MSc Program

Engineering Management

THE KEY FACTORS TO BUSINESS PROCESS MANAGEMENT PROJECT SUCCESS

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Affidavit

I, **Slobodan Danilović**, hereby declare

1. that I am the sole author of the present Master Thesis, " The Key Factors to Business Process Management Project Success", 123 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and
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TABLE OF CONTENTS

ABSTRACT

2008 has already proven to be year filled with uncertainty, due to macroeconomic trends and business cycle factors that are not likely to change any time soon. We are in an environment today where every investment requires a bullet-proof business and a clear path to immediate cost-cutting. Business Process Management (BPM) and Workflow have traditionally been favoured at moments such as these, due in large part to the relatively low technology and resource investment required to realize significant gains in process efficiency, productivity, control, and business agility. Yet although interest is widespread, the need to build a compelling business case is as important with BPM as with any other business investment. What we are seeing today is the new business value imperative; the need to demonstrate value growth and cost reductions with every current initiative, as well as a new opportunity to realize these through the strategic embrace of business process management.

As the stated in the famous mantra of Taylorism, “you can't improve what you can't measure.” This has never been truer for BPM investments. Both the availability of rich performance metrics and the growing focus on measurable success mean that, for any successful BPM project in 2008, there must be clearly defined success criteria. This is not only necessary for the final implementation, but it is also critical to accurate validation of the process and to gaining buy-in from stakeholders and project sponsors.

In this thesis, the BPM Project success is examined and analysed, based on a case studies and personal experience. The results presented here are focused on critical success factors identified from the literature. The main goal of this thesis is to define some of the key issues in BPM Projects, and then develop and suggest a BPM Project delivery framework according to Critical Success Factors (CSF) Approach. It is intended to be used as a tool to help BPM Consultants and Managers in whole Life Cycle of BPM Project: Initialization, Implementation, Rollout and Measurement & Feedback phase.

PROBLEM FORMULATION

According to BPM business analyst D. Miers, the Core driver of Business Process Management (BPM) projects is the delivery of enhanced business performance through cost reduction, increased productivity and the ability to turn the business on agility. It is primarily a business philosophy about people, the way they work together (their business processes), the technology they use, and the performance objectives that these processes underpin. At the same time, BPM technology delivers the ability to make this vision a reality. With BPM projects springing up in most firms a robust BPM project capability is now a competitive imperative. For those still standing on the sidelines, it is not a question of if they will engage in BPM oriented projects, just a question of when. Regardless of the amount of hype around BPM, the vast majority of BPM technology projects are successful According to Gartner, who recently surveyed BPM projects, 95% of those questioned said that their BPM projects had been successful. Yet many firms are not choosing to promote their successes in order to avoid tipping off the competition - preferring instead to keep the results a closely guarded secret. Moreover, where project failure has occurred, it has usually been self-inflicted due to misguided or poor management practices (Miers, 2006).

Goals and metrics are integral to every BPM initiative, and should be defined in the beginning stages of process definition. You cannot improve what you cannot measure, so clearly defined metrics and success criteria are essential to the BPM Project and to the success of the overall BPM initiative. The BPM Project must always include:

- Validated and clearly understood project goals;
- Clearly defined success criteria that are agreed to by all stakeholders;
- Milestones that indicate ‘how’ and ‘when’ success will be measured;
- A high-level outline that maps process metrics to corporate objectives.

Keeping metrics aligned to corporate objectives is a key to understanding how to continually improve processes and resources to most effectively contribute to the organizations overall goals.

This visibility is the foundation for continuous process improvement.

In a business context, a success factor is defined as any knowledge, skill, trait, motive, attitude, value or other personal characteristics that is essential to perform the job or role and that differentiates solid from superior performance (Nguyen et al, 2004). Rockart (1979) defined critical success factors (CSFs) as those few key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his or her goals. Boynton and Zmud (1984) defined CSFs as those few things that must go well to ensure success for a manager and an organization, and therefore, they represent those managerial or enterprise areas that must be given special and continual attention to bring about high performance. Within the project and project management contexts, the success and failure factors were first introduced by Rubin and Seeling (1967 cited in Belassi and Tukel, 1996) while the term "critical success factors" were first used by Rockart (1982 cited in Sanvido et al., 1992).

Several researches on key factors affecting BPM project success have proposed important steps to successful BPM implementation:

- Start with a common view of the overall process
- Obtain Chief Executive Officer (CXO) support
- Choose a flexible BPM tool
- Begin with valuable, manageable, cross-functional projects
- Develop a reusable project methodology
- Establish a clear team structure
- Communicate the successes

The main goal of this thesis is as follows:

- Define and Prioritize CSF
- Determine and classify influence of CSF to overall Project success
- Suggest BPM Project delivery framework according to CSF

1 INTRODUCTION

Motivation for this research, Key Factors for BPM Project Success is very promising. According to Nguyen et al (2004) CSFs can be used to direct an organization's efforts in developing strategic plans (Munro and Wheeler, 1980), to formulate a set of strategies, and to identify critical issues associated with implementing a plan (Boynton and Zmud, 1984). In addition, Anderson (1984) observed that CSFs can be used by managers and organizations to help achieve high performance. However, it is recognized that research on project success factors needs further efforts. Too general or too specific success factors in previous studies present certain difficulties when applied in practice, especially in developing countries where knowledge infrastructure, including state-of-the-art managerial skills, is not available. In addition, the levels of detail concerning success factors depend on levels in the management hierarchy. Therefore, the success factors need grouping to be more acceptable rather than grouping in the "technical sense" as done in a few recent studies. As such, the underlying relationships among the success factors also need to be identified. When this initiative is accomplished, the success factors can be readily and consistently employed for future projects. Furthermore, a set of CSFs may not be transferable to another project due to the differences in environmental variables, the nature of the project, the nature of the participant's organization, and the prioritization of project goals. Thus, this research is emphasized on the diversity of respondent's perception rather than emphasizing on certain specific projects. This can eliminate disadvantages of application of CSFs in future projects.

Enterprise systems (ES) software packages (synonyms are enterprise resource planning, integrated standard software packages, and enterprise application systems) seek to integrate the complete range of a business' processes and functions in order to present a holistic view of the business from a single information and IT architecture. ES software packages have made a tremendous contribution to the world of business.

They have made a wide range of business more efficient by providing them with much information they need. The popularity of integrated software package is steadily increasing. ES software packages are experiencing rapid worldwide growth. However, ES are huge and complex systems and warrant careful plan and execution to ensure successful implementation. The success of an ES implementation has often been attributed to two facts; the ES is configured and running and the whole project is (more or less) on time and within budget (Rosemann and Wises, 1999). However, this is a narrow view of ES implementation focusing on the hard aspects and reducing it to mere software or IT project. Organizations are becoming engrossed in building and running the technical aspects of their ES to recognize the need, and long-term value, of change and **business process management** (BPM) (Bancroft et al., 1998). Many ES implementation failures have been due to the lack of focus on "the soft issues", i.e. the business process and change management. Hence, the role and impact of BPM Project in successful ES implementation is crucial, and has to be a part of every ES initiative (Al-Mudimgh, 2007).

The Core driver of Business Process Management (BPM) projects is the delivery of enhanced business performance through cost reduction, increased productivity and the ability to turn the business on a dime (agility). It is primarily a business philosophy about people, the way they work together (their business processes), the technology they use, and the performance objectives that these processes underpin. At the same time, BPM technology delivers the ability to make this vision a reality With BPM projects springing up in most firms a robust BPM project capability is now a competitive imperative. For those still standing on the sidelines, it is not a question of if they will engage in BPM oriented projects, just a question of when! To ensure success, it is vitally important that the organization develop a repeatable BPM methodology. At its heart, a methodology is a series of steps that, if followed, will dramatically improve the chances of a successful outcome.

It focuses on ensuring that projects are tackled in the right order; that they are linked to define business objectives; that they are scoped and resourced appropriately; and that they make effective use of available BPM technology (D. Miers, 2006) .

The main question of the thesis is: what are the CSFs in BPM Projects and, is it possible to generate Implementation framework according to CSF. In an effort to remain competitive, there has been an increasing need in organizations to connect the information supplied by each department into a common entity. BPM Projects are used to address this problem of fragmentation as they integrate and streamline internal processes by providing a suite of software modules that cover all functional areas of a business. It appears that much of the literature, however, has focused on success factors with very limited or no regard to stakeholder perspective. For a project implementation team, a more intimate understanding of CSFs of the various stakeholder groups would make it possible to assess the project planning phases and determine if the concerns of these relevant groups are being addressed as effectively as possible. Ultimately, this will enhance the probability of achieving higher success levels and, resultantly, timesaving, cost savings, quality and efficiency in their system. It is further suggested that in order to better manage implementations, focus should be placed on those persons who do not perceive the implementation as being successful. If those with negative perceptions can be identified, and if they belong to predominantly one stakeholder group, it might be possible to concentrate on those CSFs that are important to them and possibly increase the overall likelihood of implementation success. Stakeholder interest in BPM Project success extends beyond the implementation stage, however. Particularly, various stakeholder groups view the new technology as a decision support tool or a method by which they can reinvent their business processes and increase their competitiveness.

In Rockhart's (1979) seminal work surrounding CSFs from the viewpoint of chief executives, he states that the process of identifying CSFs helps to ensure that those factors receive the necessary attention.

As well, he further posits that the procedure allows for clear definition of the type of information that the company needs and moves away from the trap of building a system around data that are easy to collect. Rockhart's (1979) work was based on research by D. Ronald Daniel, who was, according to Rockhart, the first person to discuss "success factors" in the management literature. In Rockhart's view, CSFs were those specifically distinguished areas that an organization needed to "get right" in order for the business to successfully compete. In terms of a BPM Project implementation, the CSFs are those conditions that must be met in order for the implementation process to occur successfully.

There has been some criticism of the CSF approach, however, because it is felt that the approach relied on the opinions of managers only and it was, therefore, biased (Davis, 1980). Munro and Wheeler (1980) responded to this suggested weakness in the CSF approach by identifying a method that would incorporate the ideas of senior middle managers in determining information requirements. Similarly, Boynton and Zmud (1984) suggested that a cross-section of management be interviewed, so that all levels would be incorporated. Even when these weaknesses are addressed, the CSF approach, nevertheless, can still be biased and requires that an interviewer possess advanced skills (Munro, 1983) and that there be careful application of the technique (Boynton and Zmud, 1984). The CSF approach, however, can be further strengthened by allowing for even more widespread consultation within the organization. Given that a new technology can be expected to affect more than just senior managers or cross-sections of managers, it is, therefore, necessary to consider the opinions of all those affected stakeholders groups, regardless of their placement within the organizational chart. If CSFs are those factors that the organization must "get right" in order to achieve success, should not it be necessary to ask all those affected just exactly what "right" is? Further, different facets of an implementation affect some stakeholder groups more than others and some groups are more qualified to comment on certain aspects than others. Through widespread stakeholder consultation, the CSF approach can be strengthened.

These identified weaknesses of the CSF approach, identified by earlier researchers, need to be further explored in terms of how they have been addressed in the BPM literature.

Based on the results of a comprehensive compilation and analysis of BPM implementation success factors, this thesis seeks to present a new agenda to further research on BPM implementation from a stakeholder perspective and to uncover deeper meaning of the strategic and tactical aspects of some of the more widely cited CSFs. In the following sections, the selected research methodology chosen to prepare the compilation will be explained.

This will be followed by a summary of the CSF categories and concepts, as well as a critical analysis of the BPM CSF literature.

2 FUNDAMENTALS

2.1 Brief History of BPM

According to Jeston and Nelis (2008) the road to Business Process Management (BPM) has been a difficult one that has gained from the successes and failures of various other attempts at achieving process-based organizational efficiency. In the 1980s there was a considerable focus on Total Quality Management (TQM). This was followed in the early 1990s by Business Process Reengineering (BPR) as promoted by Hammer and Champy (1990). BPR had a chequered history, with some excellent successes as well as failures. Following BPR in the mid and late 1990s, Enterprise Resource Planning (ERP) systems gained organizational focus and became the next big thing. These were supposed to deliver improved ways for organizations to operate, and were sold by many vendors as the "solution to all your problems". The ERP systems certainly did not solve an organization's process issues, nor make the processes as efficient and effective as they could have been. Towards the end of the 1990s and in the early 2000s, many Customer Relation Management (CRM) systems were rolled out with extensive focus on the customer view and customer experience. While this provided focus on the front office, it did not improve the back-office processes. More recently, Six Sigma has started to come into its own. According to Hammer (1993), "Coming up with the ideas is the easy part, but getting things done is the tough part. The place where these reforms die is... down in the trenches" and who "owns" the trenches? You and I and all the other people. Change imposed on the "trench people" will not succeed without being part of the evolutionary or revolutionary process:

> *Forceful leadership can accomplish only so much. The shift from machine-age bureaucracy to flexible, self-managed teams requires that lots of ordinary managers and workers be psychologically prepared. (Hammer, 1994)*

2.2 Definition

BPM is a strategy for managing and improving the performance of the business through continuous optimization of business processes in a closed-loop cycle of modelling, execution and measurement. In essence BPM is a combination of both a best practice methodology and an integrated technology solution. BPM was created from the business driven evolution and merging of different technology trends. It is easy to see that BPM solutions have evolved technology to run as the business. Many features, in whole or part, were combined to satisfy the BPM lifecycle. And this lifecycle is driven directly by organizational goals. This merging of technologies into a seamless Integrated Design Environment (IDE), provides the level of abstraction needed for both technology and business specialists to "talk" the same language. This is no insignificant feat, as this builds trust as well as agility throughout the organization.

BPM is advocated by its proponents as being different from, and better than what has been available in the past. The major advantages promoted are, as follows:

1. BPM is better than the past options for process improvement. BPM has certainly raised the visibility of process improvement for many organizations. BPM has also focused many academics and consultants back onto processes and several organizations have been created solely to focus on process (e.g. BPMI.org/BPM Group). This is definitely a good thing, as the discussion on standards and BPM in general continues to raise its profile and maturity in the marketplace. Learning from past experience, such as BPR, has also been taken into consideration. The key point is that BPM is only as good as the buy-in you get from the organization and management.

2. BPM uses new and better technology. There are far too few fully automated enterprise-wide BPM implementations to validate this claim at this point in time. Technology should not be the initial focus in a BPM implementation. The initial work should relate to reviewing the current processes with a goal of increased

efficiency and effectiveness. While these new improved processes could (if appropriate) contain suggestions for automation, significant process improvements can be achieved without the use of technology. People become carried away with the „bells and whistles“ and look at what the technology could do for the organization, rather than what it needs to do for the organization.

3. There is a robust methodology to support BPM. There are methodologies for parts of BPM, and few fully developed methodologies for the implementation of a complete BPM solution. Be careful: a methodology or framework can be a millstone as much as a saviour; it is how you use it that matters.

4. BPM is anything but simple. There are many components and elements to a BPM implementation, and one of the purposes of this thesis is to explain this in more detail. You do not need to solve all the organizations process problems in one go with BPM. Start small, with one project. As the organization matures, BPM can be expanded.

5. External people are needed to implement BPM. This very much depends upon the maturity of the organization and the skill levels and experience within an organization. Certainly external consultants can assist either in a coaching or in a consulting role if the organizational maturity and/or skill levels are not sufficient. An experienced external BPM project manager can provide significant project focus that, sometimes, internal project managers are unable to bring to a project.

BPM is not a simple concept nor is it simple to implement – it is extremely complex and difficult. While the introduction of technology can be a useful contributor for many organizations, BPM does not always need technology to be successful. It is far more important to get your processes right before you consider the implementation of technology.

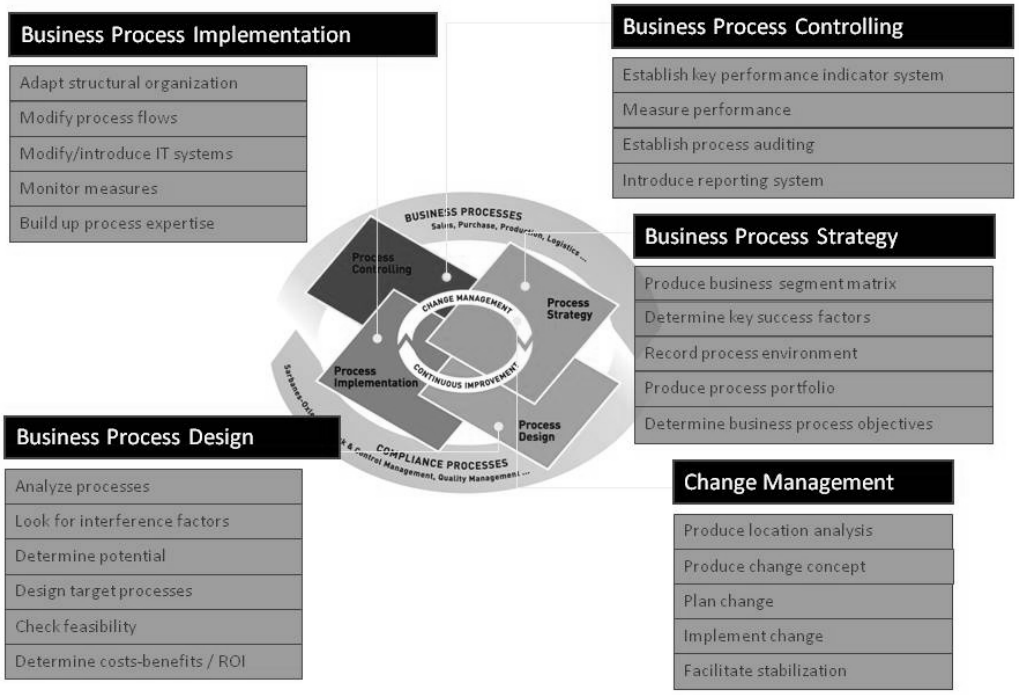

Fig. 1. BPM Life Cycle

2.3 Implementation

The BPM approach understands that the transformation is based on a top-down understanding of the business and its new vision and related goals and objectives, while maintaining that the end user work is the life blood of the organization. The top-down understanding drives the scope and priority of requirements for the bottom up process capture and modelling. The BPM approach provides a common picture of the system as it is to be built. The beauty of this approach is that the people who truly understand the business build the picture of what is needed. Core processes are captured through facilitated sessions, modelled and simulated to allow for a robust to-be process.

The models are shared and enhanced based on now visible automation opportunities. All groups should be able to see their new work roles and how the system will help them, thus providing buy-in and a clear understanding of the road ahead. This picture or model also helps to guide what service inventory artefacts are required from the existing services inventory and where the business needs to invest in new capabilities. A by-product of the visible model is now the business can also see where investment is no longer needed or where the business process is in need of repair.

Icebergs typically only show about 10 percent of their mass above the water. BPM is often like an iceberg; people and organizations only see what is above the water. The interesting observation is that what appears above the surface depends upon the viewer's perception. For example, a vendor sees technology above the surface; a process analyst sees the processes; human resources sees change management; IT sees the technology implementation; business management sees short-term gains (quick wins), cost reductions and simple measures of improvement; and the project manager sees short-term completion of project tasks and the deliverables of the project. People often see the „perception" component as the completion of „pretty pictures" or process models, whereas „reality" is addressed in the implementation of these processes and the achievement of business benefits.

