

IMPLEMENTING ERP IN MULTINATIONAL COMPANIES: THEIR EFFECTS ON THE ORGANIZATION AND INDIVIDUALS AT WORK

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ABSTRACT

For Software Applications, the 1990s was characterised by the implementation of ERP systems across Multinational organizations. This paper studies some of the lessons learned, from the viewpoint of the effect of these Project implementations on the Organization, the Workplace and the Individuals. A clearer understanding of the human and organizational factors provides a blueprint for a higher success level in these projects in the future, and the leverage effect for continuous improvement for those who use ERP solutions today.

Keywords: *ERP (Enterprise Resource Planning); Project Management; Organization; Workplace; Individuals at work, Change Management, Resistance to Change, Knowledge Management, Digital Economy*

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Introduction

Enterprise Resource Planning (ERP) solutions became the replacement for disparate legacy systems for many companies of the dimension of Fortune 500 during the 1990s. The main providers were SAP, Oracle Applications, PeopleSoft, J D Edwards and Baan. The Editors provided assistance initially, and then gradually there was a tendency for larger Consulting companies as partners to take over part or all of the integration.

Multinationals looked toward reengineering and cost cutting and often combined their ERP project with the breaking down of country barriers for Manufacturing sites, Centers of Distribution. As the 1990s progressed other imperatives became evident - the Year 2000 and the Euro bringing Software Application issues. Toward the end of the decade ERP was seen to be a trampoline for Internet technology, and solutions such as Supply Chain Management (SCM) and Customer Relationship Management (CRM) came to the fore.

Today we live a hiccup in this ERP progression. The Year 2000 justification was not as meaningful as we had thought , the Euro impact is to date slight, the startups of the Internet related industry have suffered, ERP itself was seen to be a bit of a dinosaur and the Editors sanctioned by the stock market. Today attention is turned to signs of recession, the fight against terrorism. The ripple effect of the New York World Trade Center twin towers attack on September 11th 2001 is still very present.

As we look ahead to a Digital Economy, it is appropriate to look back at ERP implementations and learn lessons which will stand us in good stead for the solutions of the future. And to assess the role of ERP as part of these future solutions.

1. Why were (are) ERP solution projects so difficult to implement?

A Standish Group Report entitled *Chaos* speaking about Information Technology software projects in general, points to various failure factors resulting in cost or time overruns, unfulfilled objectives, cancelled projects etc. The percentage of “successful” projects in large companies was estimated at an unflattering 9 % (STANDISH GROUP 1995).

The Report findings highlight success factors (in order of importance) :

- **User Involvement**
- **Executive Management Support**
- **Clear Statement of Requirements**
- Proper Planning
- Realistic Expectations
- Smaller Project milestones
- Competent Staff
- Ownership
- Clear Vision & Objectives
- Hard-Working, Focused Staff
- (Other)

Another finding was that project failures were on the increase in 1995 compared to 1990 or 1985.

This Standish Group Report comments could well have applied, and arguably still do, to the implementation of ERP solutions.

Dorien James and Malcolm Wolf writing in 2000 consider that for many businesses installing ERP was traumatic. Following long, painful, and expensive implementations, some companies had difficulty identifying any measurable benefits. (JAMES AND

WOLF 2000). Note that this is despite the fact that ERP was replacing a tangle of complex, disparate and obsolescent applications and that Editors were promising efficiencies such as shorter intervals between orders and payments, lower back-office staff requirements, reduced inventory and improved customer service. ERP was promoting common data, standard business processes, organizations that are built to change continually. All eminently laudable, yet those responsible for part of the Project team (Managers, Key Users, I.T. Specialists, Consultants) often felt that they had engaged in a marathon.

A clue to why Project implementations are often fraught with difficulties is alluded to by Rivard *et al* when they state that information technologies are neutral, their impact depending on the way they are implemented and used in a given environment. (RIVARD *et al* 1999). Correctly implemented, information technologies can facilitate and initiate important changes. Echoing The Standish Group Report, Rivard *et al* mention the following factors :

- A clear vision
- A proactive and sustained Management implication
- A good understanding of information technologies and their potential impact.

On the face of it, ERP solutions are neutral by definition. Historically, they provided integrated modules across Finance, Logistics and Manufacturing. Later grafting on CRM bringing together Sales, Marketing and Customer Service; or SCM extending Logistics and Distribution to a holistic approach to Supply Chain.

