

Toward Enterprise 2.0: Opportunities, Weaknesses and Best practices

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Abstract— In an environment where social, technological and economic changes improve fast, companies must be creative and innovative on a sustainable and regular basis to ensure their growth and maintain a competitive advantage. In order to meet those requirements, companies are brought to adapt and rethink their operating and business models. Therefore, Enterprise 2.0 had been established as a new organizational model where web 2.0 tools, collaboration, knowledge sharing, and collective intelligence are levers of agility, productivity, performance and value creation. The transition toward this new model requires necessarily in our view a deep change in three fundamental aspects which are the technological, organizational and social aspect. To achieve this objective, we have highlighted some of good practices inspired from typical enterprises that have succeeded to adopt this new model.

Keywords—Enterprise 2.0; Web 2.0; Generation Y; Collaboration; Innovation; Collective Intelligence.

I. INTRODUCTION

Faced with the evolutionary context of today, it seems necessary to ask whether the organizational model remains applicable. Thus, Enterprise 2.0 has shown as a new concept of organization that allows responding to issues of efficiency, agility, dynamism and innovation which are the major assets in period of crisis. Enterprise 2.0 represents a new way to organize work, be more productive, improve collaboration, optimize communication, and manage knowledge in phase of over-information.

Seven years after the birth of the Enterprise 2.0 concept, there's still a lot of fear, uncertainty and doubt about what Enterprise 2.0 actually means. Nevertheless, it requires more explanation and deserves more clarification. The purpose of this paper is to introduce and define precisely the concept of Enterprise 2.0 as the new organizational model compared to traditional model. The present paper is structured as follows: the next section describes the evolution of the enterprise as well as major changes through time. Section 3 presents Enterprise 2.0, discusses the transition toward this new model according three aspects and provides rich lessons from success stories. The paper concludes with a summary of the key directions for future research.

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II. ENTERPRISE EVOLUTION

As defined by Adler and Kwon, the enterprise is designed as a place where individuals are pooling resources to achieve a common goal [1]. But over the last two centuries, companies have evolved and changed of features during the different economic developments. To better understand this new business model, it is necessary to go through the history.

A. Old Models

Below, an overview of the major traditional schools of organizational theory that have played an important role in defining the principles of management and more marked the economy's history:

- Industrial organization of Marshall: Model of organization that refers to a social system form in which economic activity would become autonomous through the organization of work [2]. In his book “Principles of Economics”, Alfred Marshall (considered one of the most influential economists of his time), bases his theory on:
 - Division of labour: Each person is employed according to his abilities, skills and training.
 - Machinery: Where an action may be brought back to the routine, it is executed by the machine whose main effect is to make it cheaper and more accurate work;
 - Expansion of the market: Linking division of labour and machinery, and expects increased demand for large quantities of goods.
- Scientific organization of Taylor: Organization model of industrial production formalized for the first time by Frederick Winslow Taylor. The main idea of this model is the use of systematic scientific techniques to obtain optimum productivity and efficiency, in other words, a focus on the processual improvement of tasks [3]. Taylor doubled productivity using time study, division of work, systematic controls and tools, functional foremanship, and his new wage scheme. He paid the person not the job.
- Administrative organization of Fayol: Model of organization focused on efficiency through management training and behavioral characteristics. Fayol lists six functions of organization and describes five tasks for managers: Plan, Organize, Command, Coordinate and Control. He also presents 14 principles of management which provide a general management perspective for

practicing managers and an instructional tool for academicians teaching in the field of management [4].

Figure 1 below presents the general architecture of old model which has long remarkably worked.

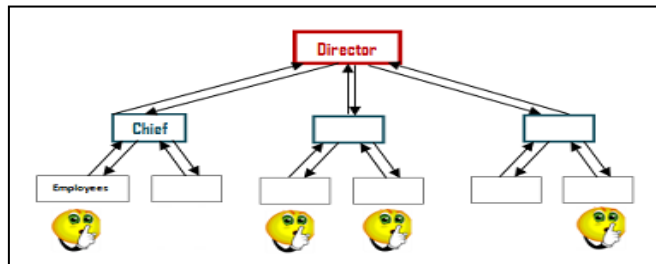


Fig. 1. Classical Organizational Structure

Nevertheless, the different reflections and research works conclude that is a structured pyramid company where the act of sharing is felt as vulnerable, possession of knowledge is a power, work teams are located, information flows are directed and the decision is centralized.

