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Research on information system evaluation based on graph theory. (Chinese. English summary)

Summary: This paper conducts the problem of information system evaluation process that shows difficulties to understand and predict the costs and benefits related with evaluating information system. In the existing literature of information system evaluation, indicators used for evaluation can be summarized as: financial, non-financial, explicit and implicit and so on. Based on information system evaluation process challenges, this paper establishes an evaluation model for information that includes internal and external environments, uses graph theory to deal with both tangible and intangible factors impact of information system environment, then uses web page ranking algorithm to calculate the weight of hidden factors impact. The results of this research provide a comprehensive evaluation model for information system, and also help to understand more about information system environment including intangible factors impact. The example shown in this paper explains steps of the proposed evaluation model.

MSC:
68U35 Computing methodologies for information systems (hypertext navigation, interfaces, decision support, etc.)
68R10 Graph theory (including graph drawing) in computer science

Keywords:
information system evaluation; graph theory; web page ranking algorithm; factor weight