

The Enterprise 2.0 adoption process: a participatory design approach

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Abstract— This paper contains the results of a research activity carried out within an Enterprise context, aiming at the formally definition of the Enterprise 2.0 paradigm adoption process to be applied both in public and in private organizations.

Our research starts from the consideration that the demand for freedom (“freeform”) which is on the base of web 2.0 and represents one of its main success key, should not lead the organizations management willing to adopt Enterprise 2.0 principles to disregard the planning phase which is preliminary to any technological initiative. In addition, since the Enterprise 2.0 adoption involves a deep change in corporate culture, it may not relate to the same organizational models applied to traditional IT projects.

The analysis of the current studies on the path to Enterprise 2.0 shows that approaches have been defined following each one a different perspective of analysis. That approaches consists in a set of guidelines and are not strictly defined from stakeholders, activities and outcomes points of view.

Moving from these considerations we formally defined a process flow for the adoption of Enterprise 2.0 within an organization based on goal oriented analysis and participatory design principles. In this paper we present this process flow and discuss about the advantages of the proposed approach.

Keywords— Enterprise 2.0, participatory design, organizational model, collaboration, collaborative context, adoption process

I. INTRODUCTION

In this paper we describe the results of a research activity conducted by a group of researchers belonging to Links Management and Technology S.p.A. (Italy). This is one of the activities planned within the research project called N@Work 2.0 (Net at work 2.0) whose purpose was to define a framework to introduce the Enterprise 2.0 paradigm within public and private organizations. The first step of the project was the definition of a process flow for the adoption of Enterprise 2.0 principles. In this paper we present this process flow and discuss about the advantages of the proposed approach.

The application of Enterprise 2.0 [6] principles, which benefits are mostly rooted in the promotion of cooperation between individuals and in the enhancement of the intellectual capital of organizations, requires the presence of an open corporate culture and an appropriate level of maturity and aptitude with respect to the virtual collaboration. Within

organizations, these requirements often clash with the practices closely related to corporate hierarchies. Added to this is a resistance to change that often members of organizations may experience because of the perception of some risks [1]:

- information security: loss of confidential and competitive information,
- network security: open systems can make IT infrastructure more vulnerable,
- loss of control on information flows (e.g. negative comments posted by employees and inappropriate staff behaviour),
- identity: most of Web 2.0 tools allow a high degree of anonymity and it's also often easy to impersonate other users. Such situations should be avoided in organizations by assigning each user responsibility on content and providing users with proper codes of conduct regarding the information processing,
- reliability: the risk that information is not reliable or not properly used within an organization,
- productivity: in some cases, management may perceive a reduction in the productivity of staff who spends a lot of time in using social networking tools providing no business value,
- resources: the use of collaboration tools can lead to higher resources consumption that organizations have to properly plan and manage (e.g. video sharing can require much more bandwidth).

Even non-adoption of the Enterprise 2.0 principles has risks:

- unauthorized use of web-based tools: the absence of a coherent and well-informed framework for the use of Web 2.0 tools could lead the staff to use external tools in order to more effectively perform their daily work. This phenomenon implies IT security risks and can produce a loss of integration with existing tools,
- information fragmentation: the use of social media tools and external environments may cause a significant risk of fragmentation for information conveyed outside the Enterprise web information systems so that it becomes inaccessible from the rest of the organization,
- difficulty in attracting and keeping talented staff: younger staff members are particularly attracted by

organizations demonstrating attention to new technologies.

These considerations highlight [2] that the success key for Enterprise 2.0 initiatives consists in balancing freedom and innovation on the one hand and the need to implement controls and other constraints on the other hand. The assessment of benefits and risks associated with the adoption of an Enterprise 2.0 model within an organization should begin with a careful analysis of the organization structure. In particular, the factors [1] to consider are:

