The Ambiguity of the Enterprise Resource Planning (ERP): Hit or Doom?

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Abstract

In the age of the smart machine and informative domination, work organizations and their managers look forward to acquiring internal advantages for their companies in response to external changes and pressures. In this pursuit for success managers are often attracted by various techniques and software programmes such as reengineering solutions and ERP applications. However, there is no general agreement on the benefits or misfits of both of the aforementioned projects in the business literature. This paper tries to offer a critical analysis of the Business Process Reengineering (BPR) movement and examines its compatibility with ERP solutions. It is argued that both managerial innovations are "top-down" approaches and company's ability to perform high standards still mainly depends on managerial heads' authority. However, as it is revealed out of the majority of case studies reviewed, ultimately, every effort for business modernization and success depends on the objectives, interpretation and commitment for change.
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Keywords:

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1. Introduction

In the era of frenetic information flow and the smart machine, many work organizations tend to rethink their strategy and market perception and, consequently, try to redesign fundamental processes and procedures in order to enhance their position in the market. In doing so, they opt for more flexible forms of controlling work and production processes so as to meet more customized clients' needs. In such a demanding and highly competitive environment, many companies use sophisticated technology software tools, such as those known as the Enterprise Resource Planning (ERP) applications combined with modern management techniques, like Business Process Reengineering (BPR). In many cases, it is argued that the mixture of the two programmes may give some competitive advantages to business units. To be more specific, it is often suggested that ERP is an essential enabler of BPR (see, for example, the pioneering work of Hammer & Champy, 2001: 87) because it supports the organizational changes that the latter promotes. According to the supporters of this view, the implementation of ERP and BPR projects have assisted many companies to overcome essential organizational problems and come back to profitability (Pastore, 2003:1, Bartholomew, 1999: 32).

However, there is no general agreement in the field. For example, many other analysts, like Knights and Willmott (2000), argue that both ERP and the reengineering (BPR) movement cannot fulfill vendors' promises and senior managers' expectations. Under this criticism, ERP and BPR, instead of bringing a 'wind of change' and development to the companies, raise new problems that result in increases in corporate expenses and, in some cases, even lead to bankruptcy (Schnierderjans & Kim, 2003: 418).

The purpose of the present paper is to offer a critical analysis of the Business Process Reengineering (BPR) movement and examine its compatibility with ERP solutions. Special attention is given to the articulation of implications entailed from this analysis for future management practices. In order to meet this goal, in Section 2 the ERP and BPR literature is reviewed. Specifically, this section examines issues that view ERP either as a form (i.e. enabler) of BPR that brings changes to business structure or as a form of expansion of employees' control**.** In Section 3, we describe a number of randomly selected case studies reported as illustrating successful ways of implementing ERP and BPR in various business contexts. Section 4 elaborates on some reported accounts on ERP and BPR failure and Section 5 discusses reasons for collapse. Section 6 overviews a number of case studies reported as failed implementation of ERP and BPR. Section 7 concludes and discusses various managerial implications resulted from the implementation of the two systems.

However, before reviewing the literature, there is a need to clarify the meaning of both ERP and BPR and describe our approach to research.

1.1. The- meaning of ERP and BPR

Enterprise Resource Planning is defined by APICS[1] Dictionary as: "an accounting-oriented information system for identifying and planning the enterprise wide resources needed to take, make, ship and account for customer orders" (cited in Sheikh, 2003: 494). Namely, ERP is defined as: "a software solution that addresses the enterprise needs taking the process view of an organization to meet the organizational goals tightly integrating all functions in enterprises" (www.erpfans.com). In fact, ERP supporters suggest that it connects all the function areas and processes of a company. It collects such data and transfers them to managers and employees. Consequently, it is considered as strengthening the bonds in an organization; moreover, it presumably improves corporate image and company-customer relationship (Bancroft, 1996).

