

Aligning Goal Models and Business Models – extended abstract

Birger Andersson¹, Maria Bergholtz¹, Ananda Edirisuriya¹, Tharaka Ilayperuma¹, Prasad Jayaweera², Paul Johannesson¹, Jelena Zdravkovic¹

¹Department of Computer and Systems Sciences
Stockholm University and Royal Institute of Technology
{ba, maria, si-ana, si-tsi, pajo, jzc}@dsv.su.se

²Department of Computer Science
University of Ruhuna, Matara, Sri Lanka
prasad@ruh.ac.lk

1 Introduction and related work

In this paper we investigate the relation between the notions of goal models and the notions of business models. We will argue that aligning goal models and business models amounts to formulating goals in business model notions. We acknowledge that not all kinds of business goals are possible to formulate but we argue that a sufficient amount of them are to make this work worthwhile and the results useful. The results may be used, for instance, when aligning organizations with their IT resources.

For illustration purposes we will use the framework and terminology of the Business Motivation Model (BMM) [3] to capture goals and use the framework and terminology of *e3value* [5] for business modelling. We illustrate how the connection between goal models and business models can be exploited by proposing and outlining a method for model alignment. The method amounts to decomposing goals to the level of means and expressing the means using business modelling notions. The method approach is to use templates for means formulation to accomplish the alignment. The main benefits of the method lie in its simplicity and uniformity in goals formulations.

Business Models. There exist a number of approaches, languages, and ontologies for business models in the literature, e.g., [1], [4]. For the purpose of this paper we will make use of a comprehensive and well established business model ontology, the *e3value* [5]. The basic concepts in *e3value* are actor, market segment, value object, value port, value interface, value activity and value exchange.

Figure 1 is an *e3value* model of a real world business case that is used as a running example. It models the various value exchanges between a provider of Massively Multiplayer Online Games (MMOG), its customers and a business associate, an Internet Service Provider (ISP). Actors are shown by rectangles, value activities by rounded rectangles, value ports by triangles, value interfaces by oblong rectangles enclosing directed value ports, and value exchanges as lines between value ports with the names of value objects as labels. In this business model there are two actors and a market segment involved – the Game Provider, the ISP and the Customer. The Game

Provider is responsible for producing the game content, selling, and distributing its software on CDs to the customers. In order to play the game, the customers need internet access, which they get from the ISP. They also need access to the game server, which they get from the Game Provider

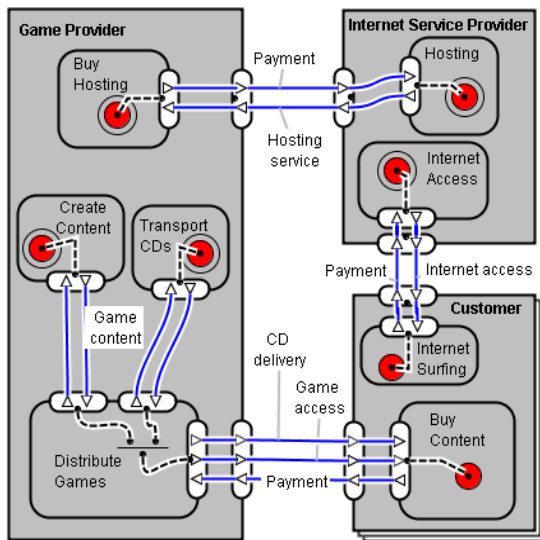


Fig. 1. e^3 value model for the MMOG case

Goal Models. Goal models are used to capture and make explicit the goals of an enterprise. They direct the enterprise toward concrete actions, and as a consequence, the elicited actions are firmly based on a business motivation. A goal is defined as a desirable state the enterprise wants to reach. We use the BMM [3], as the technique focuses on the states an enterprise (i.e. the *principal actor*) wishes to achieve, as

well as on the actions that will enable the achievement of those states. The technique relies on the use of three major concepts – Ends, Means, and Influencers. An End is something the enterprise seeks to accomplish, without any indication of how it will be achieved. A Means represents any capability or instrument that may be used to achieve Ends. An Influencer is anything that may impact the achievement of means (and thereby goals). In Figure 2, we illustrate the basic BMM elements and their relations using a small excerpt of a goal model for the MMOG case.

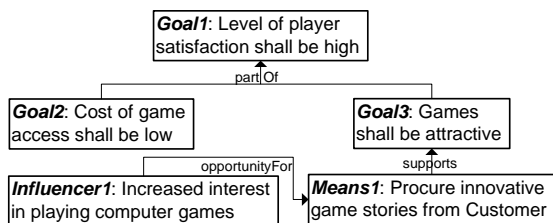


Fig. 2. Excerpt of a goal model for the MMOG case

2 Bridging Goal Models and Business models

A common problem in goal modelling is that goals are difficult to formulate, that is, the formulations of goals and means often become loose and highly abstract. In the following we propose that this can be amended by formulating them according to a

template structure. Each template has two parts, one compulsory and one optional, which is written within square brackets. The compulsory part contains the most important piece of information, while the optional part provides complementary information about the consequences of the compulsory part. A goal modeller may choose to fill in the optional part in order to provide complete information, but in many cases it is preferable to leave it out in order to make the goal model less complex. However, the business modeller has to complete the optional part before she is working towards the to-be business model. Below follows an example of use of one template. A wider set of templates and rules for applying them can be found in [2].

