

Managerial Challenges Affecting the Enterprise 2.0 Migration Process

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Abstract

As the family of Enterprise 2.0 technologies is developing and gaining market share, and migration to cloud-based computing becomes more of a natural choice for the managers of many small or medium-sized organizations, a growing number of companies start to look interested in the new wave of technologies. Even if the adoption rate of cloud-based services is rapidly increasing, the migration process is far from being smooth, or even standardized. Thus, the potential beneficiary of a migration faces a wide range of challenges on many levels: operational, software, platform, infrastructure, security etc. Based on both literature review and action research, the paper at hand is a synthesis for the results of an empirical study (a survey) performed during the last two years among Romanian and foreign small and medium-sized companies' managers, in order to pinpoint the most important non-technical challenges that an executive has to face when looking at a migration to the cloud. The paper is a part of a larger research performed in the field of Enterprise 2.0 technologies.

Keywords: *Enterprise 2.0, Cloud computing, Migration, Challenges, Empirical study*

JEL classification: M15

Introduction

The “traditional” setup of IT management for an organization implies that the aforesaid organization has total control and ubiquitous visibility over the owned infrastructure and the employed services. All the components are fully accessible and, also, precisely measurable by means of an organization-level defined set of metrics and indicators. No matter how complex it is, each component of the IT infrastructure is taken into account for the computation of a performance indicator and, as a result, it may be “tuned” so as to reach its optimal performance level. Adopting Enterprise 2.0 technologies and migrating to cloud services may significantly diminish the visibility and control levels that the organization has over the employed components and services. The immediate effect of this fact is the lack of some important guarantees regarding the quality and the good operation of services. Moreover, the adoption of *Software as a Service (SaaS)* brings further limitations of the beneficiary’s visibility over the cloud infrastructure and its operation parameters (Walters, 2009). Such parameters may enclose vital information (transaction ID, instance ID, application type, security level, location, DNS information etc.). However, as long as this kind of information is not

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standardized, the comprehension of its contents, meaning, and use may be a challenging process for the organization benefiting from the service. As the range of cloud-based services is expanding, the beneficiary may face the need to monitor hundreds of instances and thousands of indicators. As a result, the author thinks that a conceptual framework for the management of cloud-based business processes becomes more and more of a necessity.

During the last years, a lot of IT companies migrated from the centralized model of running applications on prohibitively priced mainframes to the distributed model, which is Internet-oriented and has a service-based architecture (Stanciu, et al, 2012). It is usually considered that applications and IT resources designed by the guidelines of the *Service Oriented Architecture (SOA)* provide a solid foundation for the adoption and integration of the cloud domain conceptual frameworks (Shan, 2010). Building their IT development on such conceptual framework, enterprises' managers are able to re-scale swiftly in order to satisfy the needs of their customers. There is also the advantage of splitting the applications themselves from the physical resources they require, as well as the possibility to instantly gather additional resources of software, platform, and infrastructure in order to successfully face some activity "peaks". However, as the performed survey reveals, not all managers are prepared or eager to take this chance in order to fundamentally change the way they benefit from IT. The reasons for this behaviour seem to be very different from one company to another. In many cases, the drawbacks are due to business constraints, for example, when the business processes and the underlying data set are extremely tightly coupled, with a set of very weakly defined integration points (Florescu, et al, 2010). In some other cases, the migration is not possible due to a very strong dependence on the existing and legacy information systems which are bound by proprietary, legally protected data formats, or whose further development is no longer feasible because of efficiency reasons. In such cases, the adoption of Enterprise 2.0 technologies is far too expensive to remain an attractive choice.

In the author's opinion, the cloud-based technologies may become an important part of a modern approach, able to design and create a dynamic, flexible and adaptable organization, as the applications and services they support are no longer dependent on a single, fixed infrastructure. As virtualization and the SOA approach infiltrate the enterprise, a set of weakly coupled services, executing on an agile and scalable architecture, may transform any organization into a node of the cloud. By gaining these new abilities, managers may be able to rapidly adapt their organizations to change. As any of the previous IT "revolutions", the cloud-based approach is both the result of a technological evolution and the result of a business processes re-engineering demarche.

