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# REDUCING UNCERTAINTY IN BUSINESS MODEL DESIGN: A METHOD TO CRAFT THE VALUE PROPOSAL AND ITS SUPPORTING INFORMATION SYSTEM

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## Abstract

*Given the increasing importance of inter-organizational networks, business models and their underlying information systems must reflect this reality. Among the challenges that arise in this context are the representation of the relationships between the participating actors, the analysis of the complex balance of interests, and the evaluation of the resulting network stability and viability. We present an approach to help the analyst meet those challenges, using concepts from social theories, namely Actor-Network Theory and Structuration Theory. The proposal is illustrated with the case of the publication of a scientific journal. Our aim is to provide an instrument that helps designing innovative business models and their underlying information systems while reducing risk associated to uncertainty.*

*Keywords: Business model design, Actor-network Theory and Structuration Theory.*

# 1 INTRODUCTION

In the last few years, innovative business ideas have been proposed. Such ideas have enabled the emergence of inter-organizational networks, which have provided companies with the opportunity for defining new processes, with different business rules and new value proposals. It has become possible to establish complex settings, where several organizations can cooperate, share goals, or compete for a particular advantage. These configurations have been supported by technological advances in the connectivity of systems and the widespread use of Internet and associated technologies.

In the late 1990s the excitement around new business models, namely those centred on the Internet, was high. However, a few years later, it became clear that a number of these businesses initiatives were unfeasible (Shama, 2001). A key problem was that those business models were ill designed. They were not analysed according to solid business theories that would make it possible to obtain some clues about their viability (Gordjin, 2002). This lack of analysis raised problems in foreseeing the consequences of actions and choices in those ventures.

We propose a new approach that provides an in depth analysis of business models. This approach takes into account the goals of the stakeholders, promotes their participation in achieving a solution that reflects the alignment of their interests, analyses the emergent value network, and provides insights about the viability of the resulting model. The information collected through this process is valuable to the specification of the business processes and of the information system that will support the business idea.

Since business models involve people and, thus, are social-technical systems, it is important to complement business model theories with social theories. The latter can provide valuable insights in understanding organizational, social and political viewpoints, so as to comprehend the interconnections between various stakeholders in a specific environment (Rose and Scheepers, 2001). With this reality in mind, when conceiving our approach we sought inspiration and contributions in Actor-Network Theory, Structuration Theory and business models theories as presented in Figure 1.

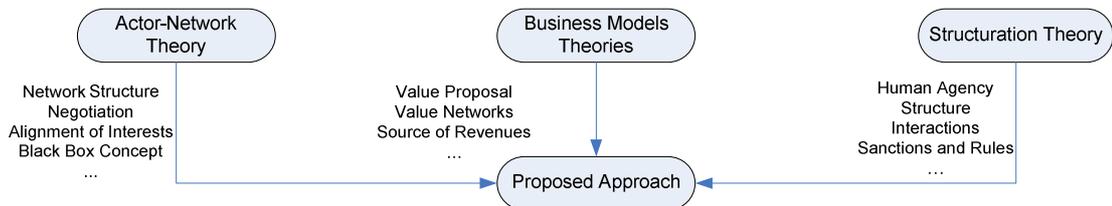


Figure 1. *Fields of inspiration to the approach developed.*

As seen in Figure 1, each of the theories contributed with concepts or practices to our proposed approach, thus enabling it to provide the analyst with a richer perception of the various factors influencing the conception of a new business model and its underlying information system. Furthermore, we are using the social theories to help us formulate new designs, while typically they are used only to study existing settings.

The remainder of the paper is organized as follows: section 2 describes the research methodology. Section 3 discusses business models, to set a common ground for the remaining text. Section 4 explains the reasons that influenced the inclusion of social concerns and describes the theories we used. Section 5 explains how the concepts contributed by the various theories are matched. The proposal and its application to a real scenario are explained in Section 6. Finally, in section 7, conclusions and further research directions are provided.

