ERP Implementation Project Management: an Art as well as a Science

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Abstract

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GESTION DE PROJET DE MISE EN PLACE D’UN ERP:
UN ART AUSSI BIEN QU’UNE SCIENCE

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ABSTRACT

The Cartesian approach to Project Management has not been abandoned, but increasingly Project success has come to depend also on an approach to Project Management which goes beyond detailing tasks, resources, deliverables, timelines, cost budgets. This paper explores these newer trends over a time-frame early 1990s to early 2000s showing how a Project Manager has evolved to be an Enterprise Coach, Leader, Supporter. We have termed this Leadership in Real Time.

Key words: ERP (Enterprise Resource Planning); Project Management; Change Management; Leadership.

RÉSUMÉ

Si l’approche cartésienne dans la gestion des projets est toujours de rigueur, le succès de la conduite d’un projet dépend de plus en plus d’une approche dans la gestion de projets qui va au-delà des simples détails concernant les tâches, les ressources, les livrables, les délais ou les coûts et budgets. Ce cahier de recherche explore ces nouvelles tendances dans la dernière décennie en montrant comment un chef de projet a évolué pour devenir un véritable guide, leader et soutien, ce que nous avons appelé « Le leadership en temps réel ».

Mots-clés : PGI (Progiciel de Gestion Intégré) ; ERP (Enterprise Resource Planning) ; Gestion de projet ; Gestion du changement ; Leadership.
Introduction

At the beginning of the 1990s ERP Implementation Projects followed a classic approach to Project Management. Once Top Management had decided on the ERP solution to be implemented, usually with an Editor such as SAP (the leader), ORACLE Applications, J D EDWARDS, PEOPLESOFT or BAAN, then a Project Manager was designated. Often this was the I.T. Manager who needed to assume the Project Manager role as well.

Helped by the Editor, the Project Manager itemized in detail the tasks to be carried out, attached resources to these tasks and fit the time-scales and budget as per Top Management guidelines/directives. Tools were available to help this process - for example Microsoft Project. This allowed the preparation of a Gantt Chart, and use of Critical Path and techniques to monitor Project progress.

As the decade progressed there was a natural evolution. The tools became more sophisticated allowing for what if scenarios, and Project slippage could be automatically evaluated if a task or set of tasks took longer. There was a tendency for Editors to set up strategic partners : Integrators, who worked with their customers to achieve implementation.

But the approach remained scientific, and a drawback was that slippage (delays, costs, deliverables) tended to be identified but after the fact. Actually ERPs proved more difficult to implement than anticipated with escalating delays and cost overruns. The Project Manager was looking in the rearview mirror and constantly correcting. What was needed was a proactive approach which allowed the Project Manager to anticipate problems and if possible avoid them or at least plan for them and have contingencies.

At the same time that the classic Project Management approach was being seen as incomplete, experience was showing another interesting characteristic : that the failure factors difficult to correct were often human related rather than technical.

In other words, it was not simply a matter of ticking off tasks done. There were ‘feelings’ involved which could lead to latent or evident resistance to change.

From the literature : Ann Miller says in an article with the organizational change theme ‘Some plan and lead change, others manage it, still others accommodate change, and many simply try to cope with it” (MILLER, 2001).
In an article also on the theme of organizational change, Pettigrew, Woodman and Cameron throw down the gauntlet for future research by suggesting that Management scholars are curiously incurious about why and how certain organizations consistently outperform their competitors. They note also that the link between change capacity and action to organizational performance is not clearly sought in empirical studies. (PETTIGREW, WOODMAN, CAMERON, 2001)

1. Evolution in ERP Implementation Project Management during the early 1990s

In the early 1990s, and in respect to ERP Implementation Project Management, the slowness to adapt the Project Management Approach from a strictly Cartesian one, to admit if you like that it needed to be an art as well as a science, is also due to the fact that Management in general did not see all the consequences of what they were doing. The ERP solution at that time was considered to be ‘straightforward’ and was sold as such. Often it was considered an I.T. project. The I.T. Manager often was declared or de facto Project Manager. I.T staff and Key Users often had to combine their Project roles with their everyday duties. Timelines and budgets reflected this doubling up.