Stephen P. Laughlin also considers that it is in the implementation of the packages that most of the headaches arise (LAUGHLIN 1999). He identifies success factors as:

- A motivating business justification
- Strong internal owner
- An empowered and influential internal team
- Management driven change

- Proven external partner
- Clearly defined vision
- Change management effort
- Aggressive schedule and timelines
- Strong Sponsorship,
- Target communications
- Focused issue resolution
- Limited Scope
- Early success
- Appropriate project staffing
- Solid project management

Stephen Laughlin says *“You will underestimate and fail to appreciate the degree of change an ERP solution causes”* and recommends that a partner as integrator needs to have a holistic approach : business application, technology and people perspective, and not just a focus on only implementing the application x, y or z.

In summary, I.T. software projects often ‘fail’ and ERP implementation projects do not escape this tendency. At the same time ERP solutions do not fail primarily for technical reasons, and when their offer is examined in detail are commonsense and practical in response to business problems and opportunities. There is a consensus among authors that it is the implementation itself which is painful and the source of failure. Further analysis of success or failure factors show that primarily it is the implementation’s effect on Organization, the Workplace and the Individuals at Work which yields a positive or negative result. Laughlin puts this clearly by stating that ERP implementations do not fail because the applications does not work, they fail because the enterprise rejects them.

2. ERP Implementation - The Effect on the Organization

Most captains of industry would agree with NESTLE's Peter Brabeck-Lemathe when he says *"Nestle is more people oriented than systems oriented. Systems are necessary and useful but should never be an end in themselves ...Maybe some organizations are drive by systems. We are not. The I.T. system is there to support an organization and not the other way around. We do not create an I.T. system first and then adapt our organization to our I.T. system"* (interview in BURRUS-BARBIEY 2000)

However, as a paradox, ERP implementation does often result in a need for Business Process Re-Engineering in parallel. Early on it was realized that forcing the ERP to match existing Business Processes meant heavily customizing the solution, a handicap when a new version had to be assimilated at a later date. Emphasis shifted to choosing the right package with the best fit, and then to adapt Business Processes.

Another factor is that ERP tends to break down division and hierarchical barriers. Information shared across the Organization has only to be keyed in once.

This 'arrogance' on the part of the ERP solution, i.e. to run roughshod over existing processes, hierarchies and functional divisions shakes up the organization and creates a climate of perpetual change. Who says "change" says "resistance to change" (either overt or latent).

This needs exploring.

C. Leana and B. Barry comment that organizations and individual employees increasingly are pursuing change in how work is organized, how it is managed and in who is carrying it out. The advantage of change to the organization is the ability to quickly adapt to environmental changes, explore new ideas or processes, reduce fixed costs, and in the end have an advantage over competitors. Change also stimulates the individual providing variety in their work, fulfilling self development needs, maintaining interest in and satisfaction with their jobs.

Their contention is that change and stability are simultaneous experiences in organizations, and that some level of tension is an inevitable part of any organizational life. Furthermore, stability enables rather than impedes change. Stability and change are both necessary for organizations to function effectively. Stable patterns of behavior evoke perceptions of interpersonal trust which in turn clears the way for more flexible and adaptive subsequent behavior. (LEANA AND BARRY 2000).

In a surprising article, S. Piderit discusses the positive as well as negative aspects of resistance to change. Successful organizational adaptation is increasingly reliant on generating employee support and enthusiasm for proposed changes, rather than merely overcoming resistance. In addition, we need to see the reasons behind resistance, especially if they are unselfish, and not just the resistance as a threat. The article is not on the theme of ERP solutions, but it is interesting that one of three concrete examples results from an interview with a middle manager in a large, diversified company, describing his response to the restructuring and centralization of his company around a new enterprise-wide software system. In this instance, the employee started off enthusiastic but became ambivalent due to lack of top management support, co-workers' laxity and what he perceived as the dangers of a behemoth project. (PIDERIT 2000)

These articles and comments suggest the following :

The ERP solution needs to be put in perspective : it is to support rather than to drive the business. However, the consequences on the organization are very far reaching, the ERP implementation challenges processes, functions and hierarchies and fosters a climate of perpetual change. One factor in reducing the failure rate is the maintaining of a balance between stability and change; and the need for accompanying of change. (GUNSON and DE BLASIS 2001)

3. ERP Implementation - The Effect on the Workplace and Individuals at Work.

During an ERP implementation in a multinational company there is a profound effect on the workplace and on the individuals at work.