## **2 RESEARCH METHODOLOGY**

Traditional research approaches base their rigor and validity in principles such as problem decomposition, standardization of procedures, and collection of rigorous quantitative measures under the control of independent researchers. However, when socio-organizational settings must be taken into account, researchers must find alternative methodologies. According to Baskerville and Wood-Harper (1996), action-research can meet this challenge, considering the effects of specific changes in systems development methodologies.

The rigor and validity in action-research is mainly achieved through its cyclic nature (Baskerville and Wood-Harper, 1996). In the first phase of the cycle, an intervention is planned (Planning), in the second phase, the proposed action is executed (Action), which will lead to a changed context. Finally, in the third phase, a critical analysis is carried out to extract lessons learned (Reflection). This will provide indications/clues about what to do in the following cycles, effectively building knowledge from one cycle to the next. It is possible to begin with a fuzzy research question and to test our assumptions, identify strengths and weaknesses, and refine the emerging solution iteratively.

We started our inquiry by an exhaustive literature review in the areas of business models, value networks, and social theories. The outcome of this process was the first draft of our proposal, which was then applied to simple past case studies in a first “dry run”, to weed out potential preliminary problems before moving to more complex, real client settings.

The decision of using a combination of research approaches (Denzin, 1978) was taken considering the complexity of inter-organizational networks, with numerous variables at play, some unknown, and most of them beyond the control of the researcher. This inclusion of multiple principles allows minimizing the limitations of individual methodologies when used in isolation in complex scenarios, which is particularly useful to gain rich insight in complex social and dynamic processes (Bouwman, Hooff, Wijngaert and Dijk, 2005).

## **3 BUSINESS MODELS**

The term business model has been used frequently since the mid-1990s. It is a topic of hot debate and draws considerable comment and differing opinion on both academia and practice (Joyce and Winch, 2003). The main driving force behind the re-evaluation of the (traditional) business model concept has been the new opportunities afforded by the Internet, as more and more organizations try to understand how to use it in a successful manner (Seddon, Lewis, Freeman and Shanks, 2003). However, a careful analysis of the expression shows different perspectives and a persistent confusion.

In an attempt to clarify the concept, numerous definitions have been outlined. Authors like Linder and Cantrell (2000), Auer and Follack (2002) define business model as a “core logic” or “business system”, providing a generic description. Others like Magreta (2002) offer a more process oriented perspective: “a story that explains how an enterprise works”.

Definitions that focus on specifying business model’s primary elements and their interrelationships have also been presented (Vassilopoulou, Ziouvelou, Pateli and Pouloudi, 2003). For instance, in (Weill and Vitale, 2001) a business model is defined as “a description of the roles and relationships among a firm’s consumers, customers, allies and suppliers that identify the major flow of products, information, and money, and the major benefits to participants”. Another example is Timmers’s proposal (1998), where he states that a business model is “an architecture for the product, service and information flows, including a description of the various actors and their roles; a description of the potential benefits for the various actors; and description of the sources of revenues”.

Rather than taking a perspective of a single firm as Weil and Vitale, Timmers adds the notion of multiple business actors, effectively referring to a network that delivers a product or a service

(Gordjin, 2002). The resulting network configurations, with possible inter-organizational relationships, create new business opportunities and new value proposals.

The business value proposal of a network can be heavily intertwined with the technological artefacts that support its relationships, given that these artefacts can provide the service support and the knowledge that enable the creation of value to the participants of the network. Considering this narrow relationship, it is possible to clarify how technical capabilities should support the value proposal.

On top of this background, and since business models and their supporting information systems are socio-technical, it is important to understand the problem domain and its context. For this reason, two social theories were studied in search for useful concepts that could enrich our proposal, as we will see in the next section

## **4 CONTRIBUTIONS FROM SOCIAL THEORIES**

When developing a business model, the political, organizational and social perspectives should be considered, and these extend beyond the boundaries of any single organization involved. An example from EDF (public French company working in the energy industry, from generation to trading) shows that when it sponsored a project to develop an electric car, the leaders of the project had to consider topics such as environmental issues, industrial contributions, and governmental agencies that could support the research. Besides the technical issues, one of the main problems of this project was the resistance of actors, like Renault (French car maker), whose vision of the future was different from that of EDF (Callon, 1987).

