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## Chapter XII

# Ontological Foundations of Information Systems Analysis and Design: Extending the Scope of the Discussion

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### Abstract

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*Ontology has attracted considerable attention in information systems analysis and design (ISAD) research. Ontology is philosophy and bears its own substance and history of debates, which quite often have not been accounted for in information systems research. A more comprehensive consideration of well-known philosophical issues of ontology may help to apprehend precisely the transfer of ontological concepts into ISAD, including insights regarding their limitations and to articulate directions*

*towards further research. In particular, this requires expanding of the scope of current debates in information systems towards the socio-philosophical aspects of ontology. Only then, it will be possible to determine whether ontology can direct the project of theoretical foundation for ISAD. An outline of the critique of the prevailing rationalistic methodical understanding of information systems development in contemporary IS literature illustrates how the indiscriminating borrowing of philosophical presuppositions has encumbered current understandings. Critical reflection upon these presuppositions can get over persuasions and bring about theorisation.*

## **Introduction**

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In the last two decades, ontology and ontologies have attracted enduring attention in the field of information systems research and practice, especially in the domain of information systems analysis and design (e.g., Checkland, 1981; Boland, 1982; Winograd & Flores, 1986; Wand & Weber, 1988; Floyd, 1992; Hirschheim, Klein, & Lyytinen, 1995; Weber, 1997b; Green & Rosemann, 1999; Milton, Kazmierczak, & Thomas, 2000; Fettke & Loos, 2003; Rosemann, Vessey, & Weber, 2004).

The domain of information systems analysis and design is understood to be concerned with the analysis of “real world” systems — the determination of changes that should occur in the “real world” after the introduction or modification of an information system, and finally, based upon the elicited requirements, the design of information systems. Thus, of all domains within information systems research and practice, information systems analysis and design (ISAD) has the most and the strongest ties to the world “out there”. The process of ISAD is embedded in the whole systems development life cycle, that is, a methodical process that covers all activities from the identification of problems and opportunities to the implementation and evaluation of the system (Kendall & Kendall, 1992, pp. 66). In this context, information systems are commonly seen as representational systems, that is, systems that represent facts about the “outside world”. This presupposes knowledge of what there is to be represented, and how to represent it. Consequently, research on ISAD has turned to the philosophical discipline of ontology that is concerned with “being” and “what exists”.

It is generally acknowledged that the central activity of analysis and design of information systems is modelling. In analysis, parts of the “real world” are described that should be represented in the information system. Correspondingly, in design certain characteristics of the information system to be developed are

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