

Chapter XV

On IT-Modelling in a Cross-Competence World

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Abstract

The deep penetration of computers in all realms of society makes technological change the key driver for changing our lives. This will result in a change in approach, from viewing the role of IT as mainly supporting other disciplines, to the integration of IT concepts, tools and theory into modelling theories of the supported disciplines. This chapter discusses some aspects of the relationship between the IT as a modelling discipline, and the modelling disciplines of the domains where IT is applied. IT deals with data and data processes, while application domain models deal with entities of the domain and how they interact. Cross-competence models must deal with both, and with how models of the information technology discipline relate to the various models of the domain disciplines.

Introduction

How fast information technology develops! Performance/price ratios for central ICT components have doubled every 18-24 months for many years. So performance/price ratio may be expected to increase 100-fold over 10 years, and 1000-fold over 15 years. Incremental costs for communication and data storage are approaching zero. In 2012-2015 we should expect that the processing capacity of a large computer is comparable to that of the human brain, and in 2020 that capacity will probably be available on desktop computers.

Computers will be everywhere, in almost every artefact, in the background of almost every organised human activity. The deep penetration of computers in all realms of society makes technological change the key driver for changing our lives. This will result in a change in approach, from viewing the role of IT as mainly supporting the other disciplines, to the integration of IT concepts, tools and theory into modelling theories of the supported disciplines.

Because information technology provides component solutions to almost every other discipline we experience increasing fragmentation pressures on the discipline of IT itself. Every domain where IT is used seems to contain seeds for creating their own kind of discipline where IT is integrated with the domain specific knowledge. We often see labelling like, e.g., medical informatics, organisational informatics, and industrial informatics. And we sometimes see that common IT knowledge is reinvented in new application settings.

Over the years there has been an ongoing fight between IT and those who apply IT. The argument has been that those who apply IT are at the centre, that it is much simpler to learn the IT which is necessary for someone in the application field, than it is for an IT professional to learn the application field. The counter argument has been that the problems of the different application fields are similar as seen from the IT perspective. The similarities are much stronger than the differences. So it is easier for an IT person to learn the application field than the opposite! This disagreement has to a large extent formed the curricula at different education institutes, depending on the balance of the political power between the appliers and the technology providers.

This fight should come to an end. The systems that we try to build and maintain are too complex to be manageable unless integration among the various knowledge components is achieved.

This essay discusses some aspects of the relationship between the IT as a modelling discipline, and the modelling disciplines of the domains where IT is applied.

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