- organizational dimension: the potential benefits in terms of improved internal processes and communication are greater for larger organizations, but at the same time changes necessary to achieve these benefits are greater,
- scale: web 2.0 aims at creating value from participation, but results are different depending on whether participants belong to the world of the Internet, or to a small group within an organization. Some of large scale tools can be used in organizations, but require adaptation in order to make possible the value creation by smaller groups,
- employees distribution: organizations with multiple offices in multiple countries and many employees who often work from home could have more benefits from the implementation of web-based technologies in general, web 2.0 in particular,
- employees' age: Enterprise 2.0 initiatives are particularly relevant for companies with young employees. However, there is a specific value also for organizations with a significant percentage of senior employees aiming at codifying and transferring knowledge to junior employees,
- division: each sector of activity has specific characteristics on which the Enterprise 2.0 can have a different impact,
- regulations: each sector of activity (such financial, legal, construction and government) is subject to specific regulations that must be taken into account,
- organizational culture: users' aptitude towards the principles of virtual collaboration can influence Enterprise 2.0 initiative plan and outcomes,
- stakeholders perspectives: considering the end-users goals can represent a critical success factor,
- technologies infrastructure in use: it has to be taken in consideration in order to assess the opportunity to adapt them in terms of security or integrate new tools.

All these factors are particularly critical in the evaluation phase of an Enterprise 2.0 initiative. The demand for freedom (freedom) which is on the base of web 2.0 principles and represents one of its main success key, should not lead the organizations management to disregard the planning phase which is preliminary to any technological initiative. In addition, since the Enterprise 2.0 adoption involves a deep change in corporate culture, it may not relate to the same organizational models applied to traditional IT projects.

In the following we start describing the state of the art related to the Enterprise 2.0 adoption planning (Chapter II). In

Chapter III we present our Enterprise 2.0 adoption process. Finally, in Chapter IV, we present conclusions and future steps.

II. STATE OF THE ART

Shifting towards Enterprise 2.0 is a complex process implying a deep change in organizational models, in enterprise culture and in people liability towards new work habits. Literature on Enterprise 2.0 adoption highlights that there is not a unique path to Enterprise 2.0 and that it is possible to have different approaches accordingly to specific enterprise needs.

According to McAfee [3,6], the Enterprise 2.0 paradigm is trying not to impose tools for simplifying user works or to catalogue their work content, rather to offer tools able to elicit tacit knowledge emerging from their work. This purpose could represent a great leap forward both for public and private organizations. The most part of today's enterprise intranets, knowledge management systems and workflows applications have a rigid structure that cannot be influenced by users. Enterprise 2.0 technologies allow those systems to become flexible platforms which structure is constantly changing and built by autonomous users having similar interests. In order to make companies adopting the Enterprise 2.0 approach, McAfee highlights the top management role which will have to undertake initiatives aimed at:

- promoting an open culture in order to facilitate the emerging of new collaborative practices,
- introducing a common platform to avoid the creation of information "silos" (e.g. a single wiki rather than more independent wikies). This allows the emerging of collaboration even in contexts where it would be difficult to collaborate,
- providing an informal rollout phase by involving at first small user groups in the experimentation of the new collaborative tools. The involvement of all other users will happen progressively and spontaneously,
- giving support during all Enterprise 2.0 adoption process steps in order to encourage the use of collaboration tools. As McAfee, a successful approach is not so much in providing users with an empty workspace, but rather in arranging a starting point (e.g. a problem to solve) which could stimulate interest and generate user interaction with the system.

The Observatory Enterprise 2.0 belonging to School of Management of Politecnico di Milano [4] analysed the adoption path from the organization's strategic objectives perspective. The outcome of that analysis is the identification of three kind of enterprise:

- social enterprise: aims at creating new collaboration, knowledge sharing and relation management patterns within the organization. The degree of participation and active involvement of users is high when they see the community as an effective way to increase their knowledge, create new relationships and increase their organizational position visibility,

- open enterprise: plans a significant opening of virtual workspace borders in terms of access modes and external users. Traditionally information systems are designed for making information available to organization members and only during working hours. The possibility of external access by other stakeholders (partners, suppliers, etc...) is limited and considered difficult to build and manage because of security issues. In open enterprise information systems and the entire organization are designed to be open to contributions coming from individuals and from different sources. They also provide different services and information to members and external organizations, creating new ways of interaction with customers, citizens, suppliers, partners and consultants that often lead to real innovations of processes, products and services,
- adaptive enterprise: focuses on flexibility and re-configurability in business processes management. An adaptive enterprise is a space able to support business processes flexibly through the combination of collaboration tools and information flow orchestration. The benefits of the adaptive enterprise are particularly highlighted in large or geographically distributed organizations.

