Association for Information Systems
AIS Electronic Library (AISeL)

BLED 2009 Proceedings | BLED Proceedings

2009

Moving an eInnovation from a Living Lab to the Real World: Politically Savvy Framing in ITAIDE's Beer Living Lab

Eveline van Stijn
Vrije Universiteit Amsterdam, evelinevanstijn@gmail.com

Boriana Rukanova
Vrije Universiteit Amsterdam, brukanova@feweb.vu.nl

Anthony Wensley
University of Toronto, anthony@wensley.ca

Yao-Hua Tan
Vrije Universiteit Amsterdam, ytan@feweb.vu.nl

22nd Bled eConference
eEnablement:
Facilitating an Open, Effective and Representative eSociety
June 14 - 17, 2009; Bled, Slovenia

Moving an eInnovation from a Living Lab to the real world

Politically savvy framing in ITAIDE's Beer Living Lab

Eveline van Stijn[1], Boriana Rukanova[1], Anthony Wensley[2], Yao-Hua Tan[1]

[1] Vrije Universiteit Amsterdam, The Netherlands,
[2] University of Toronto, Canada

evelinevanstijn@gmail.com, brukanova@feweb.vu.nl, anthony@wensley.ca, ytan@feweb.vu.nl

Abstract
Living Labs have been established as real-life pilot settings in which IT innovations are developed and validated. Once these steps have been completed, these innovations are ready to be moved out of the Living Lab environment into the real world. In many cases Living Lab innovations require not only technological but also socio-political and institutional changes to be made in order for them to be adopted. The need of socio-political and institutional changes becomes especially visible in cases where Living Lab participants attempt to propose innovative solutions for domains that are highly regulated. The reason for that is that in such cases, often the existing legal requirement would need to be adjusted first, in order to create grounds for the further adoption of the innovation. The question as to how to achieve such legal changes related to Living Lab innovations in a highly regulated environment has received vey limited attention. In this paper, we specifically focus on understanding of framing processes and how they are used by the Living Lab participants in a politically savvy way to mobilize a multi-level network of actors in their attempts to bring institutional change. We further investigate this framework through a case study involving a variety of framing processes that took place in the Beer Living Lab. The Beer Living Lab is part of the ITAIDE project that aims to develop and test an eCustoms solution for international trade. In addition to our contribution of the conceptual framework and the accompanying empirical case study, we also identify further implications for practitioners who are involved in similar Living Labs in highly regulated environments.

Keywords: Living Labs, political savvy, framing processes, multi-levelled network

1 Introduction

In the past two decades, there has been a trend to establish so-called Living Labs, public-private partnerships where innovative technologies are developed and validated (Følstad, 2008a; 2008b). These Living Labs typically involve users, firms, and academia that work on an emerging technology (Eriksson et al., 2005). Common aims of Living Labs are to "evaluate or validate new ICT solutions with users, gain insight in unexpected ICT uses and new service opportunities, experience or experiment with ICT solutions in contexts familiar to the users, [and conduct] medium- or long-term studies with users" (Følstad, 2008a, p. 51). Research that reports on Living Labs usually focuses on aspects of the development phase, such as the set-up of the Living Lab, the innovation methodology used (e.g. user-centric design), as well as the innovation product(s) resulting from the Living Lab study (cf. Baida et al., 2008; Frößler et al., 2008; Følstad, 2008a, 2008b). However, we have observed that there is a lack of literature on Living Labs relating to the adoption of these innovations.

In particular, we are concerned with Living Labs where the 'real world' is highly regulated and where in order to adopt the Living Lab innovations significant regulatory changes are necessary. Our empirical work on eCustoms calls attention to this concern. eCustoms innovations take place in a highly regulated environment: in particular, all businesses involved in the export and import of goods are affected by rules and laws set by national and supranational government agencies. The eCustoms innovation that we have studied, brings with it new technologies and new ways of working that can only be applied after major changes are made in the corresponding regulations. Actors in the broader network are likely to have different frames regarding the innovation, that is, they have different understandings and interests in terms of what the innovation means to them and what it could deliver when adopted. Framing processes are essential to bring alignment among the various frames and to mobilize actors and resources in the network. Thus, we consider these framing processes crucial to the collective action required to bring about the necessary changes.

In this paper, we aim to contribute a conceptual framework which explores framing processes and how they are utilized, in a politically savvy way, to mobilize a multi-level network of actors. Our framework builds on the collective action and social movement literature to discuss the different framing processes (Hargrave and Van de Ven, 2006; McAdam et al., 1996; Benson and Snow, 2000), on the multi-level network model (Rukanova et al., 2007; 2009) for discussing how framing is used to mobilize different actors in the Living Lab network, and on the work of Van de Ven (2005), to analyze the politically savvy behaviour of actors in the framing processes. The term politically savvy refers to the ways in which actors are able to take into account the multiple interests of those they are seeking to include in their network, and how they actually engage them to bring about the institutional changes (Van de Ven, 2005).

We make use of our empirical study of the Beer Living Lab (Beer LL) to illustrate the application of the framework. The Beer Living Lab is part of the 6th framework ITAIDE project and focuses on the development and validation of an eCustoms innovation for the export and import of excise goods (including alcohol and tobacco). This is a highly regulated environment. Partners in the Beer LL all have great interest in seeing their solution or parts thereof adopted. We analyze how they have been framing the Beer LL

innovation in varying ways throughout their extended network. We identify several directions for future research and also investigate the implications for practitioners involved in other Living Labs that face similar institutional and regulatory challenges.

The remainder of this paper is structured as follows: first, we discuss the theoretical background which underpins our conceptual framework. Then, in the next section we address the research methodology. This section is followed by a discussion of our case findings. Finally, the paper concludes with the discussion of the results of our analysis and the presentation of our conclusions.

2 Theoretical background

2.1 The issue of legal feasibility and regulatory change

In a context which is highly regulated by national and supranational governments, the proponents of the innovation may need to find ways to bring about changes in the associated laws that may stand in the way of the adoption of the innovation. One may consider several reasons for the fact that the Living Lab innovation may not yet be legally feasible and taking into account the existing legal framework during the development of the innovation is not sufficient to ensure this feasibility in advance. First, the existing legislation may de facto prohibit any other procedures or use of IT at the moment, but the Living Lab's *raison d'être* may be to challenge this situation, solve problems that rise from the current situation, or identify further improvements. Then, legal changes are inherently required. Second, the developed innovation may have unexpected potential uses of the technology that are not provided for yet. Then, limited use of the innovation may be legally feasible, but more advanced use of the innovation may not. Lastly, not all legislation may be as clear-cut yet. There may be over-arching directives guiding the actions of the Living Lab actors, but these may still be open for further specification and negotiation on how they could be shaped. In that case, Living Lab innovators might be expected to provide input and guidance on the further development of these directives and how they could be implemented by applying the innovation.

