

# Research Topic: Semantic Information Systems and Visualization

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## Business Informatics

In today's businesses information technology plays a central role. It is not only tightly knit into most enterprises' core business processes but can also be a major source of innovation. For a considerable time the research in computer science has been concerned both with developing solutions that enable or facilitate particular business activities as well as with the provision of an infrastructure that is capable of providing the necessary data and computing capacity to these applications. Due to the particular requirements that occur in the business environment research fields such as business informatics and information systems have evolved. The field of business informatics is today largely present in Germany, Switzerland, and Austria and has recently also gained interest in the United States. Business informatics addresses all layers of a business from strategic considerations, business processes to IT infrastructure. The epistemic strategy of business informatics is based upon a pluralism of methods. These revert to the disciplines of real-world science, formal science and design science/engineering science. Specific methodologies that are widely used in business informatics are prototyping and argumentative-deductive analysis. In recent years a rise in the use of quantitative-empirical methods can be found<sup>1</sup>.

## Semantic Information Systems and Visualization

In the business informatics discipline the consideration of semantics is a central issue. This becomes obvious when new requirements as formulated by an expert from the business domain are to be translated into an IT-supported business process and then further to the actual implementation of IT systems and infrastructure. The alignment of meaning and understanding between business and technical experts and systems is a crucial issue in this context. The research that has been conducted at the University of Vienna on these topics in the past has focused on the development of meta modeling techniques to support both the conceptualization as well as the actual implementation of such requirements. The focus of this approach is to provide easily adaptable syntactic structures that can be composed in the form of visual models. Thereby, semantics are partly made explicit, e.g. in the form of business process models where sequences of activities and their duration are defined but the actual content of the activities is not expressed formally.

The goal of the research on Semantic Information Systems and Visualization is to investigate and design methods for the expression and processing of semantics in a business context. A particular focus is put on the aspect of visualization that has been shown to be a successful means of interaction for both business and technical experts. Current directions include: The investigation of semantic schemata for the use in business process and workflow modeling and execution, the analysis of implicit semantics in visual models, and the application of semantic technologies to risk and compliance management.

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<sup>1</sup> For a recent detailed discussion see: Wilde, T., Hess, T. (2007): Forschungsmethoden der Wirtschaftsinformatik – Eine empirische Untersuchung (German: Research methods in business informatics – An empirical study), *Wirtschaftsinformatik* 49, 280-287.

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