Defining Requirements for an Entrepreneurship Marketplace: Business and IT Alignment in Practice

Lucien Etzlinger[1], Pierre Castori[1], Gil Regev[2], and Alain Wegmann[2]

[1] e-novate, Geneva, Switzerland
{lucien.etzlinger,pierre.castori}@e-novate.ch
[2] Ecole Polytechnique Fédérale de Lausanne (EPFL),
School of Computer and Communication Sciences
CH-1015 Lausanne, Switzerland
{gil.regev,alain.wegmann}@epfl.ch

Abstract. e-novate is an IT consulting company based in Geneva, Switzerland. They recently made a radical change to an IT product they were developing. The change compelled e-novate to define a new business model for the product and to align it with the existing IT architecture. Through e-novate's episodic relationship with a research team, they learned about the SEAM Enterprise Architecture method. Based on a set of research papers downloaded from the web, e-novate's models were created as prescribed by SEAM for defining early requirements, they were validated by their stakeholders and the required changes were implemented. In this paper we present the project, the reasons for selecting SEAM, the models that were created, the difficulties in creating and applying them, and the lessons learned for both practice and research.

Keywords: Requirements practice, business models, enterprise architecture, business and IT alignment, entrepreneurship platforms.

1 Introduction

e-novate IT Consulting is a small local IT consulting company located in Geneva, Switzerland. e-novate is specialized in Customer Relationship Management (CRM) system implementation and sales process enhancements. e-novate's team consists of experienced consultants who have demonstrated a strong ability for leading major projects for a multitude of businesses in different countries, e.g. Finance, trading banking, food and beverages.

In February 2010 e-novate undertook the development of a completely new service, called TradeYourMind (TYM), a platform for supporting entrepreneurship. Defining the requirements for the platform proved problematic because e-novate first needed to define the business model to implement. The business model includes aspects such as, what should the service provide, with which partners, to which clients, and how the service would become profitable. These aspects must be clarified in order to define meaningful requirements and IT architecture. The traditional requirements methods e-novate was accustomed to using (e.g. Use Cases, Business Process

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Modeling) do not have the concepts necessary to define such a business model and to align the requirements with it. e-novate was therefore looking for a business and IT alignment method that would enable them to systematically move from the business model to the IT.

e-novate had an episodic relationship with the research team that created the SEAM Enterprise Architecture method [1]. SEAM contained the modeling concepts that e-novate were looking for, e.g. market segment analysis, value analysis, alignment with operations and IT. e-novate was able to successfully use SEAM for defining the business model and requirements for TYM by creating the models described in the research papers downloaded from the research team's website. In this paper we show why and how e-novate used SEAM. We describe the advantages as well as the problems that e-novate faced.

In Sections 2 we describe the business situation surrounding the TYM project. In Section 3 we explain the selection process of the modeling method. In Section 4 we explain the SEAM models that were used for specifying TYM. In Section 5 we reflect on the advantages and problems e-novate faced using SEAM.

2 The TradeYourMind Project

At the beginning of 2009, e-novate came to the conclusion that it spent too much time and money in pre-sales activities, such as the Request For Proposal (RFP), often imposed by customers. The way customers select suppliers for a project through an RFP is opaque to suppliers such as e-novate. The process does not allow a supplier to exchange key information in a proactive and fair way (e.g. How many companies are bidding on the project? What is the real budget and timeframe? What are the hidden considerations of decision-makers to launch the project? What is the strategy behind the project?). Discovering this information is expensive and time consuming for suppliers but is essential for providing value proposals to customers. As a way to address these problems, the idea emerged to develop a web application that will help collect key sales information early in the process.

e-novate's initial goal was to create a web platform that enables customer companies to post new ideas of projects, help them to transform their ideas into concrete projects and finally link them with the best possible suppliers, thus reducing the pre-sales efforts for all parties. The underlying model was the trading of commodities (e.g. buy raw material, transform, deliver and sell it as a finished product). e-novate called this web platform TradeYourMind.com with the slogan, "When ideas become projects". The underlying idea behind this platform was that the earlier suppliers are involved in the tender process, the better their proposal will be.

In October 2009, e-novate demonstrated a first prototype to several customers. The customers did not appreciate the idea of offering more transparency in their purchasing process. They were either afraid of reducing competition between suppliers or they already had tools to manage their RFP process.