Often it is difficult to situate the project. Is it an I.T. project ? Enlightened companies position the project from the outset as an enterprise project. A project team is created, composed of a Project Manager and a multidiscipline team comprised of Key Users, I.T. specialists, outside Consultants. In a multinational company, Head Office personnel may be much in evidence in the local countries, and a corporate model with for example global product codes, a common chart of accounts

A balance has to be driven between the interests of a corporate model and the local legal, fiscal and business practice imperatives.

Often a new way of working is required. M. Marks, J. Mathieu and S. Zaccaro in an article on team processes note that much of the work in organizations is completed through teamwork : people working together to achieve something beyond the capabilities of individuals working alone. Success is not only a function of team members' talents and the available resources but also the processes team members use to interact with each other to accomplish the work. They define team process as members' interdependent acts that convert inputs to outcomes through cognitive, verbal and behavioral activities directed towards organizing task work to achieve collective goals.

Work teams strive toward collective goals that incorporate time as a component. Transition to action via a mission, specifications, strategy and planning, progress monitoring, coordination, conflict management, motivating and confidence building. (MARKS et al. 2001)

In the case of ERP implementation, the tasks are setup, conversion, interfaces, modifications and extensive testing to validate the system prior to end user training and “Go

Live”. These tasks are associated with modules and module components : for example for Finance - Accounts Payable, Accounts Receivable, General Ledger, Fixed Assets etc. Throughout the project there is a need for frequent dialogue and theme meetings to confront Finance impact on Logistics or Manufacturing and vice versa. In addition a whole part of the operation for example Order to Cash will be scripted for testing with test steps alternately executed by different functions across divisions.

One difficulty in implementing ERP is this switch from a functional to a process orientation, due to the fact that modules cut across traditional departmental lines. There is a value to educating all stakeholders, not just end users. P. Schneider suggests that there is no right way to implement ERP but that active and engaged leadership is vital. (SCHNEIDER 1999).

In a series of articles sponsored by AVENTIS on networks, there is an analogy drawn between networks and recent Project team organization. M. Castells asks why Information Technologies networks are so efficient : because they are supple, are able to evolve and survive. They are supple because they can reconfigure in function of modifications to their environment, they conserve their objectives but modify their elements, avoiding interrupters and finding new connectors. They are capable of evolution, because they can grow or shrink without ceasing to function. Finally they are able to survive, since they have no center and can call upon an infinite choice of reconfiguration possibilities. Castells concludes that a networked world is not exempt of power or conflicts. It is a decentralized world where power is exercised and contested not by institutions grabbing power but by the impact on society symbols and on economic information. (CASTELLS 2001)

Currently in multinational ERP implementations, the project team functions along these lines; in perpetual movement and calling upon resources and methods as and when needed and like an organism that breathes. No one person dominates other than to make a concrete contribution and retire until the next time his or her knowledge adds value.

One reason for continued project failure is the notion of management. We talk of “change” or “knowledge” as though we can ‘manage’ it. We can accompany change and promote knowledge, but to suggest change and knowledge management is presumptuous.

Peter Drucker in a survey of the near future for *The Economist* shows knowledge workers as the new capitalists - knowledge the key resource and the only scarce one. Knowledge is non-hierarchical. Either it is relevant in a given situation or it is not. (DRUCKER 2001).

Drucker gives some characteristics of knowledge workers :

- Professionals rather than employees
- Interdependent on other knowledge professionals
- The need for continuing education
- Identification with their knowledge (rather than to any particular company)
- Unlimited upward mobility

Drucker also helps us to understand project failure *“Experience has shown that grafting innovation on to a traditional enterprise does not work. The enterprise has to become a change agent... Instead of seeing change as a threat, its people will come to see it as an opportunity.”*

The people focus is often missing and may explain a part of project failure. As Ann Miller points out : *“People are always key to any process improvement, so methods to help staff ramp up on the learning curve of a technology or process are extremely important.”* (MILLER 2001). This means helping the 45 or 50 year old key user with 15 or 20 years hands on business experience to become an internal consultant in SAP, JDE, or PeopleSoft, etc.

To summarize, ERP implementation impact on the workplace and on individuals at work is pervasive. In the context of a multinational, the project implies working not only with

existing colleagues, but also with Head Office project people and outside Consultants with their own culture and languages. It means an upheaval of existing work methods - the breaking down of barriers between countries, sites, functional divisions and hierarchies. Self interest, defending of turf, internal politics, problems of person can of course continue to predominate and derail a project, but the successful project will push these intangibles to the background or eradicate them toward a greater good, project success and win-win for organization and individuals alike.

