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This paper offers a brief and creative review related to the management in system and information technology.

As in the global world the value of the Information System (IS) and Information Technology (IT) is becoming more and more important due to the necessities imposed by the competition, then the knowledge of the enterprise business and the fast flow of information are basic for a decision making. Considering the basic definition of IT = hardware + software, i.e., tools that one uses to create, to store and to spread out data and information in the creation of the knowledge, then Information System may be defined as: "IS= IT + people + procedures that collect, transform and spread the information to support the decision making, coordination, control, analysis and visualization in the organization". Based on this definition, it becomes implicit that the IS knowledge is essential to create a competitive enterprise, to manage global corporations and to provide customers with valuable products and services [01].

As IT are redefining the foundation of the businesses, then the customer attendance, operations, product and marketing strategies, distribution and even Knowledge Management (KM) rely on very, or sometimes, totally from IS. The IT and its costs are starting to make integral part on day-by-day enterprise. In short, to attend this enterprise necessities complexity, today one must consider Information Technology (IT) and its available resources, being very difficult to elaborate essential enterprise Information System (IS) without involving this modern technology.

Therefore, considering the synthesis above, the main objective of this work is to explore and to present a general and creative overview on systems and information technologies capacities directed towards Enterprise Management.

1. INTRODUCTION

Why to work with "Information System and Technologies directed towards Enterprise Management"? A Simple answer would be: because the organizations need IS and IT to prosper and to survive! Nowadays, "IS and IT Management" can be considered as an important functional area for the enterprise operations, constituting in an essential field of study for the enterprise administration and

management, and making IS and IT a vital component for the organizations and enterprise success.

This work “Why Management in IS and IT?”, is based on the assumption that the IS knowledge is essential for creating competitive enterprise, managing global corporations, and providing the customers with valuable products and services, and most of all managing the knowledge as a production factor [02,03,04,05].

2. PANORAMA ON SYSTEMS AND INFORMATION TECHNOLOGIES MANAGEMENT.

IT is redefining the businesses basis. Customer attendance, operations, products strategies, marketing and distribution and even Knowledge Management (KM) depend very, or sometimes even totally on IS. The IT and its costs are starting to make integral part of enterprise day-by-day. However, many enterprises still believe that the simple act of computerizing them, spreading computers and printers throughout departmental units, connecting them in a network and installing applications systems, can organize the same. Technology by technology, without planning, management and effective action from knowledge workers and above all, without considering the sociotechnical systems, does not bring any contribution to the enterprise, [02,03,05,06].

However, to attend an enterprise complexity and its necessities, it is in fact necessary to take into consideration the IT and its available resources, because is very difficult to elaborate the enterprise IS without involving this modern technology [07]. The knowledge lack from IT and its resources has caused many problems and difficulties inside the enterprise, mainly for the activities attached to the Strategic Planning, IS and Management of the IT. The IT main purpose and utility is for IS development and improvement, and assisting the enterprise in its businesses, processes and activities [04]. IT cannot discover new things, but it can improve the interaction of groups by enabling them to work with wider scope (for ex. including customer, supplier e even direct competitors), or greater depth. Therefore, IT does not have to be worked and to be studied in a isolated form, but it is necessary to involve and to discuss about the *conceptual questions from businesses and enterprise activities*, which cannot be organized and decided simply by computers and their software.

2.1 Relationship: The Tonic of Management

As the information and its respective systems play basic and strategical functions in the organizations, then it presents as an strategical resource under the competitive advantage optics [07]. Therefore, the Globalization is increasingly forcing the enterprises to search such competitive advantages [04]. ***It is asked however, will these competitive advantages be sustainable?*** It is strategical for the enterprise to consider its customers and suppliers as partners, because the electronic commerce and the global competition have made the enterprise think strategically about its business processes, managing its relationships with customers and suppliers. For this reason the Supply Chain Management (SCM), Partner Relationship

Management (PRM), the Customer Relationship Management (CRM), the Employee Relationship Management (ERM) and, creating bases for all of them, the Knowledge Management (KM), need to be in perfect tuning with the business objectives, market requirements and environment where they act: relationship is the tonic of management, the extension of a larger period of the competitive advantage. These, **SCM, PRM, CRM, ERM and KM** or generically “**XM**”, and which names are not important, but the concept “**To Manage Relationships**” (XM), are fundamental parts from IS directed towards enterprise management [08,09].

