Face the Changes of the New Hyper-Cloud

1Mircea Radu GEORGESCU, 2Natalia SUICIMEZOV
1,2“Al. I. Cuza” University of Iasi, Romania
1mirceag@uaic.ro, 2n_suicimezov@hotmail.com

Abstract—From concept to wide usage, the cloud has deepened the understanding of the IT sector as a critical and strategic field for businesses. We are witnessing a shift from scattered landscapes, where small datacenters coexist and switch useful but irrelevant information, to an integrated infrastructure, a global “machine” that trades the “so called BIG data”. High performance means cloud and analysts warn us there is a big storm heading our way. To understand the KPI’s (key performance indicators) of the cloud, we must first understand governance. It’s a matter of finding the right instruments to guide all of IT’s activities toward an efficient forecast. So gather your umbrellas and face the changes of the new hyper-cloud.

Keywords: Business strategy, Cloud computing, IT Governance, IT productivity, KPI of the cloud

I. INTRODUCTION

Many organizations have become totally “addicted” to IT because of the generated results from using them at full potential, admitting they have become the most important corporate asset (Park, Jung et al, 2006). In today’s business environment, a crucial process in understanding the fluidity of information is aligning two critical factors: the overall strategy and IT.

IT Governance has been identified and acknowledged as the suitable solution in a company’s efforts to coordinate and face the complex challenges of the IT domain. But where are we today with all these concepts?

There are studies that point out the positive effects of implementing IT Governance correctly (Weil and Ross, 2004), (Lingyu, Bingwu et al, 2010) as well as studies that criticize the approach of low-coordinated organizations (Lunardi, Becker et al, 2009), (Gao, Chen et al, 2009).

In this article we aim to treat the subject of IT Governance in cloud, two main “hot” concepts, that tend to combine in a modern strategy development plan. The business environment is growing at high rates and all these “empowering” changes have a deep impact on how things are done. If money were paid yesterday for hardware, software and IT specialists inside the organization, today we allocate budgets for managed services that incorporate all of the above and so much more.

II. CONCEPT TO WIDE USAGE – WHAT IS IT GOVERNANCE?

If we were to deconstruct the term, we must first take a closer look upon the verb govern: “conduct the policy, actions, and affairs of (a state, organization, or people) with authority. Governance is thus conducting with authority and it must be further refined in operational terminology – to regulate, using processes: "a series of actions, changes, or functions bringing about a result.” (free dictionary). In an operational context, governance:

1. Establishes chains of responsibility, authority, and communication
2. Establishes measurement, policy, standards, and control mechanisms to enable people to carry out their roles and responsibilities

Item 1 provides a static view of governance, bringing the structure of the enterprise into view, including how it functions and the roles and responsibilities for each member of the enterprise.

Item 2 provides a dynamic view of governance focused on business performance. The enterprise defines and institutes corporate policies (identifying the standards the business is going to follow and specifying a set of measures and controls) and, in turn, these policies are enforced by their business processes.

Basically, governance is about leadership in any form. IT governance explains the mechanisms through which leadership helps deliver mission-critical business capabilities having as instruments IT strategy, goals, and objectives. IT governance strategically aligns corporate goals and objectives with the utilization of information technology resources with the desired scope to effectively achieve results.

IT governance spreads authority to various organizational layers and across complex structures of businesses, ensuring adequate usage of that authority, without limiting its meaning only to hierarchical structures. Network structures create specialization and strong infrastructures that allow for the sum of parts inside the organization to be greater than the whole, in a synergetic way (see Figure 1).
Fig. 1. Sample IT governance landscape (adapted from Murray, Sanders, 2007)

Governance doesn’t only address large enterprises. Small and medium organizations need high quality governance as well. The only difference lies in the smaller number of control points needed to deploy in a smaller operation.

III. TYPES OF GOVERNANCE

Governance is a wide concept and in thoroughly understanding it, we need to describe the main types:

- Corporate – the global system of the organization linked to the environment and the owner’s visions, controls and gives orientation of business, responsibility and integration with laws and regulations
- Enterprise – the strategic direction of the company, formulated by CEO’s and other high ranking executives, the main instruments that assure the accomplishment of business objectives, with the allocated resources (restraints and risks are fully managed and proactively dealt with)
- IT Governance
- Product Development Governance

IT governance is a part of enterprise governance, which determines what needs to be accomplished by IT governance at the highest level. IT governance is comprised of systems, infrastructure, and communication. Product development governance, like IT governance, is a subset of enterprise governance and overlaps with IT governance. Product development governance is aimed at enterprises that develop products (as opposed to service delivery). Development governance is governance applied to development organizations and programs, and is a subset of IT and product development governance.

Fig. 2: Types of governance relationships within an enterprise (adapted from Murray, Sanders, 2007)

Development governance encompasses the software development lifecycle. Figure 2 illustrates these relationships.

IV. IT SECTOR AS A CRITICAL AND STRATEGIC FIELD FOR BUSINESSES

The need to create governance comes from the need to deliver IT as a process. The framework and the methods to offer support have been around since IT was born, but the shift towards a more structured approach happens beginning with the 90’s.

The big change appeared as a result of the natural maturity stage of the IT sector and the political global constraints and opportunities, that reflected in legislation.

Initially IT Governance sounded interesting to big corporations, but as technology penetrated all aspects of businesses, we can no longer talk about this concept as a “maybe will” factor. Instead, companies need IT Governance in order to gain more profit, because technology needs massive investments in infrastructure (Webb, Pollard et all, 2006) and highly skilled personnel (Guldentops, Grembergen et al, 2002), that seems to be the most significant factor in eliminating functional IT errors.