The author performed an analysis of the main factors governing the evolution of Enterprise 2.0 technologies, and concluded that the many different factors may be synthesized in a number of seven main elements leading to an increase in value from three main perspectives: economic, architectural and strategic (*Figure 1*).

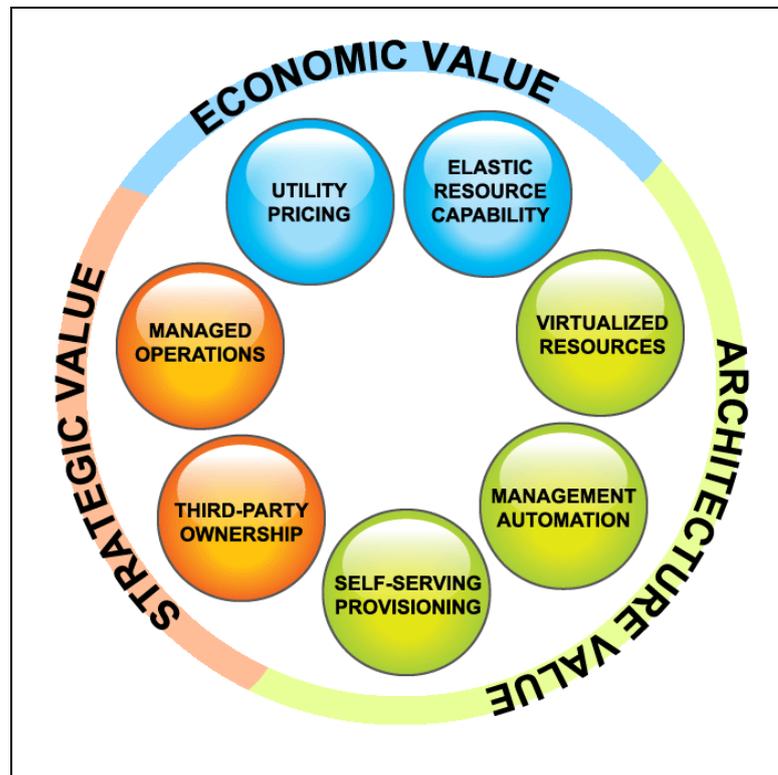


Figure 1. The Seven Elements of Cloud Service Value

The gain of economic value is mainly due to the “*pay-as-you-go*” or “*pay-as-you-grow*” models which allow the extension of the IT architecture without requiring the “traditional” capital expenses. The gain of architectural value is due to the existence of a unique and abstract environment for IT development. The gain of strategic value is due to the fact that the enterprise is able to focus on its business core, leaving the IT management tasks to external actors. A literature review in the field (Kittlaus & Clough, 2009) leads to the conclusion that the factors influencing the success of an organization’s adaptation to Enterprise 2.0 may be synthesized as follows:

- The virtualization techniques and the rapid development of the market.
- The rapid development of the hardware components (mostly processors and network equipment).
- The quick development of broadband networks.
- The accelerated increase of the IT infrastructure requests for an organization.
- The fast evolution and the significant decrease of the time-to-market indicator for Internet-based applications.
- The waves of economic crisis which impose continuous cost cuts for the enterprises.

The adoption of *Enterprise 2.0* requests the organizations to appeal to a set of technologies which are still during the development phase, along with a significant re-engineering of their business models (Ristola, 2010). The author's survey revealed that a large number of managers and IT departments try to keep risk at a manageable level by identifying the gaps in technology or process and trying to provide acceptable solutions for the identified issues. The main issues faced when implementing *Enterprise 2.0*, as revealed by the survey, are presented in *Figure 2*.

