A fuzzy multi-objective balanced scorecard approach for selecting an optimal electronic business process management best practice (e-BPM\textsuperscript{BP})

Faramak Zandi

Faculty of Technology and Engineering, Alzahra University, Tehran, Iran, and

Madjid Tavana

Management Department, La Salle University, Philadelphia, Pennsylvania, USA

Abstract

Purpose – The rapid intensification of the internet and electronic commerce diffusion has given rise to electronic business process management (e-BPM) which enhances the overall connectivity of the business processes. However, when confronted by the range of e-BPM best practices (e-BPMBPs), organizations struggle to identify the one most appropriate to their needs. The paper aims to address these issues.

Design/methodology/approach – The paper proposes a novel fuzzy group multi-objective method for e-BPMBP evaluation and selection. First, a fuzzy group linear assignment method is used to rank the e-BPMBPs drawing on the four perspectives of a balanced scorecard (BSC). Second, a fuzzy group real options approach is used to estimate the financial values of the ranked e-BPMBPs. Third, a four-objective assignment model is used to select the optimal e-BPMBP in deferral time with respect to their rankings, financial values, and a series of pertinent constraints.

Findings – The contribution of the proposed method is threefold: it is grounded in the four perspectives of a BSC, it considers imprecise or vague judgments which lead to ambiguity in the decision process, and it uses a meaningful and robust multi-objective model to aggregate both qualitative judgments and quantitative data. A case study is presented to demonstrate the applicability of the proposed framework and to exhibit the efficacy of the procedures and algorithms.

Originality/value – The novel fuzzy group multi-objective framework for e-BPMBP evaluation and selection proposed in the paper takes into consideration (1) the qualitative and quantitative criteria and their respective value judgments; (2) the verbal expressions and linguistic variables for qualitative judgments which lead to ambiguity in the decision process; and (3) imprecise or vague judgments.

Keywords Business process reengineering, Best practice, Balanced scorecard, Process management

Paper type Research paper

1. Introduction

The rapid evolution of information technology and global competition has drastically increased organizational awareness and responsiveness to interactions between their internal environments and external environments. As a result, organizations are paying

The authors would like to thank the anonymous reviewers and the editor for their insightful comments and suggestions.