ERP is not a fad of the 21st century. According to Earl (1997), it first emerged in the early 1990s as a technological enabler of increasing demand for reengineering (cited in Al-Mashari & Zairi, 2000: 296). To be more specific, all started in the 1950s with the introduction of the *Inventory Management (Sheikh, 2003)*. In the 1960s, Material Requirements Planning (MRP I) was first launched in the market, followed in the next decade by the *Closed Loop* MRP I (Ibid.). Later, in the 1980s Manufacturing Resource Planning (MRP II) came up. The former one was characterized as an innovative software tool due to its compatibility with successful management techniques such as *Total Quality Management* (TQM) and *Just In Time* (JIT) applications (Sheikh, 2003: 65). Even though MRP II succeeded, in the 1990s ERP showed up as the 'successor' of earlier programmes. Since then ERP has been linked to many developments, recent or earlier, such as: *"Business Intelligence"* (i.e. DSS[2], EIS[3], OLAP[4], Data Warehousing[5], and Data Mining[6]), *Electronic Data Interchange, E-Commerce, Supply Chain Planning* and *Customer Relationship Management.* At the same time, ERP applications were assumed as a supportive system to Business Process Reengineering approaches.

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[1] APICS: American Production and Inventory Control Society.
[2] DSS: Decision Support Systems (1970s)
[3] EIS: Executive Information System (1980s)
[4] OLPA: Online Analytical Processing (1993)
[5] (Mid 1990s)
[6] (Mid 1990s)

As regards the Reengineering movement, this has influenced almost a whole decade of managerial thought (Davenport & Stoddard, 1994). It became the fashion word of the 1990s, especially in the U.S., due to its revolutionary practices that were documented to regenerate several companies (i.e. *IBM, American Express, American Standard, Ford, Chrysler, Texas Instruments, Duke Power* etc {Hammer & Champy, 2001:2}).

Reengineering is often portrayed in the business literature as a fundamental rethinking and radical redesign of business processes, capable of achieving dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed (Hammer & Champy, 2001:35). According to its proponents (Venkatraman, 1994; Davenport, 1993), BPR practices require putting aside 'obsolete' methods, structures and processes and starting from scratch again. The innovative element of this method is its direct interference with the Transformation Process which is symbolized by "T" in Checkland's (1999) analysis, unlike others that influence the input or output of a production. To be more specific, this Transformation Process is governed by three main factors known as the three "Cs": Customers, Competition and Change (economic or market).

1.2. Approach to research

This paper is exclusively based on deskwork research and library-based data, which according to Blaxter et al (2003) include collection of related to the topic books and articles from either academic or non-academic journals. This type of research constitutes of secondary data. As Hart (1998: 1) states, such a process is necessary and important at the same time because it enables researchers to acquire a deep knowledge of the area they are interested in (cited in Blaxter et al, 2003: 121). Particularly, it helps researchers understand what has already been done in the field and also informs them on the methodological, epistemological and ontological approaches that former researchers have adopted. This prevents them from repeating the same work or even the same mistakes.

During the document review of the present work sources from the Internet, such as electronic articles and several related with ERP/BPR topic websites, have also been included. According to Baker (1999: 64), Internet is a priceless instrument of research, which becomes more and more necessary for social analysis (cited in Blaxter et al, 2003: 108). However, as Blaxter et al (2003: 109) state, the privilege of accessing the world's literature at your desk is risky as well, as far as it may lead the researchers to time-consuming pursuit or to sources of questionable quality. In this sense, considering the advantages and disadvantages of such methods, this paper analyzes and in-

terprets the literature within a critical view evaluating it in terms of credibility and validity.

From another perspective, this research effort includes mainly qualitative and less quantitative data. The former derive from nonnumeric quotations such as personal accounts: experiences, feelings, expectations of authors mentioned in the literature review and the latter are revealed by numeric ones like statistics. Bryman (2001: 435) is in favour of the use of limited quantification of data in a qualitative research because this effort assists the researchers ground their findings and empower the credibility of their arguments. According to Bryman (1998: 147), quantitative data reflect "micro level" phenomena and qualitative "macro level" ones. The two approaches combined enable the researchers of this paper to cross check findings, thus, to minimize a probable research failure[7].