On the other hand, with the unquestionable scenario of globalization, the external influences increased substantially. The idea of independent organizations competing for profit against each other is increasingly inadequate. The technological advances afforded new settings that allow the creation of inter-organizational ties, such as strategic alliances and joint ventures (Gulati, Nohria and Zaheer, 2000). These scenarios provide new business opportunities and innovative formulas to create value.

Given the rapid proliferation of inter-organizational relationships, neglecting the networks in which firms are embedded can lead to a complete misunderstanding of their behaviour (Gulati et al., 2000). Organizations are part of social networks, where participants of the same network can, simultaneously, be partners or allies in the pursuit of a given goal, and competitors regarding a different issue. These complex relationships suffer contextual pressures that must be reflected on the business model of the network and on its supporting information system.

Two social theories are particularly useful to complement the analysis of business networks: Structuration Theory (ST) provides valuable insights about the context where a network operates, and Actor-Network Theory (ANT) clarifies the relationships between participants of a network with the purpose of achieving stability.

### **4.1 Structuration Theory**

ST was proposed by Giddens (1984). It studies social phenomena at a high level of abstraction, offering a descriptive view of the world, rather than an explanation of its mechanisms (Jones, Orlikowski and Munir, 2004). The key concepts of ST are agency and structure. Human agency represents the capacity to make a difference and describes the actors' actions. On the other hand, structure is defined as rules and resources implicated in social reproduction (Giddens, 1984).

Agency and Structure are dependent upon each other and recursively related. All social activity, including work processes, can be viewed as enabled and constrained by social structures that are produced and reproduced via human agency (Lyytinen and Ngwenyama 1992). The connection between agency and structure is described according to three dimensions, represented in Figure 2.

Giddens (1984) identifies three dimensions of structure, which he terms signification, domination and legitimation. These dimensions interact with human actions of communication, power and sanction through three types of modalities, namely interpretative schemes, facilities and norms.

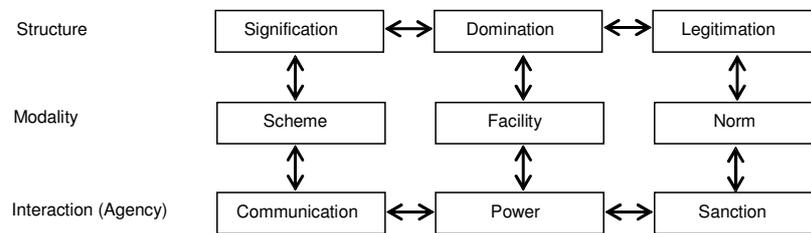


Figure 2. *Dimensions of the Structuration Theory, adapted from (Giddens, 1984).*

These concepts may be illustrated by considering the example of a familiar confectionery that started its activity in the beginning of the twentieth century. Its present owners follow the same recipes, to the exception of minimal adjustments proposed by some pastry-cooks that worked in the company. These modifications can only be implemented if approved by the owner (structures of domination). In terms of structures of legitimation, there may be restrictions on the quality of the ingredients – use of natural products only – while structures of signification may include the shape of the cakes, employers’ dress code, and the types of confectionery’s services available. These structures are sustained or can be altered by the day-to-day actions of those involved in contemporary confectionery life. For example, a new recipe may be proposed and accepted.

When humans analyze and mobilize existing interpretive schemes, they acquire knowledge to act. Since humans possess the capacity to reflect on their own actions, they can decide on the maintenance or change of the existing behaviour. These practices highlight the patterns that constitute society, or try to establish new ones (through schemes, facilities and norms) that will, if accepted, institutionalize new characteristics in the social structures (Ferreira, 2004).

To capture the essence of the structure in which a network exists, allows a better understanding of the very network and of its mechanisms. This tendency of relating a particular interaction with the context where it occurred is defended by authors such as Hanseth and Monteiro (1998).