During a special event held in Geneva in February 2010, e-novate met a representative of a non-profit organization that provides financing facilities to startups in the Geneva region. The representative asked e-novate whether TradeYourMind.com could be used for making entrepreneurship in Geneva more open and connected.

Breaking away from the previous business idea (i.e. a platform to support the RFP process), e-novate embarked on the development of a platform for helping entrepreneurs to connect and collaborate with incubators and venture capitalists. This new business idea forced e-novate to define requirements for a new platform for supporting entrepreneurship. e-novate then faced the problem of building an application for a brand-new business. A new business model had to be specified completely because it did not exist yet. The requirements for the platform naturally depended on this business model.

The use of SEAM enabled e-novate to define a business model for a marketplace of ideas that brings together entrepreneurs, business partners (e.g. investors, service providers such as insurances, banking services, legal advisory, telco, office equipment, hardware) and incubators (organizations supporting entrepreneurship). In this marketplace, entrepreneurs offer business ideas for sale and receive help in sharpening their ideas. Business partners can "buy" projects that they want to contribute to. Incubators can virtually host entrepreneurs and link them with business partners.

The development of TradeYourMind.com was insured by e-novate's own funds. The project lasted for 11 months. In March 2010, they began modeling the initial business ideas with the Business Model Canvas [2]. e-novate then switched to SEAM for defining the business models. They developed the service and behavior models in April and May 2010. The data model was defined in June 2010. The application was developed from September 2010 until January 2011. The first customer signed up at the end of 2010.

The overall time spent on the business model and the requirements was 190 days. Within e-novate the effort involved two people with the roles of business analyst and developer. It also involved potential customers, an incubator and two entrepreneurs.

3 Requirements Methodology Selection

e-novate initially used a waterfall process based on PRINCE2 to manage the project. In the feasibility study phase, they evaluated three technologies for modeling and implementing the system:

1. Aqua Logic Business Process Management from BEA System
2. CRM Salesforce from Salesforce.com
3. The Intalio Open Source platform

These are platforms that include a modeling front-end, as well as a programming environment. After testing these platforms and making additional surveys, e-novate opted for Salesforce.com for its flexibility, extremely fast development process, and easy integration of the TYM kind of applications with Salesforce's CRM functions.

To complete the Initial Phase, e-novate began to specify the requirements for their future web portal. After a few weeks, they realized that they first needed a clear view of the business model they wanted to implement. Something was missing in the approach. How could they know who are the real users? Who will pay for the services? What part of the services will be free of charges? TradeYourMind.com was an entirely new business with no existing references and everything had to be built from scratch. e-novate had to imagine directly the «TO BE» model without going through

the «AS IS» model that usually enables a better understanding of the business environment in which the company operates.

To overcome the lack of a business model, e-novate first used the Business Model Canvas [2]. The use of the Business Model Canvas clarified some of the business issues. However, the Business Model Canvas does not have tools for aligning the business model with the underlying IT platform. e-novate needed models for defining the requirements based on the business model and deriving the IT architecture.

Partly through chance and partly through its business network e-novate was exposed to SEAM [1]. A chance encounter with one of the SEAM authors in a business conference provided the spark and it so happened that e-novate's key developer personally knows the SEAM authors. Despite this relationship e-novate had only two short informal introductions to SEAM. Through these introductions e-novate realized that they could use SEAM for the alignment of their system with their business. e-novate downloaded four research papers describing SEAM [3, 4, 5, 6]. The papers described SEAM for Business [3], SEAM goal-belief models [6], SEAM for Enterprise Architecture [4] and SEAM for Software Architecture [5].

Based on these four papers, e-novate began to build its own SEAM models. They faced difficulties apprehending the global concept behind SEAM and understanding the links between models. All through this project they made no attempt to contact the SEAM authors because they did not think that their project presented challenges that were interesting enough for the researchers. They built all the models in complete independence. Only after TradeYourMind.com was operational did they contact the SEAM authors to show them the product and the SEAM models. e-novate and the SEAM authors are now working together to improve the TYM models and therefore TYM itself. However, the models in this paper are the originals that were created independently of the SEAM authors.

SEAM for Business provided e-novate with the modeling tools to generate several business models. With these models e-novate was able to see the possible scenarios and thus choose the most promising one. The business model selected by e-novate was a multi-sided platform pattern [2]. A multi-sided platform is characterized by several interdependent customer groups who are all needed for delivering value to each one of them. In the TYM case, these customers are the entrepreneurs, the partners and the incubators. Their existence and relationships are necessary for TYM to succeed.

