

Preface

Past, Present, and Future of Knowledge Acquisition

This book contains the proceedings of the 11th European Workshop on Knowledge Acquisition, Modeling, and Management (EKAW '99), held at Dagstuhl Castle (Germany) in May of 1999. This continuity and the high number of submissions reflect the mature status of the knowledge acquisition community.

Knowledge Acquisition started as an attempt to solve the main bottleneck in developing expert systems (now called knowledge-based systems): Acquiring knowledge from a human expert. Various methods and tools have been developed to improve this process. These approaches significantly reduced the cost of developing knowledge-based systems. However, these systems often only partially fulfilled the task they were developed for and maintenance remained an unsolved problem. This required a paradigm shift that views the development process of knowledge-based systems as a modeling activity. Instead of simply transferring human knowledge into machine-readable code, building a knowledge-based system is now viewed as a modeling activity. A so-called knowledge model is constructed in interaction with users and experts. This model need not necessarily reflect the already available human expertise. Instead it should provide a knowledge level characterization of the knowledge that is required by the system to solve the application task. Economy and quality in system development and maintainability are achieved by reusable problem-solving methods and ontologies. The former describe the reasoning process of the knowledge-based system (i.e., the algorithms it uses) and the latter describe the knowledge structures it uses (i.e., the data structures). Both abstract from specific application and domain specific circumstances to enable knowledge reuse. Various methods and tools have been developed in the meantime that support this (knowledge-level) modeling process. A rather new insight (and here we are in the third phase of the development process of the knowledge acquisition area) is that these methods have a much broader application area than the original purpose they were designed for. They cannot only be used to model knowledge-based systems in the sense of implemented computer programs. Individuals, organizations, and combinations of human and artificial agents are knowledgeable systems that solve certain tasks by using their knowledge. Knowledge Management is concerned with acquiring, organizing, representing, and distributing the knowledge of such entities. It is not very surprising that methods and techniques developed for modeling knowledge-based systems can be applied to support such activities. Currently, it looks likely that this application scenario will become even more important for knowledge acquisition methods than their original application area.

The contributions to the workshop reflect the three purposes of research on knowledge acquisition issues. Some of them aim at further improving knowledge elicitation (i.e., support the process of extracting and creating knowledge), some of them deal with knowledge-level modeling of knowledge-based systems, and some of them discuss possible ways to apply and redefine this work in a knowledge management context.

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