In all these cases, we argue that the Living Lab actors have a key interest in pursuing the collective engagement of a group of people in an extensive network to change existing institutionalized practices. Whereas there is an abundance of research on IT innovation and adoption, these studies often do not address the role of legislation, see it as an external factor or part of the remote environment that needs to be taken into account (Schooley and Horan, 2007; Johnston and Gregor, 2000). However, new laws may be a response to innovations, for example when they bring to the light certain caveats in law, such as when it became possible to share music files amongst Internet users. The predominant perspective taken is a unidirectional view where governments set the rules that businesses have to comply (Johnston and Gregor, 2000). In that case, existing or new regulation can be viewed as providing the legal framework within which innovations are developed as a response, for example, regarding environmental laws that led to the implementation of new production technologies. However, one can question the extent to which a unidirectional perspective holds. For example, Faerman et al. (2001) show how the collaboration between public and private partners led to

legislative changes in the financial sector. But where they investigate several important factors in this cooperation (such as leadership), we are interested in the socio-cognitive and political processes underpinning such changes. In our further study of the literature on institutional innovation and change, our attention was drawn to the collective action model for institutional innovation, which we discuss in the next section.

2.2 Collective action model for institutional innovation

In the context of our study and problem at hand, we zoom out on the many actors in an inter-organizational field, and stress a social-constructionist mode of change, which fits the collective action perspective (Van de Ven and Hargrave, 2004). This concurs with earlier research on the problem of how to bring a Living Lab innovation in the highly regulated environment, where Rukanova et al. (2007; 2009) propose to make use of the collective action model for institutional innovation (Hargrave and Van de Ven, 2006). They demonstrate how the model can be applied in a Living Lab setting in the area of eCustoms. The collective action model of Hargrave and Van de Ven (2006) "examines the construction of new institutions through the political behaviour of many actors who play diverse and partisan roles in the organizational field or network that emerges around a social movement or technological innovation" (Hargrave and Van de Ven, 2006, p. 868). Their collective action model consists of the following four core elements: (1) the framing contests, (2) the construction of the network, (3) the enactment of institutional arrangements and (4) the collective action processes.

Within social movement theory, framing contests are seen as the ways in which the meaning of issues are created and manipulated (Campbell, 2000). Hargrave and Van de Ven (2006) illustrate how successful activists position and frame their solution. We discuss frames and framing in more detail in the next subsection. Framing is seen as an essential activity for construction of the network, to involve participants. The activists need to organize a network and mobilize resources that can be utilized for the proposed changes (see also Binder, 2002; Warren, 2001). Both bottom-up and top-down organizational processes are considered essential, because a network of engaged operational actors is equally important as top-down political support and commitment. The enactment of institutional arrangements relates to the ways in which actors contest and change "political opportunity structures". These political opportunity structures can be both formal and informal and may potentially result in the promotion or inhibition of the changes proposed by the activists (Campbell, 2002). Based on the technology innovation literature, Hargrave and Van de Ven (2006) utilize the collective action perspective to illustrate how new technologies emerge through contested political processes. When, as a result of these political contests, proponents of the change become more powerful than those in favour of the status quo, innovation may occur.

In applying the collective action model to a Living Lab setting, Rukanova et al. (2007; 2009) provide several directions for the extension of the model and outline directions for further research. One key extension to the model that they propose is the further operationalization of the concept "construction of networks" by taking into account the various direct and indirect actors in the highly regulated environment and their interactions (see section 2.2 below). The authors also identify several linkages between concepts of the collective action model (in particular links between framing, the

construction of an appropriate network and the use of political opportunities) and provide some initial findings. They do point out, however, that the further exploration of such linkages represents fertile ground for future research. In this paper, therefore, we further explore the link between framing, the construction of an appropriate network and the use of political opportunities. The notion of political savvy provides a conceptual bridge between the framing processes and political opportunity structures, thus allowing us to further investigate this linkage in the collective action model.

2.3 Construction of the network

In our approach we will also make use of the multi-levelled network view as proposed by Rukanova et al. (2007; 2009). In their conceptual work, Hargrave and Van de Ven (2006) do not provide a detailed overview of how the network of actors could look like. For further operationalization of the construction of the network concept, Rukanova et al. (2007; 2009) identify three general levels at which the mobilization of the network can be traced:

Level 1: the level of the innovation project, where only specific individuals from different organizations are involved;

Level 2: the level of the different organizations, which participate in the innovation project;

Level 3: includes the wider network, to which each organization participating in the innovation project has access to.

Level 3 can be further elaborated if needed to provide for a finer-grained analysis. Sub-levels can follow the progression from organizations in national member states, economic zones, to other overarching international organizations. Institutions that influence IT innovation at these three levels are for example government authorities, international agencies, professional trade and industry associations, research-oriented higher education institutions, trend-setting corporations, and multi-national corporations (King et al., 1994).

Rukanova et al. (2007; 2009) further introduce the notion of interactions to trace the dynamics relating to the mobilization of actors. They talk about h*orizontal interactions* to trace those interactions that take place among actors at the same level and about *vertical interactions* to trace interactions that involving those interactions between different levels.

2.4 Frames and framing processes

2.4.1 Frames

Within the tradition of Social Movement theory, the notion of frames has been adapted primarily from the work of Goffman (1974). Frames are considered to be cognitive in nature, relating to the beliefs and meanings that people attach to and through which people make sense of day-to-day life (Benford and Snow, 2000; Kaplan, 2008). In the IS literature, the notion of an organizing vision provides us with further insight into the frame of an eInnovation. The organizing vision not only takes into account the users'

interpretations but also incorporates a broad view of the innovation at hand. The organizing vision is seen as an emergent, evolving discourse reflecting the knowledge and interests of a heterogeneous network of individuals that may include not only (potential) users, but also consultants, technology suppliers, journalists, and academics (Swanson and Ramiller, 2004). In the context of highly regulated environments, governmental bodies obviously need to be included in this list.

The notion of an organizing vision forces the researcher to focus on the importance of interpretations of the innovation and of the part such interpretations play in legitimizing the innovation and facilitating the mobilizing of resources and the necessary change processes (Swanson and Ramiller, 1997; 2004). Frames constituting the organizing vision thus also concern the interests of people and also relate to both the extent and the ways in which the frames legitimize participation in collective action (Benford and Snow, 2000). As Goffman (1974, p. 345) suggests:

> "Frame, however, organizes more than meaning; it also organizes involvement. During any spate of activity, participants will ordinarily not only obtain a sense of what's going on but will also (in some degree) become spontaneously engrossed, caught up, enthralled."