SEAM for Enterprise Architecture was used to fill the necessary information to set up the design and development stages with a clear understanding, for all contributors, of the business configuration and the expectations of the adopters' value networks in terms of service value. It was key for e-novate that people in charge of the application development really understand to whom and how the service is to be delivered, thus ensuring that the envisioned web platform will be aligned with the defined business strategy.

4 Results of SEAM Applied to TYM

The SEAM research papers describe the succession of models to be created but do not explicitly define a SEAM modeling process. Figure 1 shows e-novate's understanding

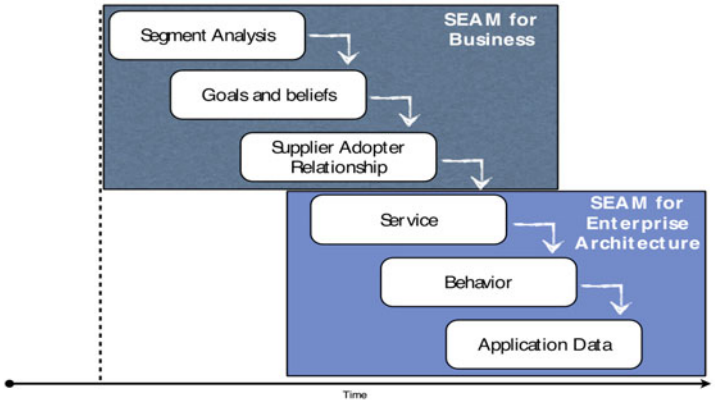

Fig. 1. SEAM Development Process as inferred by e-novate

of this process. The steps in Figure 1 give the succession of models that e-novate built during the project. These models are shown in Figures 2 to 7. Note that these are the original models created by e-novate before the SEAM authors reviewed them. They are not as rigorously aligned as they would have been in a research paper.

The segment analysis model (Figure 2) was used to specify the different components of the market. It confirmed that the entrepreneurship market is a multi-sided market involving 3 main actors who need to be addressed in parallel.

Figure 2 shows a SEAM segment analysis model for the service provided by TYM to its main adopters, i.e., incubators. It names the segment as IT for entrepreneurship.

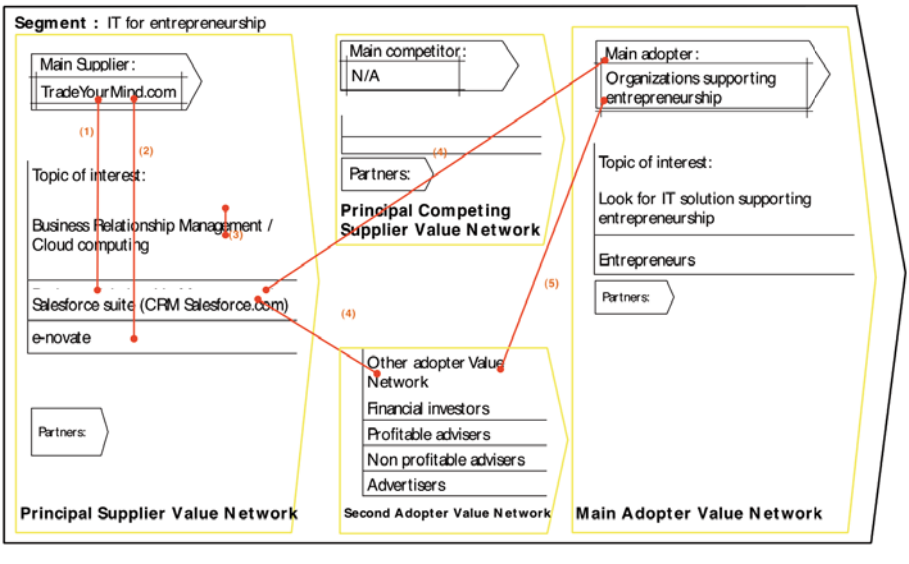

Fig. 2. TYM Segment Analysis Model

It shows that in e-novate's view there are no competitors for this service. It identifies Salesforce as the enabling technology for this service. It shows a number of secondary adopters (e.g. investors, advisors and advertisers).