Finally, the specific examples critically overviewed in this research are based on relevant reported case studies. On the advantages of a research methodology based on the employment of exploratory, descriptive and explanatory case studies, see, for example, Eisenhardt (1989: 532-550) or Yin (2003). This paper explores a number of cross-case studies reported in order to identify, assess and suggest solutions to problems encountered by various companies which have implemented ERP and BPR. Special focus is given to the assessment of aspects concerning the rapid introduction of ERP and BPR.

2. ERP as a form of BPR: changes that take place in the company

According to the supporters of the ERP, such a range of redesign in an organization needs a modern means, which will play the role of the facilitator and will spread it equally throughout. This is the ERP approach, which fulfils adequately the demands of BPR and the expectations of various management experts; ERP is considered as the locomotive of BPR (Al-Mashari & Zairi, 2000: 310). It is often pointed out in the literature that after the implementation of ERP in a BPR organizational environment, the enterprise saves time from the production processes (in some occasions up to 60%), reduces the operational cost and minimizes the misunderstandings that the new reality entails. Also, the enterprise meets better the production and delivery needs (Koch, 2001: 260). However, Bartholomew (1999) argues that many companies do not have the turnover expected from such a big range of organizational change. As a paradigm, Taub (2003) reveals Goodyear's loss in 2002, after the implementation of an ERP system in combination with BPR.

According to Sheikh (2003), ERP and BPR implementation is not associated with a traditional step-by–step approach to design and production.

[7] On an extensive discussion on this argument see Blaxter et al, 2003.

Instead, ERP and BPR practice enables companies to run different stages of a project at the same time. That is feasible due to the widely spread virtual/ electronic links of the ERP through organizational units. Such coverage enables fast and accurate information flow. Consequently, whatever happens on the introductory stage is simultaneously known to all the operational units of the company which have undertaken subsequent stages (Bancroft, 1996: 115). Thus, it could be suggested that the majority of the operational units in the enterprise may have a kind of autonomy since they are able to decide when to start doing their parts.

This innovation applied in a company's organizational structure reveals that ERP facilitates flexibility which is one of BPR pursuits. In other words, an effort for increasing bottom-up decision making and decreasing departmental dependence on the senior managers of the organization is realized. This decentralized form of decision-making is assumed as enhancing employee's responsibility and allocating smoothly tasks, horizontally and vertically. In addition, it is considered that personnel working in groups are more involved in the final production outcome. Under this practice, personnel are not any more considered as a 'brick in the wall', as the case was with the Ford's assembly line (Beck, 1986). To clarify the above views, it has been constructed a figure below, which illustrates the organizational situation in a company before and after the implementation of BPR and ERP.

