Business intelligence: the management information system next step

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**Abstract**

Currently, information technology assumes a major role in business, because of its pivotal role in building business intelligence in enterprises. Here we discuss the premises those business intelligence results from the sophistication of a management information system towards the combination of the concept of intelligence and the concept of competitiveness, as organizational tools to give market leadership to enterprises. To do this, we propose and discuss a model to elaborate on business intelligence extended concept. It involves internal and external information to be incorporated as innovation platforms helping enterprises find unique solutions. Competitive intelligence, as gathering, processing and distributing key information to key people, can evolve to a business intelligence as an extended concept of business systems effectiveness and strategy. This extended concept comprehends also knowledge management, that aligns organizational competencies, building on cognitive bases, to position businesses strategically in the market.

**Introduction**
The world is changing through information technology and is becoming to be driven by paradigms of the knowledge economy. Since the advent of the digital revolution, information technology has helped spread knowledge among individuals, enterprises and society, turning down century-old myths, creating entirely new ones and making information the messenger of volatile and ephemeral events. Information technology is global, networked and at the same time, individualized. These characteristics allow users not only to create new knowledge, but also to develop new culture, based upon the combination of various values and different knowledge. Information technology also empowers individuals and groups, as they become more knowledgeable. As a consequence, information technology enables also organizations to be more competitive. By doing so, information technology assumes a major role in the development of business intelligence in an enterprise.

Information comprehends structured and unstructured data and the organizational knowledge would be the combination of both. However, in a very same organization, structured data accounts only for 10% of all information available that is formalized in the organization. The other 90% are unstructured data (Gardner Group, 1997). If we use this information selectively and direct it to key individuals within the organization, then we may build special competencies in people. If individuals in the organization incorporate specific information, then it becomes knowledge and is responsible for special capabilities of individuals.

So suddenly, knowledge became hot either as a way of solving problems and bringing up creative solutions, as well as a managerial tool. The value of knowledge, however, comes from the contents and usefulness of the information to users, rather than a tool to manage the new organization. Thus, as better an organization can manage it, the more competitive she becomes. Knowledge, therefore, became extremely valuable to corporations performance.

The importance of knowledge is such that corporations are learning fast how to leverage business through knowledge-based strategies. In fact, we need transform organizations into intelligent corporation. To do this, information technology is an unsurrogatable tool to help corporations be more competitive. Information technology, however, is not enough to increase organization’s competitiveness. We need unite corporate strategy and motivated people under an efficient information architecture. Our argument here is that the effectiveness of the information architecture, towards organizational performance, depends on how intelligently a business is built.

**Problem and objective**

In despite of investments in information technology (IT) not surpasses 10% of industry revenues (Gardner Group, 1997) the dollar amount is highly significant. In the USA, average investments in IT is 7%; in South America, on the other hand, is
2% only (Gardner Group, 1997), emphasizing Brazil with 3.2% (FGV, 1997) as a major contributor. More recent statistics show that 31% of all project being implemented are cancelled before its conclusion. Also, around 53% of projects being developed exceed estimates in time and in expenditures (Standish Group, 1997).

The application of IT in an organization, is not confined to setting up the best equipment and the implementation of an information system technologically up dated. It does requires the human element integrated to an organization designed to leverage on the concepts of the enabling technology (McGee & Prusak, 1995). To be effective, information systems (including information technology) must deliver the promises of the enabling technology. That means, the transformation in an integrated organization, based on higher performance teams and the premises of the extended enterprise, will only happen if information systems would enable that integration.

The integration of all elements, that is, information systems architecture, human resources, and selection and use of information is still not enough. It is necessary to combine organization’s cognitive basis and creativity to enable the implementation of innovation platforms. Only innovation allow organizations to differentiate from competitors. How to enable organizations to innovation and creativity? The answer is to build an intelligent business. How? Putting all together human resources that collaborate and share knowledge with a good information technology system that distributes useful information, enabling the generation of individual and group capacities. Our objective here, therefore, is to propose and discuss a model based upon the evolved vision of information systems role in an organization, as a tool to build competitive intelligence.

**Competitive Intelligence as if business mattered**

Competitive intelligence (CI) has been defined in the literature (Zanasi, 1998) as the system or the organizational mechanism to gather information from the environment to help firms understand competitors’ strengths and weaknesses, to evaluate its own competitiveness relatively to others in the same sector, to predict competitors and clients intentions, and to predict government actions. This definition clearly establishes a role for CI in the organization. Under this view, competitive intelligence proves its unique contribution to business if it is used as a system to help build organizational strategy, make decisions and integrate the organization by aligning people around strategic objectives.