An excellent strategy is of no use unless it is well executed. Unfortunately, a BPM implementation is a multi-faceted activity, and „reality" is what appears below the water line. Unless all the „reality" associated with a BPM implementation is addressed, the risk to the project increases. This „reality" needs not only to be addressed, but also made visible to the organization.

The most important component in any BPM implementation is the management of organizational change and the associated people (staff) impacts. People and their engagement in the implementation are critical, and a holistic approach in meeting the people, cultural and „process factory" aspects of managing an organization is crucial.

The key to engaging the people in the trenches is leadership from their line managers. These line managers must be engaged first. The project manager or project team cannot achieve people engagement on their own. (Note: so what is a „process factory“? Any organization that has a back-office operation that processes a large volume of throughput and has a large number of hand-off points could be referred to as a process factory.) It is the people who will determine the success (or otherwise) of your BPM project. You can have the most effective and efficient new or redesigned processes in the world, but unless you can convince people to use them efficiently or at all then you have nothing. People need to be included as an integral part of the development journey. They need to be consulted, listened to, trained and communicated with on a regular basis. If they do not understand the processes, the reasons for the new processes and why changes to the existing processes are necessary, how do you expect people to take ownership and responsibility for them? People need to understand clearly what is expected of them and how they fit into the new structure and processes. Their performance measures need to be developed in consultation and agreement with them.

What is the role of management in the transformation? While it may seem obvious that managers need to manage the operation of the organization and process factory, this is in fact not what most managers do in their current positions.

With rare exceptions, today’s managers spend most of their time reacting to critical situations and treating the symptoms and not the causes – commonly referred to as „crisis management“. This is not to be critical of managers. In general, they are well-meaning and hard-working individuals who generally do a great job with the tools they have to work with. There needs to be a considerable effort in any BPM project to work with the management and determine what information managers require to manage the business. You need to ensure that there is a deep and thorough understanding of how the business operates; what reports are required, and how to provide information in a timely manner, to enable managers to move from reactive to proactive management and then to

predictive management. It is this journey of management maturity that provides the organization with a long-term continuous and sustainable increase in productivity.

The people change-management components of projects need to address the organizational culture and modify it towards a new set of management behaviours that will translate into the behaviours of the people they manage. To support the drive to implement cultural change, management incentives need to be aligned with the management information available, the process goals and organizational strategy. Incentives and targets via performance measurement need to be well known and realistic. They must also allow the best performers to overachieve, and the rewards need to be worthwhile. This does not always translate as money incentives; human resource departments can be very creative in providing other non-monetary options. The challenge is how to measure this change in an effective and acceptable way.

The core business models become the basis for more formal use case and requirements activities. Requirements can be derived directly from the models providing requirements traceability and the probability clearer priority weighting of the requirements. The models will also identify pain points for the end users and now visible Return On Investment (ROI) areas. Iterative development techniques can be used to tackle prioritized pain points and (ROI) areas to provide bite size chucks value.

The models and the BPM approach also allow the EIT and CXO groups to see where iterative development concepts can be used. Being able to now see where your biggest returns are is a significant aid in the planning and development process. Also, by iterating the development effort the business can shorten the development cycles and better steer the overall activities against objectives and overall vision.

Most BPM tools provide an Integrated Development Environment (IDE) which enables the CXO and EIT groups to work together in one tool using a common set of models.

Some BPM tools even provide a very good level of integration capability right out of the box, such as Introspection of back-end services. The introspection and included code libraries make development easier by providing syntactical examples and a standards-based platform for developers to work from. BPM tools also allow for the monitoring of Key Performance Measures of the business in real or near real time without too much development effort. In some cases the CXO group would have tools to answer even the "What if" questions based on data captured from the live processes or simulations. By bringing all groups together, iterating development cycles, providing standards-based development and working from the common picture, BPM tools will help to create a smooth transformation to the new business vision for success.

Now that the business flows have been captured, everyone is on the same page, and the services or capabilities have been identified, the processes can be brought to life with the BPM tool suite that allows not only for the business process automation, but also allows for ease of enterprise integration with back-end services. Executable models can be built and deployed over many servers spanning many geographic areas that allow the business to grow and transform no matter its size. It is also never too late to think about the metrics you need from the system. What business questions do you need to answer at which level? How will the answers be presented so that all level may take the correct action quickly based on real data? Even though transformation is hard for all businesses, the use of proper technologies like BPM will help businesses avoid the train wrecks.

2.4 BPM Centre of Excellence

Gartner predicts that by 2008, over 30 percent of the Global 2000 will implement BPM Centres of Excellence to support the rapid growth and adoption of enterprise-wide BPM initiatives[1]. Much of this growth will be fuelled by public and private sector organizations embracing BPM as the most effective approach to improving organizational efficiency, collaboration, and competitive advantage.

In most organizations, the BPM Centre of Excellence (BPM CoE) serves as the program office for coordinating, prioritizing, and implementing mission-critical BPM projects across the enterprise. In addition, the BPM CoE provides basic governance guidelines for analyzing, implementing, and improving internal business processes. The need for establishing a centralized BPM program office grew out of political conflicts that were encountered as processes were automated across various departmental and system boundaries. As organizations began to roll out numerous enterprise-wide BPM solutions, they found it effective to consolidate key roles, best practices, and toolsets into a single BPM CoE. In order to establish successful BPM CoEs, organizations must strive to achieve three major goals:

Sustainability—BPM CoEs must put in place the organizational structures to sustain the cross-department collaboration and momentum for BPM to continue beyond the initial projects, when enthusiasm and commitment are naturally strong.

Scalability—Many organizations have ambitious goals for BPM initiatives and are looking to implement and maintain several BPM projects in parallel. This means creating a CoE framework that can scale to meet their respective visions for BPM.

Collaborative Implementation Methodology—BPM is a new discipline that requires IT and business departments to collaborate and partner in new ways. Organizations must upgrade their implementation methodology to provide a platform for effective collaboration and rapid execution of BPM solutions.

The first generation of BPM CoEs emphasized the need for governance and basic guidelines on how departments should work together to deliver BPM solutions. However, the next generation of BPM CoEs must focus on establishing best practices, skills, and methodologies that are both scalable and sustainable over the long-term.

2.5 Conclusion

Many people are still confused about what constitutes BPM, which is not surprising when the BPM community itself has not yet agreed on a common definition and approach. BPM is all about the efficient and effective management of business processes – people are at the centre of business processes, so make them part of the solution. As Stephen Schwarts from IBM, stated so well: „We had improvement programs, but the real difference came when we decided it was no longer a program, it was a business strategy“. Most of BPM authorities believe this is one of the keys to a successful BPM implementation. Without trivializing the work involved in the implementation, the project is the easy part. It is the institutionalization of process improvement as a fundamental management practice that is the key, and this cannot be effectively achieved without the ability to manage your processes proactively and predicatively.

3 STATE OF THE ART

3.1 Introduction

This section is based on Spurway (2008) succinct annotations on BPM perspective. The BPM industry is awash in hype right now. Industry trade shows draw larger and larger attendance. Media coverage of the space is greater than ever. Major analysts continue to expand their BPM-related practice groups. An entire BPM professional ecosystem has developed on a large scale in just the last three or four years. Even so, overall market growth for BPM software, measured by the larger public BPM companies that come primarily from the integration side of the market seems to be lagging. Part of the problem is that BPM as an industry is burdened by dated license and revenue models that are more mid-nineties than late two-thousands. BPM continues to be sold in large, lumpy perpetual license deals by expensive direct sales forces, while the rest of the software industry has moved to software-as-a-service, pay-as-you-go models. A typical BPM implementation is less expensive and less time consuming in terms of both human and hardware resources than traditional enterprise applications like ERP or CRM, yet ease of implementation and time to value lags far behind models like Salesforce.com which have now become mainstream. Business model issues are not solely responsible for the lag in adoption. Simply delivering a hosted, on-demand BPM variant is not a panacea for solving BPM's adoption issues. On the contrary, every effort to deliver SaaS-based BPM to date has failed because BPM as a technology where the value is inextricably linked to integration services is ill-suited to a SaaS model.

To truly understand the state of the BPM industry today and the reasons why BPM continues to have such a high hype-to-reality ratio, it's critical to look beyond the marketing to understand how BPM is actually being used in the real world. The state of the market reveals itself when the practical use cases of BPM are examined. Today's cases also tell us a great deal about how the technology needs to evolve going forward.

The big marketing myth of BPM is that it is all about process improvement. The core value proposition articulated by every marketing department of every mainstream BPM company includes continuous process improvement, process flexibility, and enterprise agility. Yet the promise of process improvement does not seem to be the sales driver for most real BPM deals. Here the evidence suggests that companies aren't buying BPM for its process improvement benefits. If they were, more organizations would be interested in simulation functionality, which is essential to optimizing the behaviour of modelled processes. Integrated simulation remains the functional basement of the BPM suite market. BPM deals are rarely impacted by a BPM suite's integrated simulation capability, and BPM vendors have very rationally responded to the general lack of interest in this area by de-prioritizing simulation investment.

If BPM isn't really all about process improvement, why do organizations purchase it? A review of actual, practical usage of BPM suites today suggests an interesting reality. BPM suites are used primarily for two purposes: application integration and application development. Companies choose to go with BPM when it is the most cost-effective option in one of these areas. Process improvement and optimization is at best considered an ancillary benefit. Notably, Forrester breaks up the market in this way, featuring two different Wave evaluations for *"integration-centric"* BPM and for *"human-centric"* BPM. The latter category represents the application development use case, which typically requires a higher-level support for human-process interaction. This segmentation of the market is becoming increasingly artificial as the two different foci of BPM vendors continue to converge in integrated suites. Nevertheless, Forrester's bifurcation implicitly recognizes that these two use cases are really what BPM is all about.

3.2 Application Integration with BPM

The integration-centric use case represents the majority of BPM market activity by dollar volume. However, it's easy to overestimate the real growth in this market. Sales

of BPM technology for integration purposes are dominated by existing integration vendors such as *TIBCO*, *WebMethods* (now *Software AG*), *IBM*, and *BEA Systems*. As a result, it's difficult to quantify what represents organic growth of the market in this area versus simple substitution away from older integration technologies towards BPM. In some cases, the actual integration technology delivered by these vendors in a BPM sale has changed very little – adding focus on a graphical modelling tool and support for BPEL does not make a BPM suite – but their marketing has shifted to take advantage of the BPM hype. Those integration vendors that have done acquisitions (*TIBCO plus Staffware; BEA plus Fuego*) are most likely deriving the bulk of their "BPM" revenue from sales of pre-acquisition integration technology, not from sales of technology from the acquired companies. The benefits of BPM for application integration are clear and have been well articulated elsewhere. The big opportunity for BPM is not to supersede existing integration technologies. Given BPM's inherent ease-of-use advantage (with a graphical model based on a known standard that is portable across different BPM engines), the fact that BPM is a natural compliment to a SOA, and the fact that by now all the market leaders have transformed themselves into BPM vendors, it is inevitable that BPM-type approaches will dominate this market. The true upside opportunity for BPM is to evolve into a platform that supports rapid application development, change, and integration with a visual model-centric paradigm that represents a clear advantage over previous application development approaches.

3.3 Application Development with BPM

On the application development side, BPM is being applied primarily in custom application development. The potential market for custom applications is a large one, but the penetration of that market to date has been lacklustre. Most organizations remain very much in the "learning about" BPM phase; some have crossed into "experimenting with" BPM; only a very few have widely deployed it in this application development context. There are a number of common use cases typically seen in this market, all of

which feature prominently in the announced deals of most BPM vendors. These use cases include loan origination, case management, claims management, and other types of exception management. It's interesting to note that these are generally document-centric processes that can be supported by the traditional human interfaces of BPMSs – task lists and forms. This seems to signal that the technology in this area is still relatively immature. Some BPM vendors have started to evolve their application development capabilities to the next level. Lombardi has delivered greater sophistication in terms of its support for extensible and easily maintainable data models. Appian has delivered user interface innovations that enable development of BPM-based applications that look and function like traditional purpose-built enterprise applications. Breaking the "task list and forms" paradigm is an exciting development that could substantially expand the list of application development use cases for BPM into more transactional processes typically owned by ERP, CRM, and SCM. If hosted BPM is ever good for anything, it will most likely make its mark based on its potential for application development – specifically, development of standalone apps that only require relatively simple, web-service based integration. Unfortunately, completely codeless application development is still a ways off for even the most advanced BPM suites. Given the state of the art in BPM today, if hosted BPM takes off at all it will need to be driven by largely pre-built application templates and a delivery model similar to Salesforce's AppExchange, but with more powerful process flexibility for end-user customers.

3.4 Standards, Approaches

The major problem the BPM industry confronts is process modeller adoption. People simply are not adopting graphical process modelling as a business methodology en masse. Modelling takes training. IT users that can readily grasp mapping data flows and transformations using visual tools must be trained in how these techniques extend to describe human-to-system interactions. And business users that are trained to model cannot develop executable models in BPMSs because executable models require further

skill in data modelling and integration technologies to create. Couple these gaps to the inevitable challenges organizations have always had in bringing together members from disparate organizational groups to define cross-functional business processes, and it's easy to see why adoption of process modelling is nascent. In the real world, "process analysts" titles are about as rare as hens' teeth, and where they do exist it is in the relatively rarefied air of the world's largest financial and manufacturing corporations. The BPM industry has only just begun to address this critical hype-to-reality gap. There are a number of notable approaches here to date:

Standards. In this area, one standard rises above all others: BPMN. The emergence of BPMN as the widely accepted lingua franca for process notation is a critical step. However, BPMN notation has to date gained little traction outside the relatively small BPM community. Business users are highly unlikely to spontaneously adopt BPMN notation the way they spontaneously adopted the spreadsheet almost thirty years ago. XPDL, the XML Process Definition Language developed by the Workflow Management Coalition, provides serialization of BPMN process models, and interchange format transferring models between applications. Yet it similarly suffers from a lack of visibility outside of the BPM community. The BPEL specification is incomplete, failing to encompass human-to-process interaction, and is primarily a specialized tool for IT users in an application integration context.

Figure 1 provides an overview of some of the standards that we would consider if we were talking to a company about BPM standards. It is by no means comprehensive, but it does identify most of the currently popular standards.

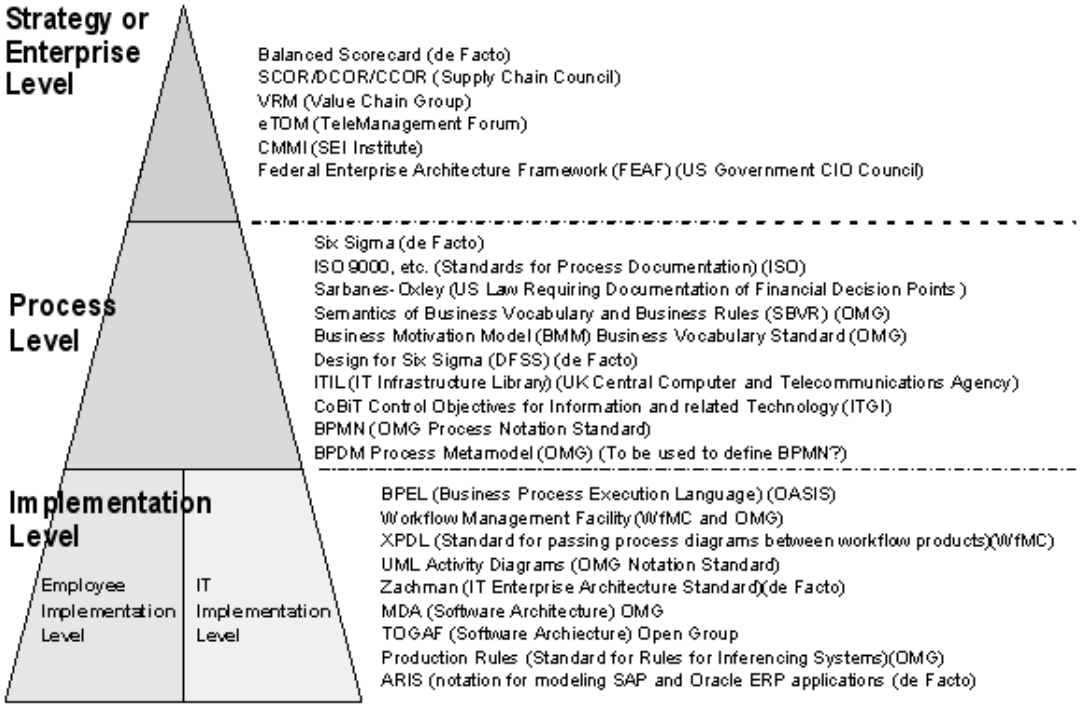

Fig. 2. Some BPM standards

Free Modellers. There are a few BPM vendors that are now offering free process modellers and related tools in an effort to drive adoption and encourage sales leads. The early innovator in this area was Savvion, with its free downloadable modeller. More recently, Lombardi Software has released an innovative new hosted tool, called Blueprint. Blueprint is not actually a modeller per se, but rather a process capture tool. Lombardi's marketing says it best: "Most process analysis and modelling tools make process discovery very difficult.

They are complex or unstructured or do not foster collaboration." In effect, Lombardi Blueprint takes the modelling out of process modelling. Simplified interfaces capture information such as process participants, inputs and outputs, forms, and metrics. Once captured, these are automatically consolidated into a BPMN-graphical model. The idea is to drastically simplify the challenges of process documentation. If successful, the

concept would seem to eliminate the need for basic business user training in process modelling. But the strategy completely ignores the integration and data model complexity in developing executable process models.

Communities and Social Network-based Approaches. Again, Savvion has taken the lead in this area, with significantly less success than their free modeller download. Savvion's ProcessXChange is an interesting concept, but for all intents and purposes it was stillborn. A visit to the site a full year after its launch reveals almost no use or activity. There is very little activity on the discussion forums and no strong indication of significant user interest in the process models that Savvion has pre-loaded into the site.

Until the modelling adoption problem is solved – and until modelling itself becomes much easier – BPM adoption will continue to lag, the bulk of BPM implementations will continue to focus on integration, and the BPM market (human-centric BPM in particular) will never achieve explosive growth.

3.5 Conclusions

For companies considering a BPM investment, IT should lead the charge. Vendor hype has created market confusion about the proper role of IT with respect to BPM. BPM is not a threat to IT. BPM will never enable model-savvy line of business owners to displace IT from its role in developing, integrating, and maintaining enterprise applications.

On the contrary, BPM is a technology that should enable IT to engage more proactively with line of business operations. The process model-as-executable will inevitably be owned by IT, but the process model-as-business description can easily be a shared, visual communication mechanism that brings business and IT closer together. IT should be proactive in engaging and training business users in how to at least understand modelling notation and the benefits derived from taking a model-centric approach to

application development and integration. By taking an active role in education and thought leadership, IT will also firmly position itself as the gatekeeper between an increasingly process-aware enterprise and the process-based applications that form its backbone.