Figure 1: Analysis of the Controlling Properties of BPR and ERP

1ˢᵗ Phase of Organizational Structure
(Before BPR & ERP Implementation)
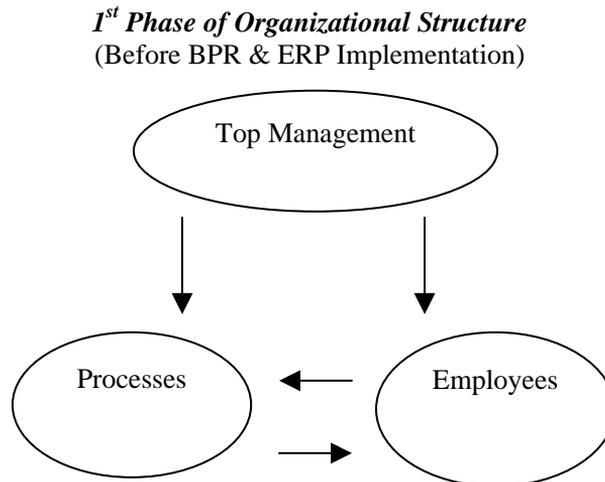
2ⁿᵈ Phase of Organizational Structure
(After BPR & ERP Implementation)
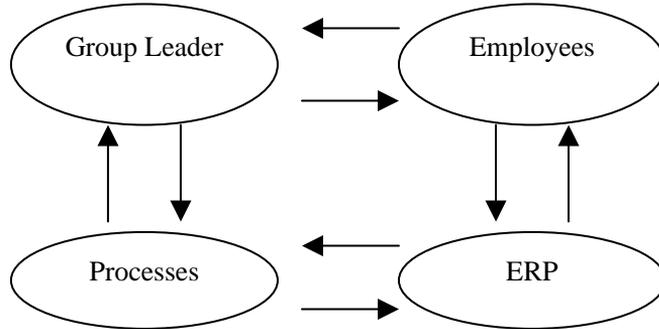
In Figure 1 is illustrated the organizational structure of a centralized decision-making operational unit before and after the implementation of BPR and ERP. *In the 1ˢᵗ Phase* the whole organization is completely controlled by one or more top managers. *In the 2ⁿᵈ Phase*, after the implementation of BPR and ERP, the organization becomes flexible in terms of hierarchy; that is to say, many autonomous or semi-autonomous groups/departments/units emerge. Among them information circulates faster and decision-making is a bottom-up process.

As it is often attested, ERP facilitates the one-to-one communication and enables better workflow[8] and dataflow, not only for the group-leader but also for the employees, according to the needs of a task (Bancroft, Seip & Sprengel, 1996:121,122). In this sense, most of the employees may even join more than one department, thus facilitating certain processes and at the same time optimizing utility for the enterprise. This physical and electronic contribution, exchange of opinions, knowledge and experience among the personnel, enables in a way the tacit[9] knowledge of some of the employees to become explicit and vice-versa. In this way, Nonaka & Takeuchi's (1995) theory is realized according to which enterprises can reach a 'perpetual' pro-

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[8]According to the Workflow Management Coalition (WFMC) UK, Workflow Management consists of automation of business procedures during which documents, information or tasks are passed from one participant to another in a way that it is governed by rules or procedures (Sheikn, 2003:496,497).

[9] Tacit knowledge is knowledge- not-yet- articulated: a set of rules incorporated in the activity an actor is involved, which is a matter of time for him/ her to first learn and then formulate. (Nonaka & Takeuchi, 1995, cited in Easterby-Smith; 2003: 421-422).

gress which derives from employees' knowledge sharing (cited in Easterby-Smith & Lyles, 2003).

From another point of view, it is attested that companies, grounded on the basic features/advantages of ERP, are enabled to empower their customer-oriented policies (Bancroft, Seip & Sprengel, 1996). Particularly, they make use of the better channels that an ERP system offers to all branches and distributors who daily come in touch with clients receiving market's needs, trends and people's complaints. Thus, using this well-established system, organizations are able to reorganize their production in a short period according to customer's demands. This feature also constitutes a further goal of BPR (Hammer & Champy, 2001).

2.1. ERP as a Form of Business Development and as a form of Expansion of Employees' Control

From the analysis above, it has been made clear that ERP is considered by many experts in the field as a valuable tool for enterprises. Most important, it is suggested that it leads many of work organizations to development and higher profitability (Pastore, 2003; Anonymous, 2003; Davenport, 1993).

Particularly, Zuboff (1988:9) claims that this software offers a 'deeper level of transparency to activities that had either been partially or completely opaque' in the framework of a more effective handling. After ERP implementation, the majority of processes that takes place in the organization is described and automatically analysed on the computer's screen in a manager's office. In this sense, managers do not need either to stand by the shoulder of their employees watching their work or to visit themselves the production line. It is claimed that they can virtually screen and monitor almost every process, thus giving advice to the personnel from their offices (Grint & Woolgar, 1997). This service is also assumed to reduce the supervising cost.