2.2 Knowledge Management (KM) versus Information Integrated Systems: XM.

Many enterprises recognize the **CRM** importance as a way of getting significant businesses performance improvements. But, *which is the CRM Systems function presented in figure 1?*. Today the businesses are seeing its customers as a long term asset to be cultivated through CRM. However, the strategies focused on the customer frequently fail when it is forgotten to consider the increasing impact of the partnerships in the businesses (PRM). As the competition becomes more intense and the globalization process goes on, more and more expands the partnerships use. This partnerships role expansion at today business environments drags with it a new set of chances and challenges. As a result, the organizations are changing from a tactical focus partners (PRM) use, to a strategical focus. The partnership provides a tremendous corporation agility, allowing an enterprise reaction to an increasing economic volatileness, globalization, *customers requirements* and services expectations [03,08].

Today, the enterprise success depends on making the best from its collective knowledge, which means to effectively support the people, structures and knowledge transference [10]. However, many times to know the information contained in the organization knowledge resources [human being], is in general so crucial as it is to know “who is who” or “who moved what and when”, or still so crucial as to follow a conversation that leads to an important decision. Having immediate access about the last information, including here external sources information (beyond the information that remains unmodified or relatively constant when time passes), can provide a critical competitive advantage.

In this way, as important as the stored and available information, is also the information known as “tacit knowledge or no captured knowledge”. **The culture of an organization must encourage and reward the sharing of information**, including the sharing of tacit knowledge: **Human Relationships Management (HRM)**, with the relationship the tonic of the management, and KM constituting the base for both.

2.3 Information Systems Management: from Fiction to Economic Reality in the SCM.

Let's consider now the **SCM** impact in the **KM** as production factor. The SCM looks for to automatize the relationships between the enterprise suppliers

in order to optimize the planning, procurement and services from external suppliers, as well to optimize the manufacture and the delivery of these products and services.

With “IS and IT Management” the SCM is much more efficient, helping the enterprise to co-ordinate, to program and to control the purchase, production, supplies management as well customers products and services delivery. The IS Management helps organizations to reach efficiency through the automatization from part of these processes or by helping the organizations to rethink and to optimize these processes. This requires the best in the **“Relationships Management”** and in the sharing of the information (KM): information integrated system supported by the IS and IT Management -everything is integrated- **XM**. **The figure 1 makes explicit that for an organization to have competitive advantage it is necessary to have its management tools -SCM, CRM and KM- integrated.** This integration necessarily exceeds the organization boundaries, forming for each organization a **unique** cross-organizational systems, with its automatized processes going through SCM or CRM, with **KM** constituting the base for both.

Today, the enterprises are shifting from their internal expenditure to the integral economic process expenditure, in which even the biggest enterprise is only just a link: Management of the “SCM Systems” and “CRM Systems”, with **KM** constituting the base for both, figure 1 [05]. The entire economic chain costs administration (SCM, CRM, KM) is a must, being necessary that the executives not only organize and manage the cost chain, but also everything else - especially the corporative strategy, the product planning and the KM - as a whole economic, independent of the legal boundaries of the individual enterprise: **Information Integrated systems (XM)** acting beyond the enterprise boundary, or either, XM connecting the enterprise to its suppliers, distributors or business partners, and automatizing the information flow through the organizational limits and interconnecting the SCM, CRM and KM systems which compound the Information Integrated Systems inserted in the Information Architecture of the Organization: **XM** - Management in IS and IT - Figure 1. In this way, the SCM requires the information sharing between enterprises, even when inside of enterprise people resist in sharing information (necessity to encourage and to reward the sharing of information, as already mentioned) [02,09]. However it is often the case that business partners are also competitors, or may become so later. Therefore, for a perfect “XM” partnership performance it has to be emphasized that an atmosphere of **trust, commitments, shared leadership, information partnership and a collaborative relationship** is a must (the tonic) for a partnership management: these are the next global paradigm shift for a perfect partnership management attainment.