#### 4.2 Actor-network Theory

ANT was introduced by Michel Callon and Bruno Latour in the beginning of the eighties (Callon and Latour, 1981), (Callon, 1986). Subsequently, it has been enriched by its original authors and others such as John Law (1999) and Madeleine Akrich (Akrich and Latour, 1992).

The networks, as studied according to ANT, are systems of relationships, exchanges, alliances and negotiations between their actors (elements) (Underwood, 1998). For Latour (1998) there is nothing but networks. He describes modern societies as having fibrous, thread-like character and argues that actors are defined solely by their ties to other actors (Latour 1992).

The actors can be heterogeneous – human or non-human (such as, people, machines, software and ideas) – and ANT describes them using the same language, and analyses them in the same way. ANT considers that social and technical perspectives are entangled and, for that motive, they must be analyzed together and with the same degree of importance (Akrich and Latour, 1992).

Each actor has its own individual goals in the network. These goals gain relevance when, through a process of negotiation, they are shared by different actors, creating an alignment of interests. The capacity of mobilizing other actors in one’s behalf increases the power of an actor in that position.

The process of negotiation between the actors involves two concepts: translation and inscription. The former is responsible for the interpretation and conciliation of positions/commitments, which can lead

to representations of common interests (Callon and Latour, 1981). The latter describes how patterns of behaviour are “wired” into the network, using artefacts, to create action programs (for instance, the rules for processing a customer complaint) which the actors must fulfil (Latour, 1991).

Translation includes four distinct phases: problematization, interessement, enrolment and mobilization. In Problematization a focal actor frames the problem and defines the identities and interests of other actors that are consistent with his/her own. The focal actor renders him/herself indispensable by defining a process under his/her control that must occur for all actors to achieve their interests. This process according with (Callon, 1986) is defined as an obligatory passage point. The actions performed by the focal actor can be viewed as part of a strategy to align the other interests with his/her own (Tilson and Lyytinen, 2005). The Interessement phase encompasses the strategies by which the focal actor attempts to enrol others (includes looking for new allies, isolating actors not yet enrolled and encouraging others to overcome obstacles in the way of passing through the obligatory passage point). Enrolment is achieved when actors take on the network’s problematization as their own and accept the roles and actions defined for them during interessement. Finally, mobilization is a set of methods used to ensure that the actors will not betray the interests of their group (Callon, 1986).

The inscription defines a program of actions that specify the requirements of the network, embedding the social agendas of the actors into technical artefacts, such as information systems. As inscriptions become stable and routine, they reduce the possibility of being challenged or questioned at a later date (Holmström and Robey, 2005).

## **5 MATCHING STRUCTURATION THEORY AND ACTOR-NETWORK THEORY**

One of the main features of Structuration Theory is the recursive relationship between a person’s psychologically located structures of domination, legitimation, and signification (Giddens, 1984) that mediated through their cognitive modalities are draw on for their agency. It is the aggregations and combination of these structures within the actions of millions of people that make up social systems where agency is highly routinized, resulting in stable social systems (Brooks and Atkinson, 2004). Nevertheless, people can reflect and decide to change their behaviour, causing modifications on the social system.

Actor-Network Theory, on the other hand, doesn’t consider any form of intrinsic inherent structures, connecting the actors and enabling their agency through reflexivity. This theory describes how the actors come together to create a network. In ANT, the agency is not influenced by common structures or modalities, but rather by the focal actor that defines a proposal in the problematization phase.

During the problematization phase of ANT, the actors may discover that the structure of a particular scenario is not according to the requirements established to handle the identified problem and the proposed solution. In this case, a reflection that considers the existing structures must be performed and a new definition of agency may emerge. The reflection/analyses performed in the first phase of ANT can originate changes in the structure.

According to Giddens, structures only exist in people’s minds. ST doesn’t consider technical components and doesn’t provide guidelines about its application to information systems (Monteiro and Hanseth, 1996). However, modalities can manifest themselves through mediating artefacts: in documentation, in formalization of actions, as well as in formal and informal rules of behaviour (Brooks and Atkinson, 2004). The role endorsed to these artefacts in a network can be considered by ANT’s ability to handle technical artefacts as just another actor.