It was only as the decade progressed that it became evident that:

1) the implementation project was an enterprise wide project,
2) top management involvement was a key success factor,
3) backfill may be necessary so that project actors could be relieved from some of their lesser value added everyday tasks
4) that outside consulting services would be as least as important as license/maintenance fees in the overall budget

The figure below illustrates how over the decade new disciplines and skills were grafted on to classic Project Management. The process is not finished either: the rate of project success may have increased but is still far from satisfactory (only 28% of projects are on time, on budget and with the required features per a recent Standish Group report (JOHNSON, 2001).
In figure 1 we see for the early 1990s the classic Project Manager role, his/her duties being ‘scientific’ and fairly straightforward:

- the itemization of **tasks**, note that for an ERP Implementation 500 to a 1000 or more tasks would not be uncommon
- the allocation of **resources** such as IT staff, Key Users, outside Consultants, etc.
- the time-frames (**delays**), milestones, and critical path building towards a Live date
- the budget (**costs**)  

The Project Manager would then frequently **measure** Actual progress on tasks to Budget dates, Actual costs to Budget in monetary value. On the basis of these identified variances, appropriate **corrective actions** would be taken in discussion with the team and with Management.

But this was not enough.
2. Mid 1990s

In figure 1 for the mid 1990s we see additional skills that became the norm for ERP Implementation Project Management, and among these skills that are not so Cartesian or subject to a given logic in a scientific sense.

Let us address first the down-to-earth extra skills:

- Best Practice / Benchmarking
- Re-engineering
- Business process documentation

Experience in project implementations brought to light the need for a more radical approach to managing the project if an investment return was to be expected. It was not enough to identify business processes and bend the ERP solution to fit. It was necessary to apply the notions of best practice, benchmarking, re-engineering, and document clearly the processes at start, the processes as they needed to be and reasons for setup decisions/choices.

In the early 1990s, the ERP Implementation was often confused as an end in itself. It may have been imposed by Head Office for an affiliate, perhaps dictated after an acquisition to align the ERP solution with the overall company choice. Companies may have had different views as to how standard the solution should be. Most imposed a common global Chart of Accounts, common Product Codes. A certain latitude might be left to affiliates as to customization (for example with RPG programs\(^1\)) to allow for how local business was conducted.

As the realization dawned that the ERP project would take several months or even years, would mobilize large parts of the organization at all levels, have consequences on organization structure, how business was to be conducted, and would cost for a medium/large size company a seven figure dollar budget, - it became paramount to ensure a pay-back. This meant the examination of industry best practices, forming of ERP Solution User Groups, a willingness to re-look at how business had been done and what could be gained from a fresh approach. The pressure was on the Editors to add value to their product or to form strategic partnerships for easy to add additional features. For example the backbone may have been Finance or Distribution or Manufacturing. Now Editors had to be good at all three. Then Human Resources had to be catered for; Technical Services also; Sales and Marketing, and so on. Not to speak of later Customer Relationship Management,

\(^1\) RPG, Report Program Generator, is a high-level database access and text generation language invented by IBM in 1965 for mainframe MIS environments (DICTIONARY OF PROGRAMMING LANGUAGES, 2002).
Supply Chain Management, and then Web technology to include not just Suppliers and Customers, but also Employees, Banks, Shareholders, the State…

The skills therefore were changing. Before Key Users and IT specialists would go into a huddle on a business problem and, as if by magic, a programmed solution would result! Now Key Users and IT, along with counterparts from other companies, along with the Editor and/or Integrator would filter out ways of doing business not dictated by local business practice industry-wide, local legal and fiscal constraints, and then factor the unavoidable into a new version of the ERP solution.

The identification of best practices was achieved by:

1) the use of the software itself: the Editors having combined best practices into the design of their product. The User company if it had a different process, would double-check that their own process really added value;

2) for a multinational implementation, the opportunity for an affiliate to see how the parent company or other affiliates approached the same business problem;

3) as a result of User Groups, the exchange of ideas and explanation of processes. User groups could be regional or vertical industry groups;

4) the process of implementation itself: a starting point was the evaluation and documentation of processes. This exercise tended to bring to light incongruities as the project team was multi-disciplinary, I.T. and Key Users, Finance as well as Logistics, etc.

The ERP implementation process forced the User company to identify best practices, benchmark, to some extent reengineer its business processes and to document not only the status quo but also the desired process result using the ERP solution. The Project Manager, and his/her team of I.T specialists, Key Users and outside Consultants became skilled in these areas as well as with the ERP software solution for the module that concerned them and from a perspective of technical competency (I.T.) or functional competency (Key User). As the decade progressed, in I.T. magazines specific skills such as SAP, ORACLE, JDE etc., for a given module (Finance, Logistics, etc) would be stated in the advertisement itself. The salary packages offered for those who had had experience in the implementation became more and more generous. Consulting fees for the outside Consultants also increased markedly. A whole industry had been created.

Next, let us address the additional skills required:

- **What-if scenarios**
- **80/20**
The Project Manager could not rely only on controls and measures and the alerting of a Steering Committee if tasks were not being accomplished on time.