The significance of competitive intelligence for business is exclusively based upon the principles that direct the creation of an intelligent business within the concept of the new organization. An intelligent business begins with knowledge strategy formulation. Formulate a winning strategy driven by the organizational intellectual capital in a learning environment must keep the principles of a business. It is effective if corporations set forth their objectives based on market positioning and
serving customers. As Manville and Foote (2001, p.1) note it, “the old truth is still the best truth: a company has to know the kind of value it intends to provide and to whom. Only then can it link its knowledge resources in ways that make a difference…” In other terms, organizations must have their fundamentals in place to develop an appropriate business strategy and not to embrace fallacious promises of competitive intelligence.

Support strategy formulation is essential, but not the only function of competitive intelligence on the perspective of a business. Making decisions, as a critical business activity, stands as another primary target of competitive intelligence. Fuld (2001) points ten descriptions of what intelligence is and can do for a corporation. The very first one refers to “information that has been analyzed to the point where you can make a decision” (Fuld, 2001, p.1). All the information embodied in the concept of competitive intelligence serves to making decisions. However, the architecture of competitive intelligence must contain a set of characteristics conducive to organizational strategic objectives. Besides being a tool to manage uncertainties, by offering reasonable assessments of market and competition, CI improves a business bottom line. The best evidence is the specific information that CI delivers to different people within the organization. For instance, it allows R&D new initiatives, it offers salespersons new insights to bid contracts, and it subsidizes executives with perpetual monitoring of market place and rivals.

Most of all, CI is an organizational integrator, because intelligence efforts come directly from the executive suites and extends to the corporation as a way of life and as a real process, for the organization as a whole. The strategic though and strategic intent (Hamel & Prahalad, 1989) pursued by executives gradually become a value and a culture within the organization, as people perceives it as the indicator and find the means and tools, through CI, to accomplish it. Critical information reaches anyone who needs it, networking people and directing their efforts in one direction, and so increasing organizational effectiveness.

**Model: a pathway to competitive intelligence**

The model we propose and discuss here refers to a functional evolution of corporation’s information systems. Therefore, it resembles much more a pathway to competitive intelligence than a static arrangement of the information systems elements. Below we depict a basic diagram of the commonly accepted role/function of information system in an organization.
Summarily, Fig. 1 represents the role of Information Systems (IS) currently seen in organizations. IS may assume a more or less pivotal role, depending on how the organization is structured. It may be fundamental to the organization if its structure is put up circumscribed to the essentials of the business. IS may be less pivotal, that means, may be seen more as a managerial tool, though valuable, if it is thought-out as a means to automate or increase speed and quality of tasks within the organization. How could IS evolve to a system embracing the concepts of Competitive Intelligence? The answer is providing IS with a new role and function based upon the new paradigms of the information era. We translate our ideas into the figure below:
In Fig. 2 we show the restricted role of IS as compared to the concept of Competitive Intelligence in an organization. For most organizations, IS are managerial tools almost amorphous, in terms of its providing values and developing core competencies. In fact, designing technical solutions to gather and process information is not enough. Developing a good architecture to process and relate data does not do the job for a business in the knowledge era. It’s necessary two more elements. Davenport (1997) points one of them: the human resources. Technology is not enough, says Davenport. Man needs to be involved in the process, since he/she is
the subject of the effort. The other is the content of this paper: the concept that gives the information architecture a strategic function.

The way IS are seen and used in most organizations, looks much more like a contributor to organization effectiveness, according to Porter (1996), than an essential element of organizational strategy. The organizational effectiveness model of Japanese industry, as a way to increase competitiveness, is exhausted (Porter, 1996). It’s time for strategy. To accomplish this, Competitive Intelligence concept delivers the logic. Starting from the relational database of IS, Competitive Intelligence goes further. By integrating the cognitive bases within the organization, CI aligns the environment of a learning organization, with organized innovation under the conception of innovation platforms given by Jonash & Sommerlatte (1999). Information, thus, are brought to life. A well informed human talent can used creativity to develop innovation and come up with cheaper and at the same time more sophisticated solutions, either business or technical. The organization will be running an intelligent business and will be able to formulate more creative strategies, more frequently and more differentiately. The point here is to create the basics for a knowledge-based strategy, in order to get results. The objective of CI is to better coordinate internal activities of organizations, to reach market more effectively. Gathering people, the logic and the physical architecture around common purposes, will provide individuals with the information they need to expand their own knowledge (Malhotra, 2000; Den Hoven, 2001), and will be building high performance teams. This indeed, is the foundation of the integrated organization, where the information technology is just the capacitating technology.

**From competitive intelligence to intelligent business**

True innovation is the driving power of companies and economies. Organizations must realign people, processes and resources under an innovation and technology strategy. Jonash & Sommerlatte (1999) say that first- and second-generation companies kept innovation limited to their research and development departments. Today, the third-generation companies, all departments play a role in enhancing the enterprise innovativeness. In next-generation companies, however, innovation is pushed beyond the boundaries of the company. Customers, suppliers and strategic partners are all involved in making the company an innovative leader.