In such an electronically monitored environment, organizations are able to be online with all representatives, worldwide (Sheikh, 2003). One of the advantages that this channel of communication may offer is, for example, online checking of the selling prices and direct intervention in case of irregularity detection. For instance, irregularities that may be found in a contract or in terms of delivery conditions could create delays or even more cancellation of an order. In this sense, the enterprise, making use of the high level controllability that can exercise through ERP systems to all levels of the production and shipment, enhances its reliability and assesses its customer's satisfaction. In other words that means consolidation of the already existing market shares and also expansion to new ones.

Besides sharing of the incoming information among the employees, sharing of common databases is considered also as playing its own catalytic role

for the development of the organization (Bancroft, Seip & Sprengel, 1996). In particular, quite important are the databases which include customer-related information. Such records transfer information to the concerning units of the company about a customer's profile, particularly about favourite orders, interests and financial capacity (Sheikh, 2003). Such an information-laden enterprise, having a deeper knowledge of its market, may easily distinguish the unreliable payers from the reliable ones, thus making more attractive and profitable agreements with the former.

Other ERP supporters claim that ERP applications could be characterized as 'open platform software' at least for those employees that acquire the knowledge to use them (Bancroft, Seip & Sprengel, 1996). Indeed, ERP applications use a specific 'language' for presenting and analyzing data on computer screens (Bancroft, Seip & Sprengel, 1996). As a result, the personnel who use them are obliged to learn this 'language' which has been called "eletronicese" (Zuboff, 1988: 74). This point is particular important for multinational, multilingual and multicultural organizations which frequently face problems of having a unitary view in certain tasks, even though these projects are under the supervision of the parent company. In such situations the cultural and lingual gap is often noticeable; misunderstandings or mistakes would put serious constrains on the company especially when it runs in a highly competitive environment (Zuboff, 1998: 68).

According to the proponents of the ERP, its applications are able to support corporate environment and boost business development, especially through their monitoring properties. As Grint & Woolgar (1997) state, control is the key for optimizing production, reducing cost and minimizing delays. Considering this position, it would be serviceable to mention all the subject areas that these solutions can supervise analytically. These are listed in Table 1 below:

Table 1: Selected Operational Units of a Company Controlled by ERP Systems

ERP			
PROJECT	**DISTRIBUTION**	**FINANCE**	**SERVICE**
Budget	Lot	Accounts	Installation
Definition	Inventory	Financial	Contact
Estimation	Item	Budget System	Service order
Planning	Purchase Management	Cost Mgt	Service analysis
Monitoring	Sales Mgt	Cash Mgt	
Progress	Replenishment Order		
Inventory			

TRANSPORTATION	MANUFACTURING
Employees Control	Cost-Price Calculation
Address Control	Engineering Change Control
Transport Fuel Control	Production Control
Hours & Expense Contr.	Product Classification
Invoicing Control	Production Planning
Packing Control	Shop Floor Control
Warehouse Control	Capacity Requirements Planning
Distribution Requirements	Tool Requirements, Planning & Control
Planning	Master Production Scheduling

 Source: Sheikh, 2003: 509

Having reviewed some of the most popular theoretical claims in favour of ERP and/or BPR projects, we now turn to briefly study some *in situ* consumption of these initiatives. We are doing so because we view that the analysis of any revolutionary management technique or of any innovative software solution, which leads to organizational improvement, to have added value for the management advice-industry, should involve not only theoretical abstractions but also practical ones.

3. Case Studies on Successful Implementation of ERP and BPR

In this section a number of paradigms is briefly overviewed which is reported in the modern history of enterprises as successful implementation cases of both tools, or independently from one another.

First, the example of *Eastman Kodak* is outlined (cited in Harwood, 2003). In 1987, *Kodak* implemented BPR, ERP, and a cutting-edge technology database in order to minimize the consumed design and production time and also to alleviate competitive pressures (i.e. Fuji Corp.). Eventually, *Kodak* managed to reach its goals and promote the 35mm single use camera in almost half of the time that primarily was estimated.