What was needed was an early warning system, so that the identification of a task taking longer than foreseen could be assessed in terms of the overall project slippage and the ‘new’ Live date.

A tool such as Microsoft Project could help, as the linkage between tasks had been established, and the impact of an individual task slippage could be evaluated.

Various options were open if the Live date was impacted:

1) Change the Live date
2) Keep the Live date and look for economies - tasks which could be cut or that were no longer deemed necessary. Live date remains unchanged.
3) Add extra resources. Live date remains unchanged.
4) Persuade team members to keep to the original deadlines through extra effort. Live date remains unchanged.
5) A phenomenon as the decade progressed was to follow the 80/20 rule (also known as the Pareto Principle). In this context, it is not always in the interest of the project to spend 80% of the time on the 20% remaining tasks to ‘complete’. Some tasks can be shunted forward into Post-Live, if business requirements permit. This carries the danger of having the tasks incomplete, but tailors task completion percentage to the minimum vital for Live. The incremental energy to complete tasks is forwarded to Post-Live or abandoned if this is an option.

The what-if scenarios extended also to elements of Risk Analysis, especially just prior to Live, and Contingency Planning for the period just after Live. Risk Analysis could include the identification of issues still open and tasks still to be completed at the moment of Live with actions foreseen and a Go or No Go decision. Contingency Planning could include the setting up of a hotline and detailed After Live issue list with actions to resolve, workarounds, etc.

Referring to Figure 1, there were also new skills required for Project Management that came to the fore as the decade progressed.
These skills are:

- Communication
- Accompanying of Change
- Conflict anticipation / resolution
- and latterly, Knowledge Management

This paper contends that these ‘new’ skills:

1) pushed the Project Management discipline into the realm of Art as well as Science. This is important to note in that the profile of the Project Manager at the moment of hiring or designating needed to be charismatic and have pronounced leadership qualities. In other words, a bespectacled bean counter or ultra intelligent I.T. nerd was no longer best placed to project manage although these skill sets were also necessary;

2) are the areas where improvement is necessary for project success rate itself to be optimized.

**Communication**

For Communication, read Inspired Communication.

For multinational ERP Implementation Projects the question of communication became more complicated. There may be a team from Head Office to prepare a Core Model, and this requires input and an extended team incorporating at least the larger affiliates. There needs to be an understanding for the Core Team of the local legal, fiscal, business practice framework. For the local team there needs to be an understanding of the reporting that the Head Office requires, and the need for standardization, common chart of accounts, common product codes, etc.

In addition, there is need to respect culture differences. Marc Raynaud refers to three different dominant logic:

- the contract (Anglo-Saxons, including US)
- the consensus (Nordic cultures)
- the logic of honour (Latin countries, including France)

He suggests that the Project Manager needs to take the time necessary to phase in the team, federate the team members around precise achievable objectives over short time-frame, allow team members to express themselves as to the team mode of functioning, and be
intransigent concerning dates decided by the team member themselves. (RAYNAUD, 2001)

Communication from Top Management also needs to be unambiguous. At the beginning of the 1990s there was a tendency to see ERP solutions as a cost cutting measure and in particular via the eventual elimination of posts. Or as a project imposed by Head Office to standardize practice among affiliates and to have a better big brother view over the shoulder. It is difficult to see how these objectives could be ‘communicated’ in the right spirit so as to motivate Project actors!

As the decade progressed some of the fears disappeared. ERP solutions did not tend to eliminate staff - the skill set may evolve but there was a place for existing staff prepared to evolve too. ERP solutions still were successful for growing companies by leveraging the work by existing staff so that structures did not need to grow at the same rate as business growth. In this case there was a win-win situation: top management, owners, shareholders saw their interest (containment of costs), staff also as they learnt new skills valuable in the job marketplace.

Big brother was avoided too. It is true that the ERP solution gave information more timely and accurately and in more detail to Head Offices, but this did not remove the need of local managers interpreting the figures with the local perspective.

Communication improved as top management placed the ERP implementation project as an enterprise project, for example as one of their six most important personal objectives for the year, and factored in project success as a criterion for bonuses/ variable compensation. This combined with a strong business case for the ERP solution helped motivate all members of the hierarchy. A charismatic General Manager would associate Fun with the intense efforts to go Live at a given date.

Accompanying of Change / Coaching

This has become a necessary skill for the Project Manager and getting this right has a powerful impact on project success. This coaching has to be targeted at all levels of the hierarchy. We call this Leadership in Real Time.

