

Collaboration Environment: a Single Point of Access into Network of Knowledge

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Abstract: The main issue addressed in this paper is the value of knowledge sharing in a collaborating working environment (CWEs). CWEs are usually built on technical features to share knowledge in team or group tasks. A CWE is a complex socio-technical entity that comprises several stages or phases before collaboration can function according to its goals. One of the problematic instances of CWEs is the initial state in which research has to take account for the complexity of supporting collaboration through technology use and human interaction. The research approach applied is a case study of firms entering a European framework 7 ICT project proposal. This paper uses a socio-technical approach based on Actor Network Theory to explain the perceived value of sharing knowledge in the initial stage of collaboration. The conclusions show that a holistic approach of CWEs is important to support the objectives with the European research area strategy.

1. Introduction

The research presented in this paper is concerned with extending the knowledge of collaboration working environments (CWE). The development of CWEs has chiefly been driven by technological approaches, but it is realized that effective collaboration is not only concerned with technical functions and applications. Instead, technology applications and human settings together enables collaboration [1, 2], which can be of value to organizations. Although there is no universal consensus on what constitute CWEs, and where its borders are drawn, we contend, from an IS perspective (the combining of information technology and humans), that in a CWE setting value has to do with availability of information and the necessity to share knowledge in a certain context [3] in order to meet certain objectives. We describe in this paper a specific EU-FP6-SSA project (project acronym HAGRID) and its specific value support actions to clients. The main objective with the project is to motivate and enable newcomers in the European research arena to search for potential project partners through different IT facilities, and by organizing events in which clients exchange relevant information regarding specific collaboration interest.

The HAGRID project facilitates knowledge sharing between potential project partners in a collaborating environment by the leverage of three (3) different value added services: E-services, Networking Events, and Advanced services. The specifics of these services support the search for potential project partners during initial state of project idea creation. In essence, these types of services may be labelled as support services which earlier have been studied in parts, but the holistic understanding of the translation process that value creation incline is yet to ascertain. The concept of e-services has been studied in areas, such as, E-commerce, E-government, E-participation, etc. [4,5,6]. The outcome is often in terms of how technology supports any organizations strategy to interact with business partners, customers, and clients. Networking events are situations in which human communication configure the outcome from such physical meetings. The overall structure for the

networking events is similar to a brokerage structure and such approach is largely under-researched in the IS community. The Advanced services that the HAGRID project provide aims at formulating research action plans for clients and this work is similar to identifying user requirements in any systems development approach.

The paper is divided into eight sections. After the introduction, we will next present the objective with the research. In the third section we discuss the methodological issues for the research. In the fourth section we discuss the theoretical background of this study. In section five we present the technology that this study has its focus on, which then is followed by the result of the research. In section seven we outline some indicative business benefits. Finally, in section eight we will offer the study's conclusions.

2. Objectives

The objective with the research is to provide a holistic understanding of the translation process, i.e., the perceived value thereof that clients undertake in order to contribute to EU-FP7 project teamwork.

We argue in this paper that the commitment of newcomers in the European research arena to participate in a research consortium incline a translation process of internal competences and knowledge. The character of such translation process is socio-technical and in this paper we use a research approach that is based on Actor Network Theory to explain how value is created for clients entering the European research arena. The type of value we are focussing on is increased knowledge among clients who make use of HAGRID support services. In so doing we delimit the research from economic or any other organizational performance value outcome.

3. Methodology

The research presented in this paper is empirical and case study based [7]. We selected 5 cases in which we did interviews with research managers. The interviews were semi-structured in so that the informants could give input regarding the translation process they undertook to participate in a FP7 project proposal. Questions were divided in themes and followed the structure of SWOT analysis approach. This means that we formulated questions concerning the companies' strengths and weaknesses in research activities, and also its opportunities and threats. Beside that we also investigated the level of interest and knowledge for EU-FP7 research content. This was assessed by discussing the companies' history of research as well on-going FP research activities.

The approach based on semi-structured interviews increased the validity of the research concerning the value from a translation process. We utilized a socio-technical framework for the analysis of data gathered within a time frame of two month in 2008. In so doing we aligned our research methodology to the concept of theoretical validity and interpretative validity [8]. Theoretical validity refer to the explanation of the phenomenon studied, and not only a description of the facts or an interpretation of the underlying meaning, This type of validity is concerned with that the theories or concepts used to explain the meanings of action are explicitly related to studied phenomenon. Most important is that the chosen theories can be presumed to reveal a true picture of the contextual conditions that is subject of inquiry. Interpretative validity is a meaning oriented concept and accounts for the abstractions that is employed by informants rather than theoretical abstractions. By combining these two concepts of validity we were able to create meaning of the phenomenon under study, i.e., value creation activities.