4 RESEARCH METHODOLOGY AND DATA COLLECTION

The purpose of this study is to develop a BPM Project delivery framework based on critical success factors (CSF).

A literature review was conducted to understand the critical success factors in successful BPM implementation. The review covered numerous published books and articles, case studies and looking at the experiences of several organizations.

After presenting a summary of the identified success factors, a combined quantitative and qualitative research methodology focusing on multiply case studies examines these critical factors in more depth. This thesis presents an extensive literature review based on the experiences of both academics and practitioners on BPM Implementation Projects. The results of the study are based primarily on descriptive statistics. Existing studies on CSFs were reviewed and their limitations were identified. By integrating insights drawn from these studies as well as adding some new factors, the author proposed a set of CSFs which is believed to be more suitable for BPM delivery framework. The importance of the proposed CSFs was theoretically discussed and justified. In addition, an empirical assessment was conducted to evaluate the extent of success of this proposition.

A qualitative case study technique has been used in this paper for data collection to gain insights into the topic being investigated. For that, “grounded theory” research approach has been selected by which the collected data from real case studies (successful organizations in BPM adoption) are categorized and analyzed through specific stages. The extracted concepts can demonstrate critical success factors of BPM implementation within organizations.

Hundreds of journals were searched using key terms identified in a preliminary literature review.

Successive rounds of article abstract reviews resulted in 49 articles being selected for the compilation. CSF constructs were then identified using content analysis methodology and an inductive coding technique. A subsequent critical analysis identified gaps in the literature base. Utilizing a conceptual analysis approach, this comprehensive literature review has involved extensive note taking that has highlighted any and all possible references to CSFs. As mentioned previously, a CSF is defined as reference to any condition or element that was deemed necessary in order for the BPM implementation to occur successfully. Those articles containing reference to CSFs of BPM implementations were then analyzed in more depth for the purpose of coding the identified constructs. This part of the analysis involved differentiating and combining the data collected (Miles and Huberman, 1994). Emphasis was placed not on the words themselves but rather the meaning of the words. Therefore, all CSFs, regardless of description, were noted with the understanding that the sorting phase would begin to place CSFs in like categories. This involved an inductive coding technique:

> *Open coding is the part of analysis that pertains specifically to the naming and categorizing of phenomena through close examination of data. During open coding, the data are broken down into discrete parts, closely examined, compared for similarities and differences, and questions are asked about the phenomena as reflected in the data (Strauss and Corbin, 1990.)*

Part of this methodology also involved the technique described by Strauss and Corbin (1990b) that suggests the preparation of qualitative data category cards. Utilizing a bibliographic software program, coded constructs were recorded as they appeared in individual journal articles. Further, each noted construct was placed in a spreadsheet file that recorded the frequencies of each. Given that the goal of this study was to gain a depth of understanding of the various CSFs already identified by other researchers, content analysis was an appropriate analysis approach. As suggested by Silverman (2000), it is the most common technique when analyzing texts.

Silverman has also made another very insightful comment with respect to one's approach when coding, which is that "every way of seeing is also a way of not seeing". Therefore, he further suggests that "a good coding scheme would reflect a search for 'uncategorized activities' so that they could be accounted for, in a manner similar to searching for deviant cases". As a result, this analysis has also searched for references to "success" factors that may not have necessarily been identified as such. This is part of the reason why some of the search terms used to select the articles did not always include "success," "critical success factor," etc.

5 MAIN PART

5.1 Introduction

What is BPM? This is a question that needs to he asked and addressed right at the very beginning to ensure that we have a common understanding. There are as many answers to this question as there are vendors, analysts, researchers, academics, commentators and customers. BPM does *not* equate to a technology tool or initiative for business processes. There is significant business process improvement that can be achieved without technology. Can BPM involve technology, and is technology a good thing? Absolutely yes; in the right circumstances and when it can be justified. Are process modelling and management tools useful for achieving process improvements in non-technology circumstances? If the tools referred to are process-modelling tools, then yes, they can be extremely useful in this process. In fact, it is difficult to complete complex process improvement projects in a time-effective manner without the use of these tools. There is a danger of organizations believing that once they have purchased a process-modelling tool, it will solve all their problems and the process improvements will just follow. Nothing could be further from the truth. A process-modelling tool is just a piece of software, and without a methodology or framework, skilled resources to use it and a genuine commitment from organizational leadership, it is useless.

BPM is just like many other three-letter abbreviations in the recent past, such as CRM and ERP, which have been misused and misinterpreted. Currently, BPM is being used by:

- Some vendors who only focus on the technology solution of process improvement
- Other vendors who think of BPM as business process modelling or business performance management

- Some consultants who use BPM to continue their message on BPR
- Some managers who want to jump on the BPM bandwagon, with no idea where it is going
- Some process analysts who use BPM to inflate their process-modelling aspirations.

Many of the industry commentators and vendors provide definitions that specify technology (automation tools) as an essential component of BPM – in fact; they say that BPM is technology. However, if you take a simple and commonsense view of BPM, it is obviously about the *management of business processes.* With this simple statement in mind and the organization as the primary focus, BPM is:

> "The achievement of an organisation's objectives through the improvement, management and control of essential business processes"

There is a currently a movement towards an agreement that BPM is about the management of business processes. Paul Harmon, of Business Process Trends, recently defined BPM "as a management discipline focused on improving corporate performance by managing a company's business processes" (Harmon, 2005a). Thus, process management is all integrated part of "normal" management. It is important for leadership and management to recognize that there is no finish line for the improvement of business processes; it is a program that must be continually maintained.
BPM is:

- More than just software
- More than just improving or reengineering your processes - it also deals with the managerial issues
- Not just hype - it is an integral part of management
- More than just modelling - it is also about the implementation and execution of these processes, which requires analysis.

As a management discipline, BPM requires all end-to-end organizational view and a great deal of common sense, both of which can often be in short supply.

The CSF approach to management has existed for some considerable time, with Daniel's (1961) work regarded as perhaps one of its earliest proponents. Historically, it has been applied extensively to the information systems (IS) field (Brotherton and Leslie, 1991; Davis, 1979; Edwards et al., 1991; Ghymn and King, 1976; Hickey, 1993; Robson, 1994; Rockart, 1979; Tozer, 1988; Ward et al., 1990). More recently, it has been applied beyond the IS field and used as a more "generic" approach to management, particularly within strategic and operational planning/management (Black, 1990; Devlin, 1989; Grunert and Ellegaard, 1993; Hardaker and Ward, 1987; Leidecker and Bruno, 1984; Sousa de Vasconcellos, 1988). It has also been associated with core competency (Hooley and Saunders, 1993; Lowes et al., 1994), value chain (Johnson and Scholes, 1993) and business process (Ward, 1992; Watson, 1993) perspectives. Others have applied it to the creation of a learning organisation (Rosemblum and Keller, 1994); used it as the basis for a world class manufacturing business to attain a European Quality Award for total quality management (Quality Today, 1995); distilled the "common traits" underlying the most successful retailers in the USA (Berry et al., 1997); and suggested that the successful internationalisation of a retail format is based on three CSFs (Dupuis and Prime, 1996). However, despite this range of application it does have a generic essence, which Brotherton and Shaw (1996, p. 114) suggest as: "Focused Specialisation, i.e. the concentration of resources and effort upon those factors capable of providing the greatest competitive leverage". Nevertheless, the question remains, what are CSFs? Basically, CSFs are the factors that must be achieved if the company's overall goals are to be attained. They may be derived from the features of a particular company's internal environment, i.e. its products, processes, people, and possibly structures, and are a reflection of a company's specific core capabilities and competencies critical for competitive advantage (Berry et al., 1997; Duchessi et al.,

1989; Van der Meer and Calori, 1989). However, the CSFs facing any given company will also be determined by the nature of the external environment it faces. One feature of these external CSFs is that they: "are less controllable than the internal ones, though they may still be subject to varying degrees of measurement and control" (Brotherton and Shaw, 1996, p. 115).

CSFs may also be viewed in terms of their generality. Some situation or contexts are specific while others are generic to a given combination of industrial/market/broader environmental conditions (Geller, 1985a). Rockart (1979) also categorised CSFs into short-term (monitoring) and long-term (building) activities. Grunert and Ellegaard (1993) have distinguished between conjunctive or compensatory and perceived or actual CSFs and Ketelhohn (1998) discusses the differences between industry or strategic and operational CSFs, a distinction that mirrors the context specific-generic dichotomy referred to above. Finally, Griffin (1995) provides a range of different categorisations related specifically to CSFs within an IS context.

5.2 Data collection procedures

The actual data collection procedure for the CSF compilation followed the eight category coding steps:

Step 1: decide the level of analysis. This stage involved deciding whether to search for a single word, set of words or phrases. Similarly, Berg (2004) states that the first step of content analysis is to determine at what level the sample will be chosen and what units of analysis will be counted. For the current research, the unit of analysis or level of analysis involved entire journal articles.

The data collection phase of the literature review has involved an exhaustive search of many of the more prominent MIS journals including, but not limited to, those outlined in below:

- Journal of Management Information Systems.
- MIS Quarterly.
- Information Systems Research.
- Management Science.
- IEEE Journals.
- Information Systems Management.
- European Journal of Information Systems.
- Business Process Management Journal.
- Information Systems Management.

In addition to, the preceding journals, the following databases were searched:

ABI/Inform Global, CBCA Business, Proquest Computing, Proquest European Business, Web of Science and J Stor.

Collectively, these databases include hundreds of a journal that are categorized as belonging to the business/IS field. Articles were selected from the search results that had used the search terms and conditions outlined in below:

Business Process Management

Critical success factors BPM Project

Critical success factors BPM Implementation

Success factors BPM

Critical success factors ERP Project

Critical success factors ERP Implementation

Success factors ERP

BPM implementation

BPM success

BPM implementation success

ERP implementation success

Critical success factors “AND” BPM

BPM Project “AND” success

BPM Project “AND” implementation

BPM “AND” success

BPR “AND” success

BPR Project “AND” success

Keywords selected for this search were, in fact, chosen from the keywords supplied by the authors of some of the relevant articles identified in a preliminary literature review. As well, because of the uniqueness of a BPM, the focus has been only on BPM, ERP and BPR and not other types of IS systems or Projects (data warehouse, DSS, etc.) Finally, as would be expected, the searches were limited to only those journals that were peer-reviewed or scholarly. The actual selection of the article for inclusion in the compilation was dependent upon the researcher’s decision after reading the article abstract and title. If it were determined that the article could possibly contain information that would be indicative of BPM implementation success factors, then the article was selected for further review.

Step 2: decide how many steps to code for. This stage of the coding process involved determining whether to code for a specific pre-determined set of concepts or to allow for a more interactive coding approach. It was decided that the more interactive, inductive approach would be most appropriate as it would allow for absolute inclusion of all identified CSFs. Berg states that theoretical classes are those that "emerge in the course of analyzing the data". As mentioned, the classes to emerge in this research included the categories of critical success factors as they exist in the literature.

Step 3: decide whether to code for existence or frequency of a concept. In this stage of the coding process, it was decided to code for the frequency of the concepts. By expanding the process to consider the frequency of concepts, the researcher can gain a better understanding of the relative importance of the factors.

Step 4: decide on how you will distinguish among concepts. During this step, it was necessary to decide whether concepts were to be coded exactly as they appeared, or if they could be recorded in some altered or collapsed form. In short, this stage referred to the level of generalization of terms. Specifically, in this research, any words that implied the same meaning were categorized under the same construct. For instance, "management support" and "management advocacy" have similar meanings and were placed within the same category.

Step5: develop rules for coding your texts. To ensure consistency, and thus internal validity when coding, it was necessary to establish a set of translations rules that could be applied throughout the coding process. The following translations rules were developed and applied:

- All articles were read for the first time and emphasis was placed on noting any reference to a possible "success factor." All highlighted concepts were recorded in the bibliographic program. It is important to note that categories were not yet determined at this point. In terms of "success factors" and how they are defined, Williams and Ramaprasad (1996) have offered four degrees

of criticality: factors linked to success by a known causal mechanism; factors necessary and sufficient for success; factors necessary for success; and factors associated with success. This compilation included factors considered both necessary for and associated with success. To limit the compilation to only those factors that have been empirically proven to produce success would be too restrictive. In addition, this aspect of the data collection involved making a note of the chosen methodology, as well as the consideration or lack of stakeholder perspective regarding CSFs.

- All article notes were then re-read in an attempt to determine similarity in concepts. Similar concepts were then placed in like categories.

- Each category was then examined, and concepts were thoroughly reviewed again to determine if it were possible to collapse or subdivide and establish any additional categories.

- Once all categories were finalized, concepts were then reviewed in an attempt to determine construct terms. These might have come from one of the coded terms or it might have been an entirely new construct term.

Step 6: decide what to do with "irrelevant" information. This stage involved determining what to do with information in the text that was not coded.

Because this literature compilation focused on the assemblage of all concepts considered success factors in BPM implementations, the content analysis included the entire document; however, it actually coded only those aspects of the text that clearly noted possible success criteria. Therefore, the question of what to do with irrelevant coded information did not become an issue.

Step 7: code the texts. During this stage, the actual coding process was conducted using a manual technique. All translation rules identified in step 5 were followed. Strauss and

Corbin (1990a, p. 67) states that with respect to the name attached to the category, "it is usually the one that seems most logically related to the data it represents, and it should be graphic enough to remind you quickly of its referent."

Step 8: analyze your results. The actual analysis stage involved reviewing the constructs in terms of frequency as well as a critical evaluation of the CSF approach. These results will be reviewed in the following sections.

5.3 Discovering categories

A total of 69 articles and 7 books were reviewed and 49 were considered to contain "success factors" applicable to the research at hand. The first stage of the analysis involved categorizing or grouping like concepts into like categories. Success factors that, at least initially, appeared to refer to the same phenomenon were grouped together. At this point, the proposed relationship was still considered provisional. After completion of this stage, 37 possible success factor categories were identified. A successive round of analysis of the concepts resulted in the collapsing of several categories, producing 21 CSF categories in total.

5.4 Naming categories

In selecting names to identify each category, an attempt was made to make the name graphic enough to allow the reader to determine its referent. However, the selected category names are more abstract than the concepts they represent. In some instances, the selected category name was chosen from the pool of concepts. In other instances, the selected name was borrowed from technical terminology frequently used in the literature. Strauss and Corbin (1990a) also warn, however, of the dangers of using borrowed terms and suggest that a researcher be precise about the meanings of the terms. Considering the research of Holland and Light (1999), it was decided to group the factors into strategic and tactical categories. Strategic factors are those that address the

larger picture, and involve the breakdown of goals into do-able elements. Tactical factors, on the other hand, involve skilful methods and details. Specifically, they address accomplishing the various strategic elements that lead to achieving the goal. The final 21 categories of critical success factors of BPM Project implementations are, depicted according to number of instances cited in literature:

Strategic critical success factors

1. Top management commitment and support
2. BPM strong leadership
3. Change management
4. Reusable-repeatable project methodology
5. Linkage to organizational strategy
6. Managing cultural change
7. Flexible BPMS tool
8. Project management
9. Implementation strategy and timeframe

Tactical critical success factors

1. Balanced team
2. Project team: the best and brightest, cohesive
3. Communication plan, success communication
4. Project champion, Empowered decision makers

5. Team morale and motivation
6. Common view of the overall process
7. Begin with valuable, manageable, cross-functional projects
8. Legacy IT system consideration and IT infrastructure
9. Client consultation
10. Consultant selection and relationship
11. Training and job redesign
12. Troubleshooting – Post implementation evaluation

5.5 Understanding the CSF categories and their concepts

As discussed previously, the reality of implementing a BPM solution is far more complex than it first appears to be. A BPM project has the potential to (and usually does) cut across department and, increasingly, organization boundaries, as clients, vendors and partners become more involved. It will involve many varying and complex stakeholder relationships both inside and outside the organization. While each project will be unique and have its own characteristic success factors, 22 identified strategic and tactical critical success factors may take application and apply to all BPM projects. Each identified construct is outlined below with a detailed description of the concepts it represents.

Top management commitment and support was one of the two most widely cited CSFs. This concept referred to the need to have committed leadership at the top management level. In addition, this concept referred to the need for management to anticipate any glitches that might be encountered and the need for senior management who would be involved in the strategic planning, but who are also technically orientated. Many authors from different companies and academic institutions empirically proved

that strong and committed leadership at the top management level is essential to the success of a BPM implementation.

BPM strong leadership is second most widely cited CSF**.** Much has been written about leadership in a BPM context. It has been suggested that unless you have the undivided and total support of the CEO, you should not attempt any BPM projects. The reality is that few CEOs are yet at the point of turning their organizations into totally process-centric businesses. While there is undeniably a growing awareness of the importance of processes to organizations, there is still a long way to go. Leadership does not always equate to the CEO; there are many leaders within an organization, some of whom are experimenting with BPM projects. Leadership in this context means having the *attention, support, funding, commitment* and *time* of the leader involved in the BPM project. Obviously, the degree of each of these will vary according to the BPM maturity of the organization and leader. These factors will also have input into the type of BPM project taking place - projects can range from pilots and larger "experiments" to full-blown divisional or organizational implementations.

Time is critical to the project, and does not mean that the leader "turns up" to project steering committee meetings once a month. The time commitment will involve the leader supporting the project amongst colleagues, stakeholders, customers, suppliers and the people within the organization. The leader is the "head sales person" for BPM, and will need continually to "sell" the expected benefits and outcomes and "walk the talk" of BPM. Because BPM implementations require process, technology, and people changes, it's critical to have the right type of person leading the effort. Forrester believes that a BPM champion needs to be an executive who can do three things:

1) create and share a vision;

2) overcome inertia and organizational obstacles;

3) and energize a team through results.

Change management - Change management is the other most widely cited critical success factor. This concept refers to the need for the implementation team to formally prepare a change management program and be conscious of the need to consider the implications of such a project. One key task is to build user acceptance of the project and a positive employee attitude. This might be accomplished through education about the benefits and need for a BPM approach. Part of this building of user acceptance should also involve securing the support of opinion leaders throughout the organization. There is also a need for the team leader to effectively negotiate between various political turfs. Many authors stress that in planning the BPM project, it must be looked upon as a change management initiative not an IT initiative. Processes are executed either by people, or by people supported by technology. It is people who will make or break the implementation of a BPM project, and unless they are "on board" and supporting the project, the chances of failure are high. Human change management can occupy anywhere from 25 to 35 percent of project time, tasks and effort. How often do you hear it said that "people are our greatest assets"?

Yet most organizations spend less than 1 percent of project budgets on the people aspects of the project. This is simply not enough in any project, and with the increased impact upon people of processes, this percentage must increase substantially. The project team needs to spend a great deal of time and effort on human change management. The people aspects of every process change and activity need to be assessed and acted upon in an understanding and sympathetic manner. People are impacted significantly by BPM project. Their roles may well change quite dramatically with changing tasks and activities. Perhaps they are to be performance managed and measured for the first time. Business team leaders may have to actually "manage" their processes, work volumes and capacity plan for the first time. These team leaders and staff will need support, not just through traditional training but also via one-on-one coaching and guidance. Team leaders, as their managers, are often forced into the role of "fire fighter", where they rarely have time to work on the processes and coach their staff. People are an organization's greatest asset, so they should not be judged on their performance until the

systems (processes) and structure have been changed to support the BPM project. Only then can a person's performance be assessed. Once the processes, people roles, structure and people performance measurements and feedback systems have been redesigned and implemented, personnel should be trusted and empowered to do their job. They should be provided with an environment in which to work that allows for their creativity and flexibility to perform, provided they have been set and understand their role, goals and targets.