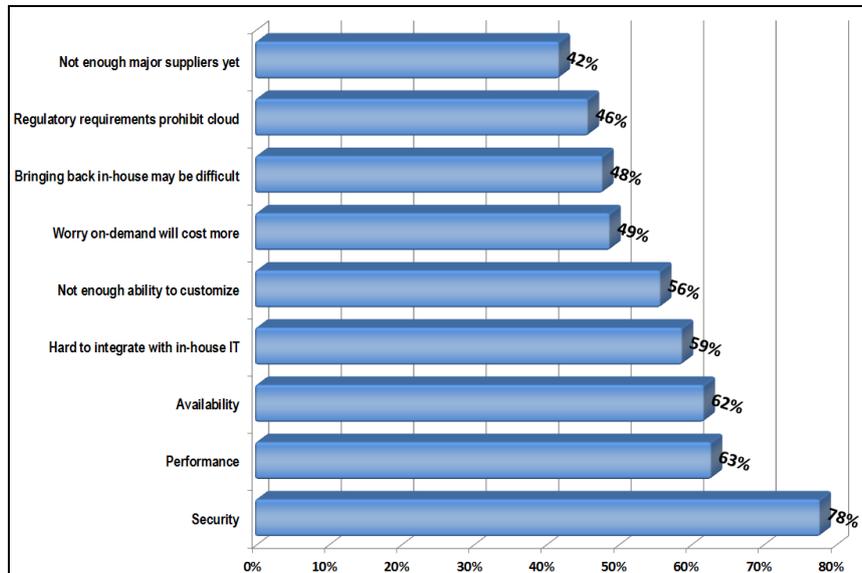


Figure 2. The main concerns of the Enterprise 2.0 services beneficiaries

The author's survey may be compared with a similar research performed during the same period by CIO Research (Golden, 2009) amongst the cloud services providers. The results of this study are synthesized in Table 1. The comparative analysis of the two studies reveals as obvious that security, performance and integration are the main concerns for both the Enterprise 2.0 services providers and their actual and potential customers.

Table 1. The main concerns of the Enterprise 2.0 services providers

<i>Concern</i>	<i>Respondents</i>
Security	45%
Integration with existing systems	26%
Loss of control over data	26%
Availability concerns	25%
Performance issues	24%
IT Governance issues	19%
Regulatory/compliance concerns	19%
Dissatisfaction with vendor pricing/offer	12%
Ability to bring systems back in-house	11%

Lack of customization opportunities	11%
Measuring ROI	11%
Not sure	7%
Other	6%

Even if the perspectives of providers and customers do not match 100%, in the author's opinion this is mainly due to the different evaluation techniques employed by each group. While the service providers use the Quality of Service (QoS) indicator, or the way it was defined by the contractual agreements (Service Level Agreements – SLA) as a fundamental landmark, the customers mostly value the service experience itself. The following table (Table 2) presents the opinions of cloud services providers' and customers', side by side.

Table 2. Providers vs. customers' perspective

<i>CUSTOMERS</i>	<i>PROVIDERS</i>
Data security	
Do not trust the <i>cloud</i> .	What if something goes wrong?
Regulatory reasons exist for data to be locally retained	What is the true cost of providing <i>Service Level Agreements (SLAs)</i> as described by the contract?
Service latency	
The <i>cloud</i> can be many milliseconds away.	<i>SaaS/PaaS</i> models are challenging.
The <i>cloud</i> is not suitable for real-time applications.	Much lower upfront revenue.
Application availability	
Cannot switch from existing legacy applications.	Customers want open standards/APIs.
Equivalent <i>cloud</i> applications do not exist.	Need to continuously add value.

In many cases, the IT departments over focus on the infrastructure level functionalities, losing sight of the operational and managerial perspective. The IT staff ignorance in the field of business practices or in the field of organizational financial policy may render more damage to the organization than the technical solution is able to fix. Consequently, it is mandatory to also analyze the non-technical factors of influence for the success or the failure of a *cloud* migration process. Without claiming to have built an exhaustive model, the author reasons that organizations should always go through the following five steps before taking the final decision about choosing an *Enterprise 2.0* solution:

1. The mandatory identification of the *real reasons* for the adoption of the *cloud* model, from the business, the value and the cultural perspectives. The process implies to identify the data, process and service elements which are fully compatible with the new paradigm. The risk level assessment and the identification of compliance requests are also recommended in order to understand how the organization internal systems will be affected.