In the setting of collective action, we would propose that this spontaneity is rather limited and that people need to be engaged more deliberately. This is where we see that strategic framing processes come into play, in order to involve people, construct a network and acquire resources.

2.4.2 Strategic framing processes

The Social Movement literature identifies four basic, intentional, deliberate strategic framing processes, also referred to as "frame alignment processes" (Benford and Snow, 2000; Snow et al. 1986). *Frame bridging* often appears to be the primary strategy used by social movements. It refers to "the linkage of two or more ideologically congruent but structurally unconnected frames regarding a particular issue or problem" (Snow et al., 1986, p. 467). It focuses on the actions taken by members of the social movement organization in spreading information and reaching out to potential participants. *Frame amplification* centres on stressing the core values that the group finds important to protect and promote, and strengthening the ideas about presumed relationships that are part of the frame. It is defined as "the clarification and invigoration of an interpretive frame that bears on a particular issue, problem or set of events (Snow et al., 1986, p. 469). *Frame extension* refers to the social movement organization extending "the boundaries of the primary framework so as to encompass interests or points of view that are incidental to its primary objectives but of considerable salience to potential adherents" (Snow et al., 1986, p. 472). Lastly, *frame transformation* may be a deliberate and necessary process in order to successfully engage participants in collective action. It refers to the actual changing of extant frames and their related values and beliefs. Thus, "new values may have to be planted and nurtured, old meanings or understandings jettisoned, and erroneous beliefs or "misframings"[1] reframed" (Snow et al., 1986, p. 473).

[1] The notion of "misframings" comes from (Goffman, 1974, p. 308).

2.5 Political opportunities and political savvy

The notion of political savvy provides a conceptual bridge between the framing processes and political opportunity structures, thus allowing us to further investigate this linkage in the collective action model. Drawing on Van de Ven's (2005) notion of political savvy we propose that being politically savvy is an essential factor in collective action processes in general, but also for the Living Lab actors in particular as they link their frames (based on understandings *and* interests) to those extant in their broader network. As Van de Ven (2005, p. 372) proposes, "actors who create resonant frames and who are schooled in the tactics of local social and political cultures are more likely to achieve success than those who are not. Indeed, a political view of technological change leads to an extension of the old adage that 'the world is run by those who show up – and it usually favours those who are involved and who are politically savvy'." Being politically savvy means that people are able to understand the interests of other key actors and to engage them in such a way that they will become active participants in the collective efforts as well (Van de Ven, 2005). Interests are, however, typically not static, rather they are dynamic and fluid (Snow et al., 1986; Kaplan, 2008). Further, given that there are also different sense-making and change processes at play, and that the group of actors involved in the process is heterogeneous and evolving, the whole notion of static frames and interests needs to be carefully avoided (Benford, 1997). Thus interests may be shared and entwined at one point in time, but may be divergent and conflicting at another. As a result framing and re-framing processes may need to be undertaken at different points in time to ensure that actors mobilized in the network remain committed to the change efforts.

2.6 Conceptual framework

We have visualized our framework in Figure 1. Summarizing, our conceptual framework is inspired by the collective action perspective on institutional innovation and our context of interest are highly-regulated environments, where Living Lab innovators aim to bring about IT-enabled innovation. In such a context, actors will have different frames with respect to the proposed innovation which reflect their interests and understandings. Frames can be described in terms of the organizing vision. Through strategic framing processes, participants in the Living Lab set out to mobilize other actors in a multi-level network and commit them to the proposed institutional changes. This process of framing makes use of political opportunities and requires political savvy, which is the ability to understand the different interests of these actors, and to create commitment by successfully manoeuvring in the multi-levelled network.

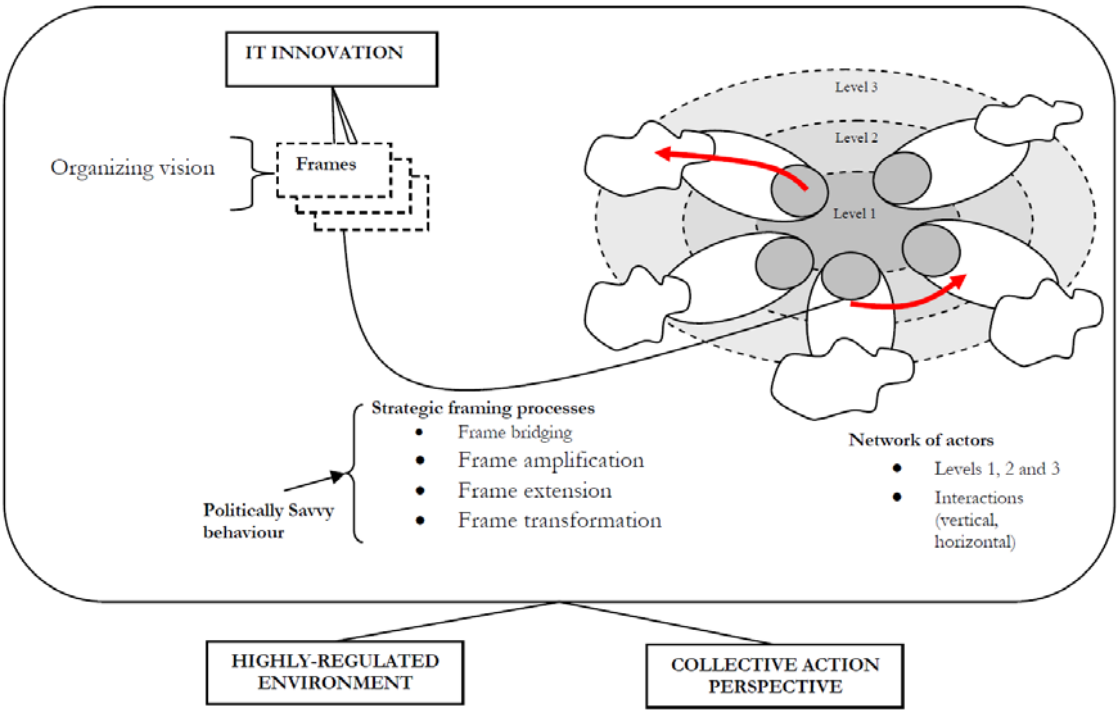


Figure 1: Visualization of the conceptual framework

3 Methodology

The research methodology that we have adopted in our study falls in an interpretive and processual tradition (Markus and Robey, 1988, Walsham, 1993). Interpretive studies are "aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context" (Walsham, 1993, p. 4-5). Processual research focuses on how processes unfold over time (Pentland, 1999). We are interested in the processes of framing, where different actors have different interpretations of the innovation at hand. Given the novelty of the research topic and the framework, we make use of the empirical materials in an exploratory fashion, investigating how the constructs identified in our conceptual model inform us further about the ways in which actors engage politically savvy in framing processes to move an innovation out of a Living Lab into a highly regulated environment.