Reusable-repeatable Project Methodology - To ensure success, it is vitally important to develop and implement a reusable-repeatable BPM Project methodology. At its heart, a methodology is a series of steps that, if followed, will dramatically improve the chances of a successful outcome. A part of this overall BPM methodology is the "BPM Project Framework". This component of the BPM methodology establishes the guidelines for those tasked with managing and delivering individual BPM projects.

It focuses on ensuring that projects are tackled in the right order; that they are linked to defined business objectives; that they are scoped and resourced appropriately; and that they make effective use of available BPM technology. The BPM Project Framework should first focus on targeting a relatively simple, achievable project with a clear business benefit. Concentrating on a short, tightly scoped project allows the team to prove the viability of the BPM approach while building skills and experience. These aspects of the BPM Project Framework are important as they enable the BPM program to demonstrate success and establish credibility within the organization before moving on to more demanding initiatives. Reusable methodology varied from traditional waterfall and other development methods in two major ways: The first difference is that reusable methodology is *process-centric*. The efforts are focused around individual processes — so discussions and tasks are oriented around the process to be improved and managed rather than on a particular technology or system design. The second difference is *end-to-end collaboration*. Process improvement teams ensure that the right parties are involved, and expect them to share their appropriate expertise and

knowledge. How do they do this? Every team member has an ownership stake in the project — exhibited by the fact that all core team members make the final approval for process implementation. Expectations are explicitly set at the beginning of a project, and the team won't undertake projects where involved parties are not fully committed to collaboration.

Linkage to organizational strategy - Projects are created to add value to the execution of the organization strategy and objectives. If this is not the case the project should not exist, unless it has been specifically planned as a tactical short-term solution. Tactical short-term solutions can be extremely dangerous, however. How often have we all seen a tactical solution twenty years later, so ingrained into the fabric of the organization that it is extremely difficult to replace? Managers look at the tactical solution to solve an immediate problem and then their attention is diverted to other issues and they never get the time to refocus upon the original problem, resulting in a string of tactical solutions which become, over time, a significant operational challenge. Organization strategy is the common ground which ensures that all people involved are working towards the same objectives.

Managing cultural change - This category could effectively be considered a subcategory of change management; however, given the number of citations that dealt specifically with the issue of cultural change, it was decided to consider it as a separate CSF. Davison (2002) suggests that there is a critical need to be consciously aware of the cultural differences and preferences from both organizational and geographical perspectives. Therefore, it is necessary to understand the business characteristics (Tarafdar and Roy, 2003) and the need for a culture that is conducive to change (Nah et al., 2001). Adoption costs from the perspectives of all stakeholders must be reduced as much as possible (Aladwani, 2001). Finally, consideration must be given to the identification and usage of strategies that are necessary to implement cultural change (Skok and Legge, 2002).

Flexible BPMS tool - To evaluate BPMS tools, best way is to form a team that include an enterprise architect, data architect, business representative, business analysts from the lines of business (LOBs), and many other IT support groups. Evaluation and purchase strategy is to "procure pragmatically, but evaluate strategically." The team has to evaluate the tool for enterprise-wide appropriateness, and to prove out the strategy. Two key features are important: *Proven scalability* (enterprise-wide deployments) and *Linkage between design and delivery tools*. It was important that the IT group wouldn't have to translate process designs into the BPM engine by re-entering the decisions in the language of the tool. So the team picked an integrated solution (process modelling, analysis, and implementation) that makes it easy for design changes to be easily dragged and dropped into the portal.

Project Management - Project management refers to the ongoing management of the implementation plan. Therefore, it involves not only the planning stages, but also the allocating of responsibilities to various players, the definition of milestones and critical paths, training and human resource planning, and finally the determination of measures of success. Most of authors also advocate the need to establish a steering committee comprised of senior management from different corporate functions, senior project management reps, and BPM end-users. Steering committee members should be involved in BPM tools selection, monitoring during implementation and management of outside consultants. Once the scope of the project is agreed, it is necessary to develop a pragmatic business case with supporting measures and benchmarks. A business case is necessary to gain Executive sponsorship and to prove the value of the approach. Pinpoint the expected benefits and factor in the capabilities delivered by modern BPM technology. Executive sponsorship is an absolute necessity as there will always be political hurdles to overcome. When executives have committed to the project, form the core of the BPM project team. Before leaping into implementation, take time to really understand the process and look for improvement opportunities.

Implementation strategy and timeframe - Several researchers iterated the need to address the implementation strategy and to, specifically, implement the BPM under a phased approach. Other researchers addressed the question of whether the implementation should be centralized versus decentralized. Finally, this concept also considers implications of multi-site issues and the benefits of introducing a green-field site. Without an agreed structured and systematic approach to the implementation of BPM projects that takes into account the organization strategy, how it is to be executed and the significant behavioural aspects of the implementation, a project will be chaotic and have very high risks associated with it. Too often, BPM projects are executed on the basis of traditional project management or a "common sense" approach. As the project progresses and the pressure starts to building towards delivery, the "intuitive" steps lose the systematic and structural approach that is required. In order for the BPM project to move forward successfully, it is important that it be set on the right foundations.

A neutral, business-oriented governance body should set the priorities, settle arguments and establish effective project principles. The Steering Group acts as that foundation. It also acts as an ongoing repository of knowledge for future BPM projects, carrying over the lessons learned. This knowledge and experience can later form the foundation of BPM Center of Excellence (CoE) for the organization. A range of different people - forward looking IT people, visionary Line of Business managers, or high-level Executives, can initiate BPM programs. Failure to have the business involved is a sure way of ensuring that the project will not succeed. This is because the business needs to own both the long-term change program and the solutions that come out the other end. Otherwise, through a lack of buy in, people will not fully engage in delivering success, and they will not give their full support to the project. One method to address this common change management issue is to set up a reward system that incentivizes the right behaviours and discourages the wrong ones. The core deliverables of the initial Steering Group workshop are: Formal commitment from the business. This involves a stated promise to dedicate suitable resources to the initiative (clarity around how the program directly supports the strategy of the firm and assists it in achieving its Key

Business Objectives (KBOs) and the specific requirements of the targeted applications). However, it is useful to take this opportunity to step back and validate that selection against the needs of the wider business, based on its longer-term goals and objectives. These may be better efficiency, enhanced customer service, or reduced cycle time. To identify the right tactical project correctly, it is first necessary to step back and understand the larger context of the firm. Having selected a tactical project, the Steering Group must then ensure that the project team maintains a laser-like focus on successful execution against the stated goals. Most successful firms already have a clear idea of their long-term objectives (their KBOs). What is sometimes less clear is the relationship between the measurements practices of the organization tied to the achievement of those objectives. As part of the business case development, it is a good idea to review the current approaches to measurement in the target area and develop a set of Key Performance Indicators (KPIs) that support the KBOs of the firm. Many organizations have far too many metrics … Often; there is a lack of proper alignment with the KBOs or strategy of the company. Having too many metrics creates a situation where people quickly lose sight of what is important, as there are simply too many goals to manage against. This leads to unnecessary confusion and complexity, increasing project risk.

Balanced team - The need for an implementation team that spans the organization, as well as one that possesses a balance of business and IT skills is another significant critical success factor. *Balance* is required to ensure that the team does "not lean sideways or tip over", which would not be good for its speed and efficiency. Balance is achieved by carefully matching the strength, weight and experience of all the participants in the project. In a BPM project/organization, the aim is to ensure that all implementation elements (management, process, people, project management, resources and information) are considered when implementing a solution.

Project team: the best and brightest, cohesive – It has also been repeatedly mentioned throughout the literature that there is a critical need to put in place a solid, core implementation team that is comprised of the organization's best and brightest

individuals. These individuals should have a proven reputation and there should be a commitment to "release" these individuals to the project on a full-time basis. Frequently also cited is the need for the team to possess the necessary skills to probe for details when conducting the planning phase of the implementation. Once the team has been established, it might then be necessary to train the individuals. *Cohesion* is required to ensure that the team "rows" as one -all "rowers" have to follow the same rhythm and technique, which gives extraordinary speed. In a BPM project/organization, it is important that all the implementation elements are in alignment and are not treated separately.

Communication plan, success communication – Communication among various functions/levels and specifically between business and IT personnel is another identified CSF. This requires a communication plan to ensure that open communication occurs within the entire organization, including the shop-floor employees, as well as with suppliers and customers. One of the roles that many authors consider to be critical is that of a BPM "evangelist". With the support of executives, and positive word of mouth from business managers, BPM "evangelist" actively shares information about the success of BPM projects. It is very important to evangelize the BPM methodology across the company and to form an enterprise BPM group (think of it as a centre of excellence) to manage the BPMS infrastructure, support the building of capacity for process improvement throughout the company, and determine how to replicate success.

Project champion, Empowered decision makers – The need to have a project champion is considered another relatively important CSF. The individual should possess strong leadership skills, as well as business, technical and personal managerial competencies. In a sense, this role is the next level of leadership. This is the leader of the project team and of all the surrounding personnel, stakeholders and activities. The project manager must have significant skills with regard to people change management and stakeholder management. While it may be argued that good project management has always required these skills, it might also be argued that BPM projects require this knowledge to be

deeper and better executed than in the past. The other significant aspect to this success factor is the necessity for the project manager to come from the business, and not IT. This is a business project, with business outcomes, and the IT component will either not exist or will be a smaller component of the overall project. Furthermore, a BPM project requires a fundamental and structural change, which is often lacking in a "traditional" project. While not widely cited, Empowered decision maker role deserves special consideration because it is felt to be a factor that might be overlooked if included within another category. This concept refers to the need for the team to be empowered to make necessary decisions in due time, so as to allow for effective timing with respect to the implementation.

Team morale and motivation – This CSF is related to the need for the project manager/champion to nurture and maintain a high level of employee morale and motivation during the project. It is imperative that the team leader creates a stimulating work environment and recognizes the work of the members. Ultimately, this should result in a high level of staff retention. The possibility of losing staff because of their marketability externally is a very real, but often overlooked, cause of project failure.

Start with a common view of the overall process – There was a good understanding of key performance indicators (KPIs) at a functional level — individual departments or groups understood their own universe. For example, customer service effectively measured their responsiveness in answering inquiries, and escrow knew how well they handled incoming and outgoing payments. But the handoffs for tasks across departments were not nearly as well understood. By doing an enterprise-level assessment (essentially a gap analysis) and use BPM for workflow and as an approach to creating an understanding of the value of activities across the entire value chain, we can create visibility to work in progress throughout the organization. Once the organization has adopted BPM as a strategic direction or has several BPM projects underway or implemented, it is critical that there is a synergistic approach and consistency within the organization to ensure that the maximum benefits are derived. There needs to be a set of

agreed guidelines and process directives within the organization, otherwise different parts of the organization will pull in various directions and there will not be a consistent approach. Process architecture is more than just a nice set of models for processes; it describes the founding principles of process (or BPM) within the organization and is the reference for any changes in the way an organization chooses to approach BPM.

Begin with valuable, manageable, cross-functional projects – One of the most important factors that will influence the likelihood of success is the choice of the initial project. To determine where to start, the team has to look at the backlog of IT projects and to identify those that had a very high ROI if executed well, but weren't too complex or too critical to the overall business. The team also have to look at projects that would require collaboration across departments, anticipating the need to establish a methodology that would include efforts for breaking down silos. The aim is to identify a quick hit opportunity with a clear business benefit. With opportunities everywhere, the challenge is to find a process that balances the following dimensions… Avoid sophisticated "end-to-end" processes. While a multi-faceted, inter-departmental scenario might create a bigger impact, these types of projects do not allow for quick iteration, extension, and ongoing improvement. These types of processes normally involve too many touch points and provide opportunities for political infighting, delays, and increased project risk. As a result, it is best to develop skills, expertise, and other BPM capabilities before focusing on the "big-bang" projects. A good rule of thumb is to ensure that the selected initial project can complete within 3-6 months. Otherwise, the opportunity for scope creep increases. Along with that go increased complexity and a higher risk of failure. However, the project should be important enough to avoid being seen as irrelevant.

Legacy IT system consideration and IT infrastructure – There must also be consideration of the current legacy system in place as this will be a good indicator of the nature and scale of potential problems. This could directly affect the technical and organizational change required. Whether or not there is a reasonably well working manual system in place is another consideration. It is critical to assess the IT readiness of the organization,

including the architecture and skills. If necessary, infrastructure might need to be upgraded or revamped.

Client consultation – Many authors have alleged the need for communication and consultation with various key stakeholders, but in particular with the client. Organizations need to keep its clients apprised of its projects to avoid misconceptions.

Consultant selection and relationship – Many researchers have advocated the need to include a BPM consultant as part of the implementation team.

However, as part of this relationship, it is imperative to arrange for knowledge transfer from the consultant to the company so as to decrease the dependency on the vendor/consultant.

Training and job redesign – A significant number of citations also made reference to the need to include training as a critical aspect of an implementation. Additionally, it is necessary to consider the impact of the change on the nature of work and the specific job descriptions. While most researchers have generally mentioned the need for training, some researchers have specifically mentioned the need for project team training while others have focused on user training. It has been suggested that the training should encompass the development of IT skills and that it should be hands-on. The need to plan for training facilities is another vital consideration. Finally, management needs to take into account how staff may need to be restructured or how compensation plans may need to be evaluated and modified.

Troubleshooting – Post implementation evaluation – Most researchers have emphasized the need to be flexible in BPM implementations and to learn from unforeseen circumstances and to prepare to handle unexpected crises situations. The need for troubleshooting skills will be an ongoing requirement of the implementation process. Any project is not complete without the allowance for some kind of post-evaluation, and an allowance for a feedback network and continued management support. The post

assessment will be difficult to complete, however, unless there had been established metrics or focused performance measures. All BPM initiatives within the organization must be aligned with one another and, once they are completed, a post-implementation review must be conducted to ensure that the lessons learned from one project are transferred to subsequent projects. There is much to learn from one project to the next, especially in the selection of where and how to start, how to justify the business case and how to engage the various stakeholders.

The business case must not be seen as simply the justification to obtain project funding, but as the main guide for the implementation of the project. These lessons are invaluable, and must not be lost to the organization.

5.6 Analysis of BPM implementation literature

The preceding compilation has provided a foundation with respect to the range of success factors that are cited in the literature, and the frequency associated with each. However, there was additional analysis conducted that sought to uncover any obvious gaps in the literature to date. As a result, what has become most apparent from this review is the lack of depth in the coverage of CSFs. Additionally; another significant observation was the lack of stakeholder perspective in the success factors cited. Either success factors were presented with no explanation of whose perspective was represented, or stakeholder perspective was provided, but for only a single success factor. Finally, the concept of change management, one of the most widely cited success factors, appeared to have varied definitions and there was little explanation of the specific tactics that could be used to implement such a program. Each of these limitations will be explored in further detail.

Researchers have very often focused on only a specific aspect of the implementation process or a specific CSF. Consequently, there is little research documented that encompasses all significant CSF considerations. For instance, some authors recognized

the importance of employee attitude to BPM implementation success; others studied the impact of organizational fit as a CSF and discovered a direct link between it and BPM implementation success. Other researchers, considered other perspectives: data requirements; interview of executives about the issue of organizational acceptance; case study to address the issue of knowledge barriers; culture as a factor that affects success and study of project managers to determine key success strategies of government organizations adopting BPM.

Further, lot of research emphasised the importance of IS alignment as a CSF and used a combined methodology of secondary data and a case study of one company. Finally, program management was also found to be a key CSF of BPM implementation projects. In each of the aforementioned articles, investigation was based on some form of primary research (survey, case study, or observation). The following research, however, has used only secondary sources. Some articles cantered on the relationship between marketing as a change management strategy, and proposed that marketing theories may be applied to BPM adoption. Gulledge and Sommer (2002) studied business process management as a CSF focused on the influence of top management support; and Scott and Vessey used organizational theory to identify factors that require consideration when implementing an BPM. Regardless of methodology, all the aforementioned studies have been narrowly focused; affording readers a constricted, yet detailed, view of a specific success factor. In the following instances, the research was broader in scope.

While some investigators had set out to prepare a taxonomy of CSFs (Al-Mashari et al., 2003; Kalling, 2003; Siriginidi, 2000b; Umble et al., 2003), based on literature reviews, others had presented CSFs according to stages of implementation, had been more focused on a specific area of the implementation, or had attempted to categorize CSFs according to planning frameworks. Bajwa et al. (2004) looked extensively at the range of success factors and presented them according to assimilation stages. Work by Chen (2001) attempted to identify CSFs according to planning stages, and similarly, Nah et al. (2001) and Somers and Nelson (2001) presented CSFs by stage of implementation.

Finally, Trimmer et al. (2002) offered a list of generic CSFs based on a literature review, but then expanded this with a list of CSFs specific to health care, compiled through their own case studies.

Other researchers were more comprehensive in their coverage of CSFs but attempted to categorize them differently. Al-Mudimigh et al. (2001) categorized CSFs according to strategic, tactical and operational categories.

Similarly, another study produced a framework of CSFs according to strategic and tactical categories only (Holland and Light, 1999). Clearly, there is limited research that has attempted to produce an expansive collection of CSFs. Next, consideration is given to the lack of stakeholder perspective.

The observation that there has been no research conducted to date that has considered and presented the major BPM implementation CSFs from the perspectives of key stakeholders is a significant finding. While there have been several studies that have attempted to interview representatives from various stakeholder groups, they have not reported findings so that individual views of different stakeholder groups are clearly represented. While it was clear in the work of some researcher that there was consultation with stakeholder groups, it was noted by the researchers that managers were significantly more represented than users/lower level employees and consultants. Very interesting is work from ERP field by Kraemmergard and Rose, they used methodology that would come closest to providing complete reporting of stakeholder perspectives. They used a case study research design and collected data through unstructured interviews with all key stakeholder groups (senior managers, ERP manager, internal consultant, super-users and regular users). However, their work focused on only managerial competencies, and therefore, limited its research to only one specific category of implementation success factors. The relatively small degree of stakeholder consultation and the lack of reporting of their individual views, as evidenced in the

preceding citations, is a significant gap in the current literature base and it demonstrates the main weakness of the CSF approach; this is concerning.

The final key observation of the literature review relates to the CSF compilation itself and the definitions applied to the terms. For instance, while the success factor, change management, appears to have emerged as one of the most widely cited success factors, there is still much confusion with respect to what exactly is included in the construct. As evidenced in the research cited below, the range of activities encompassed by change management is varied. Further, there is very little offered in the literature that attempts to identify or explain the specific tactics required successfully managing and implementing these change management activities.