Example of a template: Value Object Procuring Means Templates

All mission statements that deal with value object procuring from suppliers could be captured with this template category.

1. procure *ValueObject₁* from *Actor₁* [use *ValueObject₁* in *ValueActivity₁* | offer *ValueObject₁* to *Actor₂* AND provide *ValueObject₁* to *Actor₁*]

The compulsory part in this template is related to the procurement of a value object by the principal actor from another actor. The optional part describes the possible effects of the procurement of the value object. The value object procured may be used as an input to produce a certain value object or it may be offered directly to the principal actor's customers.

Method Overview. We will now discuss how business models should be aligned with goal models. For that purpose, we propose a method that takes as input a business model and a goal model and produces a new business model conforming to the goal model. In other words, a to-be business model is constructed using an as-is business model and a goal model as inputs. The main instrument used in the method is the means templates. Using this method the goal modeller first needs to construct the goal model expressed in terms of business model notions, which is accomplished by formulating the means according to the aforementioned means templates. The method can be summarized as follows:

1. The goal modeller constructs a goal model using the means templates
2. For each means the business modeller
 - complements the means by filling in the optional parts of its template when needed
 - modifies the business model based on the completed means template

Application of the Method. For each means in the goal model (step 1) select the means template and if needed complement the means with the optional part of the template, and (step 2) use the business model components (e.g. Value Objects, Value Exchanges, etc.) in the template to construct the to-be business model.

The following example shows the result of applying the method to a part of the business model of Figure 1.

Means 1: Procure Innovative Game Stories from Customer

Select template 1 (see above) and complement with the optional part.

procure *Innovative Game Stories* (value object) from *Customer* (actor) [use *Innovative Game Stories* (value object) in *Create Content* (value activity) AND provide *Payment* (value object) to *Customer* (actor)]

This means will lead to the addition of a new value exchange and a new interface for procuring Innovative Game Stories from the Customer. It will also add a new value exchange related to the Payment from Game Provider to Customer. Those exchanges will then be connected to the existing value activity *Create Content* that uses these Innovative Game Stories to produce Game Contents. See ②, in Figure 3.

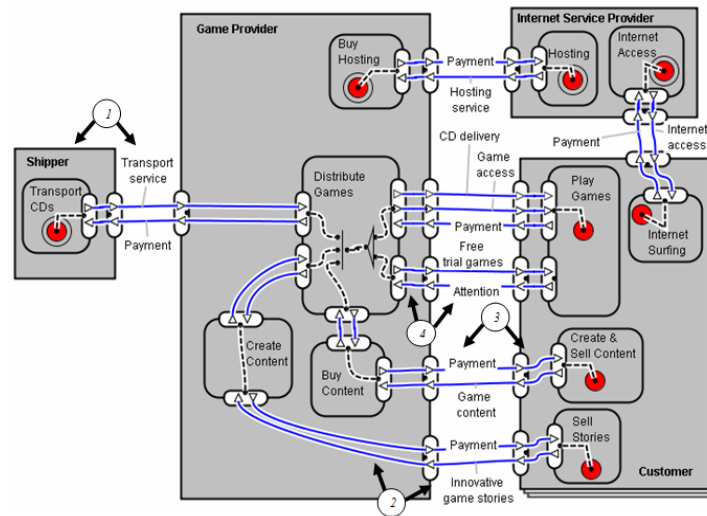


Fig. 3. Extended e^3 value model for MMOG case

3 Summary

This paper has argued that for an enterprise to be sustainable its operational processes should be aligned to its strategic goals. We have focused on a part of the complex issue of business and IT alignment by addressing the problems of aligning business models with goal models and a method for this was proposed. The method approach offers a number of benefits: clear and uniform goal model formulation, well founded business model design, and traceability between models.

References

1. Andersson B., et al.: Towards a Reference Ontology for Business Models, *25th International Conference on Conceptua Modeling(ER-2006)*, Arizona, USA
2. Andersson B., et al: Enterprise Sustainability through the Alignment of Goal Models and Business Models. Technical Report. Available at www.dsv.su.se/~ba/alignment08.pdf.
3. Business Motivation Model release 1.3., The Business Rules Group. 2007., Available 071205 at http://www.businessrulesgroup.org/second_paper/BRG-BMM.pdf
4. Dietz J.L.G.: Enterprise Ontology – theory and methodology, Springer-Verlag, Heidelberg, Berlin, New York (2005)
5. Gordijn J., Akkermans J.M. and Vliet J.C. van.: Business Modeling is not Process Modeling, *Conceptual Modeling for E-Business and the Web*, LNCS 1921, Springer-Verlag:40-51 (2000)