Bringing together existing Business Modeling flavors

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Abstract. There are currently several techniques or notations for business modeling that allow the idea of business to be explored in greater or less detail, while simultaneously helping to understand, conceptualize and represent the services that add value to an organization. All of these techniques have similarities and differences, but are in many cases complementary. However, there is no integrated environment that makes it possible to work with several models simultaneously, and much less that provides support as regards identifying, registering and managing the relationships among them. This work is a first step towards attempting to fill this lack by constructing a technological environment that will integrate tools in order to support different business modelling techniques and to register and manage the relationships among different models.

Keywords. Business Modelling, Model Engineering.

1   Motivation

The business model describes the bases upon which the firm creates, provides and captures value [5]. As stated by Teece [7], the definition of a business model implies identifying the way in which the company provides value to customers, attracts them so that they will pay for this value and converts that payment into profit.

Despite the interest raised by business model, the concept has been historically suffered from a very heterogeneous comprehension from the three main different perspectives of business models, namely technology oriented, strategy-oriented and organization-oriented. For instance, in the context of information technology business models have been classically identified with process models, while the organization theory oriented conceived the business model more as an abstract representation of a company's structure or architecture [10].

This heterogeneous comprehension is reflected for instance in the fact that there are currently a number of techniques or notations for business modelling that allow the idea of business to be explored in greater or less detail, while simultaneously helping to understand, conceptualise and represent the services that add value to an organisation.

Of these, it is possible to mention models such as the Business Canvas model [5], the Value model [4], the Service Blueprint model [1] and those models that are more process oriented, such as the PCN diagram [6] or BPMN [8].

All of these techniques have similarities and differences, but are in many cases complementary. It is therefore possible to identify relationships among them. For example, all the techniques clearly permit the identification of who are the consumers of a service, or which entities participate in a process.

Note the importance of identifying and registering these relationships, since different organisation that collaborate in a business, and even different teams within a same organisation, may use one or several of these techniques to represent the business model, with the resulting understanding problems that this could imply.

Various tools supporting some of these techniques are currently available, and basically provide the technological support needed for the creation of graphic models. However, there is no integrated environment that makes it possible to work with several models simultaneously, and much less that provides support as regards identifying, registering and managing the relationships among them.

At this point, we consider that Model Driven Engineering (MDE) (and even more specifically model engineering) can be put to work to address this scenario. In this sense, we are aligned with the already expressed thought that MDE has achieved certain levels of maturity but needs from a more applied or realistic point of view [8].

One possible solution is to broaden its scope of application, by moving to other fields where both modelling and automation can decisively help to address their problems of interest. We firmly believe this is the case with the people from the business field. We, MDE practitioners can help them to materialize and drive forward their ideas by providing them with the appropriate tooling and alleviating the inherent complexity they face when trying to bundle different pieces or concerns together, without a well-defined process or methodological basis.

All this given, this work is a first step towards attempting to fill the lack of proper support for bridging existing business modelling notations by constructing a technological environment that will integrate tools in order to support different business modelling techniques and to register and manage the relationships among different business models. Current prototype in particular presents a modelling environment for the edition of Business Canvas models, Value models and Service Blueprint models. In the medium term, we intend to automate the identification of the relationships between these and other existing models, and integrate support for another series of functionalities, such as gap analysis, in the context of business modelling.

2   Current state

INNoVaServ is a toolkit developed atop of Eclipse's EMF/GMF to create, define design and bridge different Business Models and Service Operations at different levels of abstraction and also from different points of view.

In its current shape[1], it bundles a series of DSLs supporting three different Business Modeling notations: namely the Value model, the Canvas model and the Service Blueprint model.

To illustrate the functionality delivered as of today by these tools, Fig 1, Fig 2 and Fig 3 show three different screen captures, one from the editor developed for each DSL, for the very same case study: the BicyMad business model.

Basically, BicyMad is a small family business that has been always devoted to bike selling and has decided to grow and innovate by offering incorporating the renting of electric bikes. They are consequently servitizing their business: moving from a product-based offering to a combined product-service one.