2.4 The Information Management.

The information is currently of highly significant value and can represent great power for whom possess it, either person, institution or a country. The information, under the competitive advantage optics, is presented as a strategical resource. It has value because it is present in all activities that involve people, processes, systems, financial resources, technologies, countries and etc.

For instance, about Brazil, inserted in the world-wide context, the wide scale

changes occurring in the environment business has compelled the enterprises to radically modify their organizational structures and productive processes. The main factors of these changes are: the products globalization, the wide scale of electronic processes use, the nature of the job (shifting from industry to the services sector) and the emergent markets as China, India and Brazil. Therefore, for the Brazilian enterprise, now and in the future, gets and keeps position in the world-wide market, it is vital the IS dominion [11]. As an example, a Brazilian firm shows how KM can multiply CRM results, highlighting the positive business impact of building an online community. Also, in the Latin America, the firm “Natura” demonstrated how to leverage an online infrastructure to enhance sales and customer retention [11]. But, a question remain to be answered: **“will management in IT, and the emergency of global partnerships allow Brazilian enterprises to compete more effectively in the global marketplace, or will they be undermined by greater global competition in their “home territory”?”** Indeed, is there such a thing as **“home territory”?** Here it is important to remember what Winston Churchill said [12]: *“We shape our buildings; thereafter they shape us.”* Therefore, *the collaborative work space and social environment of tomorrow are being shaped today!* **Who is willing to take responsibility for the space shaped? How can we define many of the ethical and social dimensions that arise with connectivity and information privacy, with a unfair shared leadership, unfair information partnership and a unfair collaborative relationship... ?** Trends in the global business environment have made **IS** so important! As the information and their respective systems plays, in its totality, basic and strategical functions for all the organizations, then today the central management challenge is how to use IT to project and to carry out enterprise management in a **ethic, effective and competitive way**. The IS are essential for enterprise management, organization and operation, and they impact on the organizational structures, influencing their culture, the philosophies, the politics, the processes and its management models (**XM**). Therefore the “Information Management and the IS knowledge” are essentials to create competitive enterprise, to manage global corporations and to provide the customers valuable products and services [04,07].

However, it has to consider that to maximize the IS advantages, there is a bigger necessity to plan the information architecture of the organization and IT infrastructure, figure 1. In spite of IS be compound from machines, devices and physical technology, they are a multidisciplinary field and they require substantial social, organizational and intellectual investment in order to work properly (sociotechnical systems) [02,04,13].

In the nowadays competitive world, the use of new technologies is one of the essential factors for the enterprise survival. The growth of these enterprises are based on the technological innovation, becoming them more efficient in the search for productivity and growth, or either, the technological innovation is an important factor for an enterprise to remain competitive [02,05,14]. The Internet, the commerce globalization and the information economy emergence, have reformulated the IS role in the businesses and management. In last analysis, these changes are leading to completely digital enterprise where all its internal business process and relationship with customer and suppliers are digitally enabled. Again it can be emphasized that the relationship is the tonic of management (SCM, PRM,

CRM, ERM, KM: XM), and the key for the “Integrated Knowledge Management and Business Processes” through the “IS and IT Management”, with **the relationship the supplies sources for the innovation process and: trust, commitments, shared leadership, information partnership and a collaborative relationship as the basic assumptions for the next global paradigm shift.** In these digital enterprises, the information that supports the businesses decisions are available in the organization at any time and in anywhere through the Information Integrated System (XM).

2.5 Business Active Monitoring (BAM) & Corporative Portal: The Challenge.

As an enterprise moves towards to digital enterprise, its information architecture becomes increasingly designed into their business processes automatization. This business processes automatization is related to specific interest of each enterprise, which transposes multiple organizational functions and levels as well the systems of SCM, CRM, KM and BAM, figure 1. Then, as the employees and manager interact directly with these systems, it becomes critical for the organizational success that its information architecture meets, now and in the future, the business requirements: this is a huge managerial challenge. Finally, as the business-oriented necessities are in constant change, this requires the IT architecture of the organization to be continuously reevaluated. So there is also the necessity of continuous IS and IT management.