The SEAM Goal and Belief model (Figure 3) was used to better understand the stakeholders identified in the segment analysis model. The Goal and Belief model shows who these stakeholders are. The model shows the problems the TYM stakeholders (incubators, entrepreneurs, investors) face without the TYM service, and their expected gains from the TYM service. For example, the model shows that e-novate think that incubators need a tool to manage an increasing volume of entrepreneurs. This participates in the justification for the development of TYM. Note that the model, as originally done by e-novate is not really aligned with the model in Figure 2, For example, the entrepreneur in Figure 3 is named applicant in Figure 3.

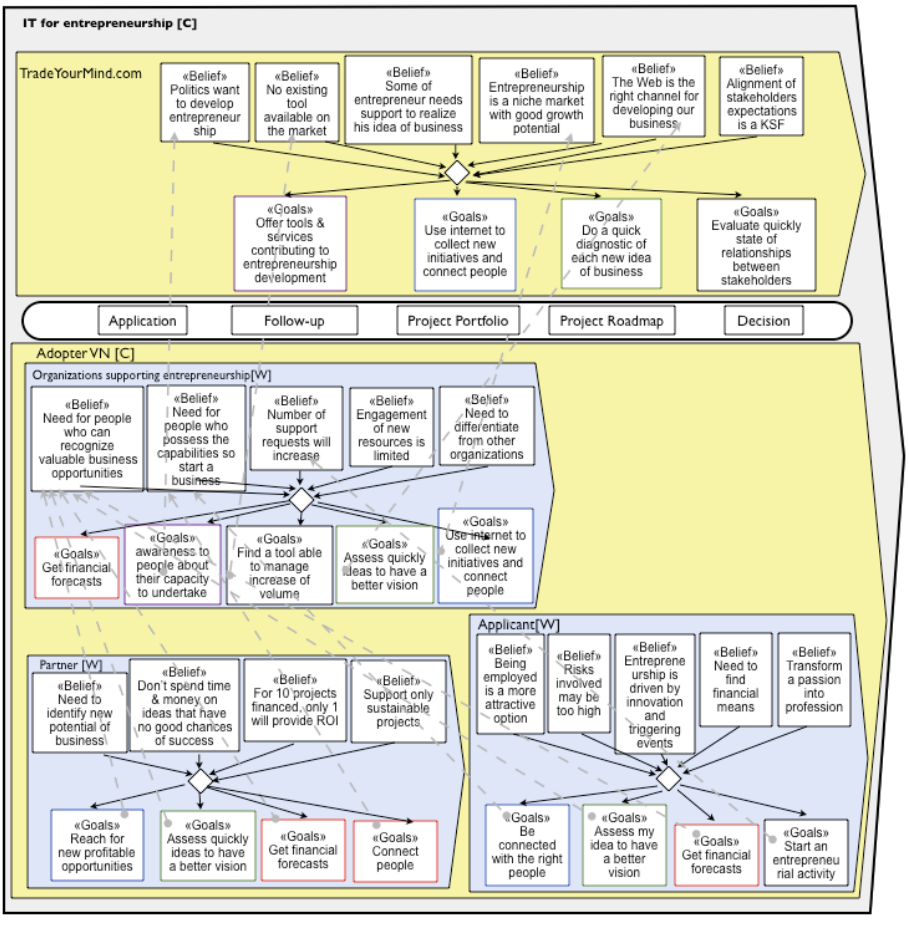

Fig. 3. TYM Goal-Belief Model

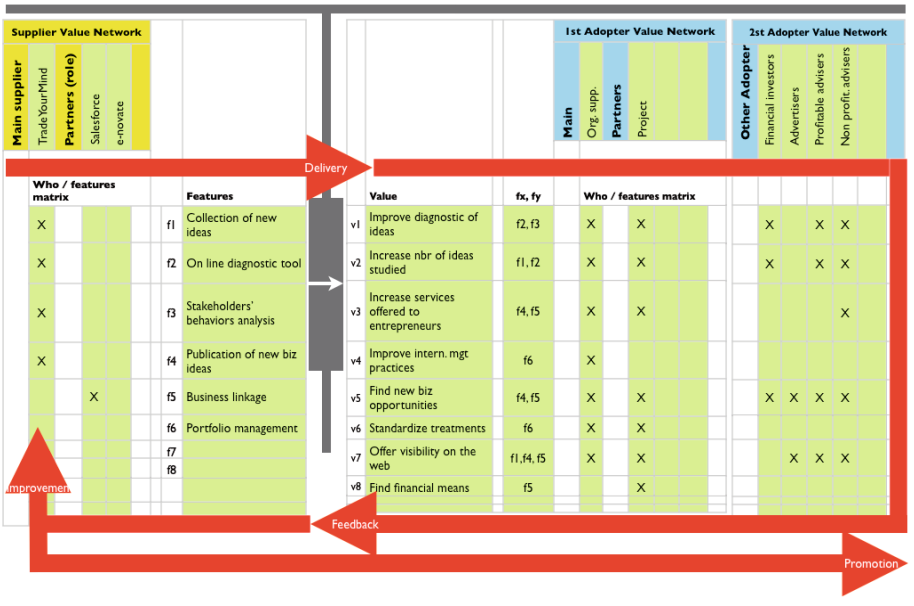

Fig. 4. TYM Supplier-Adopter Relationship Model

e-novate reviewed this model with customer segment representatives in order to validate e-novate's assumptions about stakeholders' expectations. This is also a very important step in defining the services provided to customers.

The goals defined in the Goal and Belief model were used as input for the Supplier-Adopter Relationship (SAR) model, (Figure 4). The SAR maps customer value to service features and the features to service components. It enabled e-novate to identify macro functionalities to be delivered through the customer portal, in order to provide added value to its customer segments. For example, incubators will see value in a tool for improving their evaluation of ideas (called diagnosis in the model) and the number of ideas they can evaluate.

The SEAM behavior models (shown in Figures 5 and 6) describe how TYM would deliver services to customers and what kind of information the stakeholders would exchange. e-novate produced a macro representation of the two essential components of the TYM customer portal, «Sell Ideas» (Figure 5) and «Buy Projects» (Figure 6). These models show how the business process as viewed by TYM and its stakeholders (e.g. entrepreneur, incubator, partner).

During the design of the sell and buy processes, e-novate collected bulk information (e.g. adhesion questionnaire, reports, sample of projects) from potential adopters to enrich their understanding of the information that needs to be managed by the portal.