Despite the insights of this particular case, our experience while developing the tools and using them to model some business scenarios have revealed that existing notations for business modeling and service design are not only interrelated but frequently complementary.
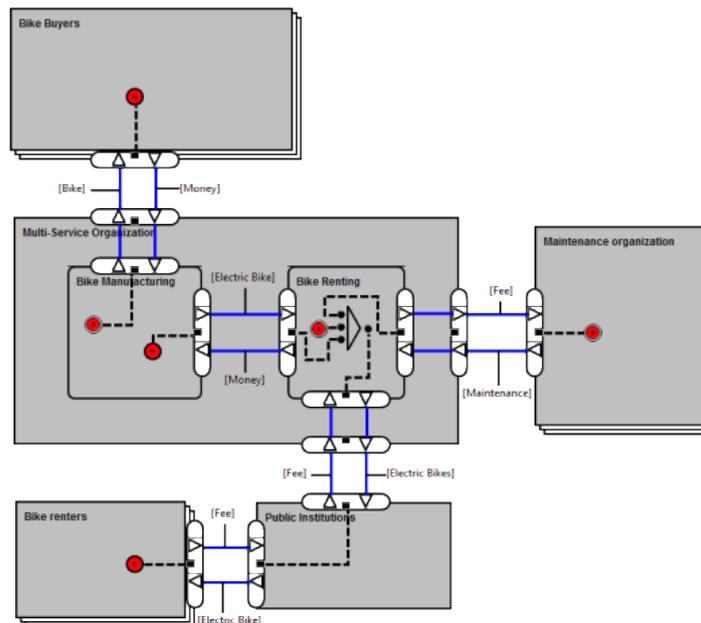

Fig 1.   BicyMad e3 Value model

The e3 Value model in fact allows us to represent the stakeholders involved in a given business scenario; the underlying services composition and the value exchanges between the different stakeholders involved. However, it does not support the modelling of the insights of the different services involved in the business scenario.

By contrast, the Service Blueprint shown in Fig 2 focuses in the interactions that hold between the different stakeholders for a particular business service to take place

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(in particular the figure focuses on the bike selling service). On the other hand, it does not reflect the decisions or actions triggering each step of the underlying process.
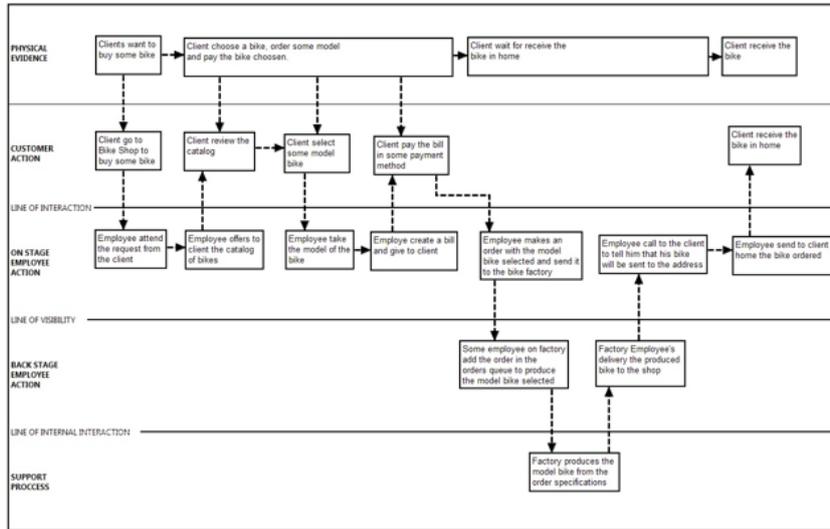

Fig 2.   BicyMad Service Blueprint model

Finally, the Canvas model, depicted in Fig 3 collects general information of a given business, but it is not appropriate to capture the relationships that hold around the service.
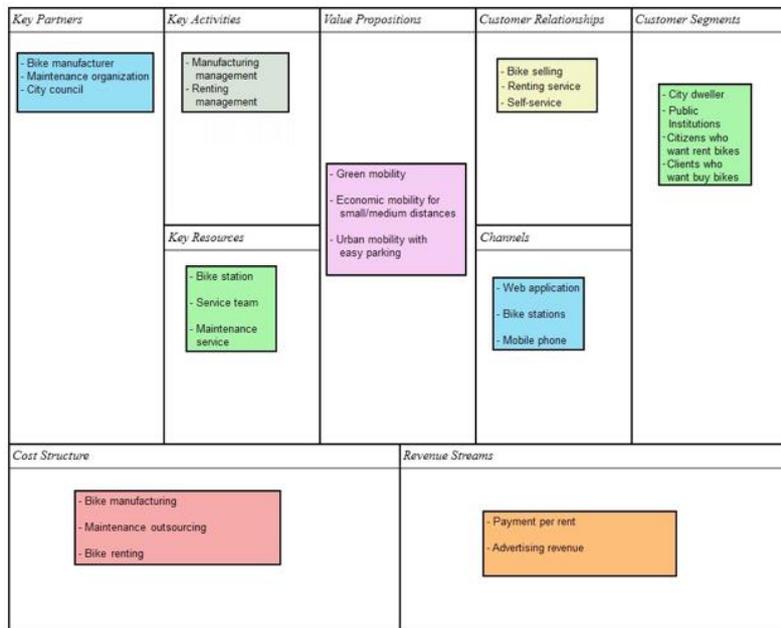

Fig 3.   BicyMad Canvas model

To sum up, one model focus on the value interchanges, the other one on the underlying processes that take place and the last one in providing a very high level overview of the main factors and forces behind the business scenario.