3.1 Data collection

We have collected data within the setting of the ITAIDE project. ITAIDE stands for Information Technology for Adoption and Intelligent Design for E-Government. The ITAIDE project is a 6th framework IST project funded by the European Union. The goal of the project is to develop innovative solutions for eGovernment in the context of cross-border trade. The project started in January 2006 and will end in June 2010. Data have been collected through interviews, participation in workshops and meetings, and from documentation, over the period from February 2006 to December 2008. Interviews, workshops, and meetings have mostly been recorded, but given the overall

quantity of research in the broader setting of the project, partially transcribed. Meeting notes or minutes have been sent out to participants for verification and clarification purposes. We have also been able to draw upon the documentation and recordings made available by other project members on the internal workspace of the project. Furthermore, we have also gained further understanding through informal contacts, phone calls, email exchanges and meetings both with project members and external actors (e.g. at conferences).

3.2 Data analysis

We have used our conceptualizations as a "sensitizing device" (Klein and Meyers, 1999) to go through the data and explore how it informs us further about the linkages between the elements of the collective action model proposed by Hargrave and Van de Ven (2006) and about the politically savvy framing strategies that practitioners apply in their efforts to bring innovation to a highly regulated environment. We are particularly concerned to explore the linkages between the construction of a network, framing and political opportunity. In addition, we have made use of the multi-level network perspective suggested by Rukanova et al. (2007; 2009) to further structure our analysis.

In our analysis we have taken the ITAIDE project members as the focal actors. Partners involved in the ITAIDE project have varying yet strong interests in seeing the potential innovation that comes out of the project adopted in a broader context and are considered as the ones to "push the innovation forward", certainly in the first years of the project.

The analysis process that we utilized can be summarized in the following steps:

Step 1. Analysis of the network of actors
As a starting point for our analysis we use the BeerLL network, as well as the concepts of horizontal and vertical interactions that were derived in earlier research (Rukanova et al., 2007; 2009). We also extended the network with additional actors that we identified in our analysis. We used the horizontal and vertical interactions as a starting point to identify instances of mobilization of the network.

Step 2. Determining the focus of analysis
Given the potential number of actors and mobilization processes, we had to limit our analysis. As we wanted to provide an in-depth illustration of the framing processes that took place, we made a choice to focus on interactions by BeerLL innovators targeted at two groups of stakeholders, namely the government and the industry associations.

Step 3. Analysis of the levels and the interactions that the innovators used to engage in framing processes in order to influence the actors identified in Step 2.

Step 4. Analysis of the framing processes in terms of the four strategic framing processes as identified in literature (i.e. bridging, amplification, extension and transformation).

Step 5. Reflection on politically savvy behaviours in the framing processes.

In the following section we present the results of our analysis

4 Findings

During the analysis we have made use of the conceptual framework presented in Section Two and the steps of data analysis presented above in Section Three. Below, we first provide a short introduction to our case study, the Beer Living Lab. We then discuss the multi-level network of actors and we proceed with analysis of the framing processes addressed to two groups of stakeholders: the government and industry. At the end of this section, we reflect on the political opportunity and political savvy behaviour that we observe during the framing processes.

4.1 The Beer Living Lab[2]

The focus in the Beer LL is the analysis of how ICT solutions can support the administration of export of excise goods. When beer – an excise good – is sold, the seller needs to pay a special tax called an excise tax. The general principle is that excise tax only has to be paid in the country in which the excise good is sold and consumed. Hence, if a beer producer in the Netherlands is exporting beer to a retailer in, for example, the UK who sells the beer to English consumers, excise tax has to be paid by the English retailer to Customs and Excise UK. In this case, the beer producer in the Netherlands can export excise-free. Clearly, this is only acceptable for the Dutch Tax and Customs Administration (DTCA), if the beer producer in the Netherlands can prove that the goods were indeed shipped outside the Netherlands.

EU reports indicate that there is very significant fraud associated with the export of excise goods under suspension, which are exempt from paying excise tax. As sources of the European Commission show "Member States estimated in 1998 that for alcohol only, fraud amounted up to €1.5 billion yearly, which was approximately 8% of the total excise duties receipts on alcoholic beverages. Nowadays the market share of illegal cigarettes is equivalent to approximately 9% of the total excise duty receipts on tobacco products" (European Commission, 2006). In the report of the High Level Group on fraud in the tobacco and alcohol sectors which had been endorsed by the Directors General of Customs and Taxation in April 1998, it is pointed out that the paper-based procedure does not work well and it is recommended that a computerized system is set up to tackle this problem (ECOFIN, 1998).

The proposed electronic system (called Excise Movement and Control System, EMCS) simply replaces paper-based documents with electronic messages. While it allows for faster traceability of goods, it adds to the administrative burden for companies. Companies will have to invest in developing and maintaining new interfaces to communicate with the authorities. In addition, companies have to maintain other interfaces to report to government when it concerns other procedures such as VAT, export and statistics. The EMCS solution is not fully automated and still requires a paper document, on which a reference number of the electronic transaction is stated. In addition the new system also creates dependency of the logistic processes of the company.

