Value-Oriented Coordination Process Model Engineering

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Abstract. One of the most important aspects of a business collaboration is the value aspect. Analyzing a business collaboration form the value point of view enables us to understand the value-creation and sustainability of the collaboration. Therefore, having a business collaboration up and running for some time, the stakeholders involved in the collaboration can asses its performance by designing a value model of the collaboration and analyzing it. A value model is an abstract and easy to understand image of the collaboration from the value point of view. In this paper we elaborate on producing a business value model from a coordination process model.

1 Introduction

There are a lot of collaborations in business running for a long time without being really analyzed to see if they still are performing optimally from the business value point of view. Therefore, after using a business process for some time, it may be worthwhile we need to revaluate the business collaboration and reengineer it if necessary. Value productivity and sustainability are the most important aspects of a business collaboration. A value model of a business collaboration, enables the stakeholders to develop a better understanding of the performance of the collaboration from a value productivity and sustainability point of view.

For value modeling, we use the e^3value methodology [1]. e^3value is a notation to show the creation, distribution, and consumption of goods or services of economic value in a business collaboration. The main goal of value modeling is to reach agreement amongst profit-and-loss responsible stakeholders regarding the question "Who is offering what of value to whom and expects what of value in return?" Besides a graphical model, the e^3value methodology includes a computational model which enables the stakeholders to assess their potential profitability in the business collaboration over a specific period. For the sake of space we exclude the computational part of value modeling.

In [2] we have proposed a stepwise and pattern-based method for generating a coordination model from a value model. In our transformation method, we start by finding value patterns in the value model and add their counterpart coordination patterns to the coordination model. In this paper, we introduce the reverse transformation.

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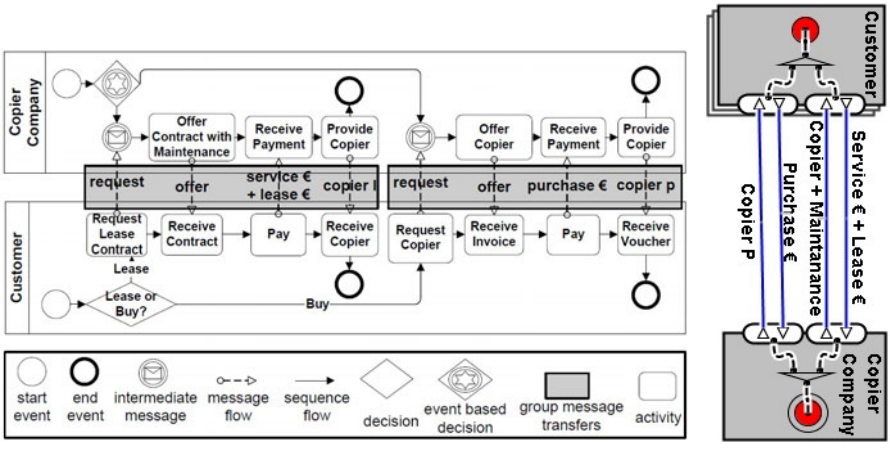
2 From Coordination Model to Value Model

A business value model is not a process model [3], they have different goals and concepts. Nevertheless they should be consistent with each other because they both refer to the same system. A lot of research have been done to check the consistency between these two types of models [4,5] and generating one based on the other [6,7,2]. Here we aim at developing a value model from a coordination model. A value model shows the stakeholders involved and the value objects which the stakeholders exchange between each other. Hence, the first step is identifying the stakeholders. We assume that the stakeholders are the same in both value model and coordination model. The next step is identifying the value exchanges between the stakeholders.

Exchanged messages between stakeholders are either value or non-value messages. Value messages are messages that indicate the transfer of value from one stakeholders to an. All other messages are non-value messages; they are used to coordinate the actions of the stakeholders. We exclude internal activities of actors, because from the value modeling point of view, exchanged messages between stakeholders is the only thing that matters.