2. The development of a *risk assessment and management system* associated to the various risk levels. The mechanism should be integrated in the future information and IT systems lifecycle. The assessment has to include all the datasets, services and business processes pending for migration in the *cloud*.
3. The development of a *governance strategy and a security strategy*. The candidate services have to be connected with the associated data and business processes. After that, the service, data and processes have to be relocated together, so as to comply with the organizational business strategy and business objectives.
4. The *implementation of security and governance measures*, as well as the system and operational requests.

An *assessment of the risk management practices* for the main potential cloud services providers. Based on their own requests, the managers of the migration process may assess the risk of each potential offer, deciding whether it is good or bad for the organization.

The understanding of the *Enterprise 2.0* implementation processes and technologies in their most intimate details, along with a reasonable internal maturity level of the organization, will definitely help management to determine the time and the manner *cloud* based services may be employed in order to support the own business processes (both the core and the auxiliary level). While most of the technical issues prove to be highly quantifiable (at least on a superficial level), it is compulsory that non-technical issues are identified and dealt with. The most significant non-technical issues that a *cloud* migration may impose for a large-scale organization may be considered as belonging to three main groups: financial, operational and organizational.

1. Research Methodology

This attempt is part of a larger research performed by the author in the field of organizational memory and *Enterprise 2.0* technologies, and also continues a previous doctoral research in the field of the fundamental values of accounting, the final results of which were publicly defended in order to be validated by both the scientific and academic community.

When possible, a direct identification of the practitioners' expectations was attempted by means of direct interviews, and also by means of the empirical study questionnaire (a survey). The questions for the empirical study were carefully designed so as to get unbiased, objective answers. The members of the target group were encouraged to add their own observations regarding the questionnaire. Validation of the research conclusions was performed by means of an informal discussion with some "real life practitioners", members of some companies which performed or are in the process of performing the shift to *Enterprise 2.0*. In case some other author's opinion was enclosed in the paper, whether in exact quotation or synthetic form, a complete mention of the source identification information was

made. Some of the data in the paper is based on the results of some previous market research studies that were credited accordingly.

The author has over seven years of previous experience in the research area, and also a series of previous research results (published articles, conference attendances and doctoral research). By publishing the research results in such a prominent journal, reviewed by both scholars and practitioners bearing some interest in the research area, the author attempts to get further validation of his opinions, both confirmation and rejection of the aforementioned opinions' scientific and practical importance being welcome.

2. Financial Challenges

The "traditional" business processes for the IT-centered companies usually require constant relationships with both customers and service providers on multiple levels: data, control and management. The first efforts for a migration to the cloud may seem twice as costly as developing an in-house solution, as the IT department will have to manage both the legacy and the newly arisen relationships. Even a quick analysis, (that the survey proved to be true) leads to the conclusion that the migration process is way more appealing for the small and medium size companies, than for the large-size multinational companies. In the author's opinion, the whole range of the *Enterprise 2.0* services looks more attractive for small-sized companies, which are more sensitive to the flexibility and cost savings of such a solution. The performed survey proved that most of the cloud-based services beneficiaries are small-sized companies.

3. Enterprise Scalability-Related Challenges

Taking into account that using *cloud*-based services is not always less expensive than the traditional version, managers should estimate the benefits of the investment during its whole lifespan, not only on the immediate level. The *Return on Investment (ROI)*, for which a *cloud* investment-specific evaluation model was previously built and presented (Mangiuc, 2010), is extremely useful, but still unable to provide a complete view by itself. For a better insight, it is advisable to also look for and account the "hidden" costs of storage systems, employee training, network equipment etc., as each one has its own financial implications. All these aspects have to be taken into account before deciding for or against the migration to the *cloud*.

