Enterprise 2.0: what models are emerging?
The results from a 70 case-based research

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Abstract: ‘Enterprise 2.0’ or E2.0 refers to a set of organisational and technological approaches steered to enable new organisation models based on open involvement, emergent collaboration, knowledge sharing, internal/external social network development and exploitation. It aims to respond to the new features and needs of people and boosts flexibility, adaptability and innovation. Based on evidence from 70 case studies and a co-laboratory approach, the article analyses what E2.0 models are emerging in companies. The challenge for management theory is to provide empirically grounded and actionable knowledge for companies to design and implement new Information and Communication Technology (ICT)-enabled (virtual) working environments able to extend the boundaries of their knowledge creation to their mobile workers, customers and suppliers.

Keywords: ICT-driven innovation; enterprise 2.0; survey; case studies.

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1 Introduction

The availability of new Information and Communication Technology (ICT)-enabled services and particularly of web and mobile communication services makes it possible to overcome geographical (the workplace is everywhere the worker is), time (the worker creates value whenever it is required) and organisational barriers (the concepts of colleague, competitor and supplier have to be rethought and become more worker- and relationship-focused).

In addition, the Information System (IS) evolution in terms of interoperability and integration is speeding up the convergence towards web application usage while making the borders of the different IS more and more fuzzy. The intranet, Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM), which were once distinct ICT application systems, are merging and overlapping while increasingly developing into communication and collaboration tools.

As a result of this continuous evolution, the emerging IS is not just a sum of its components, but it can be a (virtual) working ‘space’ which gives complete support to workers’ multidimensional needs. All this means that (new) ICTs are conceived as an enabler and a facilitator of the social mechanisms through which workers create, transfer, share and reuse knowledge; in other terms, ICTs can become a key factor to design the near future organisation. However, to exploit the potential of the technology, we need to look at people and the ‘way’ they construct the environment in which they work and interact. The role – and challenge – of ICT is, therefore, to reproduce a social reality made up of interpersonal relationships, collaboration and communication flows and possibly enhance this reality by emphasising openness and collaboration.

Empirical evidence (for details, see Corso et al., 2008) reveals that the intranet radically changed its role from a predominantly unidirectional top-down channel for communication and information – the first era – to a new (virtual and dynamic) working
environment, a creative, open working space focused on workers, their needs, specific working conditions and interactions with others – the second era. The vision above is what we have called virtual Workspace (v-W).

Since 2006, a new emerging stage of the abovementioned process emerged (McAfee, 2006): a sort of discontinuity in the workspace scope evolution, pushed by further emerging worker needs and enabled by social computing tools, Service-Oriented Architecture (SOA), Business Process Management (BPM), mash-ups and new supply models, (i.e., Software-as-a-Service or SaaS). The borders of the v-W are breaking down, as those needs cannot be satisfied inside a ‘closed’ organisational space anymore: that means not only to open to external actors, but also to rethink traditional collaboration and Knowledge Management (KM) schemes. We refer to this trend as ‘Enterprise 2.0’ or E2.0.

This phenomenon has led to the diffusion among users of functionality and interaction metaphors that initiate in the web environment and then spread within the company, bringing with them a greater usability of the user interface and a human-machine interaction paradigm more centred on user needs. Also termed as the ‘consumerisation’ of ICT, the in-house developments focus on designing environments in which the worker can choose which collaboration and social computing tools to use and in which context.

Basing on evidence from 70 case studies, this article intends to explore the E2.0 phenomenon, with the goal of analysing what models are emerging in the firms.

The article is organised as follows: Section 2 provides a concise literature review, Section 3 provides the E2.0 framework, Section 4 analyses the emerging E2.0 models and Section 5 highlights the conclusions and further developments.

2 Literature review

From the 1970s onwards, ICT has developed from simple processing to relational technologies, progressively increasing its organisational impact on the company and making the integrated design of ICT and organisational framework crucial. In the literature, various perspectives have been developed, ranging from the tech-determinism view and the organisational determinism one to a ‘dual’ perspective. This latter view seeks to develop a synthesis between the first two perspectives, which conceive ICT as an independent and a dependent variable, respectively.