Many researchers have been specific in their reference to the change management activities required for success. In some cases, they have referenced the need to build acceptance and commitment to the change and address resistance; the need to communicate; the need to understand benefits and drawbacks; the need to educate; and the need to consider and address organizational culture issues. In addition, several researchers cite the need for a change management program. Such a program should, among other things, create a culture with shared values and common aims, emphasize quality, build management commitment, train users, involve users in the system design, and provide a support structure. Some authors note the importance of the need to manage organizational change throughout the implementation stage. They acknowledged that some employees find it difficult to accept new reporting structures and new job processes. Similarly, they also recognize the impact that such a project has on corporate culture and suggest that people need to be prepared for the change. They further state, “If proper change management techniques are utilized, the company should be prepared to embrace the opportunities provided by the result of BPM project”. As evidenced by the above references, the views on change management and exactly what change management involves vary greatly. This needs to be further explored, so that these ideas can be better presented in a manner that makes it possible for the “change

manager" to effectively implement and control this success factor. As well, although there is no doubt that change management is a necessary consideration, it is less clear exactly how it should be handled. Several works considered the impact of attitudes on implementation success, and though they did highlight some factors that influence attitudes, further exploration is required in terms of tactics that might impact these factors. Further, some authors offer some strategies to build user acceptance, one aspect of change management.

Some of their ideas include: support and training, increased communication, user guidelines, demonstration of benefits. Yet, these still leave one to wonder about the specific tactics required. Finally, in several articles states that a well-managed change process requires "evolutionary and revolutionary change tactics," but the authors offer no suggestions as to what these devices might be.

In summary, the concept of change management as it applies to BPM implementation is extremely important and requires further examination. Many strategies have been uncovered; however, strategies alone are not sufficient. What tactics are required? Are there differing stakeholders views regarding what are appropriate tactics? How do influences like power, control and resistance have an impact on the selection of proper tactics? Answers to these questions will help us understand and better control the change management process, one of the most critical of all BPM implementation success factors.

5.7 BPM Project delivery framework according to CSF

The fascinating, yet controversial concept of BPM has been a major concern of business and academic research in recent years. Apparently, it is going to remain so, as contemporary organisations continue to operate in a chaotic world where organisational and social paradox emerges as an underlying dimension. Concurrently, we witness a proliferation of management literature on the topic, with new models and frameworks

evolving from various inter-disciplinary studies. Despite the abundance of scholarly work, available empirical evidence confirms that the majority of organisations are still far from the optimal level of effectiveness in organisational change concepts, methodologies and projects.

Business systems, especially in large companies, have organisationally evolved into functional structures with individual fiefdoms such as marketing, personnel, manufacturing and accounts. However, it is well recognised that these structures create a business inefficient for cost, ineffectual for rapid decision making, inflexible to change, and unresponsive to changing market conditions. The reasons cited are: the inherent batching nature of the structure, the multiple handing off of the job and intra-functional focus. This has been coined the "functional silo" mentality. The most serious end result is that the business is not focused on the customers' needs. A change in approach therefore seems inevitable and is already taking place. But many fundamental questions are raised during the change process such as how and what to change and how much benefit is expected from a change programme? Since the late 1980s there has been a mushrooming of supposedly new change management philosophies and paradigms offering significant business improvements by examining current practices and reconfiguring them in a new way. Each philosophy leads the practitioner along apparently different paths but in the general direction of improvement. Some techniques tend to be employee focused; others take a more technological slant and others an organisational structure focus. However, the underlying theme of the philosophies is that of process thinking driven by customer focus to achieve significant improvements in the performance of the business. There is also strong evidence that, despite their widely differing historical backgrounds and early specialism’s, major international management consultancies are on a converging path in terms of BPM framework utilised in change management. In particular, there is a common goal of developing a systems model of the organisation. Process thinking adopts the approach of engineering rapid seamless delivery processes via improved flows within the company as well as improved internal political alignment with a focus on the customer's real requirements.

The continuing demand for business process improvements has resulted in a proliferation of consultants, methodologies, frameworks, techniques, and tools for conducting BPM projects. This flood of BPM methodologies and Frameworks has often left project planners confused about which methods are best suited to their needs. This lack of consensus on BPM methods has resulted in many unsuccessful BPM projects. Typically, Business process improvements (BPI) fall into three categories:

Process improvement-optimisation. The continuous improvement approach, with a tendency for the improvements to be individually small, confined within functional boundaries, and focused on improving the existing system. Process optimisation involves a critical review of the activities, technologies, capital, people and organisation of a business, to reduce inefficiencies and increase productivity. It is a proven means of achieving sustained improvements in business performance and adapting to changing market conditions. An optimised process will deliver value in accordance with clearly defined objectives, making most efficient use of available resources.

Process redesign. This concentrates on major business processes with cross-functional boundaries, and is what most companies mean when they talk of BPR. It goes beyond improving existing processes by asking the question, "should we be doing this at all?" It is a natural evolution of TQM and uses many of the techniques of organisation and methods.

Business process re-engineering. This approach, as described by Hammer and Champy (1993) is aimed at the fundamental rethink and radical redesign of business processes to achieve dramatic improvements in performance. It is based on the premise that continuous improvement will not deliver the major breakthroughs that companies need to remain competitive in the global marketplace.

There are probably as many methodologies for process improvement and change management as there are consulting firms and even scholars from various disciplines, mainly the Business Administration field, have contributed to this flora of improvement

approaches in a conceivable way. Any of the major internationally working consulting firms keeps itself with a change methodology and also smaller, local firms have developed their own approaches to business and process improvement.

The applied approaches range from complete concepts, covering all steps of the transformation process, to techniques and tools used for specific purposes during a specific part of the change process.

5.7.1 Introduction

The most frequent question asked among BPM practitioners is: “What methodology do you follow?’’ or, “What project framework do you use?" (BPM consultants are characterised and differentiate themselves by the methodology they apply). Although there are many successful practices, frameworks and methodologies, many famous BPM approach authors argue that process based change remains more “art than science". Furthermore, many authors argue that business process oriented change is a relatively new discipline and area of research and, as a result, the knowledge of the subject is not sufficient to enable methodologies to be defined and developed precisely. Whenever both BPM practitioners and theorists are involved in BPM work within a given business sector, therefore, they have concentrated on principles rather than on prescription. The need for an assessed methodology and delivery framework is crucial, however, not only due to commercial pressures from BPM and information technology (IT) consultants, but also for the evolution of the field itself.

Potential customers need a methodology as an important criterion in selecting the consultant. Consequently, different types of methodologies and models have begun to emerge in response to increasing commercial pressures. However, no standard integrated methodology for BPM exists yet. As the number of organisations launching process oriented change efforts is growing rapidly, the authors felt that there is a need for a more **practical framework** to guide leaders through the process of innovation and change.

Methodologies exist due to the need of solutions to frequently occurring problems (a problem is any expression of concern about a situation). A methodology can be defined as a coherent collection of concepts, beliefs, values and principles supported by resources to help problem-solving groups to perceive, generate, assess and carry out, in a non-random way, changes to an information situation (Jayaratna, 1994). According to Preece and Peppard (1996), a methodology is simply theory put into practice aiming at dealing with real world situations. According to number of authors a process oriented methodology should provide “a consistent set of techniques and guidelines which will enable the business process engineer to reorganise business activities and processes in an organisation".

The use of a methodology is essential for a number of reasons:

1. A methodology provides a means of codifying experience, knowledge and ideas, in a form that not only can be easily applied, but also can be evaluated and tested.
2. A methodology offers a certain level of organisation, and facilitates planning and monitoring. In BPM initiatives, a methodology enables the organisation, on the one hand, to have a clear picture of its current processes along with their associated problems and, on the other, to design the new state of these processes. In addition, by following a certain methodology, process engineers have the opportunity to monitor and evaluate the progress of the BPM effort.
3. A methodology enables those who are involved or affected by the BPM to understand their tasks and clarify their roles. A BPM methodology which is clearly defined and explained to those who are leading the BPM work can facilitate the communication between them, and serve as a kind of “contract" in which all the parties understand their responsibilities and are, therefore, able to monitor the overall process engineering progress.
4. Finally, adoption of a methodology allows a standard set of required skills to be identified and developed. Key skills required for business process oriented

change include process modelling and analysis, organisational development techniques, and skills to deal with resistance to change.

There are, however, a number of problems related to the use of a methodology. One important reason, which explains the reluctance of developing and using methodologies or models in the process oriented change context is that the widely accepted methodologies are based on how the business processes should change and how the organisation should adapt itself in this change, rather than on the evaluation of current practices and on the codification of successful practical experiences. Moreover, the BPM literature search reveals that there are an increasing number of successful BPM implementations and case studies using methodologies. Although each business situation has some unique characteristics, an appropriate methodology will need to allow for assessment and re-use of existing successful approaches and practical experiences. In addition, a methodology hides the danger of restraining creativity and innovation. The latter are crucial elements in redesign, or reengineering process phase in BPM project. By encouraging those who are involved in the redesign process to comply with the requirements of a given methodology, there is a potential risk of restricting the opportunity of optimising the results according to the level required by the methodology.

Key requirements for the design of the BPM methodology were for it to be soundly based, practical and easy to apply. The Westinghouse approach integrates customer focus, human resources, product and process leadership and management leadership and integrates this with an assessment-based approach. Harrington has a well-structured approach with a good use of metrics and demonstrates the importance of the preparation stages and benchmarking. Hutchins shows the importance of mapping, measures and process evaluation. Camp integrates benchmarking into the process-based approach and shows where it can be used most effectively at each stage of the process. The above references included a comprehensive description of various tools and techniques that can be used at different stages of the methodology.

Particular attention is given to practical implementation steps. The design requirements in developing the methodology were that the methodology should:

1. Integrate existing initiatives, approaches and concepts;
2. Improve the business focus on processes;
3. Achieve substantial improvement in key business processes;
4. Be simple to use;
5. Keep bureaucracy to a minimum;
6. Reflect best practice in BPM projects.

A part of BPM delivery methodology is the "BPM Project Delivery Framework." This component of the BPM delivery methodology establishes the guidelines for those tasked with managing and delivering individual BPM projects. It focuses on:

- ensuring that projects are tackled in the right order;
- that they are linked to defined business objectives;
- that they are scoped and resourced appropriately; and
- that they make effective use of available BPM technology.

The BPM Project Delivery Framework should first focus on targeting a relatively simple, achievable project with a clear business benefit. Concentrating on a short, tightly scoped project allows the team to prove the viability of the BPM approach while building skills and experience. For example, the "on-boarding" process, when new hires join the firm, targets the needs of the Human Resources department. It allows them to ensure better traceability and clarity in their instructions to others in the business as they ensure that a desk is available, a PC provided, and that appropriate personnel records are established. These aspects of the BPM Project Delivery Framework are important as they enable the BPM program to demonstrate success and establish credibility within the organization before moving on to more demanding initiatives (D. Miers, 2006).

5.7.2 Theoretical Framework

The purpose of this research is to develop appropriate BPM Project delivery framework (BPM-PDF) according to CSF, which would be acceptable and applicable (easy to implement) regarding today's contemporary organisational change state of the art. The BPM-PDF is based on a theoretical framework, which simplifies the complex problem of BPM implementation. The theoretical framework uses fifth well-known bodies of knowledge:

General Systems Theory suggests that the complex enterprise must be viewed holistically as a system.

Contingency Theory explains: there not exists one correct answer in defining business processes improvement approach for all organisations.

Industrial Engineering provides a holistic and analytical approach to the design, improvement, and installation of integrated systems of people, material, information, equipment and energy.

Organisational Development/Human Systems is concerned with the deliberate, reasoned, introduction, establishment, reinforcement, and spread of change for the purpose of improving an organisation’s effectiveness and health. People issues and culture issues are very significant in any change event, and that, in it, should place HR in a more active role.

Finally, in order to configure process based approach thorough organisation understanding of *business processes* is necessary.

The rationale for the BPM-PDF developed is based on these aforementioned theories.

5.7.3 Development of the BPM-PDF

The development of the BPM-PDF was an seven-step process:

1) Literature review on state-of-the-art in organisational change planning and implementation methodologies, frameworks, methods and concepts using secondary research sources, which include scholarly and trade literature, CD-ROM product data bases, on-line market intelligence services, and reports from market research firms such as IDC and Gartner Group, product announcements, public bulletin boards, as well as recently published books and periodicals.

2) Collect service and product information from BPM consultants, consulting firms and vendors such as Andersen Consulting, IDS-Scheer AG, Cap Gemini Consulting, Coopers & Lybrand, Deloite & Touché, Boston Consulting Group, McKinsey & Company and BAIN & Co.

3) Conduct on-site and telephone semi-structured interviews of selected BPM consultants and vendors; where additional information was deemed necessary, a request was made to those firms identified in step 2) to conduct an interview. Selection of key informants in each organisation was accomplished through identifying "the person most knowledgeable about the issue of interest, usually one of the senior consultants in the consultant firm or someone having real project or product knowledge. The interview began with open-ended questions regarding the respondents and his/her organisation's view of BPM approach. The interview progressed into details of their organisation's offering, which included methodologies practiced, use of advanced techniques and tools. Observations corroborated well between interviewees and with published sources.

4) Review personal experiences with BPM; 13 years of experience transforming small and medium enterprises in the Croatia using the process engineering approach based on ARIS methods and toolset. During this period, I have

personally worked with over 10 companies on a consultancy basis. This experience has revealed numerous insights concerning change process that were included in ARIS methods and toolset. Over the eleven-year period, notes were recorded that documented potential areas of improvement to the ARIS methodology and implementation approach. Initially, these notes were not organised. To include them in this framework, these notes were rigorously reviewed and organised into categories. These notes proved to be a valuable resource in developing key areas of the BPM-PDF.

5) Develop and conduct case studies collection method and cross case studies research; Designing and conducting the study involved: designing the collection method, selecting the case studies, conducting a cross case research, and analyzing the results. It included both theory and implementation subject areas. The design attempts to gather information about the activities organisation use to change and how these activities were implemented. Cross case studies research included both theoretical and implementation issues for the purpose of developing a BPM-PDF. Protocol was developed to insure consistency and to provide a path for future studies to follow.

6) Establish research databases of BPM methodologies, frameworks, methods, tools and case studies. In addition to information collected from interviews, a large volume of research data were obtained from library search and requests to vendors. Many methodologies, frameworks, methods, techniques and tools mentioned frequently by BPM experts during the interviews were added to the knowledgebase. Some methodologies such as Rapid Re (R.L. Manganelli, 1996), STRIM (Ould, 1992), KAOS (Dardenne et al., 1994), DEMO (Dietz, 1994), ARMA (G. Valiris, 1999), a SPARKS (Ruessmann et al., 1994), CONDOR (M. Vakola, 2000) and ETM (D.R. Underdown, 1997) were identified based on well documented books and journals. A request was mailed to the vendors for product descriptions and demonstration disks. When possible, demonstration copies of

software were obtained and tested in a software evaluation lab set-up for the project. Results of these information collection efforts were systematically filed and accumulated in three separate research databases: one for methodologies and frameworks (47 records), one for case studies (32 records) and the third for software tools (17 records).

7) Synthesize personal experience, current literature, and case study analysis into the BPM-PDF. Data synthesis is the process of combining personal experience, current literature, and case study results into framework. Two forms of analysis were used. Results of this study were analyzed from a within personal experience, current literature, case perspective and a cross-case perspective. A short within case report was developed for each site in an effort to become familiar with each case individually before trying to uncover cross-case patterns. Once the within case analysis was completed, a cross-case analysis was initiated to discover patterns among the participants. The cross-case analysis used a paired comparison approach that examines selected pairs of cases for similarities and differences. In an extension to this approach, pairs of companies were grouped and examined for similarities and differences in an effort to uncover patterns. The overall idea behind cross-case analysis was to force the researcher to go beyond the obvious patterns to uncover emerging themes. The product of this research task is a series of within case reports and a cross-case report that describe patterns of BPM projects. The within case reports provide insight into particular situations in which specific change enablers may be appropriate and explanation for why certain cross-case patterns do not surface in individual cases. The cross-case report provides patterns of change in transforming companies that can be incorporated into a project framework for change an enterprise.

5.7.4 Conceptual framework

The BPM-PDF requires that the processes and objectives be "engineered." Too often, processes simply evolve. Tools and practices are built, but underlying processes are not always "rethought" from a business perspective. Because it is enterprise wide, a process engineering effort must address all parts of the organisation: jobs, skills, structure, information technology, management systems, business processes, and even values and beliefs. An undertaking of this magnitude probably seems overwhelming. However, the BPM-PDF has to be scalable; that is, it can be applied within a small single project, or throughout the wide - corporation project.

Suggested framework incorporates four parallel processes essential for success: business process engineering (BPE), Organisational Culture Change (OCC), Information Technology (IT) and Change Management (CM), which run throughout the framework:

1. Change management includes building change program sponsorship; actively addressing concerns about the change; enabling input from all parts of the organisation; ensuring adequate communication and understanding of changes; and coordinating teams throughout the change process.

2. IT infrastructure offers an organisation the ability to effectively leverage IT resources. Broadly, IT infrastructure refers to enabling technologies, outsourcing arrangements, and policies. The role of network infrastructure is critical to improve business processes and enhance customer services, by enabling sharing of real-time information throughout the organisation. Moreover, a network infrastructure enables coordination between people, regardless of their physical locations and background.

3. To make organisational change effective, lasting, and ultimately transformational, a fundamental organisational culture change usually is necessary. Culture change facilitates other change by making the work force more comfortable with and

receptive to organisational change. Done well, culture change helps transform the organisation and makes change a constant presence rather than a looming threat.

4. BPE applies systems engineering to process design and redesign. This ensures well-designed and implemented processes, as well as adequate documentation to allow for understanding and future modifications. Business Process Engineering (BPE) embodies the characteristics of both BPR and BPI. BPE therefore supports both revolutionary and evolutionary changes. Business Process Engineering is an approach that supports the evolutionary and revolution change that is required to achieve an organisation's strategic goals through more effective, efficient, and agile business processes. BPE involves not only process changes but also organisational changes to support the new processes. There is a significant impact on the policies and procedures of an organisation. Teams are organised around processes rather than around organisational functions. Teams are empowered to make more decisions as checks and controls are reduced. BPE leverages technology not just to make old processes better, but also to break the old paradigms. BPE involves the use of several tools. Three key tools in the BPE life cycle are modelling, static and dynamic analysis, and implementation. Each process addressed by the change program undergoes the systems engineering rigors of requirements development, high level and detailed process (re)-design, structured implementation, testing, piloting, and structured rollout.

Because BPM project crosses many departments and impacts many individuals, a Project team must be established that represents the various departments affected. The team must be seamless and characterized by solid relationships. While members of the team must feel empowered to challenge old assumptions, there must be an executive-level sponsor who can move across departments to resolve issues as they arise and a change project manager to work with the team to define the project plan and manage its implementation.