IBM credit, an affiliated company of IBM, constitutes another successful story of employing BPR and ERP applications to reduce the cycle time and to extend market share. This effort demanded vertical and horizontal changes in the organization. Some of them had to do with the substitution of many specialists by generalists or, as the company used to call them, 'deal structures.' As a result, IBM managed to reduce bureaucracy because employees didn't have to disseminate information to several departments in order to receive an answer, but the personnel were empowered to make their own decisions.

Three more case studies of successful integration of ERP in business context come from *Commonwealth of Pennsylvania* (US), *Procter& Gamble,* and *Mahindra & Mahindra* (India).

The Commonwealth of Pennsylvania belongs to the state public sector. A couple of years ago this organization implemented ERP and now has already started seeing some of the expected benefits of the project. Usually, the public sector has more difficulties in employing such systems and hence failure is more often reported. However, in this case, senior managers and employees were committed to a common goal, which by now has been succeeded. (It is worth mentioning that this case is very recent and the implementation procedure is still under way. It has been estimated that completion of the ERP implementation time will take 4 to 6 years more.)

Procter & Gamble International has been classified, by Fortune, in the top 50 companies of the world. It produces and promotes a wide range of household goods worldwide. Its operations extend from North America, Europe, Asia, Middle East, and Africa to Latin America. Such a big company, with branches throughout the world, needed a very sophisticated software solution of inter-enterprise communication and analysis in order to enhance the quality and speed of information flow. For this reason, *Procter & Gamble* implemented an ERP solution and, finally, saved $100 million from its global brands.

Mahindra & Mahindra, located in Mumbai, India, is specialized in manufacturing utility, light commercial and agricultural vehicles. It holds seven factories and controls 500 dealers throughout India. The company felt the need to reorganize its production and modernize its structure in order to be more competitive in the global environment. For this reason, it hired Lucas Engineering Company as consultants. The consulting company recommended firstly the implementation of BPR. The introduction of the project started in 1994 and two years after an ERP solution was initiated in order to support BPR. The vendor who undertook the ERP implementation was SAP[10].

After some years *Mahindra & Mahindra* managed to shift its manufacturing operation from small-scale to large-scale based production. Moreover, the company became decentralized. Many task groups were formed which were constituted by generalists instead of specialists. Certainly, few specialists stayed in the company in order to share their accumulated knowledge and experience. All smaller departments were linked quite well, with the aid of ERP, in order to be able to receive and send information quickly and accurately. Under the new initiative, collaboration and bottom-up decision-making were the key features that led the company to success.

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[10] SAP is the world leader in developing ERP applications.

4. A Critical View to ERP Applications

Despite the mainstream academia and management consultants that pre-scribe BPR and ERP as critical factors for the success of a business, there are several other management experts that relate BPR and ERP with the disaster of enterprises (Schniederjans, 2003; Brook, 2003; Bartholomew, 1999). This account suggests that especially ERP fails in accomplishing the promises of its vendors. Moreover, it claims that BPR and ERP often lead companies even to bankruptcy (Ibid). In order to ground its position, it reveals some statistics and data:

- 49% of respondents admit that SAP solutions are never imple-mented completely.
- The completion time of the ERP implementation usually takes more than double of the primarily estimated one.
- Only 10% of the ERP projects are ready on time.
- The effectiveness of this software is almost 59% lower than the estimations.
- Approximately 35% of ERP implementation projects are can-celled before completion.
- The majority of the involved companies reveal that the mainte-nance cost of ERP applications surpasses 70% the application budget.
- A remarkable obstacle is the modification process.

Source: Harwood, 2003.