Up to the end of the 1980s, the dominant approach in the literature was deterministic (e.g., Braverman, 1974; Strassman, 1985), with technology explicitly defining organisational changes. ICT was seen as an independent variable exerting a one-way effect on organisational behaviour. Given that it considers the potential of ICT without taking account of the conditions and limitations imposed by the company environment, this approach has been called ‘ingenuous and utopist’.

A different view (Galbraith, 1973; Tushman and Nadler, 1978) sees the organisation and strategy framework as clear-cut determinants of ICT diffusion and usage. However, even this perspective is too deterministic, as ICT is, in its essence, modular and open, rendering a predefinition of the ways of use without consideration of the specific organisational context impossible (Boddy and Buchanan, 1986).
It is, therefore, insufficient to analyse the ‘technological side’ of ICT: we also have to consider the significances that ICTs represent within a company environment (Boland and Hirschheim, 1987; Kling, 1991). Following this approach, some authors sustain an almost perfect correspondence between ICT and organisational design (Brancheau and Wetherbe, 1987; Lucas and Baroudi, 1994).

This gives rise to a third perspective that seeks to develop a synthesis between technological and organisational determinism: it can be termed ‘structurational’ or ‘dual’ (Giddens, 1984). This perspective postulates that human actions are made possible – and, at the same time limited – by structures built from a set of rules and resources. According to this perspective, an organisation’s formal structures and rules represent a very approximate description of its real functioning. The formal aspect is merely what apparently determines its effective regulation, which is actually the product of a mixture of formal prescriptions and informal processes. This is also true for technology.

Technology can, therefore, be considered simultaneously as dependent and independent variables, as a constraint and a result: the technology/organisation relation cannot be seen statically, but is rather a dynamic relation in which technology is molded by organisational characteristics while, in turn, becoming the premise and limitation of subsequent organisational decisions. In other words, technology is, at the same time, an objective fact and a construct created by means of interaction and interpretation, following a typical process of structuraction (Orlikowski, 1992).

Workers assimilate technology via a complex process of learning and sense-making. Usage and training are the two most evident ways, but factors such as reputation, gossip, observation of the behaviour of colleagues and bosses and involvement also play an important role. In this way, technology takes on a meaning tied not only to its intrinsic characteristics, but also to the institutional, organisational and symbolic context in which it is introduced.

Nevertheless, technology is not infinitely flexible. Over time, it takes on increasingly shared and formalised meanings and usage patterns, becoming a working tool, but equally a constraint with regards to different interpretations.

According to this approach, on the one hand, organisational design cannot neglect the opportunities offered by ICT, while on the other hand, the effective and efficient introduction and development of ICT in a corporate environment must pay due regard to organisational variables, both from the point of view of systemic coherence and from that of managing the associated process of organisational change.

New ICTs provide opportunities and challenges for the development of the new workplace, but in itself, it is not the solution: culture, people and behaviours play the greatest role. The traditional ways to share and manage knowledge become inadequate (companies are more and more unable to retain, exploit and satisfy knowledge workers; sharing and capitalising knowledge challenges the existing culture; knowledge soon becomes obsolete if it is not continuously improved) and the workplace has to change accordingly to give workers complete support for their real needs. Therefore, the challenge is at the organisational and managerial levels.

The new working environment is the result of the technical, organisational and managerial choices with which the company fosters people’s behaviour in all phases of the knowledge life cycle, including the acquisition, transfer and sharing, capitalisation and reuse of knowledge. This environment has to be designed to fit the internal and external contexts of the organisation.
In this context, KM is about creating an environment that encourages people to learn and share knowledge by aligning goals, integrating bits and pieces of information within and across organisational boundaries and producing new knowledge that is usable and useful to the organisation.

Our perspective on organisational knowledge is sociopractical and considers knowledge as a common good rather than a mere individual asset. Knowledge creation and sharing are interpreted as social processes in which the most important role is played by individuals and their relationships with others.

Accordingly to this logic, ICT is interpreted and then used as a set of tools to recreate a social reality of interpersonal relationships and communication flows, possibly enhanced by emphasising openness and collaboration (Corso et al., 2008; 2009).

