Bayesian Networks implement a graphical model know as directed acyclic graph (DAG). The DAG is understandable but complex at the same time and allows representation and computation of the joint probability density. The DAG has a set of nodes and a set of edges. The nodes represent the random variables and the labels. The edges represent the dependencies between the random variables. A BN has an inherent statement of independence meaning that each variable is independent of an of the other variables, even the parent variables. According to the paper by Kenett, R, this is considered the qualitative part of the model while applying the Markov principle to it will yield quantitative by listing the probability of each child node.

There are quite a few applications of BN in the real world, such as:

* Web usability
* Information and communication technology operational risk analysis
* Generating insights in the behavior of bioreactors
* Risk assessment in health care and in general

From what I have seen is that most of the technology that implement BN are considerably expensive compared to other options. It would be necessary to measure the use vs. cost for this and this might be a good problem for a BN to answer