What will characterize the successful project is the synergy of a new generation of knowledge workers only interested in project advancement coming together, separating, regrouping as the project dictates. We can identify a key success factor as the ability of traditional management to give free reign to this new way of interacting. In other words the centralizing of data and processes, the repudiation (decentralization) of non added value functional or hierarchical divisions and the admittance of an 'unmanaged' project team which manages itself. The standards of measure should be increased productivity and competitiveness, increased flexibility and adaptability and continuous change.

4. About resistance to change in an ERP implementation

It is a recognized fact today that if a technical solution such as an ERP does not induce necessarily the expected changes, it is not because of the technology. In other words, it is not because an organization implements a computerized system that social changes will necessarily occur. Technology itself does not induce the social game, the collective process which is necessary for a successful ERP implementation. Only people together are able to make a success, or a failure, or neutralize technical systems, especially complex ones such as ERPs.

Firstly, facing change, one should remain modest because the collective game builds itself without obeying to any single will or to any predefined planning. Actors have to build the story together. Secondly, one should not start from the ERP technical solutions, but from problems to solve, that is to identify actual needs before making an adapted and robust technical offer. Thirdly, in order to be able to analyze problems and evaluate needs, one should remain attentive to people and social behavior so that help in educating people can be provided : both individual education (learning what the ERP modules are doing and how to use them) and collective education (learning how to integrate the ERP in each department or service operational practices). For example, mastering all the new accounting capabilities of the ERP Finance module requires to build a new knowledge base among all the individuals first, then in the Accounting Department(s) as a whole. Actually, any success will depend on the collective evolution of the organization.

As far as resistance to change is concerned, the most problematic issue is that there is no resistance to change *per se*, neither because of habits gained, nor because of any “social inertia”. However, resistance to change does occur and has got a twofold origin : technology resists and social organizations too. Technology resists because it has got its own principle of reality : for example an ERP by itself will never be able to deliver manufactured goods, only a coordinated organization can. Social organizations themselves have their own principle of reality. They do not resist just for the sake of resisting, but build their needs depending on their goals and evolution of beliefs. When technology meets a

market ready to pay for it, there is no resistance. Just to make sure, see the speed with which such technologies as fax or mobile phones have spread.

Most of the time, the legitimacy of I.T. comes from a discourse about the technological innovation/modernity combination. This discourse was the basis for the rise of the I.T. staff in the organizations until the 1980's (FREEMAN AND MENDRAS 1995). Since then, there was a reverse trend due to an internal legitimacy crisis and to a change in users attitude. For sure, this was caused by being tired of forced computerization failures and tired of forced obsolescence of hardware, software and I.T. concepts. Operational users are fed up with this ongoing race to innovation, since the situation they are living in is not yet stabilized. The discourse about the "technological plus" has come to some discredit among users who do not hesitate any more to express their concern.

Technology evolves at such a pace that it generates what is called "techno-stress" among staff at all levels of an organization. In fact, workers say they are "techno-stressed" because they have to learn, know and use technologies that are constantly evolving. Moreover, they consider they have little control over the choice of technologies to use and they lack training on them.

Five major factors have been identified as generating "techno-stress" :

- System problems,
- Computing errors,
- Learning time for getting used to new technologies due to the fact that technologies said to be "time-saving", increase tasks more than they alleviate them,
- and also the difficulty of following the fast evolving technologies.
- To this, one can add the "technology-aided employee scrutiny" which is the supplemental control exerted by employers in reading employees' files or e-mail.

Besides, according to various surveys, it seems that "techno-stress" is more and more affecting executives and managers. They fear I.T. generates a loss of privacy, an informa-

tion overload, a lack of personal contacts, a need for a continuous learning of new skills and the missing of promotion due to a lack of knowledge.