3 Investigation framework

Empirical evidence (for details, see Corso et al., 2008) reveals that the intranet radically changed its role from a predominantly unidirectional top-down channel for communication and information – the first era – to a new (virtual and dynamic) working environment, a creative, open working space focused on workers, their needs, specific working conditions and interactions with others – the second era. The vision above is what we have called v-W.

Since 2006, a new emerging stage of the abovementioned process emerged (McAfee, 2006): a sort of discontinuity in the workspace scope evolution, pushed by further emerging worker needs and enabled by social computing tools, SOA, BPM, mash-ups and new supply models (i.e., SaaS). The borders of the v-W are breaking down, as those needs cannot be satisfied inside a ‘closed’ organisational space anymore: that means not only to open to external actors, but also to rethink traditional collaboration and KM schemes. We refer to this trend as E2.0.

However, workers’ needs are evolving and they cannot be constrained by traditional company borders: this means shifting from v-W to E2.0.

The term ‘Enterprise 2.0’ derives from Web 2.0 and is often used to indicate the introduction and implementation of social software inside a company and the social and organisational changes associated with it. The term was coined by Andrew McAfee, a Professor at Harvard Business School, to refer to “simple, free platforms for self-expression” (McAfee’s blog, 24 March 2006). He soon followed up with a refined definition: “Enterprise 2.0 is the use of emergent social software platforms within companies, or between companies and their partners or customers” (McAfee’s blog, 27 May 2006).

Since then, it has been given different definitions by scholars and practitioners (Hinchcliffe, 2006). We think that E2.0 calls for a broader vision of either organisational and technological model evolution, which includes the design of an adaptive architecture (SOA and BPM), Web 2.0 collaboration tools and the v-W as enabling platforms for connections and processes:

“E2.0 is a set of organizational and technological approaches steered to enable new organization models, based on open involvement, emergent collaboration, knowledge sharing, internal/external social network development and exploitation.”
The emerging needs (Davenport, 2005; Tapscott and Williams, 2006; AAVV, 2007) that E2.0 tries to respond to can be divided into six key dimensions (Figure 1):

1. **Open belonging**: people increasingly feel (and actually are) as ‘members’ of extended dynamic networks rather than single organisations: through E2.0 technologies (content management systems shared by the intranet, extranet and internet, KM tools and collaboration tools open to external players, intranet-integrated operating applications such as supply chain management systems), it is possible to supply secure and selective access to information, tools and connections that go beyond the company’s boundaries, interacting in an increasingly rich and effective manner with suppliers, consultants, partners, customers and other networked players.

2. **Social networking**: people increasingly need to develop and maintain that network of relations that is becoming a more and more important asset for their professional efficiency (Cross et al., 2005; Surowiecki, 2004). E2.0 tools and approaches that track down people from basic information (such as the traditional telephone book or an online presence) or by associating advanced profiles (such as competence mapping, expert search, social networks) support the development and management of relations to track and contact co-workers and experts inside and outside the organisation, keeping their interests, skills and role profiles updated at all times.

3. **Knowledge networks**: to prevent their knowledge and skills from being ‘surpassed’, workers must be able to build their own network to have access to knowledge and information from different sources, both explicit (document management systems, business intelligence, video sharing, podcasting, Really Simple Syndication (RSS) and implicit (systems that ease interaction between experts, such as forums, mailing lists, blogs, folksonomies, wikis) (Dearstyne, 2007).

4. **Emergent collaboration**: in an increasingly fast and unpredictable competitive scenario, people need to create cooperative settings in a fast, flexible way, even outside formal organisational patterns. E2.0 enables people to do this through faster and richer opportunities for interaction that are both synchronous (chat, instant messaging, video conference) and asynchronous (diary sharing, project management, exchange and co-editing of work documents, texting) which enable them to overcome geographical and time barriers in extended organisations.

5. **Adaptive reconfigurability**: in response to the endless changes taking place in corporate policies and strategies, people need to quickly reconfigure their own processes and activities. Technologies such as SOA, BPM, mash-ups, SaaS and Rich Internet Applications (RIA) can give the companies and sometimes, the users themselves, the tools they need to redefine and adapt their processes in a dynamic, flexible and personal way that can hardly be given by any traditional technology.