We believe that similar findings will be bring to light as new notations are incorporated and used to model different scenarios.

3   Ongoing work

We are currently able to provide users with a unique tool that allows then to depict their business models using different notations. In addition, they are already able to persist them in some interchangeable format and we are providing them with model management capabilities in the shadow. Even more relevant is the fact that all this support comes encapsulated in an environment designed and conceived to be extended as needed, in affordable time and manner.

Regarding what remains to be done, the aim of this project was already introduced at the beginning of this work. However, in the following we break down the introduced idea into concrete objectives which are being already addressed in the context of the project:

- First of all, we are working to integrate support for some other notations for business modeling and service design, such as the already mentioned Process Chain Networks. (PCNs) [6]which is already supported by the most recent version of the toolkit.
- Next, technological bridges between the DSLs supporting each notation will be developed. The idea is to develop a set of functionalities to deal with these models and handle the information collected by means of model management tools. For instance, one might want to identify the common parts in a particular set of models, derive partial models from already existing ones, generate reports on some particular aspects, etc. Fig 4 illustrates this type of needs by using some models from the BicyMad case study. Note how the e3Value model in the middle can be used to derive initial drafts of the Service Blueprint models describing the underlying process of the service related with each value interchange depicted in the Value model.
- Connect business models with the data gathered from daily operations to support and enhance the extraction of relevant information with which to improve the performance and outcome of the services offered.
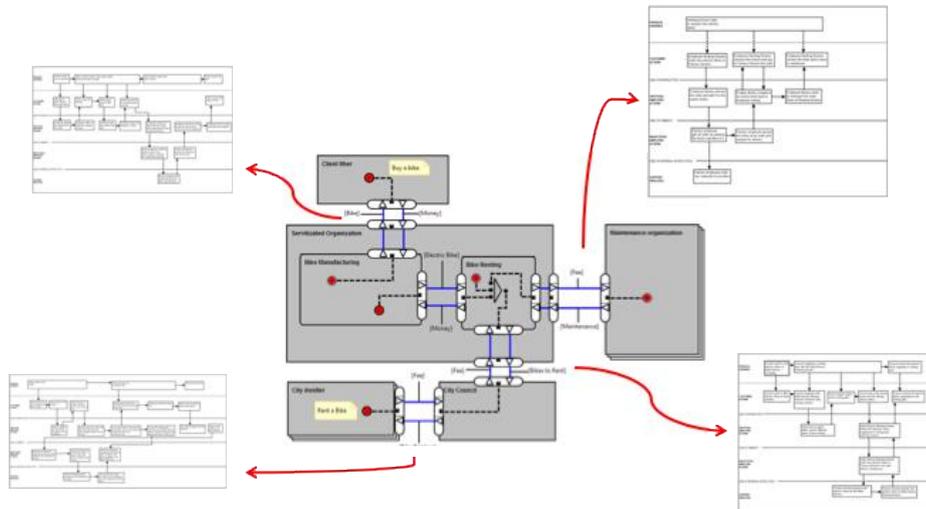
Fig 4.   Service Blueprint models derived from e3Value model

Ultimately, the aim is at developing a kind of workflow to help either novel or expert users in the inception, definition and design of services using their preferred business model notation to start the process.

All in all, this project is somehow aligned with some ideas already pointed out by some renowned MDE practitioners and authors [1][3][8]: we, MDE practitioners, should try to broaden our field of application, putting modeling to work for other domains without putting the focus on technology itself but on what technology offers.

As a matter of fact, the context of this work illustrates this situation: while people from IT think probably of BPMN models or the like when talking about business modelling, people from business departments think frequently on Canvas, which provides a much more abstract and high level overview of any given business. IT people have always tried to bridge the gap between technology and business, and we thought we were doing so when using BPMN models. Unfortunately, despite some success studies and the best of our efforts, we are still far from being using the language of business people.

This is the kind of scenario that MDE practitioners might help to address, without stressing the fact that we are doing so using model-based technology, but just doing it.

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