Cost variability is an important aspect of *cloud*-based technologies implementation. If cost variability, transparence and scalability are taken into account, the migration to the cloud may be regarded as an opportunity and also as a challenge. In the life of any IT-oriented organization there are times when the IT infrastructure becomes overloaded. In such situations, instead of a long and painful *cloud* migration process, it is possible to see the *cloud* as an extension of the internal datacenter. In some other cases a *cloud*-based alternative may be regarded as a very efficient back-up solution, supporting real-time update and immediate activation if

the internal infrastructure collapses. Even though, it may happen that the fees paid to a *cloud* service provider for a few years do not look so small when compared against the immediate costs of an internal infrastructure (hardware acquisitions, deployment, configuration etc.). As a consequence, the organization management has to look at the financial figures from multiple perspectives in order to state whether an *Enterprise 2.0* implementation stands. In the author's opinion, answers should be provided to a few important questions:

- Which are the tradeoffs of each option?
- Which kind of benefits is more important for the organization?
- Will the organization take real advantage from the fact that the IT department will only focus on *cloud*-level applications instead of the traditional processes?
- Which are the real business and financial implications of letting go all the specialists who are currently designing, deploying and maintaining servers?
- As most of the business processes will move on-line, has the organization enough know-how to choose wisely?
- The new business opportunities will take advantage of the *cloud*-based services, or will the potential customers become scared or confused?

Moreover, some important voices claim the *cloud* platform to be a reliable and inexpensive environment to test the new ideas and enterprise applications (Gonçalves, 2009). The new enterprise applications may be rapidly scaled to the dimension of the markets they are aimed at, even as prototypes. However, the benefits are significantly higher in the case of a large number of small-sized applications than for a single large-sized application. This observation raises a legitimate question: how could one define the optimal size of a *cloud*-based application, so as the efficiency for the enterprise to reach its maximum value? The implementation of an *Enterprise 2.0* application is still too complex to answer this question in exact terms.

On the other hand, from the *cloud*-based services provider point of view, even if international bodies work on open standards which allow and encourage interoperability between *cloud* implementations, the "personalization" of some functionality will always be required in order to address specific management requests. And, of course, the huge amounts of money that *cloud* providers invest in their own data centers (including the employment of highly qualified personnel) will not lead to any profit if the customers cancel their subscriptions prematurely. As a consequence, it is very likely that a large part of the provider's investment to be quite aggressively transferred to the migration costs of its first customers.

To sum up, it is possible to state that the *cloud*-based services migration process and, even more, a possible in-house return process imply a too high level of costs to be decided without an extremely thorough and coherent financial analysis.

4. Software Licensing

License management and virtualization are important issues for the large-sized organizations. The management of package-based software applications is not as easy as for a personal computer, mostly when the many computers and sub-networks of the organization use different software packages. The integration of the packages and the evaluation of the total licensing cost are one of the major challenges of a large scale organization financial management.

Contemporary IT departments have network administrators which have to ensure the compliance with the contractual agreements of the different types of acquired software licenses, and to monitor the use of the acquired tools and services in order to maintain optimum efficiency. It is not uncommon to find that most members of an organization constantly use application that the IT department had no knowledge of, or that some licenses are constantly paid for, without being used once. A migration to the cloud should automatically eliminate all the aforementioned issues, as the use of the service is controlled and measured by the provider. Even though, the future savings may be difficult to foresee, mostly when the service providers employ licensing models that are too “traditional”, or somehow incompatible with the *cloud* paradigm. In the author’s opinion, among the few licensing models employed nowadays, the *least* adequate are:

- *The model based on the number of processors* – in most cases, the hardware resources needed to execute a *cloud*-based application fluctuate massively. Due to the nature of *Enterprise 2.0* services, neither the manager or the IT department, nor the final users are able to know exactly how many processing units are employed at a certain time. Moreover, if the running application needs some extra computing power, the cloud service, by its nature, will perform an automatic acquisition of the needed resources, without asking the final user’s permission. Such flexibility may lead to a significant fluctuation of the service fees, frustrating or confusing the final users.
- *The model based on the number of instances* – using virtualization as a horizontal scalability assurance solution may become awkward when some of the acquired virtual instances need to expand over more physical units in order to successfully handle all the processing requests. From a theoretical point of view, each organization should acquire more licenses than it currently needs, with the sole purpose of covering the eventual increases from the future. Some previous surveys (Shalom, 2008) disclose that the licensing costs volume has an about 20% increase when the migration to a virtualized architecture is performed.
- *The model based on the number of users* – in some cases, licensing fees are computed based on the number of users accessing the application simultaneously. A large number of *cloud*-based applications employ this model, allowing the provider a strict control of usage based on the number of licensed users. However, an essential advantage of an elastic