6. **Global mobility**: people spend an increasingly large share of their time far from the workplace and often in a state of mobility. New ICTs enable them to be connected in any place and at any time of day through their own network of tools, thus making their workspace and working time more flexible, using systems to supply staff services (authorisation workflows), internal communication, mobile office services (from simple e-mails to mobile access to the intranet) and operational services such as sales force automation and field force automation.
4 Methodology

This article is based on evidence from the empirical research conducted by the E2.0 Observatory in Italy during 2007 and early 2008. Considering the emergent nature of the phenomenon and a substantial lack of empirical research, the proposed research methodology combines compared case studies, surveys and a community experience. Specifically:

- a total of 70 case studies were carried out through a questionnaire and direct interviews with the management of medium/large-sized Italian companies (manufacturing, banking, Public Administration (PA), assurance, pharmaceutical, services)
- a survey was administered to 65 Chief Information Officers (CCIOS) in order to understand their view of the E2.0 phenomenon
- an online community (Enterprise20.it) was developed in order to promptly receive cues and suggestions to refine the research.

In addition, direct interviews with main ICT players were performed in order to understand the trends and scenarios on the vendor side.

The preliminary results have been discussed and validated through Enterprise20.it, the online community created for the participating firms, vendors and experts to act as a laboratory and landmark for the E2.0 phenomenon.
The comprehensibility and completeness of the questionnaires were tested in advance in pilot interviews. The interviews, approximately one and a half hours long, were carried out (after returning the questionnaires) either by telephone or face-to-face. The use of a semistructured form leaves ample freedom both for the interviewer and the interviewee while ensuring that all the important arguments are addressed and all the necessary information are collected. A checklist was devised with the subjects to be addressed, while the order of the questions, the level of detail regarding specific questions and the words used, etc., could be decided by the interviewer during the meeting. The checklist maintained the reproducibility of the request for information in various situations.

All the interviews were recorded and transcribed; subsequently, a report was prepared. The preliminary results have been discussed and validated through Enterprise20.it with the participating firms, vendors and experts.

5 Models for E2.0

Basing on 70 case studies, a survey of 65 CIO and a community discussion with experts, three E2.0 models are emerging in the companies (Figure 2):

1. **Social Enterprise** (SE), aiming to create new collaboration, knowledge-sharing and relation management models (24% of the cases)

2. **Open Enterprise** (OE), tending to a great extension and opening of the v-W boundaries in terms of access methods and external players (14% of the cases)

3. **Adaptive Enterprise** (AE), focused on the flexibility and reconfigurability in corporate process management (14% of the cases).

Figure 2  The E2.0 models (see online version for colours)
Not all the analysed companies follow one of the paths above: 48% of the cases are at the initial stage, with a limited support to all the dimensions.

Because of the page limit, this contribution will focus on the SE model and report the approaches that companies are following toward it.

5.1 The social enterprise

SE seems to be the most popular model (24% of cases). As shown in red in Figure 3, it is the need for emergent collaboration, shared knowledge and development of internal and external social networks which drives the evolution of the organisational model. Although unable to start from technology, this is a process which can be enabled by it. The technology used includes both the tools that have been available for some time in Information Systems (ISs) – such as document management, instant messaging, diary sharing, etc. – and innovative social computing tools from Web 2.0.

Figure 3 The distinctive features of SE virtual environments (see online version for colours)
To understand the real impact of these tools on the organisation, a detailed analysis of the SE approaches adopted in the cases have been performed. A high level of maturity emerged in terms of:

- the commitment the organisation gives to the community in terms of allocated resources (tools, people, etc.) and the level of legitimisation
- the level of users’ involvement and participation.

These SE approaches often create environments that are not targeted to the corporate population at large, but to specific groups or communities. The level of users’ participation and proactive involvement is high when they see the community as an important element to increase their wealth of knowledge, create new relations and increase their ‘organisational’ effectiveness and visibility. In addition, a number of users, as well as using them, proactively participate in the creation of contents, take part in discussions and create interpersonal relations of trust and mutual engagement. At the same time, the top management’s commitment is also high and the organisation recognises the community as an important means to achieve its business purposes by proactively supporting it and allocating it substantial resources.