5.7.5 Scope of the BPM-PDF

As stated in Problem formulation chapter, the goal of this research is to create a BPM Project delivery framework, which would be acceptable for academic and consulting community. Initially, the intended scope of the framework was much smaller than the full lifecycle process that resulted. The original scope was to create a framework that cover the analysis and design phase of the change lifecycle; keeping the scope narrow, allows the project team to learn the framework and master the BPM tools and techniques. As time was passing by, scope of framework expanded and attains scope with full lifecycle and complete definition of activities. Once the scope of the framework has been agreed upon, the question was: "what time frame has to be allotted to the framework implementation" (ensure that the time frame is reasonable for project implementation – completion). Most of Organisational change authors suggest that any project should be completed within twelve months ("take longer, and people will become impatient, confused, and distracted", Hammer and Champy). BPM-PDF comply with this requirement – suggestion, too.

The suggested framework offers an approach to changes that could be implemented within any form of business organisation, whether it is a private company, public service, social or government institution. This framework is intended for medium and large size enterprises. Applications to small enterprises, where small is defined as those enterprises with less than 50 employees, will require less sophisticated tools and techniques for implementation. In order to accommodate a wide variety of decision makers an all-encompassing framework was developed; however it may not provide enough detail for some specific applications. Concerning my engineering background and experience, regardless good intentions for equal treatment of all components-processes, focus was on process engineering.

Economic reality, resulting in the perceived need to "increase organisational effectiveness and efficiency in order to ensure survival in an increasingly competitive

market", formed a powerful driver for instigating change in companies. The BPM projects presents a way to ensure the ultimate survival of the organisation, reduce internal inefficiencies, and involve people more in the working of the organisation. This conceptualisation involved moving the organisation from its present state (zero order change or partly first order change) to a future, more desirable (second order change – both continuous and breakthrough improvement readiness). Change can be more or less radical, i.e. be of the zero, first or second order. First Order Change is the change that occurs within a system as part of the normal system dynamics. First order change is normal operational change. The system itself does not change. Second Order Change is change of the system itself. Second order change may be sudden transformational change, or gradual and incremental, changing the system itself over time. Second order change changes the system and its parts. The suggested framework is a guide for change an enterprise from a zero order change (or partly first order change) – current state, to a second order change state (desired future condition – both continuous and breakthrough improvement readiness). It is an effort to contextualize the change process and to understand through a holistic lens, the multi-level, cross-functional characteristics of organisational change. This change is part of Large-scale organisational changes; Large-scale interventions are typically organisation-wide efforts to increase the effectiveness of organisations and the people in those organisations (the change involves the entire organisation, meeting and working together in one place, at the same time), for example: Total Quality Management, knowledge management, business process re-engineering, business process management etc.

5.7.6 Structure of the BPM-PDF (based on D. Miers framework, 2006)

In order to understand the BPM Project Delivery Framework outlined in Figure 2. it is important to take a closer look at each step. To ensure proper governance principles, a high-level, cross-functional “Steering Group” oversees the framework and the individual projects undertaken.

The benefit of the Steering Group is that it establishes a respected, business-centric body that can take an objective view and set priorities appropriately. It also guarantees business ownership and an effective partnership with IT, while creating a clear organizational context for change. In the short term, the Steering Group will validate the selection of the initial project.

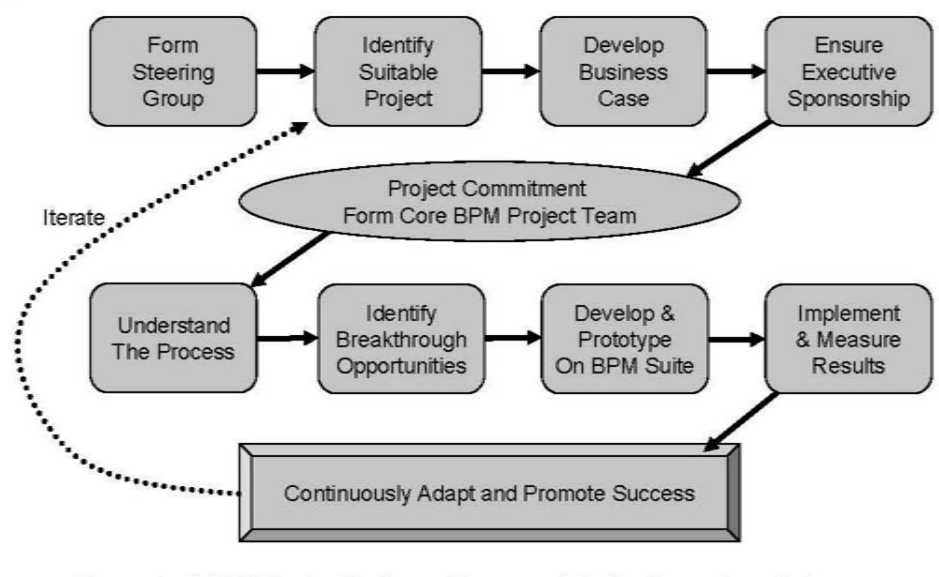

Fig. 3. A BPM Project delivery framework – series of steps

Once the scope of the project is agreed upon, it is necessary to develop a pragmatic business case with supporting measures and benchmarks. A business case is necessary to gain executive sponsorship and to prove the value of the approach. Pinpoint the expected benefits and factor in the capabilities delivered by modern BPM technology. Executive sponsorship is an absolute necessity as there will always be political hurdles to overcome. When executives have committed to the project, form the core of the BPM project team. Before leaping into implementation, take time to really *understand* the process and look for improvement opportunities. This is important since some are tempted to automate the existing approach, complete with its existing workarounds and inefficiencies.

Having understood the process, prototype the solution on the chosen BPM Suite and seek user feedback to ensure the solution is delivering what people really want. Pay close attention to the related organizational change as failure to do so will affect acceptance of the solution. Having implemented, continuously measure results and optimize to encourage a culture of iteration and controlled adaptation. Finally, promote the success across the firm, demonstrating the benefits achieved.

5.7.6.1 Step 1 – Establish the Steering group

In order for the BPM project to move forward successfully, it is important that it be set on the right foundations. A neutral, business-oriented governance body should set the priorities, settle arguments and establish effective project principles. The Steering Group acts as that foundation. It also acts as an ongoing repository of knowledge for future BPM projects, carrying over the lessons learned. This knowledge and experience can later form the foundation of BPM Centre of Excellence (CoE) for the organization.

A range of different people – forward looking IT people, visionary Line of Business managers, or high-level Executives, can initiate BPM programs. They see the power of an agile, process-oriented business structure as well as the performance, efficiency, and flexibility benefits that direct process support technology support will bring. These individuals will probably form the nucleus of the Steering Group, leading and recruiting others to the cause.

As a foundation, the Steering Group needs to include:

- The Executive head of the affected business area involved. This individual will provide the sponsorship of the initial project. Inevitably, he or she will need to overcome political obstacles and to push through the associated organizational change.

- The CIO or lead IT Executive is necessary to provide continuity into other technology programs, to represent the IT interests, and to ensure support for the high-level strategy of the firm.

- The overall BPM Program Manager (or the head of the BPM Centre of Excellence, if one exists) will act as the individual responsible for day-to-day management of the initial BPM project. He or she will be responsible for implementing the decisions of the Steering Group.

- Senior LOB Managers from the functions directly affected. It is important to engage with the business units directly. With the senior LOB Managers as members of the Steering Group, any conflicting priorities are quickly resolved.

The Steering Group is the primary mechanism to engage the business in a specific project. Failure to have the business involved is a sure way of ensuring that the project will not succeed. This is because the business needs to own both the long-term change program and the solutions that come out the other end. Otherwise, through a lack of buy in, people will not fully engage in delivering success, and they will not give their full support to the project. One method to address this common change management issue is to set up a reward system that provides incentives the right behaviours and discourages the wrong ones.

To help get the process and project off to the right start, the first step is to hold a workshop for the Steering Group. This workshop provides an opportunity to get the key stakeholders together to agree on the scope of the effort and establish overall goals. Participants will want to hear about the experiences of other firms to assure themselves that they are not at the bleeding edge of organizational innovation and taking an undue risk.

In support of this, it is beneficial to have an external BPM expert lead and facilitate this session, providing case study material and anecdotal evidence where necessary. The core deliverables of the initial Steering Group workshop are:

- Formal commitment from the business. This involves a stated promise to dedicate suitable resources to the initiative.
- Clarity around how the program directly supports the strategy of the firm and assists it in achieving its Key Business Objectives (KBOs) and the specific requirements of the targeted applications.
- Tactical agreement on the choice of project, and consensus on scope. In support of this, the group should map out a realistic roadmap and delivery timeframe. This will help ensure that the project is not derailed later, or the team diverted toward supporting other goals.

By the time the Steering Group meets to agree on the macro issues, those driving the initiative will probably have an initial tactical project in mind. However, it is useful to take this opportunity to step back and validate that selection against the needs of the wider business, based on its longer-term goals and objectives. These may be better efficiency, enhanced customer service, or reduced cycle time. To identify the right tactical project correctly, it is first necessary to step back and understand the larger context of the firm. Having selected a tactical project, the Steering Group must then ensure that the project team maintains a laser-like focus on successful execution against the stated goals.

5.7.6.2 Step 2 – Identify a suitable target

One of the most important factors that will influence the likelihood of success is the choice of the initial project.

The aim is to identify a quick hit opportunity with a clear business benefit. With opportunities everywhere, the challenge is to find a process that balances the following dimensions:

- Relatively low level of maturity – look for those processes where the tasks are poorly defined, or the flow of work is highly variable. It is much easier to improve a poorly understood process than one that is already carefully managed and measured.

- High Impact – looks at the KBOs of the firm and assess whether an effective solution will produce a high return. This is a question of orientation. Processes that touch customers or suppliers are usually good candidates as they are often full of workarounds and inefficiency. Other clues are lack of management visibility or traceability of the work, where small errors can dramatically affect sales or profitability.

- Low complexity – identify situations where the complexity can be managed and bounded easily. Avoid sophisticated "end-to-end" processes. While a multi-faceted, inter-departmental scenario might create a bigger impact, these types of projects do not allow for quick iteration, extension, and ongoing improvement. These types of processes normally involve too many touch points and provide opportunities for political infighting, delays, and increased project risk. As a result, it is best to develop skills, expertise, and other BPM capabilities before focusing on the "big-bang" projects.

A good rule of thumb is to ensure that the selected initial project can complete within 3-6 months. Otherwise, the opportunity for scope creep increases. Along with that go increased complexity and a higher risk of failure.

But the project should be important enough to avoid being seen as irrelevant. Typically, departmental targets are best as they provide an enclosed business environment (reducing complexity) while also enabling a significant and measurable impact. Remember that the key objective of the first project is to develop skills and expertise, while demonstrating to the organization that projects are entirely manageable.

There are a great many approaches to identifying the most appropriate process to start working upon. One useful technique is to consider the range of potential processes and then create a matrix to compare and contrast them using the three dimensions outlined above – maturity, impact, and complexity.

For the maturity dimension, agree on five definitions of maturity that range from the worst (1) to the very best (5). Lower maturity is characterized by higher error rates and widely distributed cycle times. High process maturity tends to imply careful management and ongoing optimization of processes. This enables the team to force differentiation between the maturity levels of the various processes (sometimes called the quality of the process). It may be useful to refer to the five levels of the Capability Maturity Model to help participants understand process maturity.

For impact, it is necessary to find a neutral mechanism that does not necessarily favour one area over another. One approach is to develop a list of Critical Success Factors (CSFs) for the organization and consider how many CSFs are supported or impacted by the process. CSFs are those things that must go right for the organization to achieve its Key Business Objectives (KBOs). Given that an organization may have several KBOs, choose the one that is most important and then develop a list of CSFs that support that objective. If the objective is money, then decide what factors will deliver the lowest cost or generate the greatest revenue. If the core objective is better customer satisfaction, then compose the list of CSFs to focus on cycle time and other things that customers care about. Against each process, decide how many CSFs it impacts. Contrast this on the matrix with the perceived level of process maturity.

Next, apply a “big-small” indicator to the process to indicate the perceived level of complexity. Translate the results onto a grid like that shown in Figure 2. Individual processes are numbered here 1-8, positioning each process at its perceived level of process maturity, with the size of circle capturing the level of complexity (big-small) indicator. Those processes on the top left with a small circle will probably be the easiest to manage and have the greatest impact.

Relative to the other processes, they are at the lowest level of maturity, yet will have the greatest impact on the over-arching objectives of the firm.

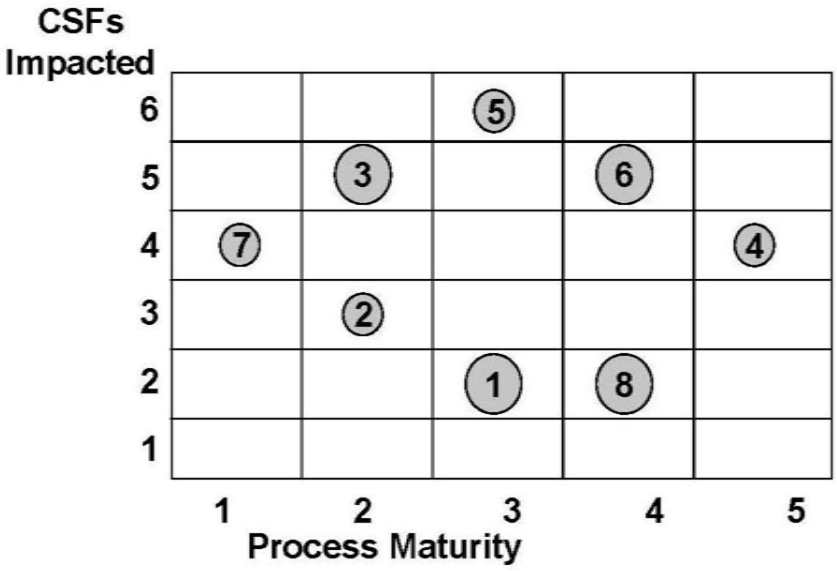

Fig. 4. Potential process improvement projects mapped against the quality levels and the numbers of CSFs

In our fictitious example (see Figure 2), Process 3 is deemed to be more complex than Process 7, which is also at the lowest level of process maturity. Any improvement in Process 7 will probably deliver a significant benefit, while also being more manageable.

Clearly, most organizations will have multiple goals and objectives, some of which may naturally compete with each other.

For example, a firm might look to increase operating efficiency by 20% and at the same time drive up customer service scores. Using the big-small indicator, it is easy to adapt the technique to focus on other areas: costs and/or top line revenue growth; customer service and/or cycle time; how long ago the process was improved; how well it operates compared to the competition; or even how it impacts overall market share. The important point is that this approach provides a framework to prioritize and explore competing desired goals and objectives.

This technique is based on a facilitated conversation with the affected business unit managers, key change agents, and IT. It does not require an extensive consulting assignment beforehand (although some neutral facilitation will probably help).

While the exercise might sound overly simplistic, the point is that it provides a relatively neutral way for all participants to discuss the issues and later arrive at an agreement. Another advantage of this particular exercise is that it helps managers look past the initial project, prioritizing a roadmap for the journey ahead. The key objective is to get business managers to establish and agree to priorities: Which processes will be dealt with first and which parts of the business will be impacted? Otherwise, there will always be a tendency to fall into the common trap of scope creep.

But even more importantly, it is the *discussion* that is most valuable. It forces the business managers to sit down and consider the real state of their respective organizations. Moreover, it provides a method to ensure that the actions of the project team are aligned with business strategy (or at least allows them to understand how their work will impact the CSFs and their relative priority).

5.7.6.3 Step 3 – Develop the Business Case

By the time the Steering Group meets, it is likely that those sponsoring the workshop will probably have prepared an outline "conceptual" business case, setting out the problems, issues, and likely outcomes for the pilot project. Assuming that the validation

exercise supports the identified pilot, the outline will probably form the basis for a more detailed and extensive business case that is needed before a project commitment is made. On the other hand, the benefit may be so obvious and the risk relatively slight (say a very clear departmental ROI) that the go ahead is readily provided. As a best practice, it is a good idea to develop the business case properly and document the expected benefits. This will provide a valuable reference point later on – a compass that will promote continued focus and avoid scope creep.

The detailed business case will need to present a rational and pragmatic explanation of the current way of doing things and the benefits of an alternative approach. It will need to capture the essence of the opportunity and/or how that current structure is under threat from loss of market share and lower profits because more nimble and agile competitors are taking control of the opportunity space.

In order to win the hearts and minds of the decision makers, the business case will need to help them understand the reality of the current business situation. That means providing comparisons with competitors' value propositions and costs, where possible. Remarkably, much of that external information is available in the form of annual reports on the web and other publicly available information sources.

It is important that the business case ties back to the KBOs of the organization, focusing on measurements and benchmarks that underpin those objectives. The business case will need to identify improvement opportunities up front and any areas where the organization can out-perform its competitors. For each of those improvement opportunities, show how that change is achievable, along with an identification of any associated risk factors. Where possible, demonstrate and articulate the steps taken to mitigate those risks.

Measurement - Most successful firms already have a clear idea of their long-term objectives (their KBOs). What is sometimes less clear is the relationship between the measurements practices of the organization tied to the achievement of those objectives. As part of the business case development, it is a good idea to review the current approaches to measurement in the target area and develop a set of Key Performance Indicators (KPIs) that support the KBOs of the firm.

Many organizations have far too many metrics. Often, there is a lack of proper alignment with the KBOs or strategy of the company. Having too many metrics creates a situation where people quickly lose sight of what is important, as there are simply too many goals to manage against. This leads to unnecessary confusion and complexity, increasing project risk. The key is to ensure that any metrics collected explicitly link back to KPIs that are, in turn, aligned with key business objectives.

A review of performance metrics/benchmarks used will usually simplify the goals of the targeted BPM application considerably. If the overall objective of the pilot project is improved customer service, then focus on those measures that the customer really cares about, since they will make the most difference to overall performance. Once the project is complete, it is a good idea to review the measures used and develop a guide on the use of metrics within BPM projects generally.

Some useful questions to validate the effectiveness of a measure:

- What purpose will the measure serve? Who uses the measure? Does it tie back to the Key Business Objectives (KBOs)?
- How will data be gathered and used? How costly are the measures? What other measures should be eliminated or modified?
- Reward systems and behaviour – does it reinforce the right behaviours? How much feedback goes to the employee?

For each measure, capture the reality of what is happening in the business at this point. Where possible, compare and contrast with the competitors. Establish realistic stretch targets for each of those metrics based on the reality of the current situation.

The importance of measurement and associated benchmarks cannot be stressed enough. When it comes to proving the benefits to the business later, base-line figures are essential to convince anyone doubting the merits of the project. The key point is to focus on the metrics that directly support the firm's KBOs.

Expand the Benefits - Be sure to highlight the potential for both hard and soft benefits. Given a definition of productivity based on the value delivered, divided by resources employed, hard benefits are easy to identify. Reducing the number of resources required to deliver a given value will drive up productivity. On the other hand, softer benefits are usually oriented around agility and the value side of the equation. They are far more difficult to quantify but equally important.

On the softer side of the equation, it is useful to survey and interview employees, customers, and suppliers. Do not limit this to the three biggest and most friendly customers. The objective is to uncover the authentic experience of the majority, rather than highlighting the tributes of a few. Translate any soft benefits to show how they support and enable the achievement of hard dollar objectives (usually framed around the KBOs of the organization).