In this context, Business Competitive Intelligence, or just Competitive Intelligence is a concept to start the Intelligent Business. Since competitiveness comes from adding value through innovation in products and services, the ability to compete more effectively depends on the organization’s capability to innovate. Innovation itself is driven by two basic principles. One refers to the innovation culture an organization should develop, to create value. To do this, organizations need to build cross-company networks of people, accelerate learning and expect real-
time expertise. Employees’ skills and capabilities must be aligned with business strategic objectives and linked to cross-disciplined networks.

The other principle refers to leveraging competency to drive sustainable innovation. Innovation cannot be used exclusively in products. To guarantee innovation in products and services companies need to extend the principle as a real process within the organization. Companies must construct innovation platforms, say Jonash & Sommerlatte (1999) through a combination of human skills, competencies and state-of-the-art technologies. The authors indicate four levels of platforms. One is knowledge learning. Another is excellence and leadership-building. A third one is innovation and development. Finally, the fourth one is business-performance and growth. Since these platforms are not the focus of this paper, we are not going to comment on them. Each platform’s level, however, properly supported by a competitive intelligence system, may become a core strategy for the organization. Therefore, by using competitive intelligence in an intelligent format, organizations can bring talent to their competitiveness.

Intelligent Business: reaching the core competence

An intelligent business (IB) must be put up by means of a strong strategy, built on a technology and competency policy. The strategic purpose of competitive intelligence is to provide support to developing intelligent business in an organization. An organization, however, can mind an intelligent business if it only knows and leverages on its core competence. The question on developing IB is not just knowing the core competence, but is building an IB that leverages on core competence. The literature is full of alternative ways to find and develop core competencies (Prahalad & Hamel, 1990). How to leverage on it and what is the linkage with competitive intelligence, as a step further to information systems?

To answer these questions we need to discuss the process approach to leverage on core competence and the internal strategy to carry it out. To leverage we need, first of all, to develop analytical tools to evaluate key strength, weakness, opportunities and threats to organization (SWOT analysis). This can’t be done sporadically to comply with strategic plans. SWOT analysis requires constantly searching of environment for clues and information to establish trends. It also comprises a critical analysis of the breadth of your integrated and extended enterprise. The searching, collecting, processing, selecting and distributing of information to identify gaps and ways to close them, in fact, is a function of the CI system to allow formulation of IB strategies.

Secondly, the organization needs to develop a compelling innovation vision. Before doing this, it must harvest on its CI system. It is necessary to explore harbingers of future innovation from diverse sources and scenarios. Then it can find
what it will take to establish leadership in these scenarios and project the organization’s innovation vision.

Thirdly, the organization must play to its strengths. Focus of efforts must be on core areas of expertise. The organization must leverage on innovation platforms to come to a full capacity of its expertise. This is the soul of an Intelligent Business.

Fourth, the organization must align projects with its innovation vision, platforms and partners. That means, formulate and execute truly knowledge-based strategy. Intelligent Business is leveraged through networks of people who collaborate - not through networks of technology that interconnect. Workplace culture, therefore, must support learning, cooperation and openness.

Finally, an Intelligent Business strategy built on core competence begins with knowledge-based strategies with origins in the business, not in the knowledge itself. Also these strategies must be linked to traditional measures of performance. “If you can’t measure it, it’s not worth doing it” says Kent Greenes (apud Wah, 1999) Companies need results, money, and IB strategy must lead to it.

Conclusions

We have entered the knowledge economy. Suddenly, knowledge and knowledge management became the rage. Information systems, a big hit up to middle nineties, faded out, as knowledge management appeared as the next trend in companies’ strategies. Knowledge-based strategy, however, is not about managing knowledge, but fostering people with knowledge. Here we have a dilemma for companies, because knowledge itself embodies a paradox. On the one side, knowledge for knowledge sake lack performance discipline and measurable parameters. Knowledge engineering in a mechanistic way subverts the human dimension in it. Knowledge locked in people’s experience is a tacit knowledge, that can’t be managed. The explicit knowledge, on the other hand, is the one incorporated in manuals, handbooks, databases and procedures. Up to recently, companies have overlooked the first one (tacit) and emphasized the later one (explicit). That was the basic function of companies’ Information Systems. The explicit knowledge, however, would never translate into a winning strategy. What to do, then? To balance tacit and explicit knowledge. How? Through a well constructed Competitive Intelligence, that could tapped out people’s knowledge and combine it with organizational explicit knowledge. Here is the Information Systems next step.

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