2 See for details the Beer LL deliverables 5.1.1 – 5.1.5 (http://www.itaide.org/apps/docs.asp?Q=2985).

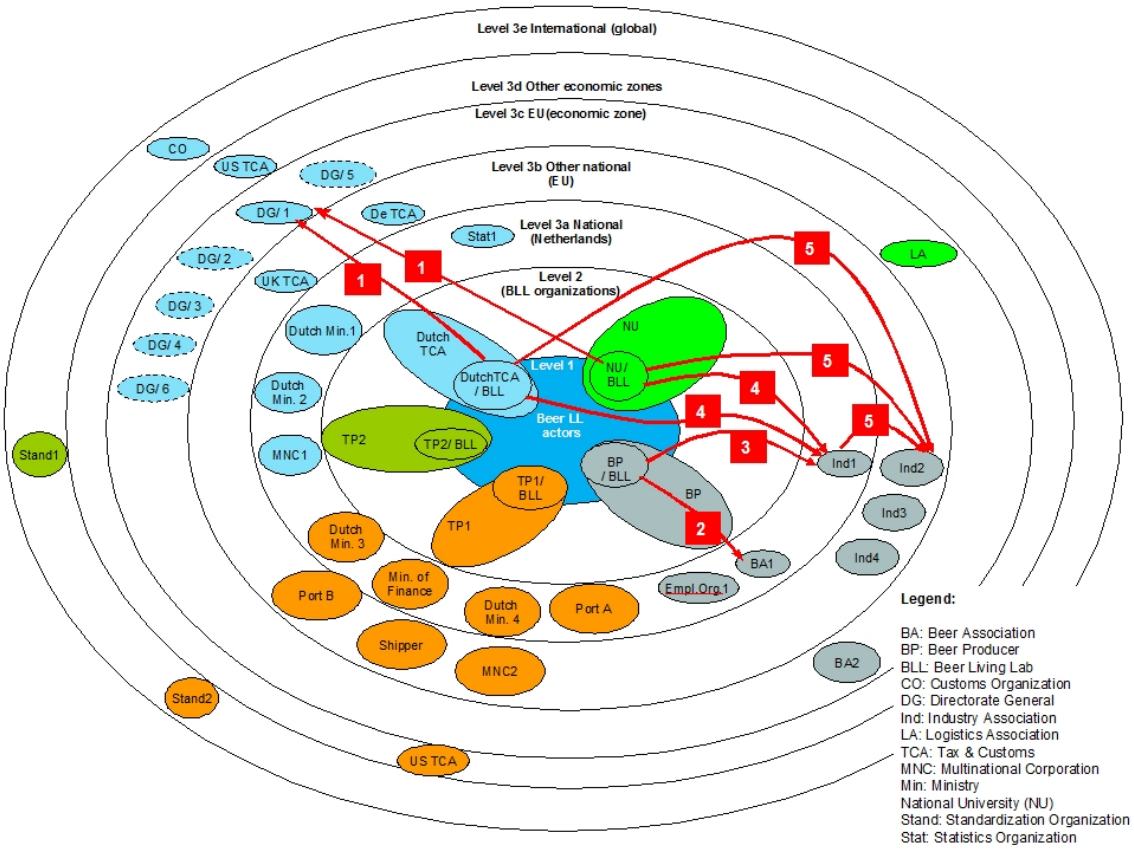
The BeerLL businesses, government, technology providers and universities work together to propose innovative solutions for export of excise goods, which provide better simplifications for companies, compared to the systems proposed by the EU. Key partners involved are: a large Beer Producer (BP), the Dutch Tax and Customs Administration (Dutch TCA), a National University (NU) and a technology provider 1 (TP1). In addition, several other parties were also involved in some of the BeerLL activities, including a Sea Carrier, UK Tax and Customs Administration (UK TCA), and a second technology provider (TP2).

As a result of these collaborative efforts, the BeerLL innovators proposed a radical shift from the traditional "information push" to an innovative "information pull" model. In the new model, trusted traders (like Authorized Economic Operators), which can demonstrate that they are in control of their supply chain operations do not need to submit any information to the authorities any more. Instead interested governments get 24/7 secured access directly to the commercial systems of the supply chain partners and via a Single Window "pull" information when needed. This approach relies on system-based control and builds on innovative technologies like Service-Oriented Architecture, smart seal and open standards. The BeerLL demonstrates how layers of administrative burden can be removed and costs savings can be realized, while at the same time ensuring high levels of control and security.

In terms of the legal feasibility issue (see 2.1), the Beer LL innovators have taken the existing laws and directives as the basis for their innovation, for example regarding the requirements set in terms of which information needs to be exchanged. However, they knew that their innovation would always in some ways challenge existing legislation, because the ITAIDE project is aimed at solving the current problem of high administrative burdens, while making trade secure. Any procedural redesign would have an impact on current procedures that are highly formalized. Furthermore, the guiding EU directives on the establishment of a Single Window and the introduction of the Authorized Economic Operator were (and are) not fully implemented at the Member State level yet and thus to a certain extent open for discussion and negotiation. Again, the project goal is also to show how these EU targets could be realized with the use of novel information technology and procedures. Lastly, only during the project, it became clear that the Beer LL innovation could be the basis of the so-called "information pull model". To adopt the Beer LL solution in this unexpected way, though, changes are needed in the Customs Code, Excise Directives, VAT law, and Statistics rules. Thus, the participants set out to co-opt other actors in their efforts to influence the current legislation.

4.2 The network of actors

The network of actors for the BeerLL presented in Figure 2 is adapted from earlier research on the BeerLL (Rukanova et al., 2009). The figure is build following the three levels discussed in Section 2.1, which express a progression from the individual participants that participate in the Living Lab (level 1), to the organizations, to which these participants originally belong (level 2), to the wider network of the involved organizations (level 3). In addition, level 3 is further operationalized to provide additional structure in the network moving from organizations at a national, economic zone, and international level. The colours give an indication as to which BeerLL actors has linkages to the actors in the identified organizations. The numbered lines in Figure 2 represent interactions in which the BeerLL innovators engaged where the number indicate the sequence of engagement. Below, each of these interactions will be explored. The focus will be to analyze the framing processes which took place and to



reflect on politically savvy behaviours.

Figure 2: Overview of the network of actors and interactions for the BeerLL

4.3 Framing Processes

4.3.1 Framing addressing DG/ 1

The BeerLL innovators identified the current legislation as one of the key barriers for further adoption of the BeerLL solution. The relevant EU level legislation is drafted at the Directorate General (DG/1). After analyzing the situation, the BeerLL innovators decided that one approach would be to target DG/1 directly. This was done via the interactions between Level 1 and Level 3c, where direct contacts between the BeerLL innovators with representatives from DG/1 were established. The framing towards DG/1 is represented with the interactions labelled with **[1]** in Figure 2. The key players engaged in these interactions were DTCA and the National University. The engagement in interactions with DG/1 was mainly via face-to-face communication. This included individual meetings and discussions, as well as a half day workshop. During these interactions, the BeerLL innovators framed the BeerLL concept as aligned with the long-term strategic objectives of the EU and at the same time they showed how the proposed BeerLL approach could bring greater advantages and trade simplification to the trusted companies, compared to the approach currently followed in the EU. The strategies utilized in engaging with DG/1 had elements of frame amplification, frame extension, and frame transformation.