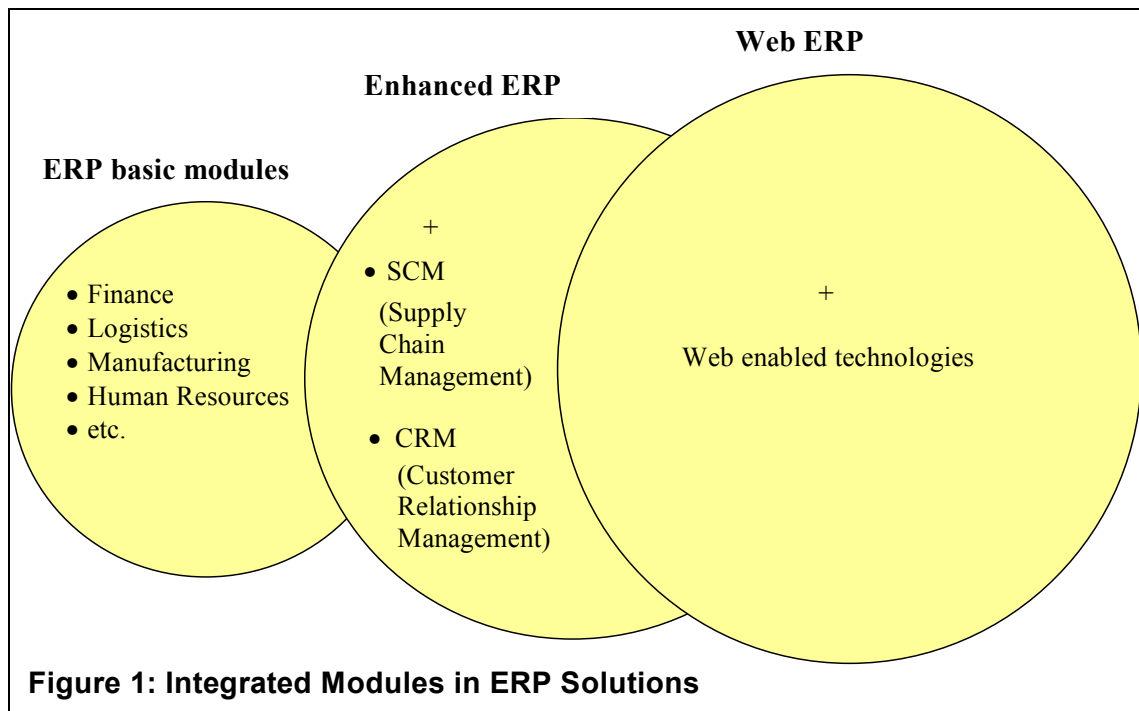
Managers who frequently avoid technologies and suffer from a lack of technical knowledge, have nevertheless to make decisions about buying expensive I.T. equipment and have to manage investment, education and support budgets. Moreover, it seems that managers who are familiar with technologies also suffer some “techno-stress” because of the fast changing pace of I.T.

In short, the preceding human factors are paramount when it comes to ERP implementation and may explain to some extent why an ERP needs a lot of care and support when deployed in an organization both by internal management and external consultants.

5. The near future of ERP solutions

What is the likely future of ERP solutions ? What is the place of ERP solutions in the emerging Digital Economy ? Arguably, ERP solutions provide the trampoline for more exciting technology. More exciting in that it goes beyond the enterprise itself into a closer collaboration with partners : the State, Suppliers, Customers, Employees, Banks etc.

During the 1990s, ERP solutions have known a gradual evolution of their functional scope as shown in the figure 1 below.



It indicates that originally ERP solutions concentrated on the integration of an enterprise's functions of Finance, Logistics and Manufacturing. To this were grafted a solution for Human Resources and eventually SCM and CRM providing a closer relation to partners.

Editors now see growth toward new technologies, for example web enabled technologies, and in the expansion of their customer base from large companies to small and medium and from a wider industry offer, for example encompassing service as well as manufacturing industries.

ERP provides the foundation for the add-ons for multinational companies. Although the “Go Live” may seem almost a goal in itself, the real payback is in the synergy of people, processes and technology once the system is stable. (CALDWELL AND STEIN 2000)

Conclusion

ERP solutions are an integral part of the emerging Digital Economy, not just as a precursor or back-office component, but as a foundation or trampoline for multinationals to avail themselves of new technologies (I.T. related or others).

The implementation process is painful, and perhaps necessarily so. The failure rate is spectacular if the measure is on time, on budget and according to scope. The reasons offered classically are understood but the failure rate remains high if not as high. Perhaps management are paying lip service to their own involvement, their own leadership in these projects.

But recent studies and analysis suggest other avenues to explore in order to increase implementation success rate. Particularly to get a leverage effect for multinationals already on a stable ERP platform to achieve their objectives of continued change and a return on their investment.

These other avenues include :

- An awareness of the need for a balance between stability and change
- An accompaniment of change
- An awareness that an ERP implementation is not just another I.T. project
- A radical approach to teamwork and the concept as yet ill defined of knowledge workers
- A switch from functional to process orientation
- An education of all stakeholders
- The enterprise as a Change Agent
- Key words : supple, evolve, survive
- Promoting fun and success.

Associated with the classically identified key success and failure factors, these new approaches without being a panacea should help Chaos become Transformation.

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