B. Factors of Change

After so many years of domination in a stable environment with identified competitors, the old model of organization demonstrates its structural inability to adapt. The aim of what follows is to analyze the factors of change that constitute the major evolutions in the last few years:

- **Technological Factor:** The main characteristics of this factor are the emergence of ICT (Information and Communication Technologies) and the rapid development of Web 2.0 technologies. The first refers to the evolution of ICT as new modes of information use and knowledge sharing, especially with the advent of the Internet and the World Wide Web. While the second involves a cultural and social revolution by the transition to Web 2.0 [5][6] and its sharing tools such as wikis, blogs, RSS feeds, social platforms, tagging practices, virtual worlds, etc. These technologies, in particular called social media, are focused on final user and participative. Indeed, the user is no longer a mere passive consumer but a producer of information who may publish, enrich, change and share content with others in the network and communities.
- **Economic Factor:** This factor is essentially subject to the global crisis, whose causes are [7]:
 - a) *Globalization:* An underestimation of the changes where no one can get away with ignoring what surrounds or predicts an event because of the influence of social networks.
 - b) *Despised company:* The sidelining of the meaning of public interest where the company is too often seen as a means of personal enrichment at the expense of any company policy.
 - c) *Contemptuous company:* Through a burdensome hierarchy of its managers by importing

Taylorist methods — where the employee is a simple and uninformed cog in the machine — which strangling human imagination.

d) *Competition:* From emerging countries, especially with the various economic developments, since the industrial economy to the economy of information and knowledge of today.

- **Social Factor:** This factor summarizes the changes of individual and collective behaviors that it would be against productive to ignore. With the advent of Web 2.0 and its tools, new usages of information, and work practices have emerged. Thus, the job market has seen an influx of Digital Natives [8], also called " Generation Y " or " Millennials ", a younger generation, better educated, multitasking, promotes openness to the world, opts for a participative management centered on the relational style, values the competence and collaboration, and calls for a need for belonging to a group and recognition of knowledge as confirmed by a study conducted by the audit and consulting office Deloitte [9]. This generation has developed a new stereotype of employees has shaken the traditional hierarchy of organizations.

All these factors have considerably affected the business operations and led necessarily to a revolution of organization.

III. ENTERPRISE 2.0

A. Definition

Some definitions have been proposed, among those back at the top of search results:

Definition 1: Enterprise 2.0 as originally defined by Andrew McAfee corresponds to the use of emergent social software platforms within companies, or between companies and their partners or customers. McAfee also defines the concept using the acronym SLATES and describes each of these elements thusly [10]:

- **Search:** For any information platform to be valuable, its users must be able to find what they are looking for;
- **Links:** An excellent guide to what's important and provide structure to online content. In this structure, the 'best' pages are the ones that are most frequently linked to;
- **Authorship:** Most people have something to contribute, whether it's knowledge, insight, experience, a comment, a fact, an edit, a link, and so on, and authorship is a way to elicit these contributions;
- **Tags:** Some sites on the Web aggregate large amounts of content, then outsource the work of categorization to their users by letting them attach tags - simple, one-word descriptions,
- **Extensions:** Moderately 'smart' computers take tagging one step further by automating some of the work of

categorization and pattern matching. They use algorithms to say to users, 'If you liked that, then by extension you'll like this;

- Signals: Novel technology to signal users when new content of interest appears.

Definition 2: For his part, Dion Hinchcliffe proposes another alternative that extends the abbreviation SLATES, adding new aspects to Enterprise 2.0 practices under the acronym FLATNESSES defines in his article "The state of Enterprise 2.0" [11]:

- Freeform: The software are optional to use, free of unnecessary structure, highly egalitarian, and support many forms of data;
- Network-oriented: All aspects of Enterprise 2.0 must apply not only to applications that are fundamentally delivered over a network but that their content be fully Web-oriented, addressable, and reusable;
- Social: An non-hierarchical and transparent structure which provide collaboration, communication and interaction between all employees;
- Emergence: Embodies the innovation and the frequent emergence of new practices and associated technologies.