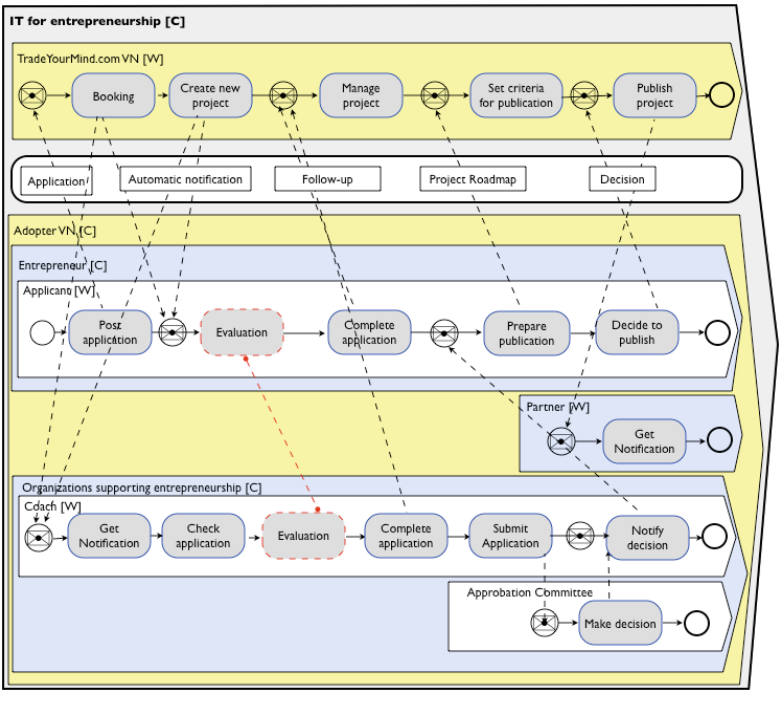

Fig. 5. TYM Sell Ideas Model

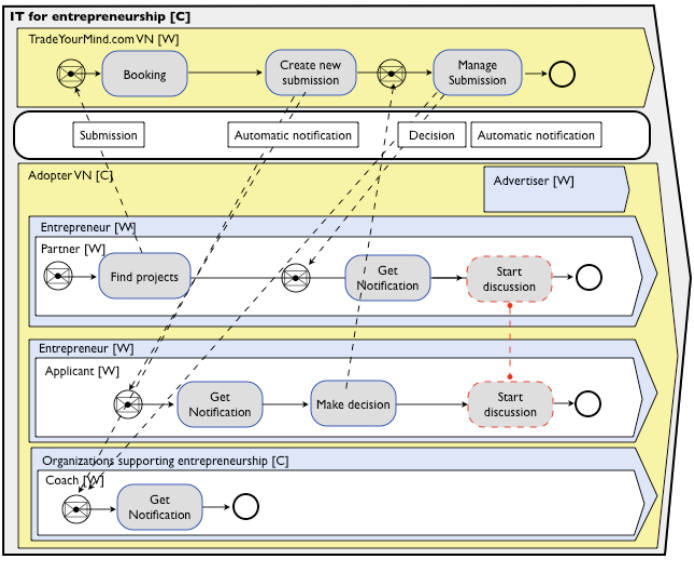

Fig. 6. TYM Buy Projects Model

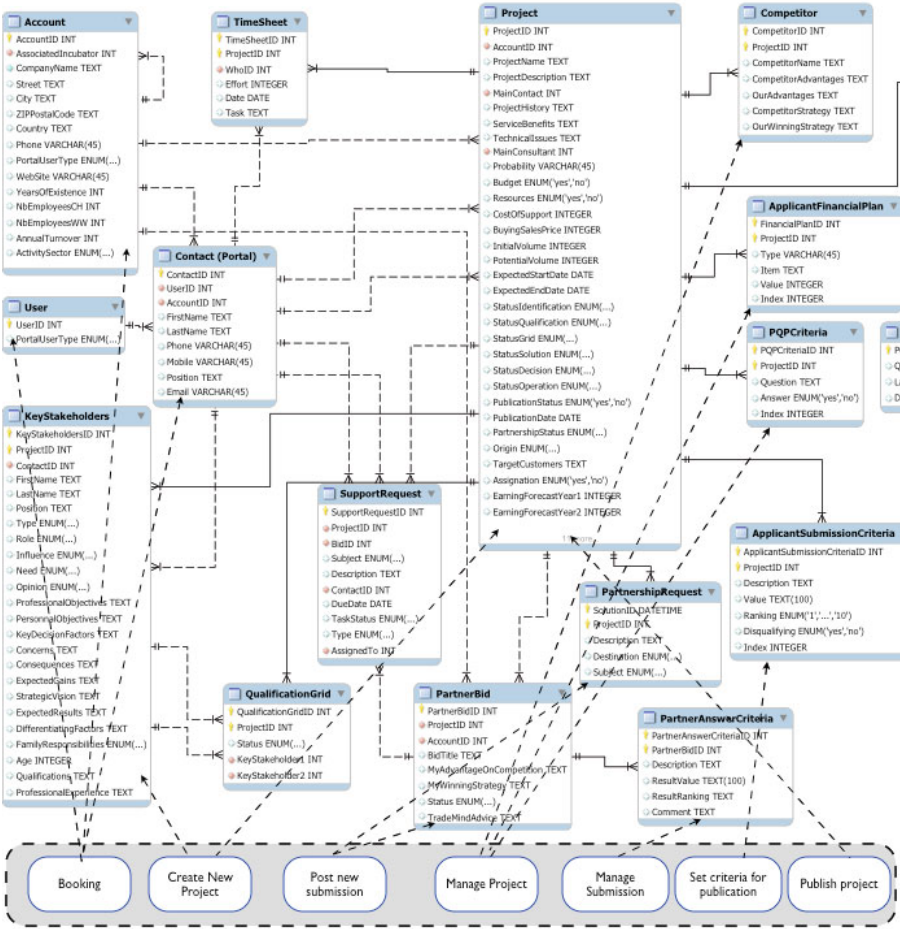

Fig. 7. TYM Partial Data Model

With the macro processes identified in the behavior models, e-novate created the application data model (a partial view is presented in Figure 7). This establishes the link between the macro business process and data that need to be managed by the IT systems. For example, we see the relationship between the Project table and the Create New Project activity. The data model is a key element that supports the web based application development. e-novate did multiple iterations until they finalized it. e-novate were able to specify, at the same time, the data security model and access rights because they now had a clear understanding of the portal roles and could rely on Salesforce's highly integrated security functions.

