Towards Developing a Model-Based Decision Support Method for Enterprise Restructuring

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Abstract. In modern world enterprises need to be agile in their operation and structure to react to changes quickly. One of the open questions here is how to develop the enterprise, or, to be more precise, if enterprise needs to be developed, and if yes, in which way. In this research we are focusing on the case when enterprise stakeholders understand the need of enterprise development, have ideas for that, and they need decision support method to understand if enterprise restructuring is likely to be successful and cost effective. Another covered topic is how to choose the best option for restructuring from variety provided. In this paper we describe the developed decision support method which combines DEMO methodology and transaction costs theory for quantitative costs estimation. To make this method applicable and reproducible we proposed few enhancements to DEMO notation.

Keywords: DEMO methodology, transaction cost theory, decision support, enterprise restructuring.

1 Introduction

In modern world enterprises need to be agile in their operation and structure to react to changes quickly. One of the open questions here is how to develop the enterprise, or, to be more precise, if enterprise needs to be developed, and if yes, in which way. In this research we are focusing on the case when enterprise stakeholders understand the need of enterprise development, have ideas for that, and they need decision support method to understand if enterprise restructuring is likely to be successful and cost effective. Another covered topic is how to choose the best option for restructuring from variety provided. In this paper we describe the developed decision support method which combines DEMO methodology and transaction costs theory for quantitative costs estimation. To make this method applicable and reproducible we proposed few enhancements to DEMO notation.

Several works were done [8, 9] which apply principles of Enterprise Engineering [5], Enterprise Ontology and DEMO [2, 3] to rigorous studies of structural changes during enterprise splitting or merging. However there is still a lack of quantitative methods which facilitate comprehensive and objective evaluation of several alternatives possible for reengineering of enterprise structure.

The goal of this research is to develop a reusable method of decision support for defining the best solution for splitting or merging of the enterprise. The idea is to use combination of DEMO methodology and transaction costs theory to build a uniform
quantitative method to be used by enterprise decision makers to choose the best option for splitting or merging from the variety identified. Comparing to other methods, the method proposed in this work is the quantitative one, which means more practical relevance for enterprises. To add to this, it introduces a usage of combination of DEMO methodology and transaction costs theory, which have never been done before.

The research is based on the empirical observations and data available from the real-life case of a local car service company. In that case the company owners need a reliable decision support method for choosing a direction of further business development. As for the options, they see one way of splitting the enterprise and three ways of creating new department within its structure. All this led to two separate cases which needed to be worked out:

- Enterprise structure simplification. It includes spin-off of some departments into separate legal entities to mitigate risks and costs, closing some departments as unprofitable and non-relevant, and closing some departments with vital functions to enter into a contract with another company which will fulfil these functions to decrease costs and increase overall business operations efficiency.
- Enterprise structure complication. It includes merging with another company, and opening new department with new business functions.

To provide a reliable decision tool for stakeholders of the case we apply principles of Enterprise Ontology and DEMO modelling together with developments of transaction costs theory. As a result we came up with the proposal on how to enhance DEMO notation and developed a method of costs estimation for changes of enterprise structure. Our method consists of the set of actions which should be taken in order to estimate the ease and costs of enterprise structure changes. This method is supposed to be used in consulting by experienced enterprise modellers. To add to this, our method can be programmed into software application to automate and simplify the process of enterprise structure modelling and costs estimation.

In this article Section 2 describes the details of the case and the business context. Section 3 shows the theoretical background for our research by briefly describing DEMO methodology and transaction costs theory. Section 4 describes our proposals to extend the notation of DEMO in order to include key principles of transaction costs theory and costs estimation. In Section 5 our method of extended DEMO modelling and decision making is presented. Section 6 contains practical results of application of the proposed methods in the case of the car company. In the conclusion we outline major results and open issues for further research.

2 Business Context

Car service company “TSS-Auto” is a small business enterprise employing 22 people. It operates as a fully separate legal entity not dependant from any bigger company. Services provided to customers include car repair, regular car maintenance (obligatory by Russian law), colour matching and colouration, selling of car lubricants.