Basing on the specific groups or community characteristics that they target – the focus level (specificity of the involved members and, therefore, of the addressed subjects), cohesion (intensity of the bonds between members), stability of involvement (the time the community members remain in the community) and interactivity (frequency of relations between members) – four types of an SE virtual environment can be selected (Figure 3):

1. **Professional families** – environments targeting communities of ‘cohesive’ people which the members permanently belong to, with the members sharing the same interests and problems, usually relating to the same job (for instance, IS and Research and Development (R&D) communities, etc.). Their purpose is to ease the exchange of knowledge, share best practices and network the ‘experts’ to tackle common problems. In professional families, interaction is key, value is given by the creation of contents by the members and participation is boosted by the quality of the resources and the availability of experts. In such cases, the ‘interactive’ means are of primary importance, but they must be combined to promote relations (expert search, skill mapping, etc.) and exchanges (forums, instant messaging, etc.) and let the members create and disseminate contents (wikis, document management, blogs, etc.).

2. **Teams** – environments targeting focused communities, which are often short-lived because they are ‘instrumental’ to achieving a shared but ‘transient’ goal. A typical example are the communities that are created to manage projects, the purpose of which is to support the operational process and encode implicit knowledge and documents that have not been formalised yet so that they can be reused in other projects. The means used in these cases usually boost the synchronous and asynchronous cooperation between people (such as chats, instant messaging, video conference, project management, diary sharing, document sharing and co-editing).

3. **Clubs** – communities of people who have shared interests but are poorly cohesive (for instance, sales networks, promoters, etc.). They often stand out for a limited interaction between the members for whom contents are much more important than
relations. The key ingredient to make it a community is, therefore, the involvement of the members in the creation of valuable contents (information on resources, blogs, wikis, document management systems, etc.). If the members do not participate in the creation of such contents, the benefits of a participatory system are thwarted, with the risk of the community disappearing once the members have seen all that they were interested in (‘low stability’). Since at first, the members are not prone to interacting with each other, ‘discussion’ systems (forums, chats, etc.) need not be used from the very start. However, with time, the most loyal members wish to be more involved in the contents and with other people with whom they share the same interests, so interactive tools need be introduced for such communities to turn into ‘stable families’.

4 Agorae – ‘open’ communities with limited members’ focus and cohesion, which often result in transient involvement and variable levels of interactivity. The addressed subjects may vary and the members do not establish permanent relations. It is a temporary condition that has the risk of disappearing unless it is ruled by the organisation (by focusing the communities, by pushing the members to be involved, etc.).

A classification of the aforesaid communities helps recognise how the members interact (with the others and the content) and determine the organisational and individual impacts. To do this, each SE case has been mapped in terms of their impacts on three major dimensions (Figure 4):

1 Impact on processes: we checked whether the community led to a change in the processes in terms of improving performance (efficiency and effectiveness) and in terms of innovation and change (redesign of the process)

2 Impact on knowledge: the impact of the community on the creation and dissemination of implicit and explicit knowledge through systems that enhance people’s skills and turn them into the organisation’s shared assets has been valued

3 Impact on connections: we considered the effects in terms of support to the creation of vertical and horizontal relations, overcoming the barriers of traditional organisational structures and promoting cross-cooperation.

As to the impact on processes, it results that families and sometimes clubs usually have an impact in terms of the improvement of performance and innovation. Teams help improve efficiency and effectiveness in the achievement of a specific goal, but because of their short life, they hardly ever result in process innovation. Finally, agorae usually have a limited impact on processes because of their members’ poor focus and short-lived involvement.

Looking at the impact on knowledge, families support both the creation of new knowledge and the dissemination of encoded knowledge to all the members involved. Because they have few relational tools, clubs have more impact on the dissemination of encoded knowledge, but hardly result in the members’ creating new knowledge. Agorae usually help the members collect some information which, however, is not often encoded and disseminated. Finally, teams help disseminate and create knowledge between few members.
Finally, looking at the impact on relations, families support both the creation of new connections, especially when the members are geographically distant and, therefore, could hardly come into contact with each other, and the management and enrichment of such relations by providing several tools for mutual help and exchange. Teams are very effective in managing connections through several interactive systems, but since they are closed and temporary, they hardly ever result in the creation of new, permanent relations. Usually, agorae are very open and help create new connections which, however, are then managed in different spheres. At first, clubs do not support horizontal connections as much as they support instead vertical ones and interactions with contents and, therefore, these communities have the lowest impact on horizontal connections.