IT Managers consider governance as a mechanism of control related to IT initiatives, that regulates all aspects of the critical business core. From another point of view, the practitioners involved in the productivity chain, governance blocks the business’ creativity and lacks sufficient benefits to aid the organization in setting correct goals. IT Governance is after all management, procedures, rules, standards and policies, but these regulations are just a secondary image of the global strategy that drives business, customers and profit for companies, involved in all aspects of management and not limited to the four walls of the IT department. In other words, IT Governance is like a bridge between the evolution of an enterprise architecture and the true, measurable business value that a company delivers to its clients, both internally and externally. The strength of the bridge is given by the financial health of the beneficiary, its growth and overall optics of the entire system.
The IT governance solution (the combination of disciplines implemented across the enterprise) typical in today’s companies includes features of the disciplines in Figure 3. In order to gain control of the overall solution and actively promote the delivery of strategic value to businesses (Bordoloi, 2013), an organization needs to consider a comprehensive adoption and continuous improvement approach.

V. “RAINY DAYS”. CLOUD IS GOOD

The next generation of IT governance will focus on the transition toward the Cloud computing business model. IT Managers highlight the importance and impact of IT governance in the evolution of IT systems, while business studies emphasize the importance of Governance in Cloud Computing at the business level. Problems have occurred across many guidance documents regarding a better understanding of the cloud concept.

In today’s competitive and strong economic medium, IT assures support and leads to a dynamic growth. The actual Business application models are expensive: the user must have or acquire the hardware infrastructure and software, user support is difficult. Capital and operating costs are high, unpredictable and uncontrollable and cannot be linked dynamically, with agility, to the work actually carried out, as required by the market. More skills needed to support these processes are not part of the core skills used in the business itself (Rimal et al., 2011). The service includes the following: providing access to resources, securing resources to ensure disaster continuity, support and user training, measuring resource utilization and billing components. Aggregating multiple types of services cloud entities are created, able to provide these services to users wherever they are (Copie et al, 2013). Cloud services are considered: cheap, scalable, secure and reliable. Costs are reduced but also predictable and related to resources (which are related to the business and thus to the income level) – companies consume when they want and pay only what they use. Investment costs are lower and are guided by what is transparently useful for business processes.

VI. KPI’S OF THE CLOUD

One important aspect in evaluating cloud providers who provide cloud infrastructure as a service and applications on the cloud with SaaS model (Georgescu, Suicimezov, 2013) is understanding the Key Performance Indicators (KPI) of the cloud needed to fulfill a specific IT or business objective. On the other hand, the customer needs to know what KPI’s should the cloud service providers be watching, measuring and evaluating themselves with. Synthesizing information from different literature reviews, we deduce that the standard key performance indicators (KPI) that cloud service providers can use to measure their success are:

Fig. 3: Context for IT governance solution development. Operation layers between corporate and IT strategy (adapted from Murray, Sanders, 2007)

Fig. 4: KPI’s of the cloud from a provider perspective (adapted from Murray, Sanders, 2007)

In the context of Governance, another important issue is handling the KPI’s that cloud hosting buyers should be looking for in cloud hosting services partner in order to subscribe to a viable and sustainable cloud hosting service. From a customer perspective, the KPI’s when choosing the best fit cloud hosting partner are:

Fig. 5: KPI’s of the cloud from a customer perspective (adapted from Murray, Sanders, 2007)
VII. WHAT HAPPENS NEXT?

IT Governance could be a company’s KSF (key success factor) or DCA (durable competitive advantage), if we were to analyze it as a marketing product. It could lead to success or failure to greater heights related to competition or to a whole new managerial perspective. Ideally governance will generate business performance and a better allocation of IT resources in relation to the overall strategic business objectives (Bordoloi, 2012). The new “golden fleece” of IT could lead the way to increased productivity, higher quality in products or services, better customer relationship management (handling both internal and external customers), improved financial results and a healthier business environment. Having said this, one can wonder why Governance hasn’t been generally accepted to a whole new managerial perspective. The answer is pretty simple. A good IT governance involves the use of efficient methods in the workplace for exploiting this kind of new advantages. Poor governance could lead to success or failure to greater heights related to competition or to a whole new managerial perspective. The effect of Improving IT Standard in IT Governance (2006) “The Financial Impact of IT Governance”, Proc. International Conference on Computational Intelligence for Modelling, Control and Industrial Engineering (CCIE 10), IEEE Press, pp.431-434.

To understand the role of good IT governance regulations, one must consider the production of goods and services. Customers have deep visibility and transparency inside a business where they make requests (orders), receive value from products or provide information (feedback sent through surveys or online comments). The end-to-end customer experience comes from the efficiency with which internal business processes are coordinated and this is the critic aspect of business performance that should be measured and improved. In order to have a high and positive impact on performance, IT governance processes must focus on the global end-to-end business process with which customers come in contact with. Poor governance doesn’t place the customer in the highlight, but the regulations, standards, and policies, with no joining point to the first. Implementing imposed regulations over internal business processes must leverage the high energy impact in a customer’s experience, not only as a need for compliance; doing otherwise simply generates unneeded risk inside an organization. Good IT governance addresses the whole process and coordinates the activities of the enterprise over time and across organizational boundaries.

REFERENCES