According to the Adoption Council 2.0 [5], the process of Enterprise 2.0 adoption has to be different from that of traditional enterprise tools. The adoption process can not follow a traditional top-down or cascade trend in which the project is under the sponsorship of the top management and is built sequentially by the working group. On the other hand, Web 2.0 brings out new approaches in which employees proactively seek better tools that then spread virally. The Council states that the two approaches are not able to guarantee an optimal roll-out of Enterprise 2.0 initiatives across the company and its departments.

Dawson [1] highlights that the governance of Enterprise 2.0 adoption has to take account of enterprise size and management structure, culture and style. Starting from this consideration, he specifies that: for the biggest organizations, such as public administration, it would be preferable to adopt a structured and documented flow to highlight the potential benefits and risks for the organization; for smaller organizations such as private companies or non-profit organizations it may be more appropriate a more streamlined approach. In any case, Dawson assumed a typical process of governance in the following phases:

- appointing of a project leader and sponsor for the Enterprise 2.0 project,
- identifying of main groups of stakeholders and their expectations in the adoption of Enterprise 2.0 model,
- giving priority to the desired outcomes: e.g. a company working in research and development areas will prefer to focus on innovation, development and launch of new products, a company interested in recruiting new talents to focus efforts in the introduction of social networks,
- identifying risks: each organization will perceive different risk levels in the implementation of Enterprise

2.0, so it is important to clearly identify and assess more relevant risks and benefits,

- defining and disseminating code of conduct regulating the access to collaborative environments and information processing: it is important that policies and rules are defined in a shared way and communicated to employees,
- defining IT Enterprise 2.0 strategies and guidelines to be integrated into the broader context of higher-level IT strategies adopted by the organization.

The analysis of the state of the art of the Enterprise 2.0 adoption process has shown that it has not yet been formally defined. In particular, the following findings emerged about the existing approaches:

- they define macro phases not specifying their subdivision in activities and their stakeholders and outputs,
- they do not specify methods to be used in order to elicit end users goals and the corresponding requirements,
- while having some peculiarities, they have many common concepts and seem to converge towards the view that the most effective strategy can not ignore business objectives, corporate culture and the users' maturity in the use of collaboration tools.

Consequently, the approach to an Enterprise 2.0 initiative can not refers to the same organization schemes applied to traditional IT projects, but requires management strategies focused on users and corporate culture changing.

III. GUIDELINES FOR ENTERPRISE 2.0 ADOPTION PROCESS

On the basis of these findings, we identified the following recommendations and guide lines:

- the best path towards Enterprise 2.0 adoption combines the top-down to the bottom-up approaches by involving both the top management having the role to guide the adoption process and to guarantee adherence to the strategic objectives, and the end users who would play an active part in defining the initiative goals and the collaborative environments requirements. In this context the participatory design plays an important role in linking the initiative to the needs of both business and individual users, guaranteeing them a role in the design of collaborative content and services,
- the assignment of responsibility for the contents should be based on real users skills, rather than on their level in organization hierarchy, thereby taking a decentralized approach to knowledge management,
- it is always important to highlight the contents authorship in order to ensure quality by user empowerment.

Moving from these considerations we formally defined a process flow for the adoption of Enterprise 2.0 principles within an organization starting from a goal oriented analysis.

Because of the pervasiveness of the initiative, the process involves all organization members combining top-down and bottom-up approaches and needs the appointment of a steering committee to be responsible for coordinating process activities

in collaboration with all organization levels. According to a goal oriented analysis we defined the stakeholders involved in the process as follows:

- enterprise: which identifies any member or group of members of the organization,
- top management: that is the organizational unit typically dealing with the strategies and high-level objectives definition,
- steering committee: assuming the role of the responsible for the initiative. It is composed by representatives all Business Unit representatives (middle management and lines) and the intranet manager (if any),
- process owner: who is responsible for each business process. He may coincide or not with the business unit manager the process belong to.

The event triggering the start of the adoption's path is a proposal from any organization's member. The top management, after having accepted the proposal, appoints the steering committee responsible for the adoption process. After that, the following activities have to be performed combining top down and bottom up approaches:

- strategic objectives definition: the top management investigate and formalize which strategic objectives impact on value chain could be expected from the implementation of the proposal,
- collaborative context analysis: the steering committee assesses the state of organization collaboration culture by analysing work habits, users' aptitude towards new collaboration patterns, knowledge sharing value perceptions and familiarity with social media. After that, the steering committee verifies if are there any needs of specific tools supporting members in their daily work.