Each of these definitions is focused on a particular dimension, but even stronger than the use of new technologies (McAfee) and social aspect added (Hinchcliffe); this new term is also a real change in the way to approach management of the organization. If we retake all these dimensions, a new definition of Enterprise 2.0 will be: "Enterprise 2.0 is an agile organization able of continuous development, characterized by the use of new technologies, establishment of a management trust and adoption a culture of knowledge sharing and a common objective, in order to meet needs, produce services and propose new products co-created with customers, partners and the entire business community".

Indeed, one of the priority challenges that confront all organizations seeking sustainable advantage is the adaptability. A chameleon can provide a good analogy, particularly in its ability to behavioral adaptation by fascinating color changes for many reasons such as to regulate body temperature, communicate with other chameleons, and camouflage themselves against predators. Thus, the organizations of the 21st century must be able to adapt to different forms of evolution, respond quickly and neatly to internal problems, external threats and changing needs of more demanding consumers, with a perspective of performance and innovation in order to survive in a hyper-competitive global economy.

B. Toward Enterprise 2.0

Thinking the transition to a "2.0" model is a real opportunity for companies seeking performance, but this path is fraught of several changes which must be led and managed. According to Boughzala and De Vreede [12], the main changes between both organization types are presented in four

key factors of management: Information, people, processes and technologies. In our view, the transition processes is summarized in three principal aspects which are in fact interlinked. However, missing any of them can greatly slow down and/or blunt the outcome of the change effort. In fact, those aspects can provide a generic classification to successful mutation.

In what follows, we will discuss the changes for each aspect and present some of lessons provided by typical enterprises which have succeeded to adopt the new organizational model and realize important revenues:

Technological Change: The top challenge here is integration. To assist orderly this changeover to new methods of work, it's essential to provide advance notice to workers. Then, introduce the concept; explain its uses and benefits supported with learning sessions, continuous training and monitoring methods. Indeed, making available training opportunities can hasten the diffusion of new technology with minimum hardship and keep employees up-to-date and flexible. Actually, these new technologies can be implemented to achieve core organization performance goals and improving business processes by:

- *Interconnection* which mobilizes and involves all employees at all locations in the world in real time. Indeed, it allows communication to produce a study or solve a problem beyond physical constraints. In fact, all workers can equally participate in using, sharing and creating information and knowledge. The major advantage here is the accessibility by all,
- *Collective innovation and intelligence* which emerge from learning, collaboration, conversations (implicit knowledge) and socialization by interactions between individuals, observation, imitation, and practice during collective work [13]. Those collaborative processes generate, develop, prioritize and execute new ideas; they are a source of organizational innovation. Harnessing collective intelligence implies benefiting from the cumulative expertise of a group, rather than an individual and thus to accelerate decision making and innovate,
- *Knowledge Management* mainly composed of explicit (objective, can be expressed and explained easy in word, sentences and numbers) and tacit (subjective, difficult to formalize and consist of best practices, expertise, experience and cognitive skills) knowledge [13]. It can address the issues of loss of skills related to impending retirements or turnover of experts, preserve the heritage of knowledge and maximize efficiency by providing the right information to the right person at the right time. Most importantly, effective knowledge management is now recognized to be 'the key driver of new knowledge and new ideas' to the innovation process, to new innovative products, services and solutions.

The most appropriate example here is **Danone**. Indeed, Danone has created a "Dan 2.0" device which promotes knowledge sharing [14]:

- Deploy an initiative called "New ways of working" which explains and supports the new organization modes based on collaboration, creation of new knowledge and innovation;
- Sensitize managers to resolve problems in collective way and share the solutions;
- Encourage collective learning;
- Implement the "Networking Attitude" project to deploy the culture of sharing with 10000 managers of group;
- Develop a tool named "Who's Who" which allows identifying a large part of the group's employees, where each employee presents his skills, shares documents and ideas, describes his expertise and creates virtual communities;
- The tools are user friendly and simple;
- Train, educate and involve all employees especially early adopters and managers;
- Create a "Dan 2.0" platform based on "Networking Attitude" and incorporate the web 2.0 functionalities which connect all employees.