These data about ERP applications are also accompanied by high failure rates of BPR efforts (50-70%) (Hammer & Champy, 2001). This information ruins the arguments of many evangelists of BPR solutions who view it as a panacea to numerous organizational problems or as a smooth way of making a leaner company. According to Hammer & Champy (2001) the main cause of BPR failure is the misunderstanding of top managers on the principles and goals of the reengineering process. They claim that the majority of compa-nies fail because managers approach this method more like a means of im-provement of already existed processes rather than a radical change.

5. Reasons of ERP and BPR Breakdown

In addition to data mentioned above, it would be useful to analyze some of the most important reasons reported in the literature as leading both meth-ods (ERP and BPR) to collapse.

Hammer & Champy (2001) argue that top managers and CEOs some-times are not aware of the potentials or needs of such software and reengi-neering programmes. Occasionally, they don't even support their employees

as much as they should do (Grint & Woolgar, 1997). The reason for this is often attributed to lack of commitment or inexperience in such systems (Hammer & Champy, 2001).

In addition, employees' disposal and politics within companies are often claimed as playing an important role in this negative outcome (Kling, 1996: 143). For instance, the personnel are frequently reluctant to adjust to the new reality that ERP & BPR bring about. Consequently, errors increase. This point is considered crucial for such systems because of their complicated nature (Brook, 2003: 23). As practice has shown, it is easy for managers to fail into misfits (Hammer & Champy, 2001). Especially, when employees' resistance is boosted by internal conflicts this issue becomes risky even for the current viability of the enterprise. Usually, conflicts derive from changes in the organizational structures, which give or remove responsibilities and *status quo* from certain employees or groups to others. For these reasons, "*commitment*" and "*receptive organizational culture*" are considered as the key-factors in this corporate "labyrinth" (Ibid.).

In some cases it is admitted that employees cannot run such programmes because they don't have appropriate or adequate training, however, in the majority of the unsuccessful cases the problem is only limited to the 'one-size-fits-all' software. This remark is grounded on the diversification that rules the majority of the big companies nowadays (Davenport, 1993: 25). Indeed, organizations differ from one another so they realize different needs that most often cannot be met by outside vendors. This is a dilemma for many enterprises which experience, on the one hand, the incompatibilities of the "ready to install" software tools (i.e. ERP) promoted by off-company providers and, on the other, they have already based their production and development on outsourcing due to cost-effectiveness (Ibid.).

Other organizational analysts (Willmott, 1993; Zuboff, 1988) have raised another dimension of ERP that has to do with its strict monitoring interpretation. The failure of the programme is mainly related to the senior managers' approach regarding ERP systems. Namely, as Zuboff (1988: 132) reveals, through ERP, managers want to control not only processes but also employees (i.e. their performance). They consider it as a "panopticon" or a post Tayloristic tool. In this sense, directors seek to check even workers' feelings and thought (Kling & Iacono, 1984).

This phenomenon is illustrated in the figure below which presents the power that the top managers may exercise to their employees by manipulating the properties of ERP systems.
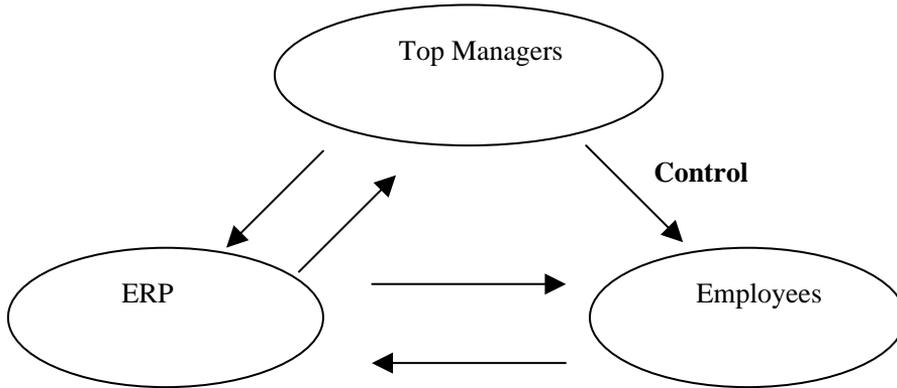
Figure 2: Organizational Anatomy based on Strict Control Policy

Figure 2 illustrates, in the context of a centralized organizational struc-
ture, the control mechanisms exerted from top managers towards employees
through the use of an ERP system.