The ST’s capacity to describe a context and how this context influences the actions of humans, together with the ANT’s aptitude to analyze relationships between the actors of a network, provide a new background of analyses. ST describes the existing context, identifying political, social and

dominations that influence the actors' behaviour. Through the contribution of ANT it is possible to observe how relationships in a network evolve towards stability.

## 6 REDUCING UNCERTAINTY IN BUSINESS MODEL DESIGN

Our proposed approach to design and assess a business model and its supporting information system is organized into three phases. The first identifies the actors of a network and studies the structural aspects that influence their behaviour. The second proposes a new scenario that considers the alignment of interests between several actors of the network. In the third phase, the stability of the new scenario is evaluated and a program of action is defined. Each of these phases will be described below and then illustrated in the context of a real case, where an editor of a scientific journal requested our help to rethink its business model.

### 6.1 Phase I – Identification of actors and of structural aspects

In this phase it is necessary to identify and characterize the actors and describe the existing scenario.

The information necessary to specify the elements of this phase can be obtained through meetings, interviews or questionnaires. In this particular case, the team of analysis and development held a meeting with the project spokesman. In this meeting it was possible to identify the following actors: Association (publisher and main editor), Editor, Reviewer, Author, Reader, Association Member, Library, University and Sponsor. The characterization of the actor "Reviewer" and the description of the scenario are exemplified in Table 1, in the left and right column, respectively.

Characterize "Reviewer"	Describe existing scenario
<ul style="list-style-type: none"> <li>- <u>Relevance</u>: critical to guarantee the quality of the journal</li> <li>- <u>Relationships</u>: Editor, Author</li> <li>- <u>Roles</u>: comment the papers in a constructive way, providing insight for the author's work</li> <li>- <u>Goals</u>: Improve his/her curriculum and obtain prestige; acquire first hand knowledge; improve his/her capacity of reviewing and writing.</li> </ul>	<ul style="list-style-type: none"> <li>- <u>Present goals</u>: the association wants to enhance the visibility and appeal of the journal, presently in paper support</li> <li>- <u>Organizational interactions</u>: Association, Universities and Libraries</li> <li>- <u>Existing power relations</u>: the association appoints the chief editor</li> <li>- <u>Institutionalized sanctions</u>: authors that committed plagiarism are not allowed to submit papers</li> <li>- <u>Existing rules</u>: the author of a paper can't be its reviewer; the suggestions of the reviewers must be followed.</li> <li>- <u>Available resources</u>: The database of contacts</li> </ul>

Table 1. Characterization of an actor and description of the existing scenario (Phase I).

By systematically collecting the information about all actors involved in the network, phase I makes it possible to characterize them, to understand the context where they operate, and to identify the goals of the focal actors.

### 6.2 Phase II – Negotiation process to achieve the alignment of interests

With the knowledge obtained in Phase I and the subsequent acceptance of change, focal actors can define the initial stage of problematization, itemize the goals that are intended to be accomplished and engage in a variety of strategies to enrol other actors (interessement). For our case, the results are presented in Table 2.

To accomplish the stipulated goals and to enrol other actors in the solution proposed in problematization, it is crucial to identify the common goal that conditions the actors' participation in the network. The Common Goal Diagram (inspired in diagrams used when building Balanced Scorecards) represents the contribution of each actor to achieve that general purpose and can include

control variables, like targets, that allow the evaluation of the actors' participation (Kaplan and Norton, 2006). The diagram on Figure 3 shows that, in our case, the scientific credibility of the journal was considered the common goal to accomplish.

