Co-Design of Business and IT Services*

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Abstract

In this talk, we present our model-driven method for designing business and IT services. The talk is based on a work-in-progress project for a business-IT alignment extension of SEAM, an existing service-design method. We present how to specify the interface of a RESTful API based on the business services that use it. We also present our results and tools, and we conclude with future directions for our work.

1 Introduction

IT and business services have different meanings, even though both are based on the definition of a service as a means to achieve a goal though an interface, i.e., without considering the implementation of the value that the service provides. Business services are human-centered and disconnected from the IT services that support the business service. However, many enterprises are beginning to understand the value of microservice/service architectures, hence they are transitioning from their traditional monolithic IT systems to microservice/service-oriented ones. This transition entails a change in the way the business and IT services are implemented. In our project, we address the necessity of aligning business and IT services, and we propose a step-wise modeling method to co-design business and IT services, with the help of tools to partially automate the modeling process. The basis of our modeling method is SEAM, a service design method developed by our research group (Wegmann 2003).

2 A Method for Service Design for Business and IT

Our method for service design consists of four steps, as depicted in Figure 1. The first three steps are carried out by a service designer, i.e., a requirements-engineering practitioner, a business analyst. The four modeling steps are as follows:

* Based on Pirelli, B., Nessler, N., and Wegmann, A. 2018. "Co-Design of Business and IT Services - a Tool-Supported Approach," in *Service-Oriented Computing - ICSOC 2018 Workshops*. [online preprint]

1. Model the business environment. This environment includes the business services, the service systems, and the actors,who are involved in the process of delivering the service to customers.
2. Describe the information properties that the business actors use in their daily activities. These information properties are the data that the information system operates on.
3. Annotate the business models to describe the REST API that the business actors need in their business service. Our annotation is based on the CRUD operations. This annotation is new to the SEAM method.
4. Generate with our tool the OpenAPI specification from the models.

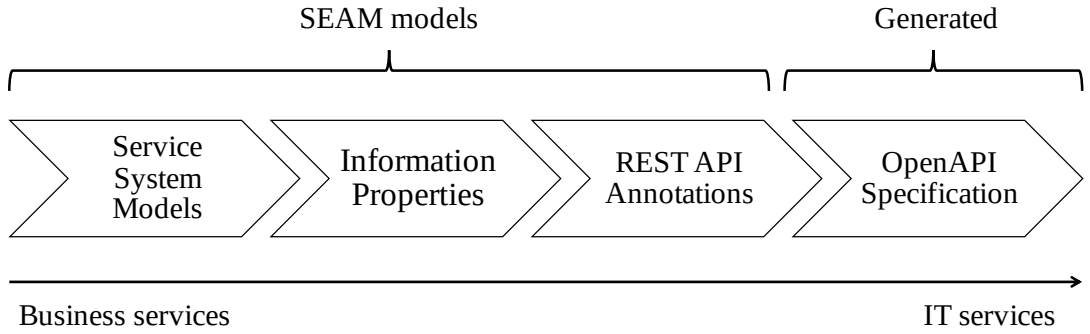

Figure 1 Step-wise modeling method for business and IT services co-design

3 Example

In this talk, we show an example of how we model with our method a simple yet realistic scenario. The example is based on a real case for airplane-engine maintenance. We start by modeling the business case with a service model, shown in Figure 2. In the example we look into the service exchange between a service-delivery value network (the engine manufacturer) and a service adopter (the airplane club).

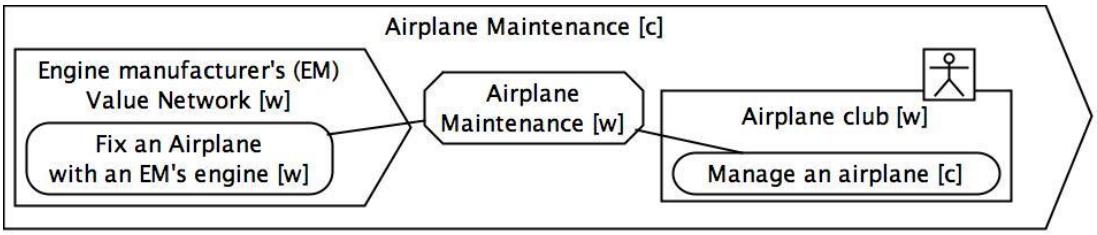

Figure 2 Airplane maintenance service system

Throughout the talk, we explain how to model the implementation of the services and the information properties that occur during the service exchange. The airplane club expects a certain RESTful interface; we show how to model the interface with our method (Figure 3). This model is used in the generation of the OpenAPI specification.