The analysis of the cases shows that regardless of the implemented model, the SE model is a great opportunity and, at the same time, a fundamental challenge for organisations: as times and costs decrease all the time, tools become newer and newer and more and more effective, people can be connected with each other and large amounts of information can be shared, overcoming the geographical, time and organisational barriers that hinder communication and knowledge transfer and creating new spaces of effectiveness and strategic and organisational flexibility.
5.2 Open enterprise model

The OE has a strong bent for expanding and opening the boundaries of the v-W in terms of access ways and external players.

Traditional ISs are largely designed for close-bound organisations. Information and tools are virtually only provided to those who formally and administratively belong to the organisation and only at the workplace and during working hours. Potential access in different situations or by other people (partners, clients, suppliers, consultants) is limited and is considered complex to implement and manage, since appropriate levels of security need to be guaranteed. Such closed systems turn out to be increasingly unable to cope with the evolution of organisational models, with an increased scattering of activities and more blurred organisational involvement. In addition, the influence that ‘other’ players may have on decisions and the contribution that they can make to innovation are underestimated.

Confining ISs to the organisation and so limiting the approach to external relations to structured and transactional flows of information has two negative consequences:

1. Giving up on potential opportunities, ideas and contributions to decisions, slowing down and limiting the innovation processes and forcing the real organisation to create communication and cooperation channels with the external players outside the official system (through paper documents, e-mails, etc.) which, as well as being poorly integrated and efficient, end up opening security ‘leaks’ that are far more dangerous than selective and controlled access to ISs might make for.

2. Decision-making processes are slowed down and people are prevented from working effectively when not at the workplace or when in a state of mobility.

With OE environments, the IS and, therefore, the whole organisation are designed to be open to the contributions made by different people and sources and selectively offer services and information to external players and organisations, creating new ways to interact with clients, suppliers, partners and consultants which are often translated into veritable process, product and service innovations.

In these cases, the IS concurs in creating a creative, open environment, pulling down many organisational barriers and making one reconsider such concepts as co-worker, competitor, supplier and collaborator in a much more open approach focused on people and relations, rather than on formal involvement and hierarchy.

OE, as well as supporting open involvement, gives an effective response to the mobility and geographical distance of people and activities, which is becoming more and more important in companies and is undermining their organisational models, pushing them to reconsider the very concept of workplace and ‘closeness’ to one’s co-workers.

To support this increasing mobility, OE deeply revises processes and relations to make organisational models more sustainable, reconnect people with their networks and, at the same time, ensure flexible, fast and robust operational and decision-making processes.

In an OE, the workplace is any place in which one needs to use their skills; working hours become a blurred concept, with people called to create value when and where it is needed and able to look for new, personal work/life balances.
There are, therefore, great potentials for innovation which, however, are set off by a great need for organisational change: from the simple automation of specific activities to the reconfiguration of entire processes through to the revision of chain relations and the setting up of new relations with end clients. At the same time, though, too few applications are designed from the beginning to be opened to a mobile approach and often turn out to be poorly integrated in the process and IS.

By improving network technology and the availability of more powerful terminals, mobile technology is becoming a key component in support of the E2.0 organisational models based on openness and cooperation. The extension of the access methods (from home, from other ‘mobile’ stations, through virtual worlds) enables companies to change their organisations and pull down space and time barriers (Chesbrough, 2003).

5.3 Adaptive enterprise model

Even if it is one of the most deeply felt needs for CIOs, process reconfigurability and flexibility are still poorly supported within the sample companies. The AE, i.e., the creation of an environment that can support the corporate processes by responding more easily to the ever-changing needs of the company and users, now seems to be one of the evolutionary processes that has the greatest potential, but still requires substantial progress to be made before its benefits can be fully reaped.