Organizational change: The top challenge here is organizational climate [15]. This change requires talking more of a hybrid structure where the old organizational model coexists with an innovative and complementary model based on collaboration and learning. It's therefore necessary to build organizations able to provide to its employees an organizational climate conducive to mobilization. A collective climate, founded on a set of psychological states, namely brotherhood, justice, transparency, trust, freedom, support and recognition... [15] To better achieve this change, companies must meet the following points:

1. Adapt the hierarchy to transparency and collaboration of services,
2. Provide a workplace culture that recognizes and rewards innovation and collaborative behavior,
3. Managers should be more available and present to support and motivate their staff,
4. Promote the flow of resources and achieve organizational flexibility,
5. Set up opportunities for coaching,
6. Invite people to assume responsibility,
7. Give everyone a customer (stakeholder),
8. Enrich people's job, demonstrate that they all have value and make a difference,
9. Guide the organization to a culture of value creation,
10. Optimize interpersonal exchanges by encouraging collective reflection meetings.

The most appropriate example here is **Google**. Indeed, Google has created a perfect organizational climate to work and motivate employees [16]:

- Adopt a flat, transparent and non-hierarchical model of management;
- An open and supportive space to work in and communicate at GooglePlex ;

- Egalitarian management practice ;
- Leaders serve rather than preside ;
- Open up the strategy process;
- Promote an atmosphere of mobilization;
- Users can veto most policy decisions;
- Tasks are chosen, not assigned,
- Create a sense of solidarity;
- Recruit and retain best talents;
- Employees are free to say what they think on anything;
- Allow people to control themselves;
- Opinions compound and decisions are peer-reviewed,
- Support new recruits (sponsorship);
- Coordinate and animate employees.

Social change: The top challenge here is culture change.

People's reaction to change is unpredictable. Indeed, we can't suddenly expect that employees (especially Baby Boomers and Generation X) will adopt the new collaborative working methods or that business processes or traditions will automatically change. It's therefore imperative to prepare the ground before starting the transformation process by applying a change management. Indeed, it consists in manage human fear of the Unknown, its resistance to change and improve knowledge retention. In fact, change is uncomfortable and requires new ways of thinking and doing. People have trouble developing a vision of what life will look like on the other side of a change. So, they tend to cling to the known rather than embrace the unknown. However, the failure for an organization and its members to continuously change and improve will spell the end of the organization as a whole [17].

To minimize, reduce, and make less painful the resistance to change, organizations can:

1. Create a trusting, employee-oriented and supportive work environment;
2. A teaching and learning approach to confronting individual resistance to organizational change [17],
3. Motivate employees by applying concepts of participative management, promoting and enhancing the delegation and team spirit,
4. Encourage communication and listen,
5. Empower employees to contribute,
6. Involve all staff by encouraging self-organizing,
7. Listen deeply and empathetically to the employees,
8. Establish a sharing culture where every member becomes an entrepreneur of knowledge and action, who can take ownership of projects, submit proposals, introduce new innovative ideas and gain recognition,
9. Managers should encourage those who have doubts to become active in the process, challenging and refining the problem areas or potential risk [17],
10. Creation of new positions that support the establishment and development of employees' communities within the company, such as a Community Manager.

The most appropriate example here is **Facebook**. Indeed Facebook has created a corporate culture which [18]:

- Encourage transversality and flexibility to change dynamically;
- Each employee has the opportunity to work on the best projects with a sense of openness;
- Give to employees the opportunity to try out new ideas and collaborate with other people in a fun and energetic environment.
- All ideas compete on equal footing;
- An open and transparent internal culture based on small teams working together and building innovative things;
- Encourage communication;
- Offer recognition, rewards and benefits to their employees;
- Reserve twenty percent of employee's time to "off-budget" or "out-of-scope" projects;
- Maintain a balance between personal and professional lives;
- Create entertainment workshops to keep employees happy;
- Encourage creativity and productivity;
- Promote innovation by encouraging Hackathon and involve everyone in the innovation effort of the organization.