As better and faster the organizational information is received and distributed, better the organization can be made its work in a more efficient and effective way: getting real time information about the critical indicators of organizational performance or from its business processes (for example via **BAM**). This digital enterprise feels and answers its environment and also interacts in a faster way than the traditional enterprise, propitiating bigger flexibility for its survival in turbulence times (for example by **Corporative Portal**) [04].

BAM. - Another new important characteristic of the information architecture, proposed at this work, is showed in figure 1. It deals with Business Activity Monitoring (**BAM**) [15], a tool that provides real time access to the critical indicators of business performance, improving the business operations in a more efficient and effective way. Therefore, figure 1 presents a new proposal for the Organization Information Architecture: BAM insertion. In a broader level, the BAM proposal deals, in real time, with the operational convergence from Business Intelligence (**BI**) and Enterprise Application Integration (**EAI**), guided for the business objectives but enabled through the advances in the IT which composes the infrastructure of the organization, figure 1 [16]. **But, how a BAM works?** In a oversimplified answer, a BAM purpose is to provide instantaneous and meaningful enterprise operations visibility, through capturing events in its operational system - *depending on the business and from the BAM applications, these events can vary from sweepings a bar code from an order, up to a service customer calls -*, and then correlating these events with relevant data inside a context or environment. The previous register from a sale service to a customer is an example of datum inside of

a context. Such contextual data could be important when a customer calls for a service. In a service call, the contextual data could, for example, show that this is a very special customer - *perhaps one of the top ten (10) enterprise clients* -, and furthermore that this customer had already requested previous information about the same service: BAM directed toward CRM system, but in real time, warning on such events. Therefore, BAM will allow a deep visibility for the operations at the operational level, either in the CRM, SCM and KM Systems or generically “Information Integrated System” (XM), and must perform the event-context correlation in a extremely fast way [16,17,18].

Finally, as BAM is supposed to supply contextual real time information from all organizational level, figure 1, then this information will now arrive too fast for manager processing. To process this contextual real time information, this manager will need to have a much larger view of their own behavior as well all internal and external enterprise department in order to take a daily strategic decisions. Day by day strategic decisions are now the main focus of this manager since the information is arriving in real time *whereas* previously (before BAM) it would take several days to get the information...!

PORTAL. - In the Information Architecture of the Organization, figure 1, the Corporate Portal is **considered**, originally, to be inserted above of the organizational functions. Corporate Portal are applications that allow the digital enterprise to have access and to modify the corporation internal and external information. They provide the user with an single gateway to get information for decisions making. The access and interactivity with the corporation data and information through this Corporate Portal, figure 1, must occur in a safe and protected form, for example, through the public keys cryptography system, employed as to cipher as to authenticate data or information. The main advantage from the cryptography based on public keys is its high security when compared to private key cryptography [19]. The indispensable requirement of any **Corporate Portal** is the access and interactivity with the corporation data and information, as well the integration of its critical indicators of business performance (BAM) and its enterprise application (EAI). The enterprise application may be the SCM, CRM, KM, PRM or even BAM Systems or generically the XM. Also it integrates the IS from the organizational, functional and cross-functional levels, **allowing the enterprise to become absolutely visible, interactive and remotely manageable from any of its** organizational levels, figure 1.

Conceiving from a technological point of view that a digital enterprise and its Corporate Portal as being absolutely feasible and practicable, however, it is necessary to take into account the people role and its managerial responsibilities, its abilities and instruction, the organizational culture, values, and its Standard Operating Procedures (SOP). These can be resumed as a strategical change of the sociotechnical systems, what is another great challenge to be faced by the digital enterprises in order that they can be integrated by **Portal** or a **Web Interface** (or yet, any other name that this comes to be called for !!!).