Problematization	Goals	Interessement
<ul style="list-style-type: none"> <li>- The Association intends to promote a paper based journal</li> <li>- The journal should become a reference in the Portuguese scientific scene</li> <li>- The journal should be delivered on paper or published on-line?</li> <li>- Access to the journal should be free or paid?</li> </ul>	<ul style="list-style-type: none"> <li>- Promote the Association</li> <li>- Publish a prestigious journal</li> <li>- Stimulate the research on information systems</li> <li>- Create a network of knowledge in the field of information systems</li> <li>- Promote the visibility of work developed in the field of information systems</li> </ul>	<ul style="list-style-type: none"> <li>- The editors, the reviewers and the authors can enhance their curriculum</li> <li>- The authors can receive contributions that will allow improvements to their papers</li> <li>- The readers can access the work developed in Portugal in the field of information systems in a centralized manner.</li> </ul>

Table 3. Problematization, goals and interessement specification

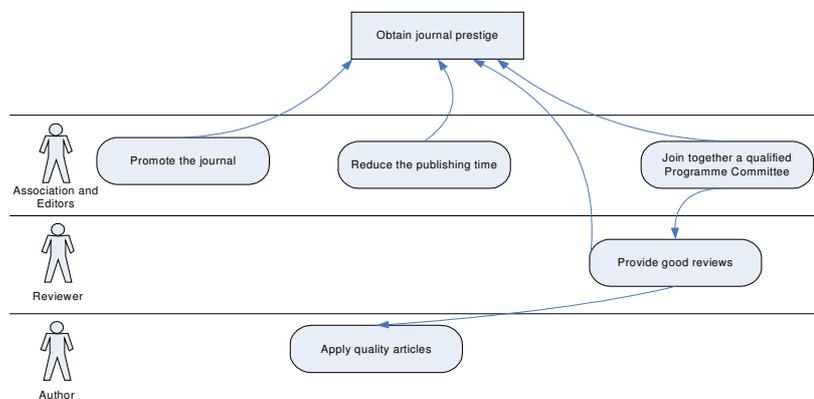


Figure 3. Common Goal Diagram for Portuguese Association case.

The common goal can only be accomplished if the actors perform their individual roles in the network. The approach presented in this article defines the collaboration of actors through a process of negotiation, where, for each actor, his/her gains and effort are considered. To assist in the negotiation process, the proposal provides the following artifacts:

- Negotiation Diagram: describes how the actions of one actor can influence other actors and how these can contribute to the actor's individual goals.
- Nearness Map: distributes actors in space according to their goals. When common goals are detected between actors that don't have any kind of relationship, an indication about the possibility of forming new ties or new networks is obtained.
- Table of activities: identifies the activities performed by the actors in the network. The set of activities defines the program of actions that represent the requirements (inscriptions) established in the alignment of the actors' interests.
- Flow Diagram: characterizes the interactions between the actors of the network according to the flows of the value proposal. This can be done according to several types of flows: material or service, finance, information, influence and intangible benefits (e.g., loyalty).

In Figure 4, the described artefacts are exemplified for the scenario of the Association. The Negotiation Diagram describes the interactions of the actor "Author" and presents the importance that this actor attributes to each of them (in the range [-5, 5]). The Flow diagram, due to space restrictions in this article, merges several types of flows in just one image. The Table of activities identifies some

of the activities executed by the actors in the chart, and the Nearness Map distributes actors spatially considering goals that they intend to obtain (Association promotion, knowledge and prestige).