6. Case Studies on Failed Implementation of ERP and BPR

In this section some paradigms are briefly overviewed which are re-
ported in the modern history of enterprises as unsuccessful implementation
cases of ERP and BPR.

Firstly, the situation of a British company: *Compound UK* is outlined.
Compound UK is a multinational pharmaceutical company. Its managers
have used almost every available technique in order to keep a constant eye
on their payroll. Particularly, they made use even of high tech systems, like
ERP and electronic mail, which were supporting company's excellence to
satisfy objectives. As it was revealed, managers attended all employees with
special focus to the more ambitious ones. When they spotted such individu-
als, they started pressing them more than the others by delegating to them
tasks that occasionally were completely irrelevant to their field of knowl-
edge. The result of this action was the resignation of these employees.

An alternative example of ERP failure is that of the *Calcom Vision*
Company located in India. *Calcom Vision* is a manufacturer of colour, black
and white television sets, and other electronic components. It has seven fac-
tories throughout the country.

The senior managers of the company aimed at linking all the establish-
ments and in this way to improve information flow, inventory control, pro-
duction process, distribution and accounting system. In order to achieve this,
Calcom Vision hired as a consultant Price Waterhouse Coopers (PWC) to

study its corporate specificities, problems and needs. After few months, PWC recommended to the company to change the obsolete enterprise software (MRP II) and to implement ERP. As the consultant pointed out, MRP II couldn't give the desired results any more. Thus, in 1999, the company and the consultant made the decision to implement BaaN IV. Despite the great expectations of both sides at first, after a while several problems occurred.

For the record, it is worth mentioning that in India it was the first time that BaaN IV was implemented on Windows NT environment. The main obstacle observed in this case was that the provider didn't have the appropriate experience to carry out modifications on the system. As it was revealed after the implementation, PWC didn't take into account all the parameters and specificities of the company. Consequently, it was found that BaaN IV couldn't meet all needs and should be modified several times.

The provider implemented the programme without paying particular attention to the hardware. As a result, the server couldn't run it appropriately and sometimes there was collapse of the system even though the vendor guaranteed at the beginning that the server was adequate and could keep working with no problem at least for two years.

The communication infrastructure in India was very poor and couldn't support such an innovative project.

According to the vendor, Calcom and PWC didn't address properly the specificities of the company before the integration of BaaN IV. The cost overran the estimated budget due to the additional training required for employees. In fact, employees proved not to be ready to use such a system so the training programme lasted many years.

7. Conclusion and some ways ahead

This paper tries to offer a critical analysis of ERP solutions suggested for business success and to examine its compatibility with BPR applications. In doing so, it draws upon successful or failed case studies of companies reported to have implemented such managerial initiatives. This effort led to the conclusion that ERP applications are able to give competitive advantage to companies only under certain circumstances. As the evidence revealed, ERP may transfer potentials of information age to enterprises and also changes that this era brings with it. However, such changes frequently appear to raise obstacles that generate resistance on the part of human resources employed in organizations. As a result, the system ends up in failure. A *'big bang'* approach to ERP implementation combined in several cases with BPR solutions, appeared not to be feasible in many companies, especially in those with a slack culture. Indeed, ERP and BPR successful practices require almost powerful, independent and totally committed leadership in association

with the so-called corporate 'amnesia' (Hales, 2002: 505). For this reason, we suggest that a step-by-step integration of the two systems in specific work organizations associated with parallel modifications according to current needs would be a more appropriate method. It is worth taking into account that the efficacy of both techniques, as suggested by the present analysis, ultimately depends upon the specificity of different organizational environments. In Davenport's (1998) words: "If you are not careful, the dream of information integration can turn into a nightmare." (Davenport, 1998:121)

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