environment, like the *cloud*, has to be the immediate possibility of scaling the application, based to the business needs of a certain moment. In the absence of this capability, the customer will probably have to buy more licenses than the organization actually needs, licenses dedicated to some potential users that the customer might as well never have.

In the author's opinion, such obsolete models based on the number of processors, the number of instances or the number of users, are not able to perform in a satisfactory manner any more, when applied to an extremely "elastic" environment as the *Enterprise 2.0*. Using "provisions" is not a viable solution, but a very costly alternative, able to significantly reduce or even cancel the benefits of decreasing capital and operation expenses in the *cloud*.

5. Business Operations Challenges

Business operations cover aspects related to consumption and the non-technical management of the IT services. These include, but are not limited to, the way organizations deal with security measures and procedures, transaction processing etc. Using *Enterprise 2.0* services, an organization may deploy an Internet-based business process inside its own information system, may add virtual resources when necessary, and then may drop the resources when no longer needed. This kind of elasticity allows for the adoption of some new business models, including the "pay-as-you-go" system, employed for the use of infrastructure and IT management resources, with the obvious result of immediate upsize or downsize scalability, as requested by the current operational needs. Even if benefits are obvious, organizations should evaluate their *cloud*-based services provider the same way they evaluate their own IT resources (datacenter, infrastructure, bandwidth etc.). This way the organization will be able to properly decide about a possible migration to the *cloud*, in order to avoid the collapse of the own business processes. In the author's opinion, the evaluation of the options and the adoption of the final decision have to take into account the following elements:

- *The migration to the cloud has to provide strategic value, not just cost decreases* – The initial success of the *cloud*-based offers was due almost exclusively to the extremely low prices (as compared to the traditional solutions). Even so, to face the competition, the *cloud*-based services providers have to offer more than low prices. This will allow organizations to position their IT strategy from the wider perspective of the own business processes.
- *Migration of the core business processes to the cloud* – even if a large number of companies claimed the migration of their own business processes to the *cloud*, the actual way to get competitive advantages in the process is quite vague. It is still open for debate whether *cloud*-based services are able to provide reliable support for critical processes, on the same level with the traditional approach (Gu & Cheung, 2009). Moreover, when the company's main competitors use the same services

provider, the competitive advantages become vaguer and harder to describe or measure.

- *The complex issues of business integration have to be solved* – The complexity of an application execution framework increases when the employed technologies evolve for a significant period. The direct consequence is that the migration to the cloud will be significantly more difficult when the organization has complex and tightly integrated applications, or previously developed in-house applications, enclosing specific functionalities, security or performance elements. As the *cloud*-based range of solutions is extending, the demand for integration tools and services will substantially increase.
- *A very good match of the employee skills has to be performed* – an important dimension of the enterprise migration plan has to be the acquirement of the necessary competences to manage the new *cloud*-based technologies, along with the continuation of the existing business processes. Developing the competences of all the involved employees to a level where they are able to manage advanced *cloud* computing elements, especially the implementation, deployment and documentation of the internal business processes raises a set of additional constraints over the existing organizational *cloud* migration plan. It may prove to be extremely difficult to update all the involved personnel due to the complex nature of architectural, implementation and operational aspects. On the other hand, it may be quite difficult to recruit third-party experts able to assist or drive the organization through the migration process. This is mainly because the eventual external experts have to become very familiar with the existent business models and processes. Both alternatives involve taking major risks, being highly dependent on the employees openness to the new organization model, as well as their ability to see and document the operational details which control the migration process.