The Role of BPM Technology - It is vitally important to leverage the capabilities of Business Process Management (BPM) technology in developing options and executing the business case. BPM technology is enabling innovative new ways of more rapidly developing and deploying business applications. It provides a fundamentally new capability that was previously unavailable (at least in a fully integrated application development environment).

It allows the complete decoupling of business processes and application systems, permitting the consolidation and independent upgrade of back-end systems.

BPM technology provides the ability to model the business processes of the firm and then use those models to drive work through the business.

A process engine keeps track of the state of individual cases of work, integrating relevant third party applications and ensuring traceability afterwards. As the needs of the business change, so do the process models. The firm adjusts these models to achieve the desired performance goals. The point is that through the effective use of BPM technology, the organization can continuously improve its processes through rapid iteration and adaptation.

There are two predominant "domains" of BPM technology – modelling and execution. It is worth touching on the endless fascination that IT departments seem to have around *selecting* the right process-modelling tool (as though the tool itself will make all the difference on success and failure). However, the time and money is better spent elsewhere. The reality is that firms need to focus also on developing skill sets and capabilities around process architecture and the implementation.

There are significant benefits associated with modelling, but they pale in comparison with those that derive from an effective BPM Suite. Modelling on its own is not enough. It is a good start but represents just one part of the wider picture. While many organizations have existing modelling repositories, their original purpose was normally to support other initiatives in other areas (i.e., they seldom relate directly to the BPM project focus). However, where effective models are available, make use of them, but do not set out first to populate a modelling repository. This sort of effort is usually time and resource intensive, consuming several man-years of effort building up a great deal of unnecessary detail that is often out of date before the modelling exercise is completed.

Stand-alone modelling environments are generally a diversion on the path to achieving a successful BPM implementation. It is only when undertaking enterprise-wide initiatives that such modelling environments deliver some degree of benefit. In the short term, the best practice is to look for a BPM Suite that provides a fully integrated modelling repository.

Simulation techniques can help extrapolate into the future when quantifying and predicting the potential benefits. Simulation models can help uncover counter-intuitive tendencies in the envisaged process, and they can act as a confidence-builder, providing peace of mind to decision-makers. However, be aware that simulation models can consume a vast amount of resources in their development and testing. In addition, they are only as good as the assumptions and abstractions made within them. Use simulation models to test assumptions, not to hide the them.

The core components of a BPM Suite are a scalable process engine, a built-in modelling environment, a way of handling business data and content, a set of integration components (integrate existing applications), and an effective process monitoring/analytics capability to drive continuous process improvement. Their business event-aware environment tightly integrates with the processes, content, and analytics capabilities – providing a continuous process improvement system to optimize business and operational performance.

Just focusing on the productivity and efficiency aspect for a moment, the BPM Suite is a critical enabler in this area. Through the electronic management of work items, hand-offs between roles are automated, while delays and errors are virtually eliminated.

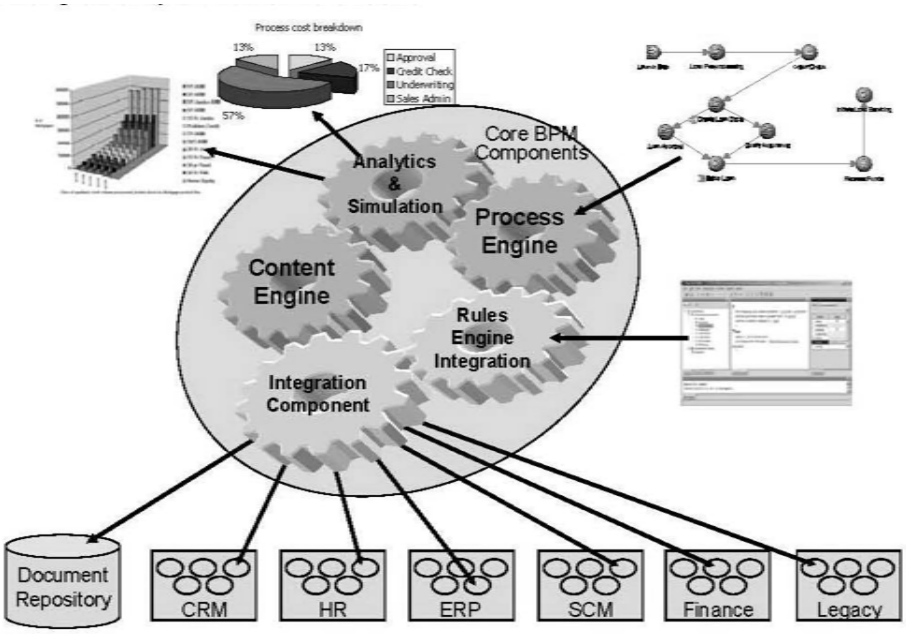

Fig. 5. Typical components in BPM Suite

Recent advances in technology integration have really changed the landscape for BPM projects. The workflow management tool of the 90's soaked up as much as 70% of the project budget in integration work. Developers had to create individual scripts at each point where information from a third party system was required. Potentially, a complex application like an ERP system would have required thousands of such scripts. As a result, the complexity and cost was astronomical. Moreover, if the back end application or the process changed, then all of the relevant scripts needed redevelopment.

Now, modern BPM Suites incorporate sophisticated mechanisms that support the clean integration of third party applications. One of the key best practices is to employ a "service-oriented" approach using Web Services. Web Services provide a framework that enable easier connectivity and greater flexibility. They allow organizations to be more nimble and adaptable by enabling them to create and deploy applications more rapidly by easily assembling services for component applications.

As a result, the organization can now wrap and reclaim those "best of breed" package and legacy applications. It can ring fence them within reusable "service-oriented" business capabilities that quickly combine into new process models, which can then drive the business via the integrated process engine. When application systems are integrated around the needs of the process, the costs and difficulty of training staff can be reduced significantly. There is also the critical need to manage the substance of those applications (the LOB data in all of its guises – transactions, structured content, documents, etc.). This is the data and information that describes the context of cases of work, supporting better decision-making and more comprehensive audit and compliance. The key requirement is that events relating to changes in state of the content (i.e., as objects are created, modified, or deleted, etc.) should automatically trigger the appropriate processes to deal with the change. Otherwise, it is back to having humans remember to respond.

Most BPM environments have also included some form of business rules to support complex decisions. But the use of business rules can also simplify process development, allowing apparently different problems to share common processes (with the business rules component handling the variation). By extracting sophisticated rules into a responsive business rules component, the system can then more effectively support business change, straight through processing and compliance. While all process engines imply support for business rules to a certain extent (conditional routing at a decision point in the process is one form of business rule), certain applications may need the capability to execute more sophisticated rules criteria and evaluate business policies. To do this, BPM Suites normally either integrate with third party rules engines or incorporate some capability internally. Often, those firms with a need for more sophisticated business rules already have an existing business rules engine in place (or already imbedded in a specialized application), and, therefore, the BPM engine should snap in to the current environment, re-using this functionality.

Again, the use of Web Services will continue to make this type of integration much more straightforward and standardized.

BPM Suites should also feature built-in process analytics, real-time Business Activity Monitoring (BAM), and simulation capabilities. This enables the ongoing optimization of the process, supporting evolutionary change as the organization adjusts its processes in bite sized chunks post implementation. If the business need changes (as it will do), then it is now trivial to reorient the process to deliver the desired results. Once the infrastructure is in place, the technology can deliver continuous process improvement through incremental releases, relieving the pressure in a controlled manner (versus an all at once approach). One of the best practices points to keep in mind is that there is no such thing as a perfect process. Processes will require iterative improvement over time. To support this, firms should look for an integrated suite that brings together all of the necessary components. Ensuring that a shared process model underpins the suite ensures the fidelity and accuracy of the model, as it is developed, deployed, monitored, analyzed, and optimized. This is in stark contrast with the alternative where a mix and match set of software products handle each distinct challenge. With this latter tactic, it is often difficult to maintain the fidelity and accuracy of models. As a result, project risk is increased.

This is especially true where a stand-alone process-modelling environment is used. Rather than a standalone add-on, process modelling is an integral part of the BPM Suite. Where an external modelling environment is used, experience shows that the import and translation is generally a problem. A lot of semantic information is missing or is not fully described (not well enough for execution). The harsh reality is that these models do not translate easily and will always require significant embellishment if they are to take advantage of the features of the BPM Suite. Furthermore, changes to the executed model in the process engine are then difficult to synchronize with the third party modelling tool.

On the other hand, with an integrated suite based on a shared process model, the modelling environment is capable of fully describing the process. It normally incorporates mechanisms to validate the model and ensure its fidelity as changes occur over time. Moreover, with an integrated suite supported by a shared model, firms can develop proactive responses to key business events such as a jump in interest rates, a hurricane in Florida, etc. This allows firms to create sets of well thought out actions in order to respond more quickly to changes in market conditions. Should that situation actually arise, the firm is much better prepared to redeploy its resources and processes.

There are other components that one could include, but the core set is based around the process engine along with its attendant content repository, integrated modelling tool, superior integration mechanisms for third party applications, advanced analytics, and simulation. In addition, the process engine itself must be geared for high performance in order to address the eventual enterprise application needs that will demand the BPM system to support millions of transactions and thousands of users. Together, these elements (i.e., a comprehensive BPM platform) give managers both the vehicle and the levers for effective business performance optimization, allowing them to adapt and evolve more adroitly than competitors using traditional approaches. So when developing the business case, factor in these different capabilities and consider how they can help the organization as it relentlessly focuses on improving its KPIs and achieving its KBOs.

5.7.6.4 Step 4 - Gain Executive Sponsorship

A common concern, among those involved in BPM projects, is the perceived difficulty associated with gaining commitment from senior executives in the business. Projects can originate from various areas and individuals within the organization. They can come from the executive boardroom where there is recognition of the need to drive the organization toward its KBOs. They can also originate from the LOB itself or even IT. However, no matter what direction the project comes from, it is essential to identify an executive sponsor and champion.

Without an executive sponsor, a range of problems can arise and project risk is increased. The BPM Project Manager (see Step 5 – Form the BPM Project Team) may have trouble engaging affected business managers. Without a clear mandate from the top, the business may simply lose interest or divert resources onto other initiatives during the project. In addition, when the project completes successfully, the executive sponsor will help broadcast the results at senior levels and act as a catalyst for innovation on future BPM projects.

Typically, these individuals have job titles such as COO, CEO, LOB Manager, Senior VP, Business Unit Manager, or Director (collectively described here as Executives). While it is impossible to cover all possible scenarios, this section attempts to highlight and discuss some of the central issues.

To get the high-level commitment and sponsorship necessary for success, it is essential to get the executives' "intellectual" buy-in. The core tactic is to point to the business impact, and how the approach helps them drive the organization toward its strategic objectives. Executives usually have a particular style and set of issues that they deem very important (their "hot buttons"). Understanding and working with these is critical. Remember that people have a lot of energy invested in the current approach (the processes), and their natural tendency is to reject initiatives that challenge the status quo. So take care when talking about their department or division. Instead of describing a business wrought with duplication and inefficiency, point to the issues but frame them in terms of opportunity. Rather than a negative, confrontational stance, help the Executives see the opportunity, engaging them into a collaborative effort that focuses on realizing the new vision. When it comes to understanding how Executives make decisions, one has to keep in mind the typically frenetic lives they lead. Each Executive normally has a cadre of trusted employees from within their business unit or functional group who help them make decisions. To get the project on the agenda and accepted, it is important to reach and continuously engage these "influencers."

Even getting the attention of the Executive can be a challenge. The BPM project is probably competing with a broad range of existing organizational initiatives. In most organizations, there are literally hundreds of disconnected projects and schemes. Indeed, this can act as a good starting point for the conversation. Integrating all of these disparate change programs under one umbrella can help reduce confusion in the business and rationalize the metrics that are used.

So what strategies are effective? It is always good to help them understand the trends in the industry and strategies employed by competitors. While relevant case studies and reference articles or books can be useful, the key objective is to bring in a bit of realism, helping them to understand deeply what is, in fact, happening in their organization. One approach is to walk them through "a day in the life of an order" – physically walking around the business, tracing what happens. To help build an understanding of customer perceptions at one of the major US banks, senior Executives committed to sitting with Customer Service Representatives for 2 hours per month to listen to what customers were really saying about their firm. Others talk of holding regular "town-hall" meetings with employees. In other words, get the Executive to experience what is actually happening in the trenches and see the impact on the business. In the old days, it was known as "walking the job" – a senior manager would take the time to sit with employees and get a better picture of the issues being faced at the front line.

Focus on the monetary return in terms of how the project will help the organization achieve its KBOs. At the heart of the argument, explain where savings and/or value innovations are going to come from; where opportunities exist to out-perform rivals; and detail how this sort of change is achievable. Avoid blanket statements around cost reduction. Focus on specific examples and point to specific improvements. In that way, people will better understand the opportunity since it will be more tangible and concrete. Also, highlight the risks but show what steps will help to minimize them. For longer-term BPM programs, set a series of stage gates and build a series of plans that will get the business to those stages.

It is worth keeping in mind that those Executives and LOB Managers have demanding performance objectives. BPM projects and the technology suites that support them will help them achieve those targets. So be aware of the challenges that they face. Help them understand how the BPM capability provides the mechanism that will deliver enhanced performance (doing more with less, more quickly), making the firm more agile and easier to do business with, and yet still ensuring compliance and reducing operational risk.

5.7.6.5 Step 5 – Form the BPM Project Team

The formation of an effective, cross-functional BPM Project Team is another critical step for the project. There are two general approaches. The first is to create a single team to develop and implement the Pilot project. This is an effective tactic as it allows the organization to focus on achieving a successful project – delivering a quick hit based on solving an immediate problem, proving the overall approach and delivering value in the short term. The BPM Project Team carries out the day-to-day work of the project, organizing and coordinating the work. Through the BPM Project Manager, the BPM Project Team is accountable to the Steering Group for the successful completion of the pilot project.

The other approach is to develop a BPM Centre of Excellence (CoE). The idea is that a BPM CoE comprises a group of committed individuals who focus on how the processes of the firm drive bottom-line profitability and performance. Such a group is usually responsible for supporting a number of BPM projects across the business, and keeping momentum going across a broad front. They provide a group of resources that are well versed in the best practices of process improvement.

They are usually responsible for developing common principles, language, frameworks, and methodologies for process development and process architecture management. In

some companies, they have sought to develop an overall process architecture, clarifying how key processes interact and how they are used by the various business units.

However, in the early stages, the CoE can represent an unnecessary overhead as it typically has a much wider scope than is necessary for the pilot. The increasing complexity that comes with too many interlocked variables can slow down the pilot and increase the risk of failure. The CoE concept comes into its own as the BPM program starts to address the needs of the wider organization. With more and more projects, the need increases for a coordinated and integrated approach. In a sense, the CoE becomes a direct descendant of the Steering Group. While still separate from the Steering Group, it provides a central repository for knowledge and best practices around BPM projects. So, implementing a CoE is an evolutionary step as part of the BPM story and experience as it spreads across the entire organization – rather than a critical prerequisite for a successful pilot. Indeed, some firms prefer to remain fleet of foot, sticking with a series of quick-hit projects rather than undertaking the transition to a BPM CoE. However, as you look at the opportunity more holistically, a CoE provides a sound mechanism to maintain and ensure the momentum of process and business performance improvements

For a successful pilot, avoid the CoE route and keep the BPM Project Team relatively small but effective. If the Project Team begins life with too many people it can easily become bogged down. In the short term, focus on what is achievable and then, having built the core skills, the group can grow as it attacks more complex and demanding processes. The necessary roles are:

- The BPM Project Manager – This individual will have day-to-day responsibility for running the BPM project. He or she will report to the Steering Group and is tasked with ensuring that the project remains on schedule.

- A Senior User from the area affected – Effectively, this person is the “Process Owner” for the affected business area. He or she will act as the primary project

resource to handle political problems and maintain a focus on the business objective of the project.

- One or more Subject Matter Experts (SME) from the line-of-business (LOB) area – These individuals will have a consummate knowledge of the operational mechanics of the current way of doing things. They will also need a deep appreciation of the macro-level business objectives. An SME is needed for each of the major business areas affected (but not every role in the process).

- Lead Business Analyst (or Process Architect) – This individual will provide the analytical rigor and techniques for the project. He or she will guide the SMEs and Senior User, helping them to identify improvement opportunities. Additional business analysts/process consultants may be necessary.

- IT specialists – At least one or two are needed to advice on opportunities to leverage and re-use existing IT assets. These individuals will need a detailed understanding of the capabilities of the selected BPM technology and experience of integrating multiple systems.

One of the founding rules for a successful project is to ensure that Project Team positions go to suitably qualified individuals. In each of these roles, one is looking for experience and a deep level of understanding. When assembling people from the business, ensure that they have a profound appreciation of existing applications and work practices.

When looking for Business Analysts, one needs to find individuals that are business savvy, yet fluent in the capabilities of technology. They need a deep appreciation of the power of process and an intimate understanding of how change occurs inside organizations. The individual fulfilling the lead role will probably have experience of several major projects with process at their core. They will need to be well versed in Business Process Reengineering (BPR) principles and practices, and/or continuous

process improvement (Six Sigma), and/or continuous quality improvement (TQM). Look for consummate diplomats who are capable of providing an effective bridge between IT and the business. This Business Analyst role is not suitable for a traditional IT systems analyst (who writes programming specifications). In some firms, the Business Analyst role has the title of Business Systems Manager where the individual acts as the primary interface between the IT department and the business unit or function.

Rather than allowing people to carry out roles for which they have little or no experience, it is probably better to take an external consultant. When selecting external consultants, be aware that virtually every consultant is trying to grow their expertise in this area. The key thing to look for is experience—experience in industry; experience in implementation; an understanding of best practices in change management and process improvement methodologies such as Six Sigma, TQM, and BPR; etc. You want people who understand the implications of BPM for business and have already seen it in action. Discern between the sales representative and those who will undertake the work. Consulting firms will talk expansively about their expertise and skill sets (often of those experts who are in sales mode). Look for specific skills and resumes from individuals proposed to participate in the engagement. Ask for their individual credentials in BPM and assess their BPM project experience with customers. If you are bringing in an individual as a "process expert," look at the associated business results from the projects where their expertise was established. Checking customer references is also equally important when assessing expertise and credentials.

5.7.6.6 Step 6 – Understand the Process

The first challenge is to really *understand* the process – to step outside of it and see it for what it is. Automating a bad process just makes it go faster, exacerbating existing problems and potentially introducing new ones. Therefore, it is important to take a fresh look at how the process operates and the assumptions made about the underlying

business need. Having deeply understood the process, it is much easier to see the opportunities for improvement before developing the improved process.

The temptation is to model to a high degree of detail. This is clearly difficult (if not impossible) and precisely the point where projects are stuck in analysis paralysis. The key argument to appreciate is that the detailed minutiae of the process are almost certainly a waste of time – the implemented solution will differ from the current way of doing things. The point is that what *most* people do is **not** the "best practice." After getting stuck in "analysis paralysis" for a while, they tend to implement what they have (something that is much the same as the original). After a year or two, they suddenly realize there is another way of looking at the process, and they end up throwing out their first endeavour, re-implementing a radically improved process that reflects their newfound wisdom. However, along the way they have wasted several man-years of effort and untold lost opportunity space. They mistakenly believe that by modelling the intricate detail of their end-to-end process (with flow diagrams) they have captured and understood the process.