On the base of the identified strategic objectives and the context analysis, the top management and the steering committee, define and formalize the Enterprise 2.0 initiative operational objectives and provide a high-level specification of the enterprise areas where to apply collaboration in terms of borders of cooperation and macro-processes involved.

After that, the top management and the steering committee define metrics to be applied for the measuring of the 2.0 performance indicators initiative. Since it is not possible to refer to standard metrics, they have to be defined by means of criteria strictly dependent on the objectives defined in the previous phase.

In line with the need to ensure the involvement of all stakeholders since the earliest phases of the project, next phase requires the participatory design macro-activity, which consists of a set of activities aimed at the definition of collaboration workflow within each business process. The participatory design has to be performed by the steering committee in collaboration with the process owners. The design is defined "participatory" because it allows all members of the organization, regardless their hierarchy level, to play an active part in the collaboration design. The participatory design consists of these activities:

- collaboration requirements elicitation: specific needs of collaboration and communication in the context of the

flow of business processes are analysed by means of a user-centered methodology. This activity aims at define collaboration tools to integrate and their terms of use within each business process involved,

- skills assessment: organization skills are identified in order to assign roles for edit and manage different kind of contents,
- definition of collaboration workflows: for each of the processes under investigation the following elements should be defined: the collaboration tools to be associated, the approval cycle of content generated by users during collaboration, the role to be assigned on the base of the skills identified in the previous activity.

The participatory design macro-activity can be carried out again after the launch of the initiative, this in order to ensure the re-configurability of processes.

After the participatory design, the top management and the steering committee shall define the code of conduct regulating the use of collaboration tools. The code will aim at assure quality content and provide guidelines for the target users selection.

Then, taking into account strategic goals and design choices, risk management plan has to be pointed out by defining the initiative risk levels and the corresponding countermeasures.

Finally the top management and the steering committee plan their strategy to launch the initiative. The launch has the strategic role to attract users, so it is important to think to a key event (e.g. a problem to solve, strategic information not available elsewhere, ...) able to leads users to access to the collaborative environments and give their contributions.

After the planning phase, the initiative is prompted by an official meeting with end users.

The following picture summarizes the process explained:

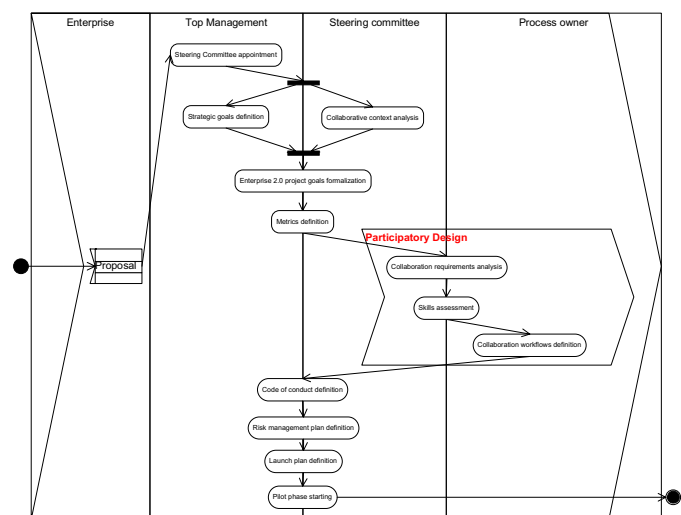


Figure 1. Enterprise 2.0 adoption process flow

IV. CONCLUSIONS

In this paper we proposed a participatory design approach to be adopted in the Enterprise 2.0 adoption process. This approach has been successfully experimented both in public and in private organizations:

- a municipality has followed the adoption process steps in order to introduce a virtual environment for the communication and collaboration between the organization members and citizens about a service to be provided (bed and breakfast opening),
- a bank has followed the adoption process steps for planning the reengineering of a business process (providing loans) in a collaborative way in order to let organization members exchange knowledge about the process (information on process instances and best practices).

The next step planned is the development of a technological framework able to support the planning phase of Enterprise 2.0 initiative by providing and collecting best practices and indicators for measuring projects outcomes.

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