Frame amplification , extension and frame transformation with DG/1
During the interactions with DG/1, the innovators presented the BeerLL concept as aligned with the long-term objectives of the EU but at the same time as complementary to the current EU approaches. It was argued that for reliable companies the BeerLL concept could bring significant reductions in their administrative burden. This strategy can be seen as a combination of *frame amplification* and *frame extension*. First, the aim was to clarify and strengthen the similarity of the values and beliefs of the BeerLL and DG/1 regarding the objectives. Second, the BeerLL concept proposed by the innovators was not framed as something completely different, but rather as a complementary solution.

In addition to the frame extension strategy, in the approach to DG/1 we also see that the innovators used elements of the *frame transformation* strategy. The proposed concept to be applied to reliable companies was framed as radically new compared to the approach used in the EU. As discussed in section 4.1, the key innovation of the BeerLL is the concept that trusted traders would no longer need to provide any information to the authorities but instead, the authorities can pull information from the commercial systems of the supply chain partners. Secured access to such information can be made available 24/7 and this will provide the authorities with full supply chain visibility. The BeerLL participants tried to convince members from DG/1 that this transformed way of looking at the problem can enable the EU to better achieve its long-term objectives.

Learning from the interactions and framing towards DG/1
During the workshop it became clear that DG/1 would not be able to utilize the results of the BeerLL directly or, indeed, in the near future. Several suggestions and concerns were raised. First of all, it was pointed out that DG/1 was currently very busy with implementing the eCustoms systems that needed to be up and running in the short run. These deadlines associated with these systems had to be met since legal obligations

existed for member states and trading businesses to develop interfaces to interface with these systems. It was explained that in the short run it would be difficult to explore opportunities offered by other innovation projects such as the BeerLL. Second, they pointed out that at EU level, the span of control of the European Commission (EC) is limited. The EC facilitates discussions among member states but ultimately the member states would need to agree on changes and commit to implement them. Based on these findings, the BeerLL participants had to re-evaluate their strategy. They saw that the direct approach was not very suitable at that specific point in time.

They decided to pursue an indirect approach, and more specifically target national governments. This was a logical move, as from the interactions with DG/1 the innovators became aware about the limited power of the Commission and the position of member states in the decision-making process. Whereas individual member states alone were not able to bring changes at EU level, strong coalitions between member states was seen as a powerful instrument for change. The innovators decided to start with one member state in which they operate and gradually work to involve other member state governments. They further decided to make use of industry and industry associations in the Netherlands in order to put pressure on their national government. This became the focus of their subsequent engagement.

4.3.2 Framing with an industry focus

The involvement with the industry evolved through different stages and reflects collective efforts from the innovators. The engagement with the trading community was initiated by the Beer Producer (BP), where in separate events BP presented the BeerLL ideas to conferences of the trade association. Examples of key framing processes are discussed below.

Frame alignment with the other Dutch Brewers

Initially, the association for Dutch Brewers (BA1) was addressed (see interaction **[2]** in Figure 2). The Beer Producer (BP) presented the BeerLL concept and made an attempt to achieve *frame alignment* on the basis of common industry concerns and interests by trying to relate to the problems that other Brewers faced. The experience, however, was that this attempt did not succeed. While the Beer Producer is a large multinational company which has sophisticated IT and internal control procedures, many of the other brewers were small and medium-size companies and for them the BeerLL concept was perceived as too IT-demanding and unsuitable.

Frame alignment with multinational companies

As a next step, the BP presented the BeerLL results on a conference event of a Dutch Industry Association (Ind1) (see interaction **[3]** in Figure 2). Ind1 is a Dutch industry association and has as one of its goals to represent the interests of companies and to promote trade simplification. In the BeerLL, Ind1 saw the opportunity for a nice 'proof of concept' which could be used as an example to demonstrate to companies what simplifications might be possible when using innovative technologies, as well as to demonstrate to the policy makers how further trade simplifications could be achieved. Surprisingly, the BeerLL concept was received with much interest in this audience, namely from the other international companies. The *frame alignment* here was achieved not based on the same industry, but based on the scope of operations of the companies.

Big multinational companies were able to recognize the problems which BeerCo addressed and were able to see the benefits that the proposed concept could bring to improve their own situation. This allowed the BeerLL innovators to further sharpen their message and to include the trusted trader concept much more explicitly there.

Learning from the interactions with the companies
When evaluating their further strategies, the BeerLL innovators made use of their earlier experience. They became aware that big multinational companies were suitable targets for their further dissemination activities. They realized that the BeerLL concept assumed that companies have sophisticated IT infrastructure which can be used to provide the authorities with full supply chain visibility. And it was the big multinational companies that possessed such a sophisticated IT infrastructure, rather than the small brewers. While the BeerLL was initiated in the context of the Brewing industry, it turned out that the solution is sufficiently general that could address the problems faced by multinational companies operating in different domains.

The innovators also realized two other important aspects. First of all, in terms of efficiency they realized that it would take too much effort to address the multinational companies individually. Second, during the interactions with the companies it became evident that individual companies did not have the resources available to pursue the change in the institutional environment which was required for the adoption of the Beer LL concept in practice and this was not their core business. Further developing and engaging in such change processes were not directly related to their core business. In addition, as individual players they did not occupy a very powerful position. The BeerLL innovators, therefore, decided to target directly industry associations, who represent the interests of the businesses. The BeerLL innovators decided to contact Ind1, as they already had had positive experiences with the earlier presentations of BeerCo at the Ind1 conference.

Frame amplification with the Dutch Industry Association (Ind1)
For the BeerLL innovators, partnering with Ind1 (see interaction **[4]** in Figure 2) provided a more powerful position to disseminate their ideas further, as they could benefit from the network and the communication channels that Ind1 has already established. Thus here we see that by smart partnering, *frame amplification* is achieved and the BeerLL innovators were in a more powerful position to reach out to the right audience and appeal for change. Collaborative efforts (of which Ind1 took part of) resulted in the framing of the BeerLL concept being more focussed and targeted to the needs of the businesses.

Frame bridging, extension and frame amplification with industry associations in other EU member states
Using one of the channels of Ind1, namely an international conference organized jointly by Ind1, as well as three other trade facilitation associations Ind2, Ind3, Ind4, from UK, Germany, and France respectively, the BeerLL innovators had the chance to present their ideas to a wider international audience. As the message of the BeerLL was already well targeted for such an audience, in their framing processes the BeerLL innovators were able to connect to problems that the other industry associations were facing as well, and in such a way achieve *frame bridging*. The association from the UK, which

has a very powerful position in Europe expressed interest in further collaboration. Follow-up meetings with the BeerLL innovators, Ind1 and Ind2 were scheduled to discuss possibilities for collaboration (see interaction **[5]** in Figure 2). These processes on the one hand provided opportunities for further *frame amplification*, due to the growing power of the network of actors supporting the BeerLL idea. On the other hand, they provided opportunities for *frame extension*, as the BeerLL innovators, Ind1 and Ind2 discussed ideas of how to combine their own interest and ideas into a broader message, which they could use for enriched communication when approaching businesses and policy makers.