The paths towards this model can be described by measuring the investments in the flexibility of the infrastructure for IS integration and the availability of solutions to reconfigure the operational tools and processes of specific users based on the company’s requirements.

The first dimension exists at a potentially high level when an SOA is used within the company. The second dimension is related instead to the use of an advanced application workflow- and BPM-based approach. In addition, mash-up systems also have a great impact on this second dimension.

Three different approaches have emerged (Figure 5):

1. Flexible enterprise which gives priority to the development of a flexible infrastructure through an SOA. In fact, in many cases, the role of SOAs is within one application only or, at most, aimed at integrating different applications, while the number of cases where SOAs play an infrastructural role is still small. In terms of potential, though, this presence provides more flexibility. This is why we called this approach flexible enterprise, because in this case, the main objective is to create an infrastructure that is ready to support change by appropriately integrating its IT assets, making the developed services reusable and ensuring that different technological platforms are interoperable. Even in terms of the ICT strategy carried out by the CIO, we saw in Section 4 that this dimension of infrastructural flexibility plays a substantial role.

2. Reconfigurable enterprise, as it gives pride of place to the possibility of supporting organisational change. In this case, the great part is played by BPM tools in order to adapt the process flows to the real life of the company or to combine contents and results from different systems (by data and business mash-up).
AE combines the benefits that result from the development of a flexible infrastructure and from the use of systems that align application architectures with business processes.

Figure 5  Infrastructural flexibility and organisational change (see online version for colours)

Apart from introducing enabling tools into a company, an AE means creating a virtual space that can support corporate processes in a more and more flexible way by orchestrating information flows in support of new emergent processes within the company with a flexible integration infrastructure and then make them evolve over time to keep them in line with ever-changing corporate needs, with appropriate process management tools and tools for the integration of contents from different sources.

The benefits of the AE are especially apparent in large companies or companies working on several markets and in different geographical areas, as they support complex and distributed interactions.

6  Future development

The main difficulties in E2.0 implementation are not from a tech side, but from a cultural one: opportunities offered by E2.0 are not well understood, economic benefit identification and valuation are not easy and organisational change is required. Most of the companies manage their implementation projects in a purely technical perspective, without systematically facing the organisational and change management aspects.
Particularly critical is the definition of governance – the organisational choices that determine the division of responsibilities and the key criteria to be followed in the planning and management of an initiative. Inadequate decisions regarding governance are often difficult to be modified and can jeopardise the development possibilities and project effectiveness. E2.0 governance will be emergent, open and collaborative. Traditional governance systems are put in crisis: all the roles tend to move, at least in part, to the final user, who will decide what to do, achieve it and then handle it by himself. Without appropriate governance, the risk is the proliferation of different and unintegrated ISs. The CIO will be faced with a dilemma: on the one side, the opportunity to animate and stimulate, which comes from the organisational line through new ICT tools’ introduction, and on the other hand, the need to introduce standards and rules in order to not lose both control and role in front of a growing power from users.

Tomorrow’s main challenges that management has to deal with can be summarised as follows:

- how to stimulate, understand and anticipate demand from internal users
- how to leverage on the suppliers of external services without becoming too dependent
- how to drive and channel the energies associated with the spontaneous contributions of users
- how much and how to open to external users and contributors without compromising security and intellectual property.

The objective for management theory is, therefore, to provide empirically grounded and actionable knowledge (guidelines) for companies to design and implement new ICT-enabled (virtual) working environments able to extend the boundaries of their knowledge creation to their mobile workers, customers and suppliers.

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**Bibliography**


Notes

1 Since KM became a prominent topic in the management literature, various perspectives have been developed ranging from a first, technology-focused view to the taxonomic-based standpoint, from ‘knowledge as what is known’ to the later sociopractical concept. Each perspective embodies a different role of ICT, which may be a classical IS which allows users to translate knowledge into information, as well as extrapolate knowledge from information (technology-focused view) or the need to transfer noncodified knowledge (taxonomic-based standpoint) or a backward role with respect to managerial and organisational levers in the what is known perspective (knowledge lies in the individual mind).

2 See http://www.enterprise20.it.

3 The three models stand for the average support to the six dimensions in the organisations that adopted it (not the average in the overall sample).