5 Discussion

e-novate were looking for a modeling method that would enable them to define the TYM business model and then systematically move toward its implemented. e-novate

chose SEAM because it offered these features but also because they knew its authors and could obtain help from them if they needed it. As is customary in business settings, they did not do a comprehensive search for the state of the art in business and IT alignment methods. The relationship with the authors of a method or with other experts who can help in its use should not be under-estimated when analyzing the choice of a method.

Without the support of the SEAM authors, it took e-novate much time to understand and interpret the research papers. The lack of correlation between the papers illustrating the different parts of SEAM did not offer the necessary global view of its integration. e-novate were able to create and maintain the SEAM models despite the lack of a specialized modeling tool. However, The lack a tool was penalizing for the maintenance of the models. e-novate had to build the models using Keynote or PowerPoint, which are not efficient tools for this purpose. To keep the models aligned, e-novate had to manually manage the relationships between the models. When they changed a model, they had to review all the others for possible changes. They would really appreciate having an application allowing them to quickly and dynamically manage SEAM models.

The models shown in this paper are the original models, before the authors of SEAM reviewed them. These models are not totally aligned from an academic point of view. For example, they do not use the same names for the same concepts across all models. However, the models were sufficiently aligned for e-novates purposes. We believe that the models were valuable for e-novate despite them being non completely aligned because of the co-construction of the models by complete development team. e-novate involved the development team from the strategic goals definition to the business modeling process. As a result, they all had a clear vision of the business environment, which ensured a good alignment of the business strategy with the envisioned IT system. More precisely, the SEAM models enabled e-novate to have, before they began the development phase, a clear idea of the following aspects of the system:

- Portal roles and the process specific to each role (including triggering events and notifications)
- Data elements accessed by each role.
- Security constraints for each role and data.
- Interfaces between the IT system (platform) and its environment.

The switch from design to development therefore resulted naturally. A key added value of SEAM is that developers can easily trace the requirements and know why a development step has to be taken. The ‘why’ is important because development quality is improved when developers are able to justify their decisions.

Some aspects of SEAM (e.g. Goal and Belief models) were difficult to understand and apply. However, they proved to be of much value for understanding customer concerns. e-novate invested a substantial amount of time and energy to build all the models proposed in the research papers even though some of the models were not well understood.

e-novate had the opportunity to review and validate some of the SEAM models (Segment Analysis, Goal and Belief and Behavior models describing Sell Ideas and Buy Projects processes) with their customer representative, who is an experienced

coach for entrepreneurs. e-novate spent two sessions of 3 hours reviewing and improving the models. Reading and interpreting SEAM models were not difficult for the customer. e-novate also discovered that SEAM helped them to not dive directly into the process details; the high-level models proposed by SEAM are more focused on strategic issues than on operational details. The Segment Analysis model enabled the customer to quickly understand what kind of business model is behind the web platform and opened the discussion about it. e-novate collected some key information about business issues.

The Goal and Belief model was the most interesting model to review with the customer representative. It helped e-novate to identify their customer's main business concerns and thereby to improve their value proposition. It was also the most difficult to understand and create because it was not clearly documented by the SEAM authors. To better understand these models, it was necessary to meet with the authors.

e-novate's goal using the behavior models was not to describe in detail the processes rather to identify the basic processes that needed to be implemented. To go deeper in the process analysis (e.g. process enhancement, re-engineering), it is possible to use a common Business Process Management approach with a Process Modeler tool such ALBPM, or Intalio, to complement SEAM. These products provide the necessary information that can be useful later to the detailed work of the development team.

6 Conclusions

In this paper we presented business and IT alignment of an on-going project in a consulting company in Geneva called e-novate. We explained how and why e-novate chose the SEAM method, its advantages and disadvantages.

Using SEAM for TradeYourMind.com was considered by e-novate as a success because they clearly demonstrated that they were able to design and build TradeYourMind.com from the stage of a single idea into a concrete customer portal where people make e-business transactions and exchanging information on the web.

e-novate used SEAM over the whole hierarchy from the business model down to the data model. This enabled them to move smoothly from the business modeling phase to the development phase.

e-novate first developed all the SEAM models and built the platform with no help from the authors of SEAM. e-novate presented the models and the platform to the authors of SEAM only after the first version of TYM was deployed. This prompted the refactoring of the SEAM models, which will result in changes to the platform itself. The models could have been better aligned and TYM would have been better suited for its mission had e-novate contacted the SEAM authors during the project. E-novate and the SEAM authors are now working together to improve the models and TYM itself.

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