4. Theoretical Frame of Reference

One view of people working together towards a common goal suggests that collaboration is primarily based on its perceptions of the properties of technology concerned. Many technical approaches (software engineering) are based on how elements of information technology enable collaboration. In general, these approaches would define a set of user requirements that constitute the collaboration context. Then follow a period of time for database and software application implementation. After that, test and necessary refinements are made to the application system. We contend that while there may be some validity in such an approach, it is unlikely to provide complete explanation, as it would miss influences such as inter-personal interactions.

We argue that Actor Network Theory (ANT) has much to offer in examining CWEs. Researchers using this approach would concentrate on issues such as: how is the relationship formed between two or more stakeholders, what are the human (stakeholders) and non-human (information technology) actors, and investigating the network, and its strength, these actors build up. Researchers would also study how SMEs undertake the translation process of entering networks of knowledge and what may deter them from doing so.

The key characteristics of the ANT view of translation are outlined by Callon in [9].

1. **Problematisation:** in which an actor attempts to define the nature of the problem and the roles of other actors to fit the proposed problem.
2. **Interessement:** is a series of processes that attempt to impose identities and roles, defined in the problematisation, on the other actors.
3. **Enrolment:** will the follow leading to the establishment of a stable network of alliances.
4. **Mobilisation:** occurs as the proposed solution gains wider acceptance through some actors acting as spokespersons for others.

It can be argued that ANT is not a very practical lens to study CWEs with. Critique raised against ANT is concerned with how ANT is goal oriented, looks for stabilisation, black-boxing and control [10]. However, we argue that these are characteristics that are very appropriate in goal setting environments such as forming an FP7 proposal. Also, as it is an account for social as well as technical strands, it is a good foundation from which inter-personal interactions can be researched. Joining a network of actors, such as an FP7 project consortium typically mean that the actual work of developing an FP7 proposal is divided into a number of phases in which technology may mediate the work. Also, there will be phases where non-technical interactions are crucial for the work progress, for example, having meetings for decision-making on milestones and deliveries, etc.

5. Technology Description

While virtually all IT based environments for collaborating activities are focusing on jointly agreed activities with a specified outcome, i.e., a point of access to a single database, the E-services developed in the HAGRID project furthers the intention with such environment by distributing knowledge to a number of IST project databases. The distribution mechanism in this case is the SPOA (single point of access) engine, which performs the necessary transactions for a user that are interested in a wider range of collaboration activities. The difference between an isolated point of access and the SPOA engine is that the SPOA engine distributes knowledge profiles to other databases which can visualize the profiles in its original style and format. The former style of access points are designed for access to a single database which delimits the spread of profiles and therefore hinders the user from wider range of network participation. A number of project databases with this limitation have been developed in EU-FP6 projects and some examples are: IDEAL-IST, IST-WORLD, and EPISTEP.

The SPOA engine consists of two main modules, the Partner Search module and the Collaboration Profile Submission module. The Partner Search module retrieves information from the HAGRID database, as well as from other project databases that have agreed to share their information with HAGRID (currently 7 databases), based on requests made in the HAGRID web portal. Adding more databases is easily done through the configuration of the SPOA. The module gathers information from the other databases using the HTTP protocol, and adapts the result to the presentation style used on the HAGRID website. Only summarised information about the results is presented and the portal provides links to the full description at the original website. The Collaboration Profile Submission module submits profiles entered into the web portal to other databases in order to make them visible there as well. At time of writing there are three databases that cooperate with HAGRID in this respect. The Collaboration Profile Submission consists of several steps. After submission of the profile, a HAGRID partner must accept the profile, which after acceptance then is submitted to the other databases. Mapping to the other databases is made according to schemas made available by the database owners.

The support from HAGRID to create inter-personal and inter-firms relationships is by the provision of Advanced services and Networking events. Advanced services is the instrument which gives different types of clients, SMEs, research institutes, etc. the opportunity to develop company specific research action plans. These plans act as guide for the client so as to detect the most suitable roadmap into future FP7 project participation. In detail, the research action plan contains descriptions of the clients' specific competence and skill in research activities as well as in business activities. The plan also contains a SWOT analysis of the clients' internal research structure and activities. The profiles are divided into three different parts, the collaboration profile containing the specified research interest, the personal profile with CV's of key personnel, and the company profile explaining the business niche. The main issue in this dimension is how the research action plan bridges the gap between the competence and needs of the clients with the FP7 research focus.

Networking events are organized by the HAGRID consortium on three timely occasions. The networking activities are organized and time scheduled events of face-to-face meeting in which participants can exchange research interest with other companies, research institutes and so forth. The face-to-face environment is in essence the fundamental level of networking activities. One important issue is whether the provision of Networking events imply any value for participants additional to E-services.

