# Practical Challenges for Methods Transforming i* Goal Models into Business Process Models

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## 1. Introduction

The field of requirements engineering for business processes has grown during the last several years. As business processes are assumed to fulfil organizational goals, goal models could be transformed into business process models that specify how business processes fulfil the organizational goals. Although both the fields of Goal-Oriented RE (GORE) and Business Process Management (BPM) received a lot of attention from researchers, the methods to transform goal models into business process models still need further research. This paper analyses current methods to identify the practical challenges that need to be addressed for an effective transformation of goal models into business process models. We operationalize our research in the form of a research question Q "*What are the challenges for the effective usage of methods transforming i* goal models into business process models?*". The selected RE papers originate from journals and conference proceedings using keywords *goal*, *objective*, *intention* OR *purpose* in combination (AND) with *process* OR *workflow*. More specifically, we selected all papers that employed an i*-based agent-oriented modelling language (SHF [1], KPR [2], KVBKG [3], B-SCP [4], LYM [5], LY [6]).

## 2. Answers to Research Question

With regard to the research question Q, we will provide an answer from two different perspectives, i.e. the *effectiveness ranking of the reviewed methods* and the overall *practical challenges*. The *effectiveness ranking of the methods* was obtained by summarizing all scores per method, and plotting the sub-scores per property category (displayed by Figure 1). In this way, the sum of the methodological properties and the organisational properties have an equal weight in the final score (individual categories have max. 1, sum is max. 2).

We discovered that B-SCP and KVBKG were the two most effective methods from an overall point of view. B-SCP scores higher with regard to organisational properties while KVBKG scores better on methodological properties. The third place is given to LYM as it enjoys strong organisational properties and good methodological properties. Remaining methods (KPR, LY and SHF) were scored lower on organisational or methodological properties as the first three methods.
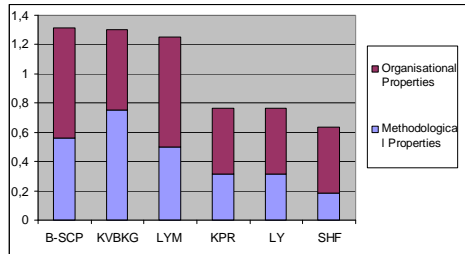
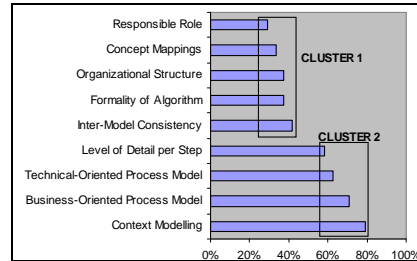**Figure 1. Effectiveness of reviewed methods**



**Figure 2. Organisational Challenges**

A summary of *practical challenges* was discovered by adding all scores per variable (expressed in percentage) and ranking the lowest scores at the top (displayed in Figure 2). We discovered two clusters of variables: one cluster of five variables scoring equal or less then 40% and another cluster of four variables scoring equal or more then 60%. The main practical challenges for effective methods transforming i* goal models into business process models are considered to be all variables from the first cluster. In order to tackle these challenges, we recommend authors to provide explicit guidelines, checks and rules for individual method steps, as demonstrated by the PRiM method of Grau et al. [7]. The current best 'tool' to perform goal to business process translation would be the combination of the work of Koliadis et al. (KVBKG [3]) and Bleistein et al. (B-SCP [4]).

## 3. References

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