Coaching is useful as an analogy. The Rugby, Soccer or American Football Coach is constantly there pushing the team to attain what they are capable of, encouraging them when discouraged, exhorting them to be lean, mean and to win against all obstacles.
But Leadership in Real Time goes beyond Coaching, and at certain moments in the Project requires an attitude of caring, or of conflict resolution that tests the mettle of the Project Manager.

Yasin, Czudry and Alavi state that:

‘Today’s project manager needs to have a balanced profile of soft and hard skills to be able to operate in a customer driven global business environment where managers lead by example.’

(YASIN, CZUDRY, ALAVI, 2002)

Meyer, Loch and Pich also comment the increasing complexity of the project manager’s role, and refer to four types of uncertainty:

- variation,
- foreseen uncertainty,
- unforeseen uncertainty,
- chaos.

They suggest that managers need to be flexible enough to adopt the right approaches at the right time, and point to a balance between planning (discipline, concrete set of activities, contingencies) and learning (adapt to unforeseen or chaotic events).

They conclude:

‘Time has come to rethink some of the traditions in project management. In an era of rapid change, uncertainty is a rule, not an exception. Companies that understand that have the greatest chance to produce spectacular project successes’

(DE MEYER, LOCH, PICH, 2002)

Accompanying of change, especially when the change is uncertain or chaotic at a point of time is where the Leadership in Real Time skills come to the fore.

Certain real situations highlight the need for Leadership in Real Time. An example would be the illness, death of a project actor or one of his/her immediate family at a crucial moment in the project. Here there is not a lot of time to react or to prepare, hence Leadership in Real Time. The Project Manager is to some extent winging it and out of his depth. He or she needs to be emotionally intelligent and be sensitive and reactive as a crisis is revealed. Any lack of sincerity will be immediately detected, so it is vital that the Project
Manager is genuinely a caring person in these situations and in general. This is a critical factor in recruitment or in deciding who the Project Manager needs to be.

**Conflict anticipation / resolution**

This is a subset of Accompanying of change / Coaching. To anticipate implies that one is also receptive to the signals. It is common in the life of an ERP Project Implementation for there to be conflict situations either between persons or between groups. The Project Manager needs to be sensitive to this, and to find ways to minimize/remove the stressors which are causing the conflict situations. Where conflicts boil over and risks affecting the Project, then a solution needs to be found immediately.

The Project Manager cannot simply opt for a soft approach either. Blair puts this as follows:

‘... it is perhaps surprising that projects get done at all. In fact projects do get done, but seldom in the predicted manner and often as much by brute force as by careful planning.’

James and Wolf mention that implementations are traumatic, long, painful, expensive and that measurable benefits are difficult to evaluate. They then show that the value lies in the infrastructure foundation, for example common data, standardized business processes, organization built for continuous change. They speak of a staircase of value, pointing to for example the building on to the ERP infrastructure of e-commerce solutions or Customer Relationship Management (CRM). (JAMES and WOLF, 2000)

What can the Project Manager do concerning potential or actual conflict situations?

Part of the answer lies in his/her own team building preparation. Govindarajan and Gupta propose:

- cultivating trust among members
- overcoming communication barriers
- aligning goals of individual team members
- ensuring that the team possesses necessary knowledge and skills
- obtaining clarity regarding team objectives

They explain trust in more detail: trust being a factor of shared similarities, frequent communication, operating in a common cultural context (i.e. watching out for geographical, language and cultural barriers). (GOVINDARAJAN, GUPTA, 2001)
Another part of the answer lies in putting the Project first. And showing each actor their part of the win in a win-win result. If this is demonstrated clearly, smaller grievances are likely to be nipped in the bud. This means that the Project Manager has to be able to see the point of view of each actor, and see where they may not see the actor’s individual interest. We are, if you like, in the upper strata of Maslow’s hierarchy of needs. It is easy to demonstrate the benefits of food, drink, shelter but the benefits to individual x of company y succeeding the implementation of project z may take convincing.

The Project Manager has to find a balance between leading and supporting his/her team. On the sidelines when things are going smoothly, ready to intervene credibly when things risk going wrong.

3. Early 2000s

Post mortem analysis
Post-Live management

The Project Manager’s job is by no means over after Live. He/she needs to identify, record issues as they occur and the solution found. Lessons need to be learned from; as in most cases, issues resulted from incomplete testing before Live.

Rigorous testing, preferably by a separate team from the Project team and reporting to Quality Management, increases chances for a smooth Live.

Two things can cause a Post-Live to be difficult to manage:

1) a showstopper issue that had not been identified before Live

2) a battery of small issues all occurring at the same time. An analogy would be a video game, if the problems appeared at a slower rate it would be possible to manage, but the speed accelerated could create a chaotic situation.