7. Organizational Challenges

The manager of each enterprise dealing with the idea of a migration to the *cloud* needs a full and deep understanding of the organizational implications of the two main alternatives: the management of an own IT investment or the acquisition of IT as a service from external providers. The managers, as well as all the stakeholders of the business process have to analyze the short-term costs and the long-term benefits of the migration process. The level of service that each potential provider is able to offer is a critical piece of information, and also the foundation to analyze the *quality of services (QoS)* based on the service uptime, service response and service performance, which have to be compared against the current or the reference values. In the author's opinion, even if it represents a costly process, it is advisable that the enterprise implements a pilot business process based on the new technologies, regarded as a

prototype. Such process will allow the organization accommodation to the new approach and its key specific elements. This “exercise” should take into account some extremely important elements, like:

- *Solving conflicts regarding the services distribution channels* – an ever-growing number of *Enterprise 2.0* services providers aggressively enlarged the range of provided services, in order to get as much market share as possible. Consequently, the conflicts between the provider’s technical staff and the technical staff of its business partners are more and more recurrent (Rochwerger *et al.*, 2009). Such conflicts may “explode” anytime, affecting not only the *cloud* services provider, but also its customers. Such aspects are extremely harmful for the customers’ perception and trust, inducing the idea that the services supply chain is not too well defined.
- *Distribution of service on multiple levels* – organizations that have already invested in own storage and security systems no longer have a solid appetite for a migration to the *cloud* environment. Moreover, trans-organizational software applications may prove difficult to switch to *Enterprise 2.0*, if their development process was not based on a set of open and convertible standards. As a result, many of the potential customers may become interested only in a partial adoption of the *cloud* model, or in a hybrid adoption formula (like a *private cloud*).
- *Solving the security and reliability issues of the business processes* – the enterprises’ caution for their own data is already common knowledge. Most of the enterprises take ample measures so as their data does not get lost or stolen. Also, most managers consider the *cloud* environment as a serious security threat, and, as a result, the surveys reveal security concerns as the most important concerns for a potential *cloud* customer, surpassing the performance or reliability issues. As the *cloud*-based services gain popularity and wide public acceptance, they will become a more important target for hackers. Consequently, the essential challenge for a *cloud* services provider will be to protect organizational data both from external attacks (from outside the firewall) and from internal attacks (from applications which execute in different virtual machines, but on the same physical machine). Some of the aforementioned issues are not limited to the IT solution and cannot be addressed only on a technical level. This is why *cloud* services providers have to cooperate with their customers so as the implemented security practices get official certification from industry-specific independent bodies.

8. Discussion and Conclusions

Even if the *Enterprise 2.0* set of technologies and the migration to the *cloud* offer significant values and opportunities for the IT-based organizations, the traditional concerns in the field of security, integration, service availability are still applicable. However, many issues arise due to the specific nature of these services which imply

that information belonging to multiple organizations is stored and processed on the same hardware platform (multi-tenancy). Moreover, there are further suspicions raised by the fact that not only the corporate data, but a large part of the corporate business processes takes place outside the corporate *datacenter*. Based on a previous survey, the paper at hand is an attempt to identify and debate the main managerial issues an organization may face when designing or executing a migration from the traditional IT model to the *cloud*-based IT model. The research led to the idea that the assessment and evaluation of the *cloud*-based systems risks by the manager has to become a continuous process, not only a step in the migration plan. This is mainly due to the rapid development of the domain, which may render today's assertion obsolete in a few months or a year. Consequently, the author tried to find the generally applicable facts and solutions, without detailing the case of a certain *cloud*-based services provider on the market today.