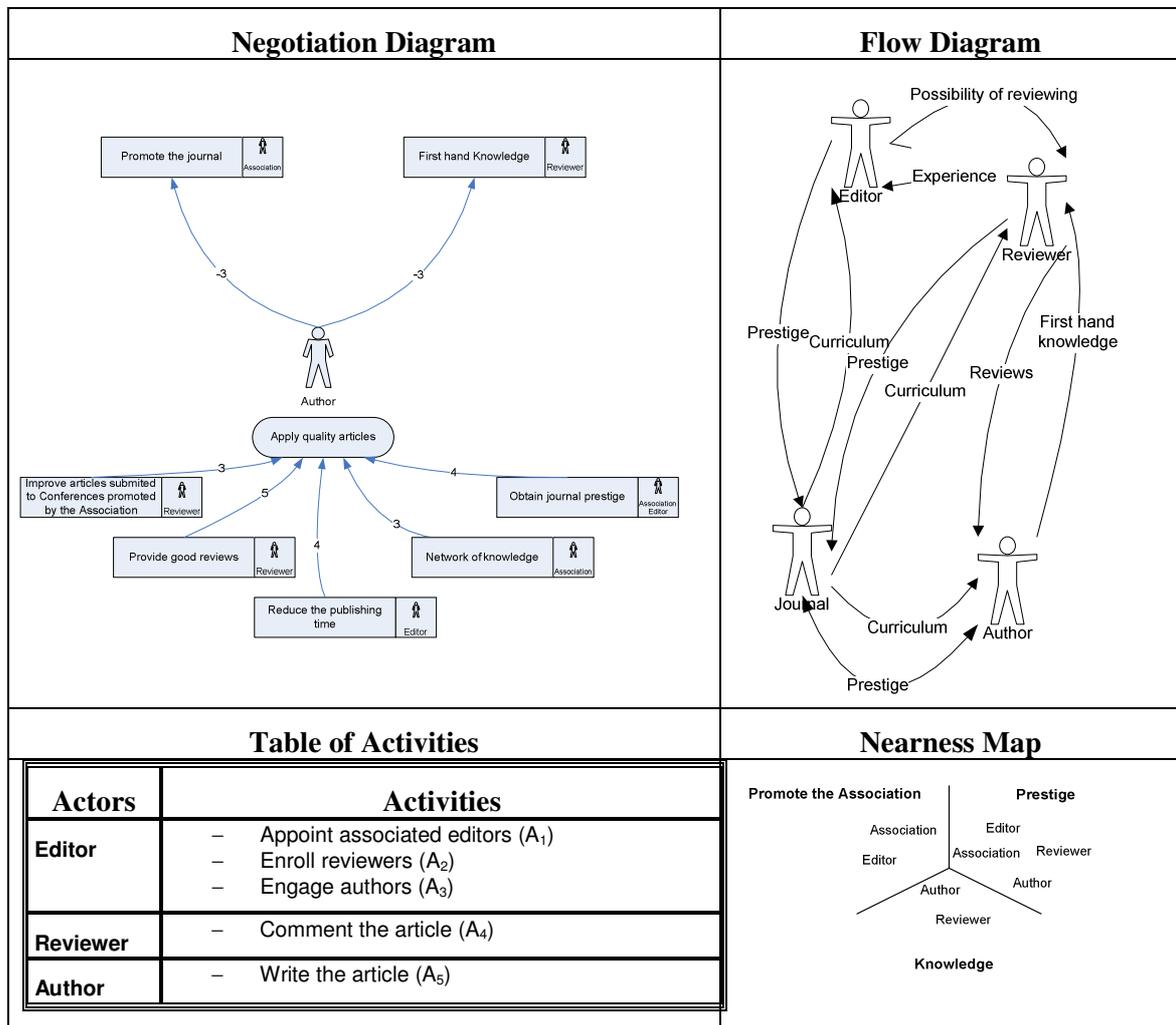


Figure 4 Artefacts from Phase II that assist the negotiation process.

### 6.3 Phase III – Evaluation of the scenario stability

The execution of activities generates value for one or more actors, but implies cost for others. The analysis of the value proposal for each actor can assist in the achievement of the alignment between the actors, which will lead to the stability of the network. It is necessary to determine the relevance that each actor attributes to each desired benefit (value proposal), as well as the effort that the actor must spend to achieve it. This process of bargain is justified by the need to ensure that there is an acceptable trade-off between effort and benefits, so that the actor maintains interest in participating in the business model associated with the network.

In our proposed approach the study of the network stability involves three main concepts: activity, value proposal, and actor. According with this perspective, in a first phase, a direct relationship between the first two is established. In a chart, the activities (from Figure 3) that contribute, positively or negatively, to a value proposal flow (both obtained in Phase II) are identified through an “X”. These relationships can be visualized in the first six columns of Table 3.

In a second phase, the actors should specify the importance that they attribute to a value proposal flow, in the range [-5, 5]. The positive branch qualifies how much the actor gains and the negative branch describes its effort in the process. The filling of the chart should be carried out through interviews with the actors, to assure that the values attributed represent their positions, not someone else's view of how they value the issues. At this stage, actors must consider what they gain with a particular value proposal and the effort of contributing to it. Since one value proposal can influence other value proposals, each actor must describe how their value proposals influence others. For instance, it is possible to observe through the first line of Table 3 that, in the column "Editor", the value proposal  $V_1$  influences positively  $V_2, V_3, V_5$ .