For the Project Manager, there is no room for maneuver - a yardstick is that the customer should only see the positive aspects of the ERP solution after Live. If the customer is inconvenienced with no deliveries, wrong deliveries, incorrect invoicing, etc., this quickly becomes evident and the pressure difficult to manage.
Usually the Live had to be stable within five working days, or it had to be envisaged in the worst case scenario to use the old platform. After two weeks or so, the point of no return would have been reached, i.e. it would be difficult to re-input all the transactions into the old system as well as deal with the everyday.

As the decade progressed experience showed that thorough testing and validation of the system was a prerequisite for Live.

**Knowledge Management**

For a multinational, the implementation of an ERP solution is a multi million dollar venture. In addition, each eighteen months or so, an upgrade to a new version may be necessary. At some point Editors do not continue to maintain an older version. It is important, therefore to obtain, retain, motivate, train the right resources.

In addition to get a payback there should be some clear business goals, for example James and Wolf suggest payback can arise from:

- shorter intervals between Orders and Payment
- lower back office staff requirements
- reduced inventory
- improved customer service

(JAMES and WOLF, 2000)

Harvey Maylor expresses the Project goals as a:

- need for excellence,
- continuous improvement,
- achieving customer delight

and suggests that many modern projects do not have tangible outputs.(MAYLOR, 2001)

To get the leverage from the ERP investment, so that business performance benefits, a key concept has been Knowledge Management. Malhotra’s definition is as follows:

“Knowledge Management caters to the critical issues of organizational adaptation, survival and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of human beings”
Malhotra contends that Knowledge Management is necessary for companies due to the fact that what worked yesterday may or may not work tomorrow; and that ‘core competencies’ today can become tomorrow’s ‘core rigidities’.
(MALHOTRA, 1998)

A viewpoint is provided by De Vos Consultancy who show the following subprocesses in the use of knowledge:

Create; identify; collect; organize; share; adapt; use.
(DE VOS CONSULTANCY, 1999)

Again we can refer to the staircase of value analogy (JAMES and WOLF, 2000) but in this context the value is derived particularly from the use of knowledge.

Knowledge Management

Create
Identify
Collect
Organize
Share
Adapt
Use

figure 2 : A stepped approach to Knowledge Management
Another definition of Knowledge Management, by Beat Schmid:

“Knowledge Management is a systematic approach to improve the way organizations, groups and individuals handle their knowledge in all forms, in order to improve their effectiveness, innovation, and quality.”
(SCHMID, 1999)

In an article tracing the history of Knowledge Management, L. Prusak points out the link with globalization, ubiquitous and transparent computing and a firm being knowledge-centric. L. Prusak shows us that in an Information Age qualities such as judgment, design, leadership, better decisions, persuasiveness, innovation, aesthetics and humour become more valuable than ever before. This is very close to our concept of ‘Leadership in Real Time’ and describes the attributes necessary for the ERP Implementation Project Leader as we go forward. It is what is necessary to go beyond Re-Engineering toward Quality and Continuous Improvement (PRUSAK, 2001).

Concretely, the ERP Implementation Project Manager to ensure a payback, to ensure that continuous improvement is perennial, needs to encourage an internal competence centre composed of I.T. specialists and Key Users who understand the business, and who understand the ERP solution and its capabilities to address business issues. Who know what complementary products can enhance the ERP solution (avoiding unnecessary customization). The Project Manager needs to know also where to get the best assistance in the form of Consultants at peak project times (implementation, new version, interface with complementary product, etc) so as not to swell headcount unnecessarily.
Conclusion

This paper has sought to examine the profile of ERP Implementation Project Management over a ten year period between the early 1990s and the early 2000s. We go from a classical approach of Project Management: identification of tasks, resources, delays and the use of tools such as Gantt Chart and Critical Path, and graft on newer/revamped techniques such as Coaching, Communication, Knowledge Management, Accompanying of Change, etc., necessary for success and a climate of continuous improvement. It is in these newer Project Management skills that we see an art form grafting on to the scientific base.

It is the conjunction of the ERP solution with the Business Requirements and with the internal I.T. specialists and Key Users which is the key to not only going Live but ensuring continuous improvement after Live. The goal should be that the user company customers see for themselves a tangible benefit in services as a result. We would contend that as all larger companies adopt an ERP solution of their own and the implementation discipline associated, the way that a company can go beyond aligning on mediocrity is to cultivate Leadership in Real Time. That is a combination of art and science skills twinned with an attitude of caring that propel a company to excellence in its field.
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