Most of the observed issues and drawbacks were discussed by their operational and managerial implications. One of the key issues at a managerial level proves to be the lack of standards applicable for the *cloud*-based companies adopting *Enterprise 2.0*. The existing standards only assure the *cloud* services interoperability, so as the tools, applications, virtual images and other informational assets of an organization may be shared in different *cloud* environments. The portability standards, able to allow the transfer of a company's applications and business processes from a service provider to another are still to be expected. The paper also supports the idea that both the external services providers and the organizations developing in-house solutions have to implement operational interfaces for their services, able to allow user account management, user rights management, service execution modifications, data back-up, resources management and secure application partitioning. Moreover, a coherent and robust security policies system has to be implemented, in order to separate the final user's perspective from the underlying infrastructure and execution platform, and to respect the multi-tier architecture definition and IT governance principles. Nowadays, a lot of normative bodies and organizations try to collect the best practices in the field and elaborate standards and conceptual frameworks (like the *TM Forum*, *ITIL*, and *Microsoft Operations Framework*).

The decision to migrate to *cloud*-based services has a tremendous impact over both technical and non-technical aspects of an organization. The business owners have to be convinced that the *return on investment (ROI)* may be achieved at the predicted level. Both the management and the technical staff (enterprise architects, developers, operational and IT management teams) must have a complete and proper understanding of the risks attached to placing the enterprise business processes in the *cloud*. When the organization is missing the proper human capital, or the migration design and execution teams are not motivated enough, the final results may be far from the predicted ones, and frustration may take the place of the competitive advantage.

References

1. Florescu, V., Ionescu, B., & Tudor, C., (2010). *IT&C Contribution to Organization's Performance Improvement: The Case of ERP Systems*. Journal of Accounting and Management Information Systems, 9(3), 467-491
2. Golden, B., (2009). *The Case against Cloud Computing, Part II*. [Online] CIO White Papers, Available at: <http://www.cio.com/article/478419/> [Accessed November 19, 2012].
3. Gonçalves, V., (2009). *Adding Value to the Network: Exploring the Software as a Service and Platform as a Service Models for Mobile Operators*. Mobile Wireless Middleware, Operating Systems, and Applications – Workshops, Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, 12, 13-22.
4. Gu, L., & Cheung, S.C., (2009). *Constructing and testing privacy-aware services in a cloud computing environment: challenges and opportunities*. Proceeding Internetware '09, Proceedings of the First Asia-Pacific Symposium on Internetware, ISBN: 978-1-60558-872-8.
5. Kittlaus, H.B., & Clough, P.N., (2009). *Software Product Management and Pricing: Key Success Factors for Software Organizations*. Springer Publishing, ISBN: 978-3-540-76986-6.
6. Mangiuc, D., (2010). *Enterprise 2.0 Implementation Success Evaluation Model*. AMIS 2010 - Proceedings of the 5th International Conference, Accounting and Management Information Systems, 1, 1023-1039.
7. Ristola, J., (2010). *Information Technology Service Management for Cloud Computing*. [Online] Ph.D. thesis, Aalto University School of Science and Technology. Available at: <http://lib.tkk.fi/Dipl/2010/urn100243.pdf> [Accessed November 19, 2012].
8. Rochwerger, B., et al, (2009). *The Reservoir Model and Architecture for Open Federated Cloud Computing*. IBM Journal of Research and Development, 53(4), 1-11.
9. Shalom, N., (2008). *Space-Based Architecture and The End of Tier-based Computing*. [Online] GigaSpace Technologies Whitepapers. Available at: http://www.gigaspace.com/files/main/Presentations/ByCustomers/white_papers/The_End_of_Tier.pdf [Accessed May 11, 2012].
10. Shan, T., (2010). *SOA and Cloud Computing: Synergy, Interlock and Transition*. [Online] Proceedings of the IEEE 3rd International Conference on Cloud Computing (CLOUD 2010). Available at: <http://www.thecloudcomputing.org/2010/> [Accessed June 01, 2012].
11. Stanciu, A., Mihai, F. & Aleca, O., (2012). *Social Networking As An Alternative Environment For Education*. Journal of Accounting and Management Information Systems, 11(1), 56-75.
12. Walters, T., (2009). *The Benefits and Challenges of Implementing an Enterprise Scale SAS Warehouse and Business Intelligence Shared Service*. [Online] SAS Global Forum 2009. Available at: <http://support.sas.com/resources/papers/proceedings09/261-2009.pdf> [Accessed May 30, 2012].