Learning from the interactions and framing towards the industry associations
Whereas the Beer LL originally believed that they would get better response from the Beer Association (BA1), it turned out that their frames were much more resonant with the organizations taking part in the other Industry Associations. By participating in events organized by Ind1, they were able to strengthen the ties with Ind1 and Ind2, and work towards further commitment of these organizations. The interactions with these other industry associations in an international conference also illustrate a move towards a more international context, where the innovators aim to ensure the industry support across a number of member states. This relates back to the lessons that the innovators learned during their interactions with DG/1, i.e. that they have to gain the commitment of numerous member states in order to increase their chances of success.

4.4 Politically savvy behaviours and continuous learning

The framing strategies as discussed above evolved over time and they were changed and reshaped as more knowledge was acquired relating to the (other) actors in the network. The examples illustrate that the direct approach to other actors, who ultimately need to become part of the network, is not necessarily appropriate, and indirect approaches may be both more appropriate and also may be easier to implement. While some attempts to implement framing processes did not work out as expected, they provided valuable input on how to refocus the framing processes and indicated which participants in the network might be more amenable to the framing processes. Once certain influential actors in the network had been successfully approached, we saw that processes of *frame amplification* begin to take place and it thus became easier to make an impact and join other collective action initiatives. In these efforts we see also processes of *frame extension*, as when you move to this wider collective action initiative, you may need to look for synergies as well as attempt to accommodate other actors' interests, in order to be part of the wider debate.

When framing the BeerLL innovation, the BeerLL participants were very well aware of the political opportunities for change. The BeerLL concept was framed in a way that was consonant with the long-term strategic objectives set by the EU in its multi-annual strategic plan for eCustoms (DG/TAXUD, 2008). This political savvy behaviour was pursued from the start of the project, starting with the development of the redesign and pilot stages and was maintained during the dissemination stage. By demonstrating how the BeerLL concept was able to address EU strategic concerns, the innovators were able to explain to the actors in the network why this concept was relevant and deserved

attention. This also enabled them to stimulate the interest of the other actors in the network and engage them in follow-up discussions.

In their interactions for involving actors from the wider network, the BeerLL innovators constantly enhanced their learning about the political structures and power bases in the network. They realized that they possessed limited resources and they had to be strategic and political in their interactions. The decision to make a shift from the network of Brewers to the network of Ind1, where there is a wider representation of multinational companies is one example of a politically aware manoeuvring in the network. A second example is the idea to work with the associations directly, rather than spending resources to engage with individual companies. The politically savvy behaviour was constantly adjusted, however, based on the interactions and the continuous learning processes that occurred through such interactions.

5 Discussion and conclusions

In this paper, we have provided a further application of the collective action model for institutional innovation by Hargrave and Van de Ven (2006), through the analysis of different ways of frame alignment. We have made use of the enrichments provided by the multi-level network perspective (Rukanova et al., 2007; 2009) and interactions across these levels, as well as the notion of political savvy (Van de Ven, 2005). The case study provides an illustration of how our conceptual framework can be used to analyze the efforts undertaken by actors in a Living Lab to bring their innovation towards adoption in a highly regulated environment. Though it is too early to say anything yet about the final results, whether and how the Beer LL solution will be adopted, we think that the Beer LL innovators have taken the first important steps.

We have detailed the framing interactions of the Beer LL participants in their efforts to ensure the legal feasibility in what they consider to be the best use of the innovation developed during the project. In reflection upon these efforts, we might argue that the interactions with DG/1 were less successful because the DG/1 saw less political opportunities to change at this moment (interaction 1). In the case of BA1 (interaction 2), we may say that the frames were much less resonant than expected beforehand. The fact that the smaller companies did not see as much value as the larger companies, might be a point to investigate further, because it may have consequences both for new attempts to incorporate SMEs into the network, and potentially it also raises questions regarding SME involvement in the Living Lab itself (also as a method to create mobilization). For practitioners, it is also an important observation, that it appears to make more sense to make use of existing organized networks, such as the industry association, for the framing activities, as these groups may already be more powerful. This could be an interesting research question as well.

Our perspective suggests that engaging people in a network is an on-going process. Where situations and context shift over time, so too will peoples' understandings and interests. This may result in significant changes in the way innovations are framed thus resulting in their becoming more but also less appealing at different times. These changes are also likely to result in the reapplication of various framing processes. We have seen that innovators from the Living Lab needed to use a combination of strategies in order to engage in the broader network and they needed to shift their attention from

one group of actors to another when mobilization efforts were not as successful as they had originally thought they would be. Such learning processes are important for practitioners to recognize, as is the development of their understanding of whom to involve, and how to deal with the divergent or even conflicting interests of the different actors. These understandings are directly related to the notion of political savvy. Future research could be valuably directed to seeking further clarification of the notion and making a more detailed study of the behaviours that result in politically savvy action.

Another practical consideration is the fact that we observed that the mobilization of the network was achieved primarily through face-to-face interactions, in workshops and meetings. Beer LL innovators made use of existing events and initiatives, especially in the framing efforts towards the traders. This made sense because the Living Lab actors were able to focus on targeting the framing processes rather than expending resources on facilitating encounters. Research could also investigate the possibilities for making use of IT in order to support the framing processes. Based on our observations, we would suggest that, particularly when there is an important transformation element involved, the use of, for example, mass electronic mailings may be less appropriate, however, when the targeted actors already have more similar interests and congruent frames, such mailings could be used for frame amplification – to clarify and strengthen the shared values and beliefs – and reach out to people in a frame bridging process. This might then be complemented by targeted face-to-face meetings that the Living Lab actors initiate themselves.

We are aware that we have limited our research to the efforts undertaken in one Living Lab that is focused on eCustoms. Efforts are already being made to compare these results with other Living Labs in the same context. Future research could also be directed towards the application of the proposed conceptual framework to Living Labs in other highly regulated environments, such as the energy industry or health care area.

Acknowledgements

The research presented here is part of the ITAIDE integrated project (nr. 027829), which is funded by the 6th Framework Information Society Technology (IST) Program of the European Commission. Ideas and opinions expressed by the authors do not necessarily represent those of all partners. The authors would like to thank all participants for their support and cooperation. We also would like to thank the two anonymous Bled reviewers for their comments on our earlier version of this paper.