3. PERSPECTIVE

Concerning to **an enterprise management integrated systems: XM**, it will certainly have the Return On Investments (ROI) if considering the proper combination between **IS and IT management, business processes and the administrative abilities**. So, all the successful organizations demand this proper combination since an IS by itself does not make possible the survival of an organization in a Business Processes Reengineering (BPR).

Finally, it can be added that the role an IS exerts in the enterprise is fundamental and its relation is inexorable. They exert impacts in the organizational structure, influencing its culture, philosophies, politics, business processes and the management models. When the information are organized and designed in the IS, these generate efficient and effective information for the enterprise management. In this way, according to the total quality information standard, IS take care of all the enterprise necessities towards its organizational complexity as well towards the sociotechnical systems requirements, englobing here the KM, CRM, SCM and BAM systems. The information, besides organized, planned and generated with total quality, it must have effectiveness and provide rationalization and control in the enterprise systemic processes - *or either, with the IS management the enterprise can, in a faster way, think globally and act locally* -, this is the systemic thought essence: perception of the inter-relations between systems instead cause and effect linear chains and, perception of the changing processes between the systems in place of isolated instantaneous of these changes [04,12]. The Corporative Portal however will allow the enterprise to act/interact in a virtual and effective way: we have the homologation of the digital interactivity allowed by the public keys cryptography. The systemics processes rationalization and control facilitate the planned systems effectiveness, guaranteeing that the information is correct, reliable, with quality and opportune (**the organization culture must encourage and reward the information sharing**). Rationalization and control prevent misalignments, identifies errors, prevent wastefulnesses and still contribute for a good enterprise image, managers and the IT unit [04,06]. This rationalization and control of systemics processes involves the enterprise organizational structures, its information systems (IS), figure 1, and its sociotechnical systems, that justifies the importance and the necessity to study and to develop the **IS and IT** directed towards Enterprise Management, the goal of this work.

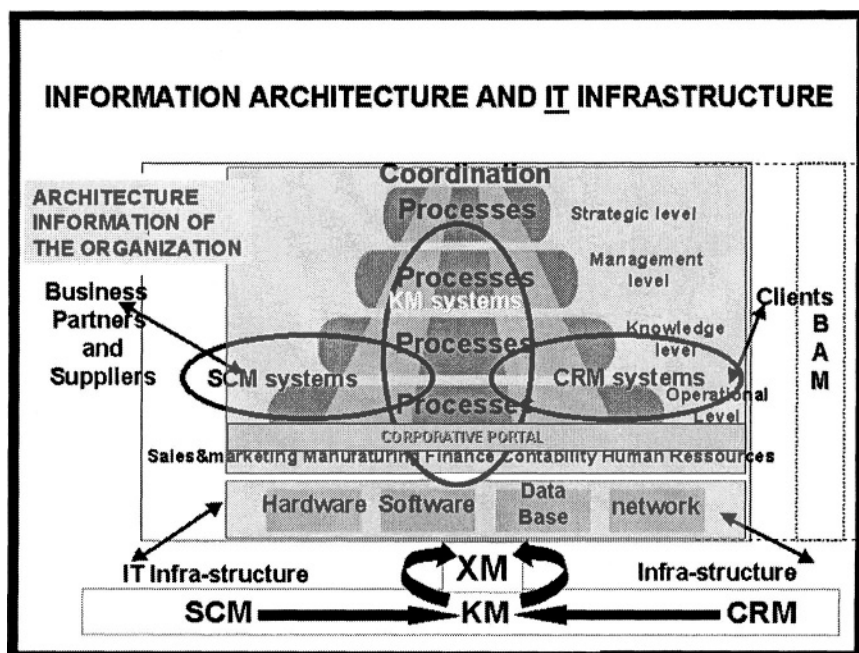


Figure 1: New (*) redesign for information architecture. It deals with the particular project that IT adopts in a specific organization to achieve its objectives or goals [01]. The information architecture englobes as the hardware as the IS organization structure. The IT infrastructure is the platform on which the organizations can construct its specific IS (the hardware, softwares and the connections between the systems). Business Active Monitoring (BAM). Information Integrated Systems (XM). (*) In the original figure [02], does not take into consideration the BAM nor Corporative Portal.

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