6. Results

The analysis of the development of intended participation in EU-funded projects is based on the five cases where the clients (newcomers) identified opportunities to join future FP7 participation. Basically the identification process started with the realization that having access to knowledge outside the organization would largely contribute to the growth of its business. Typically, statements like "how can we sharpen our products and/or activities to be more attractive on the market?" and "what kind of research activities can strengthen our group", and, "what kind of knowledge do we really need to make use of", were common among the cases. By expressing these kinds of statements actors have embarked on the process of problematisation that ANT speaks of. The advanced service which HAGRID provide to clients is the key to the understanding of internal advances based on the collaboration profile. The roadmap for research activities, which is developed in the very initial stages of formulating and moving towards an FP7 proposal, contains the definitions of research interest, whom the client consider to be best possible partner to collaborate with and so on. This stage also typically involves the dissemination of the clients' collaboration profile through the HAGRID E-service feature in order to find other roles to fit the research demand for the client.

The outcome of the problematisation process in ANT nurtures the activities that follow in the process of creating interressement among potential participants in research activities. The Networking Events that HAGRID organize is the junction where clients meet other businesses or research institutes so that they can share their thoughts and ideas in a goal oriented setting. This is a risky situation for the client because they have pre-selected potential partners for short time discussions (approx. 30 minutes), in which they have to clarify their needs, position and expertise in research. Clients revealed that the desired outcome was higher than the actual outcome from these short meeting. However, they realized the difficulties and were able to sort out what could be seeds for future collaboration from pure marketing of research expertise.

The next step in translation process is Enrolment, a process of establishing the stability of the network, e.g., the project consortium. In this stage the clients begins to identify the roles and responsibilities for each participant and work goals are defined, negotiated and tentatively decided. The work in this stage concerns the formulation of ideas into research activities that eventually will be specific work packages in a project proposal. In this stage, technology such as e-mail, skype and others are crucial for the progress of collaboration, and sending information back and forth between participants builds up the content of the proposal. Clients state that at this point sharing of knowledge is vital for the trust of others in the network. This is a creative phase in the development of a project proposal and therefore stability is extremely important.

The final step is the process of mobilising the network to gain wide acceptance for the content of the proposal. One important issue was: “Do we need any other strong partner in the project in order to refine the proposal so it will reach high ranking in the FP7 evaluation process?”. Apart from the search of potential “gate-openers”, the network as it is need to work hard with holding the consortium together and constantly nurturing the acceptance level for the proposed solution. It is also realized among the clients that submitting an FP7 project proposal means a lot of work within short time frames. Without the use of efficient communication technology the mobilisation of the network would break down because knowledge sharing would not be possible at all.

The perceived value of sharing knowledge by the use of HAGRID support services has indeed shown to be high for the case study informants. The intervention into the case clients show that the clients benefit mainly from the help to formulate and structure their roadmap into networked research activities

7. Business Benefits

For newcomers on the European research arena services like the ones that HAGIRD provide are extremely useful. The services guide the clients through the demanding process of joining a FP7 project consortium. The SPOA engine helps spreading an organizations profile to a wider group of potential partners, some of which perhaps would not have been targeted intentionally otherwise. The SPOA engine also lessens the work searching for potential partners, since you can do the search from one interface, and gather results from several databases, instead of doing separate searches in each database. Having the ability to read the profiles before arranging a face-to-face meeting is also beneficial, as a form of screening when setting up meetings for a network event. The network events in themselves provide an opportunity to manage several meetings with potential partners in a limited time, and also reduce the need for travelling to separate meetings. As the network events have been held in conjunction with big ICT-events, value has been added since some of the meeting partners would have been there for the event anyhow, and therefore decided to arrange meetings. Others were there for the meetings and took the opportunity to visit the ICT-event since they already were at location.

8. Conclusions

This research set out to explain the perceived value of knowledge sharing by the use of different support services that HAGRID provide to newcomers on European research arena.

The theory of ANT has provided useful explanation of the perceived value for undertaking a process of translating ambition in research to participation in research projects. The value that the clients perceive is based on the availability of information through the SPOA engine and the organized face-to-face meetings in the Networking events as well as the Advanced services. We conclude that the holistic approach taken by the HAGRID concept strongly benefit the clients compared to what a single service such as database partner search would entail.

In each of the abovementioned instances, the ANT approach offers an explanation that both technical and non-technical interventions are crucial for the durability of the network. If a technical approach to investigate the collaboration environment would have been chosen, the translation process would have looked for the uptake of technology characteristics in each phase. On the other hand, as we see that collaboration, in the lens of a translation process, has more to do with interaction of both non-human and human actors, both are equally important for a successful project proposal process.

Finally, we conclude that for clients, the HAGRID approach is vital as it captures several aspects of research interest and competencies among clients. Although clients often compare themselves with other companies they still act in their own style. For newcomers in the European research arena, the provision of technological and business oriented services, such as, E-services, Advanced services and Networking events strongly contribute to the clients understanding of the value of participating in EU-FP7 research activities.

In the future we expect to see more approaches that provide holistic insights to different beneficiaries. The outcome of such approaches are valuable openness and better interconnectivity between research clients as well as it will serve as a vehicle to facilitate the objectives with EUs ERA strategy.

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