C. *Synthesis*

The Enterprise 2.0, more than a fad, is a real organizational transformation which is not accomplished by only the use of social and collaborative platforms of Web 2.0. At this level, we note that the development of this new organizational model requires a significant change in structure, culture, mindset, management mode. It's certain that adopting Enterprise 2.0 will bring about some major changes in the organization. But well thought out strategy and equally careful implementation, it will be entirely doable.

Table 1 below summarizes the strengths of large differences between classical enterprise and Enterprise 2.0 in three aspects, and proposes some recommendations as guidelines for the transition which are inspired from typical enterprises mentioned previously.

In fact, these recommendations can provide the core for a model of success but they aren't really enough without a real commitment from all staff. Indeed, Enterprise 2.0 as the novel model of organization will certainly benefit from mass collaboration, open innovation and collective intelligence, but it also presents several risks associated with the use of Web 2.0 technologies and also to the characteristics of generation Y such as overflow, function creep, information overload, loss of control, security, generation gap, anarchy... [12].

Therefore, implementing a model of an Enterprise 2.0 means to realize an innovative and dynamic process inside the company. In fact, it leads to improve collective and collaborative practices but under some conditions. Thus, organizations must adapt the information systems, reinvent the traditional organizational memory, take into account cultural diversity both at management and technical level, and ensure that innovation becomes a major preoccupation of the organization [12].

IV. CONCLUSION

As we have seen, this conceptual paper presents Enterprise 2.0 as the new organizational model which has provided innovative solutions to problems of efficiency, agility and innovation. Despite all the risks it present, Enterprise 2.0 concept should be evaluated and implemented. Indeed, it really offers a wealth of opportunity for all organizations. From increased productivity to more innovative product development, Enterprise 2.0 tools and methods can support processes at every stage of a business model and across numerous operational areas.

However, Collaboration in organizations is still a difficult exercise. The major challenge at this level is "How to build a culture of sharing that exceeds the prevailing individualism?" in order to encourage learning and knowledge creation. In addition, the competitiveness is also an important challenge that the company should overcome, so "How to take advantage from collective intelligence to better innovate?" and "How foster continuous innovation and dynamic creativity in organization?" in order to stand out from competitors. All those issues deserve a further deepening in the future research.

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TABLE I. COMPARISON BETWEEN TRADITIONAL ENTERPRISE AND ENTERPRISE 2.0

Aspects	<i>Traditional Enterprise</i>	<i>Enterprise 2.0</i>	<i>Recommendations for Transition</i>
Technological	IT-driven technology Professional use Complexity Project management Passive usage	User-driven technology Private and professional use Simplicity Collaboration Participatory usage	Integrate web 2.0 tools. Create learning sessions. Apply the methods of monitoring. Improve knowledge management. Facilitate access to the right information.
Organizational	Hierarchical structure Rigidity Top-Down decision Need-to-know Localized teams IS structured and imposed Culture of production Authoritarian environment Project manager Control Distrust Command Power	Flat structure Flexibility Bottom-Up decision Transparency Globalized teams IS emergent Culture of innovation Collaborative environment Animator/coordinator Accountability Confidence Motivation and Recognition Seduction	Instill a sense of responsibility. Involve all staff and join efforts. Encourage collaboration. Flatten the organizational structure. Create conducive working environment. Motivate employees and coordinate activities. Develop human capital. Organize discussion meetings and Brainstorming. Be responsive to customer requests. Strengthening social ties. Encourage co-creation of products. Involve employees in decision making. Coaching employees in a positive thinking.
Social	Individual action Possession of knowledge Individual intelligence Competitive relations Specialization Individual goal Expert knowledge	Social participation Knowledge sharing Collective Intelligence Cooperative relations Transversality Collective interest Any knowledge from any individual	Encourage sharing knowledge and ideas. Redefine personal goals. Restore meaning to the collective work. Encourage employees to participate in projects. Keep employees happy and passionate. Work in a collective and collaborative way. Encourage employees to innovate and be creative.

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