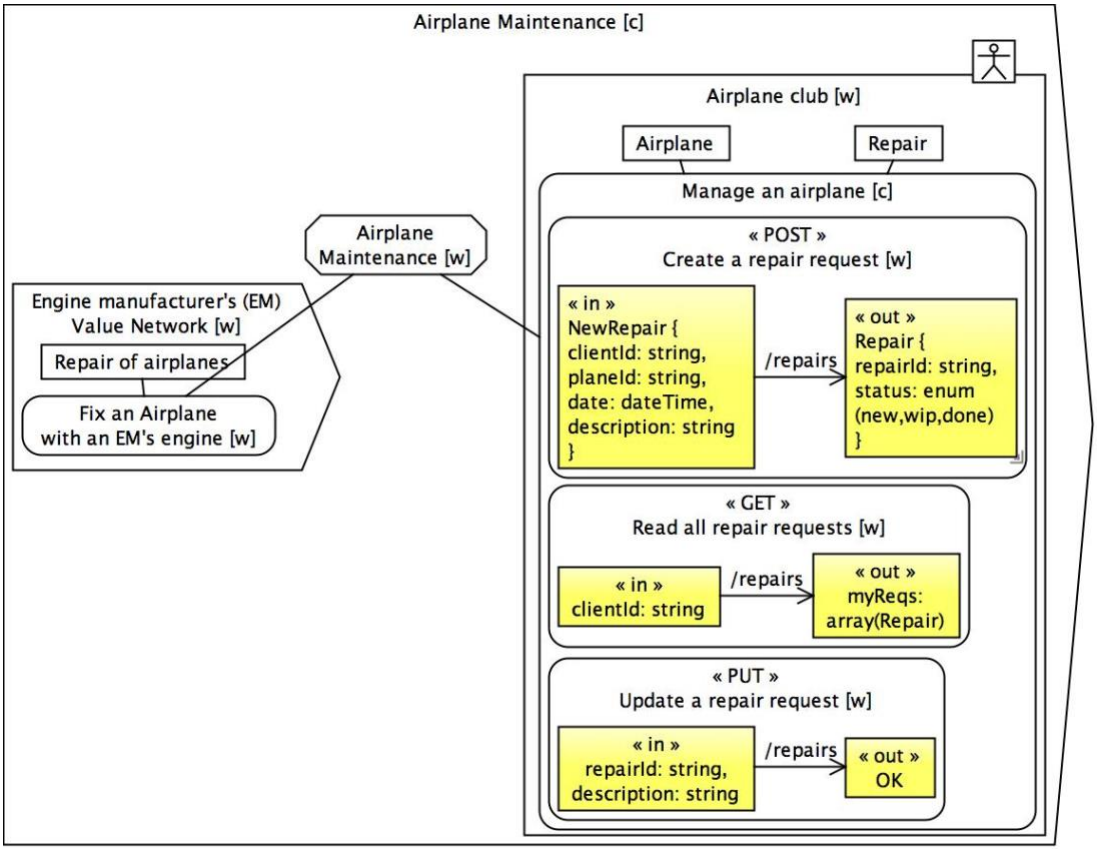

Figure 3 RESTful annotations for the service model of the airplane maintenance example

4 What Next?

We developed a toolchain for the bi-directional model transformation between the business service models and the OpenAPI specifications. We are now able to parse existing REST APIs and to create service-oriented business models. Currently, we are evaluating the method by working on case studies. We expect to gain insights on how the modeling method can be used in practice. We conclude our talk with a discussion on the advantages and the challenges of modeling, in the same model, business and IT.

References

Pirelli, B., Nessler, N., and Wegmann, A. 2018. "Co-Design of Business and IT Services - a Tool-Supported Approach," in *Service-Oriented Computing - ICSOC 2018 Workshops*.

Wegmann, A. 2003. "On the systemic enterprise architecture methodology (SEAM)," in *International Conference on Enterprise Information Systems* (doi: 10.1.1.93.5718).