References

Baida, Z., Rukanova, B., Liu, J. and Tan,Y.H. (2008): Preserving Control in Trade Procedure Redesign - The Beer Living Lab. Electronic Markets, The International Journal, Vol. 18, No. 1, pp. 53-64.

Benford, R. D. (1997): An insider's critique of the social movement framing perspective. Sociological Inquiry, Vol. 67, No. 4, pp. 409-430.

Benford, R. D. and Snow, D. A. (2000): Framing processes and social movements: an overview and assessment. Annual Review of Sociology, Vol. 26, pp. 611-639.

Binder, A. J. (2002): Contentious curricula: Afrocentrism and creationism in American public schools. Princeton University Press, Princeton, NJ.

Campbell, J. L. (2002): Where do we stand? Common mechanisms in organizations and social movements research. Paper presented at the Social Movements and Organization Theory Conference.

DG/TAXUD (2008): Electronic Customs Multi-Annual Strategic Plan - 2008 yearly revision. Accessed at http://ec.europa.eu/taxation_customs/resources/documents/customs/policy_issues/e-customs_initiative/MASP_strategic_plan_en.pdf (February 2009).

ECOFIN (1998): 2095th ECOFIN Council meeting 8682/98 (Presse 157). Accessed at http://europa.eu/rapid/pressReleasesAction.do?reference=PRES/98/157&format=PDF&aged=1&language=EN&guiLanguage=en (February 2009).

Eriksson, M. Niitamo, V.-P., and Kulkki , S. (2005): State-of-the-art in utilizing Living Labs approach to user-centric ICT innovation - a European approach. Accessed at: http://www.vinnova.se/upload/dokument/Verksamhet/TITA/Stateoftheart_LivingLabs_Eriksson2005.pdf (February 2009).

European Commission (2006): Communication from the commission to the council, the European parliament and the European economic and social committee, concerning the need to develop a coordinated strategy to improve the fight against fiscal fraud. Brussels. Accessed at http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/control_anti-fraud/combating_tax_fraud/COM(2006)254_en.pdf (February 2009)

Faerman, S.R., McCaffrey, D.P., and van Slyke, D.M. (2001): Understanding Interorganizational Cooperation: Public-Private Collaboration in Regulating Financial Market Innovation. Organization Science, Vol. 12, No. 3, pp. 372-388

Frößler, F., Rukanova, B., Klein, S., Higgins, A., and Tan, Y.H. (2008): Inter-Organisational Network Formation and Sense-Making: Initiation and Management of a Living Lab. Serie Research Memoranda Free University Amsterdam, Faculty of Economics, Business Administration and Econometrics Accessed at: ftp://zappa.ubvu.vu.nl/20080017.pdf (February 2009).

Følstad, A. (2008a): Towards a Living Lab for the development of online community services. The Electronic Journal for Virtual Organizations and Networks, Vol. 10 (August), pp. 47-58.

Følstad, A. (2008b): Living Labs for innovation and development of information and communication technology: a literature review. The Electronic Journal for Virtual Organizations and Networks, Vol. 10 (August), pp. 99-131.

Goffman, E. (1974): "Frame analysis". Harper & Row, New York.

Hargrave, T.I., and Van de Ven, A.H. (2006): A collective action model of institutional innovation. Academy of Management Review, 31(4), 864-888.

Johnston, R. B., & Gregor, S. (2000). A theory of industry-level activity for understanding the adoption of interorganizational systems. European Journal of Information Systems, Vol. 9, No. 4, pp. 243-251.

Kaplan, S. (2008): Framing contests: strategy making under uncertainty. Organization Science, Vol. 19, No. 5, pp. 729-752.

King, J.L., Gurbaxani, V., Kraemer, K., McFarlan, F.W., Raman, K.S., and Yap, C.S. (1994): Institutional Factors in Information Technology Innovation. Information Systems Research, Vol. 5, No. 2, pp. 139-169.

Klein, H. K., and Myers, M. D. (1999): A set of principles for conducting and evaluating interpretive field studies in information systems. MIS Quarterly, Vol. 23, No. 1, pp. 67-93.

Markus, L. M., and Robey, D. (1988): Information technology and organizational change: Causal structure in theory and research. Management Science, Vol. 34, No. 5, pp. 583-598.

McAdam, D., McCarthy, J.D., and Zald, M.N., Eds. (1996): Comparative perspectives on social movements: Political opportunities, mobilizing structures and cultural framings (pp. 1-20). New York: Cambridge University Press, New York.

Pentland, B.T. (1999): Building process theory with narrative: From description to explanation. Academy of Management Review, Vol. 24, No. 4, pp. 711-724.

Rukanova, B., Henriksen, H. Z., Von Raesfeld, A., Van Stijn, E., and Tan, Y.H. (2007): A collective action perspective on technological innovation in business/ government networks. In: Proceedings of the European Conference on Information Systems 2007.

Rukanova, B., Henriksen, H. Z., Van Stijn, E., and Tan, Y.H. (2009): Bringing IS innovation in a highly-regulated environment: a collective action perspective. Research Memorandum 2009, Vrije Universiteit Amsterdam.

Schooley, B. L., & Horan, T. A. (2007). Towards end-to-end government performance management: Case study of interorganizational information integration in emergency medical services (EMS). Government Information Quarterly, Vol. 24, No. 4, pp. 755–784.

Snow, D. A., Rochford Jr, E. B., Worden, S.K., and Benford, R. D. (1986): Frame alignment processes, micromobilization, and movement participation. American Sociological Review, Vol. 51(August), pp. 464-481.

Swanson, E. B., and Ramiller, N. C. (1997): The organizing vision in information systems innovation. Organization Science, Vol. 8, No. 5, pp. 458-474.

Swanson, E. B. and Ramiller, N.C. (2004): Innovating mindfully with Information Technology. MIS Quarterly, Vol. 28, No. 4, pp. 553-583.

Van de Ven, A.H. (2005): Running in packs to develop knowledge-intensive technologies. MIS Quarterly. Vol. 29, No. 2, pp. 365-378.

Van de Ven, A.H., and Hargrave, T.J. (2004): Social, Technical, and Institutional Change: A Literature Review and Synthesis. (pp. 259-303) In: M.S. Poole and

A.H.Van de Ven (eds.), Handbook of Organizational Change. Oxford University Press, New York.

Walsham, G. (1993): "Interpreting information systems in organizations." Wiley, Chichester.

Warren, M. R. (2001): Dry bones rattling: Community building to revitalize American democracy. Princeton University Press, Princeton, NJ.