The basis for the development of a decision support system is a computerized model of the domain in question. Usually it is a task for a human domain expert to build these models, and even in case of automated learning from large databases, the resulting models need to be checked by humans. Therefore, a language for specifying models shall be well suited for humans as well as for computers. Not only shall the language be sufficiently formal for communicating to and processing by a computer, but it shall also be easy to comprehend and communicate for human beings. This requires a well-defined and unambiguous syntax as well as a comprehensible semantics.

Graphical languages have these properties. At the talk I will take outset in Bayesian networks, and from that I will present and discuss other modelling languages for reasoning and decision making.