve it. It considers the challenge of new systems having a multifaceted purpose and shows how intention/strategy maps help facing this challenge.

Introduction

Traditionally Information System (IS) engineering has made the assumption that an information system captures some excerpt of world history and hence has concentrated on modelling information about the Universe of Discourse. This is done through conceptual modelling that aims at abstracting the specification of the required information system i.e. the conceptual schema, from an analysis of the relevant aspects of the Universe of Discourse about which the users' community needs information (Dubois, 1989). This specification concentrates on what the system should do, that is, on its functionality. Such a specification acts as a prescription for system construction.

Whereas conceptual modelling allowed our community to understand the semantics of information and led to a large number of semantically powerful conceptual models, experience demonstrates that it failed in supporting the delivery of systems that were accepted by the community of their users. Indeed, a number of studies show (Standish group, 1995; European Software Institute, 1996; META Group, 2003) that systems fail due to an inadequate or insufficient understanding of the requirements they seek to address. Further, the amount of effort needed to fix these systems has been found to be very high (Johnson, 1995).

To correct this situation, it is necessary to address the issue of building *purposeful systems*, i.e. information systems that are seen as fulfilling a certain purpose in an organisation (Ackoff, 1972). Understanding this purpose is a necessary condition for the conceptualisation of these purposeful systems. The foregoing suggests to go beyond the functionality based view of conceptual modelling and to extend the '*what is done by the system*' approach with the '*why is the system like this*'. This why question is answered in terms of organisational objectives and their impact on information systems supporting the organisation. The expectation is that as a result of a refocus on the *why* question, more acceptable systems will be developed in the future. The field of requirements engineering has emerged to meet this expectation.

The first objective of this chapter is to deal with the above issue of conceptualising purposeful systems and to show how goal-driven approaches can help to this end.

The second objective is to consider new challenges raised by emerging conditions of system development. Whereas in the 'from scratch' type of development, a system needs to meet the purpose of a single organisation, systems of today need to be conceived in a larger perspective, to meet the purpose of several organisations and to be adaptable to different usage

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