The development of ontological model describing the behavior of mobile network subscribers

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The paper is devoted to the development of methods of ontology supported knowledge discovery in the field of mobile network subscribers. We develop the ontological model of the domain of mobile networks. This ontological model is intended to describe the behavior of mobile network subscribers and identify the needs of different user groups. The ontological model is based on the four-level model of knowledge representation. In this paper, special attention is given to the third and fourth level: the third level represents the set of cases from the domain, and the fourth level represents fuzzy, probabilistic and estimated knowledge. For the analysis of domain cases and for the generation of fuzzy domain knowledge we use Formal Concept Analysis. Fuzzy and estimated knowledge is represented by the fuzzy theory of the domain. We investigate the class of fuzzy models which satisfy the fuzzy theory of the domain. To describe the set of cases from the domain we use formal contexts; objects of these formal contexts are finite sets of subscribers. With the help of the analysis of data on mobile network subscribers we extract high-level characteristics of subscribers. On the base of this knowledge the future behavior of mobile network subscribers may be predicted.