Based on the information acquired in the chart, certain aspects should be considered:

- Test if there is a balance between the gain and the effort of each actor participating in the network. This can be done through the sum of the values attributed in each column;
- Verify if the value proposals associated with each actor represent the goals that the actor intended to achieve. This process is of special importance for the actors with major influence in the network. The influence of the actor can be quantified considering factors like: money invested, time employed in the project, data provided, level of influence, resources supplied, technical capabilities, and power of decision.
- Identify situations that can create future problems if particular actors abandon the network, such as: nodes with a high level of centrality, nodes with an enormous influence, nodes that connect sub domains and nodes that don't have a replacement.

A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	Value proposals	Editor	Reviewer	Author
X	X	X	X	X	V <sub>1</sub> - Journal prestige	(+4,-4)/ +V <sub>2</sub> ,V <sub>3</sub> ,V <sub>5</sub>	(+4,-3)/ +V <sub>3</sub> ,V <sub>4</sub>	(+4,-2)/ +V <sub>5</sub> ,V <sub>7</sub>
X	X	X			V <sub>2</sub> - Editor prestige	(+5,-5)/+V <sub>1</sub>		
	X		X		V <sub>3</sub> – Reviewer prestige	(+3/-3) /+V <sub>1</sub>	(+5/-4) /+V <sub>1</sub>	
	X				V <sub>4</sub> – Comments		(+4/-5) /+V <sub>1</sub>	(+5)
		X		X	V <sub>5</sub> - Author prestige	(+3) /+V <sub>1</sub>		(+5,-5) /+V <sub>1</sub>
			X		V <sub>6</sub> - First hand knowledge		(+4)	
			X	X	V <sub>7</sub> - Improve article		+V <sub>4</sub>	(+5,-4)

Table 3. Chart that represents the relationship between the activities and the value proposals.

The above analysis helps evaluating the stability of the network. It allows discovering situations where the balance of effort and gain between the actors is not acceptable, which can promote the existence of anti-programs (unanticipated/unwanted courses of action) and compromise the stability of the network. In such case, Phase II must be reviewed until a stable network is achieved.

After accomplishing a consensual alignment between the actors, it is possible to inscribe a new behaviour in the network. The inscription defines a program of action that must be used to specify the business model. The information obtained in this process (actors, activities, and value proposal) allows the definition of the business services and of the activities that the information system should support. This perspective, based on the concept of business services, offers a high level of abstraction that will establish the connection with the business processes definitions of the organizations that compose the network.

The next goal of the research will be to reanalyse the information obtained in the three phases with the purpose of describing the elements necessary to the development of the information system that will

support the activities of the business model. Considering that the outcome of our proposal is presented in the “shape” of activities, we are considering a mapping to a service-oriented architecture.

## 7 CONCLUSIONS

The technological advances of the last two decades made it possible to develop innovative scenarios, with original business models and new value opportunities, in most cases supported by a network of organizational relationships. The business models designed for these complex environments are difficult to represent and evaluate, and problems arise when, for instance, it is necessary to describe the relationships between the actors, to test if the trade-off between the actors is balanced, to verify if the network is stable, and to confirm who the actors that contribute effectively to the network are.

The approach presented in this paper analyses the actors and the context where the network operates, identifies the actors’ goals coexisting in the network, and their efforts and benefits. Through an iterative negotiation process these items are redesigned until a stable network is achieved. The process of studying the context and the guidelines of the negotiation process are based on social theories. The status of stability is tested according to the activities that each actor must perform and their value proposals in the network.

The information obtained in the process of achieving a stable network (activities and value proposals) enables the specification of the business services that each actor should provide and characterizes how these services are used by the other actors in the network. These requirements establish a bridge with the domain of business process specification, providing an interface between the business model and the business process of the information systems that will support the network’s services. The next step of this work will be to specify that interface.

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