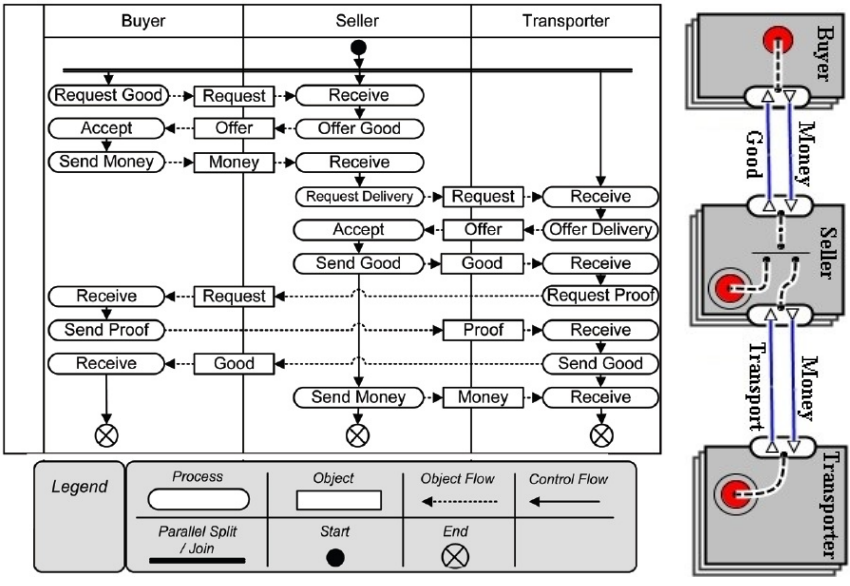
Consider the business case shown in Figure 1, taken from [8], which consists of a copier company that sells and leases copiers to customer companies. When leasing a copier, it is mandatory to purchase maintenance on a yearly basis. Figure 1(a) is an *inter-organizational* process model of this business case that shows which messages and in which order are to be exchanged between stakeholders.

Having such a coordination model, we need to identify the value messages and the relation between them to design the value model. In this case messages indicating value transfer are those labelled by *service €+ lease €*, *copier l*, *purchase €*, and *copier p*. Figure 1(b) shows the value model of this simple case.



(a) A business case in a copier company modelled in BPMN (b) Value model

Fig. 1. From Coordination Process model to Business Value model



(a) A business case in a selling company modelled in UML 2.0 (b) Value model

Fig. 2. From Coordination Process model to Business Value model

As another example consider the business case shown in Figure 2, taken from [9]. For generality of our discussion, it is modelled in UML 2.0 activity diagrams (see www.uml.org). Here, identifying the value-related messages (those labelled with Money and Good) is simple, but there is a complication regarding the order and direction of the value exchanges. The two messages labelled with Money are obvious. However, there are two messages labelled with Good, one form the Seller to the Transporter and the other from the Transporter to the Buyer, which both indicate the same value object. Here, the Transporter plays a mediator role. Therefore in the value model we would have a value transfer labelled with Good from the Seller (the originating stakeholder of the value object) to the Buyer (the final destination of the value object). In value modeling, we model the transfer of value objects between the real owner and the final receiver. We add a value object transfer labelled with Transporter from the Transporter to the Seller because the Transporter does the transportation service for the Seller (the Transporter is being paid by the Seller). This way we see the duality and reciprocity of the value objects as well. Value reciprocity basically means every value transfer should have a corresponding reverse value transfer; i.e., they always come in pairs. The value model of this case is shown in Figure 2(b).

3 Discussion and Conclusion

Once business stakeholders come together and start a business collaboration, any of those stakeholders may want to investigate the productivity of the

collaboration and make a change to it if and when needed. This requires knowledge on how good the performance of the business collaboration is from the value point of view. Here is where value modeling comes into play. Value modeling enables the stakeholders to run some value analysis of the collaboration and this helps the stakeholders to develop a shared understanding regarding the collaboration. Here, for the sake of brevity, we abstracted from the computational part of the value modeling. After developing a value model based on an existing coordination model, we can run a value analysis on the model and based on the analysis outcome either regenerate a refined or modified version of the process model from the value model [7,2], or breaking the whole business collaboration and make a new collaboration from the scratch.

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