Obviously, a starting point is needed. However, it is more important to look beyond the basic approaches and methods that enable improvement. Nevertheless, ensure that there is enough detail to provide a baseline for future measurements, reflecting the true nature of the current process. Technology can help. Analysis of a detailed "as is" model (if available), using simulation tools, can lead to improvements and a reduction in risk. But this sort of analysis will seldom reveal radical improvement ideas for the process itself. This is where a skilled Business Analyst and/or Process Architect will really add value. These people should be well trained and versed in alternative ways of looking at processes.

The **best practice is to model the process several times at a high level – using complementary techniques that provide contrasting perspectives** on the process. This is a critical point. Many organizations lose sight of the real objective and

laboriously model the "as is" situation. Remember that whatever the implemented solution, the critical success factor for a successful application is to rapidly iterate and improve the process over time. All models are, in the end, just one representation of reality (the old adage from Deming is "all models are wrong, some are useful"). With fresh perspectives of the process, the team can truly understand, seeing things that were just not visible when the only technique used was a flow diagram. Consider the use of Role Activity Diagrams (RADs) and Object State Transition Network (OSTN) techniques as complementary to flow diagram based approaches.

- RADs focus on how a "*Role* changes state as a result of the actions and interactions that occur." While looking superficially like some BPMN diagrams, the important point is that they allow people to focus on the behaviours and roles of the process, seeing who does what with whom. RADs also enable employees to see and understand the other roles in the process and more easily take the customer's point of view. The technique is extremely compact – for example, in a major mortgage business, a 24-page flow diagram was effectively represented on a single sheet.

- OSTN is part of a US DoD specification known as IDEF3 (Integrated Computer Aided Definition Language) and shows how things (the business objects) move through the process, changing state as different activities occur. The focus is on the object (not the order of activities). Effectively, the technique captures how the steps in the process modify and transform the state of the object. There are other modelling techniques that achieve the same sort of thing; but the key point is that these approaches focus the attention of the modeller on the steps in the process that *add value* (where the business object changes state).

When developing the initial set of flow diagrams (as, for most, which is the start point), ensure that the modelling team sticks to the core process and the major exceptions rather

than attempting to capture every potential route through the activities. But ensure that the team understands how much effort and time goes into managing exceptions.

To design appropriate process architectures – ones that truly reflects the needs of both procedures and more fluid practices – is not a trivial exercise. This is not a technology problem but one of business design. First, analysts need to understand the process fully – which is not the same as modelling every detail of the process. The very act of modelling a process usually changes the process itself (as people discover the inefficiencies of what they are doing). However, more importantly, trying to model everything about the process will inevitably lead to analysis paralysis (especially using drill-down functional decomposition techniques).

The key point to understand is that process optimization is a journey and not a one-time event. Understanding comes from contrasting different perspectives rather than trying to stick to one *true* approach. Moreover, a range of models can certainly help to understand processes better prior to attempting to implement a technological support environment (the expensive part). Having understood the process at a high level, iterative development is the core technique required to deal with the dynamic, ever-changing business environment.

5.7.6.7 Step 7 – Identify Breakthrough Opportunities

The primary opportunities for breakthrough improvements in business performance derive from the effective deployment of the BPM Suite. The BPM Suite enables a wide range of business benefits.

With an understanding of the capabilities of the BPM Suite and the needs of the process, it is relatively straightforward to spot the opportunities for breakthrough improvement. Some of the techniques introduced here are well known, but have an important function in analyzing the process. These ideas are introduced to help the team recognize areas of inefficiency. To some extent, they overlap with each other.

Potential for Faster Cycle Times

The core advantage of the BPM Suite is that it enables the organization to automate back end processes, mixing them with manual steps in the front office. This reduces cycle-time and removes opportunities for errors, improving customer service while allowing the organization to move staff to higher, value-adding activities.

Enhanced Customer Service

By automating the back end processes, the company was able to increase the time focused on value-added customer services up to 70%. They refocused how employees spent their time, generating new business and building stronger relationships with existing customers, while minimizing investments in non-revenue generating staff. As a result, loan-processing times can be up to 50% less.

Channel Integration

Look for situations where the customer relationship is evolving across different digital channels such as mobile, the web self-service, call centre, and kiosk. In the past, firms generally developed distinct systems and processes that dealt with each channel. However, this approach is fatally flawed as it makes it virtually impossible to deliver a consistent experience to the customer. Look for ways to link and integrate those different channels into the overall process. Use RADs to break down the potential customer interactions and how they will be reflected in the overall solution.

Work Items Handled Multiple Times

In document intensive processes, it is quite normal to find that work items are handled many more times than is necessary. For instance, it was found, at traffic court system that a typical citation was handled a minimum of 37 times, and half of all tasks consisted of moving paper from one desk to another. Because of streamlining the process (eliminating non-value adding manual tasks), installing a proactive process support

system, and managing the associated documents, they have achieved a 30 percent increase in the caseload with 15 percent fewer staff members.

Role Rationalization

Where possible, combine overlapping roles together to reduce the hand-offs and make better use of the resources available. The aim is to minimize the hand-offs. From a process point of view, that is where the risks often are. As work moves from one role to another, things can fall through the cracks and get forgotten or mislaid. All sorts of things can contribute to this risk factor, from staff sickness and absenteeism, through to information leakage and miscommunication.

Use RADs to understand the process from the human perspective, facilitating the design of effective job roles that can take on greater responsibility (the once-and-done or one-stop shop). It also focuses on the behaviours that roles need to exhibit and the sorts of interactions expected. Remember that systems and other processes can take on a role. Using RAD-based views of the process, it is relatively easy to spot roles that do not add much value (something that is quite hard to discover with a flow diagram).

Manage and Monitor Personnel Performance

The management and review of workers is poorly handled in many BPM implementations. While the overall BPM program may target business performance, at the team level there is seldom an adequate understanding of what this really means. Having understood what their people are capable of and having planned accordingly, team leaders need to track and monitor how well they actually perform against those targets. Through a focus on production management disciplines, some firms have derived as much as 40 percent additional productivity improvement over and above that achieved through the introduction of process automation using a BPM engine.

At its heart, production management is about the supervision of the people who work within the process – what their collective efforts can achieve, where they are struggling,

how much work they have coming down the pipe, and what they have to get out the door today, tomorrow, this week, or by the end of the month. First, look carefully at how management plans, communicates, and allocates work to its employees. Then it is a case of monitoring, analyzing, and, of course, focusing on improvement over time. Focusing employees' attention of how much they have to get done in a short period of time (say 3 hours) can make a big difference in the amount of work they get through in a week.

Better Manage Exceptions

Very often, the management of exceptions is what differentiates an organization from its competitors. Further, given the backdrop of technology-based applications, the vast majority of the work and resources go into handling exceptions. A BPM Suite enables the automation of the core process with well-known exceptions managed in a standard and efficient fashion.

In the short term, stick to the core process and the obvious exceptions rather than attempting to cater for every possible scenario. In production, the process models used to drive the business are easily adapted to handle new exceptions as they become an issue. It is worth building in a mechanism to route exceptional items to the process owner for resolution (if not provided in the BPM Suite). The process can then evolve rapidly over time in a controlled fashion.

Integrate Data and Documents

In these days of increasingly complex compliance regulations content has become even more critical to decision making processes. That means that the management of associated content is an essential aspect and therefore needs to be incorporated effectively into process descriptions. Indeed, firing processes at critical points where content changes state is an effective way of ensuring the right information gets to the right people at the right time, allowing them to make the right decisions faster.

5.7.6.8 Step 8 - Develop and Prototype on the BPM Suite

Having gone through the various stages of understanding the process and identifying improvement opportunities, the next challenge is to develop and implement the application. This is not as difficult as it may sound. Once the team has understood the process and developed a clear idea of how it will work in the new environment, it is normally a straightforward exercise to build the process models on your selected BPM Suite.

To avoid an expectation gap, re-engage the business with a series of prototypes. Some projects achieve this part in just a few days or weeks. Demonstrate the prototypes to affected managers and workers in the business and actively seek their feedback. It is important to listen actively and incorporate any suggestions into the next prototype. Because of the iterative nature of the BPM applications, it is important to take all opportunities to optimize performance on a continuous basis.

Moreover, prototyping provides a mechanism to ensure the user buy-in and ownership of the solution. If the business people see their suggestions reflected in the initially delivered solution, they will have a greater tendency to drive the iterative adaptation of the system once in production.

To support this it is important that the BPM Suite include integrated simulation capabilities to enable better analysis of the process prior to implementation and "in flight" when in production.

Where a separate stand-alone process-modelling repository is used, it needs to be understood that it is typically not a simple exercise to export the set of process models and then import them into the BPM Suite. In such situations, it is quite normal for those process definitions (exported from the modelling repository) to require significant additional work to take advantage of the features of the BPM Suite. Generally, that involves integrating back end applications and related content, and implementing links

to the organizational directory server (or equivalent mechanism within the BPM Suite). Moreover, any changes in the model in the execution environment are lost in the modelling repository, affecting process fidelity over time. As discussed earlier, a totally integrated (in-line) process model within a BPM Suite negates this problem.

5.7.6.9 Step 9 – Implement and Align Organizational Change

Changes to the organizational structure and associated roles and responsibilities go hand-in-hand with significant changes in process. As with all organizational change, there will be natural resistance that will need to be carefully planned and managed. Engaging specialist Organizational Development professionals into the project team will probably be useful.

To encourage the underlying cultural change required, focus on the generic roles and desired behaviours. Use RADs as a way to help people understand the process, the new role that they have to play, and the roles others will have to play. RADs will also help them see the customer's point of view, rather than limiting their scope to the activities they are directly involved in.

Training will play a big part in supporting that change and will require careful planning. In many firms, the training budget is not carried against the project itself as the functions are training their personnel anyway.

A coherent communication plan is needed to ensure that the right message gets through to the right people.

Finally, it is important to establish regular monitoring and review practices, assessing performance against established benchmarks. This allows managers to identify issues before they become problems, further improving and enhancing performance. The business should also be encouraged to experiment with the underlying process models as they explore innovative ways to adapt to changing business needs.

6 RESULTS OF THE THESIS

The advent of Business Process BPM and process oriented approaches remains the subject of great interest and yet, of great controversy. It is the pressure of survival (especially in countries in transition) and the need to prevent complacency that prompts process engineering. Further motivation comes from the desire to close competitive gaps and achieve superior performance standards, which prompt many organisations to embark on huge BPM projects.

Indeed, many of the reported failures are thought to be due to the primary focus on "technical aspects" and that contemporary strategic thinking takes a competence view of an organisation. Despite the abundance of scholarly work, available empirical evidence confirms that the majority of organisations are still far from the optimal level of effectiveness in organisational change concepts, methodologies and projects. Over the past ten years, more than 100 Croatian companies have attempted to transform their enterprise with the assistance of some change methodology. Most of change approaches were based on QM and TQM activities. During this period, quality engineers have facilitated transformation, but without dramatic results for many companies (most of them have realized only minor success). Ten years of implementation has revealed serious shortcomings of the QM-TQM approaches. Based on the limited success of several companies, the shortcomings of the QM-TQM approaches, and the current economic environment, a new methodology and accompanying delivery framework were needed. The BPM-PDF provides companies with a guide to fundamentally change their enterprise. Enterprises that desire fundamental change with engineering rigor and sound principles now have a solid guide to make their desires a reality.

The findings presented in this thesis make a distinctive contribution to the normative literature by pointing to important elements associated with the BPM-PDF and its implementation process which adopts a holistic approach.

Suggested framework integrates cultural, process and information technology strategies under the guidance of a plan. Key considerations in the deployment include the clear articulation of change intentions, the link between BPM-PDF and strategic programmes, the acquisition of process competencies, skills and knowledge, and the willingness to address people issues as part of an overall programme.

Process change initiatives often fail where management have attempted to set a path that is cast in stone yet ignored the changes going on around them. So, be flexible in program and project management; otherwise, the whole initiative could quickly get derailed. This is a collaborative effort between all parties concerned. It is essential to engage the business early and often throughout the project. Furthermore, a close partnership is needed between the business and IT to ensure success.

Given that, by definition, the BPM environment enables continuous adaptation of the solution – do not attempt to get everything perfectly mapped and running up front. Aim for an early implementation date, but plan on a period of rapid evolution to follow up the initial success. Work with the business to ensure that they take responsibility for this evolution by developing their own capabilities to handle the environment going forward. This is a key objective of change management – developing a business methodology that encourages process oriented thinking and continuous performance improvement. Indeed, the goal of the BPM project is to provide a continuous improvement mechanism for the business.

Pitfalls to Avoid (D. Miers, 2006)

1. Excluding any of the affected business units from the Steering Group.
2. Spending too much time modelling the “As Is” process.
3. Failing to re-assess the metrics.

4. Failing to demonstrate benefits at regular review points (to better focus benefit managers' minds). Indeed, reviewing the performance of processes should become a key management discipline.

5. Failing to ensure that Senior Executives and LOB Managers really understand the new, underlying capabilities of BPM technology and the implications this has on business strategy and management.

6. Focusing on a single modelling approach and excluding others – even high level comparative approaches contribute to better understanding and better processes.

7. Assuming it is possible to develop the perfect system, first time. Process success comes from iteration and adaptation.

8. Assuming that the business is committed – typically, they are not initially.

9. Proceeding without executive level support.

10. "Selling" the project purely on staff reduction to the general workforce. This will impact user acceptance substantially.

11. Ignoring the training and organizational change management aspects.

12. Automating a badly designed process.

13. Failing to ensure consensus on business strategy and project priorities.

14. Failing to identify a suitable BPM Engine that easily handles content, integrates with packaged back-end applications, or provides a forward-looking business process infrastructure that delivers appropriate analytics.

15. Allowing the scope of the project to creep due to the lack of proper goal setting and associated agreements within the BPM Project Team and/or Steering Committee.

16. Failing to recruit the right team members with the proper skill-sets into the BPM project team.

As stated earlier, this framework underlines the need to develop a repeatable BPM project methodology. With a successful project implementation, the team should take time to review the lessons learned and develop an inventory of skills developed. Overtime, it is these skills and experience that will form the underpinnings of a BPM Centre of Excellence.

No framework of this kind should be a substitute for thinking. There are frameworks of the "shake the box, pour out the pieces, and they will assemble themselves into the answer" variety. That is definitely not what you want a BPM-PDF to do. It is critical that the framework provide a vehicle for the analytic thought process rather than be a surrogate analyst. BPM-PDF is not a means of resolving other important, but unrelated business issues, such as debt restructuring, new product development, business acquisitions, or global marketing strategies. It is a guide for change an enterprise from a current state to a desired future condition. It is an organised collection of activities that describe “what” must be done to change entire enterprise, “who” will do that and "how". BPM-PDF is an effort to contextualize the change process and to understand through a holistic lens, the multi-level, cross-functional characteristics of organisation change; it is an integrated, multi-phase process; it does top-down to the end step, and iteration to step 2.

SUMMARY AND FURTHER WORKS

BPM is a journey to increase business performance without a definable destination. While the bumps on the road ahead may sound daunting, they are easy to overcome. The right tools (techniques, approaches, etc.) will help the project to avoid the common pitfalls. Developing the expertise and capabilities in-house may sound expensive, but the benefits to the business will certainly outweigh the perceived problems and cultural issues. Using the right techniques enables effective understanding at all levels of the organization. However, people need to see how the various procedures and practices combine and how they fit into the overall process. Once employees understand the overall process, they will begin to identify new ways of working which lead to performance and quality improvements.

Investments in process architecture are typically investments in operating assets for the firm (technology), and they can be significant. Even the concept of "process'' itself has not yet been fully comprehended by organisations. Therefore, there is a great need for more research which solicits opinions and perceptions of both academics and practitioners of process oriented change definitions and terms, and develop a clearer and common use of the terms. This study can be considered a good starting point in this area of research (especially in countries in transition), since it embraces a holistic perspective that unifies different focuses and definitions. So ensure that an effective BPM Suite is selected – one that can act as an enabling platform for the ongoing monitoring, adaptation, and improvement of processes. The whole point is that, having got the basics right, the organization can adapt, improve, and innovate as it drives to increase business performance and market leadership.

A project has a defined period of life, whereas processes, if maintained, supported, measured and managed, will continue to exist in a business-as-usual environment far beyond the life of the project. It is a project task to hand over processes in such a way that the business understands how to “look after” them. The organization must establish

a business process structure that maintains the life (efficiency and effectiveness) of its processes. Why are projects commenced? To provide and create value that contributes to the organization's strategy. A project is only complete once the reason for its existence has been achieved and it has been handed over to the business in such a way that the business can now sustain the project outcomes. The project manager and project sponsor need to ensure that there is a benefits management structure in place to monitor and realize the value that comes from the project. It is also critical to gather as many 'quick wins' throughout the project as is reasonable and sensible. These quick wins need to be evaluated and implemented, while gathering information on the savings that result from them. This creates funding and further momentum for BPM projects. Always let everyone (all stakeholders) know of the benefits gained from the implementations of quick wins -a great BPM selling tool.

This study has a number of limitations that need to be discussed. These limitations are mainly related to the broadness of the topic under investigation, representativeness and generalizability issues, lack of homogeneous organisational experiences, time constraints, up to date information and lack of BPM-PDF implementation experience in practice. However, the findings of the study point to several areas that are worthy for future research. As this study covers a broad area of research, there are many directions in which future research is needed.

Research on BPM implementation and critical success factors can be a valuable step toward enhancing chances of implementation success. A review of the BPM critical success factor/implementation literature reveals that in many cases, CSFs are presented based on a review of already published literature or limited case studies. As a result, one key limitation of this research is the occurrence of duplication in the frequency analysis of the success factors. Further, in situations when previous researchers have attempted to identify CSFs through their own empirical research, they have very often focused on only a specific aspect of the implementation or a specific kind of CSF. Therefore, there is little or no research that encompasses all significant CSF considerations. Past

approaches in studying CSFs have been very similar in manner to the fragmented approach taken for BPM implementation projects. The implementation process is one that must be regarded as a complex process that takes a non-reductionist approach; therefore, future research should place emphasis on the implementation process from a holistic perspective. Such a project is just as much about change and business transformation as it is about information technology; therefore, a CSF approach that moves beyond the scope of hardware and software is required. Specifically, case study and empirical study methodology has to be used to apply the CSF approach to a company that has already completed an implementation project.

As well, it has been revealed that there has been no research conducted to date that has considered the key BPM implementation CSFs from the perspectives of key stakeholders. This is a significant finding. While several studies have attempted to interview representatives from various stakeholder groups, they have not reported findings so that individual views of different stakeholder groups are identified; there is a need to "increase the multiplicity of relevant stakeholders" to include groups such as customers, suppliers, wholesalers, etc.

Finally, while change management appears to emerge as one of three most widely cited success factors, there still appears to be much variance with respect to what exactly is encompassed by the construct and what specific change management tactics would work. In view of the limitations of the above mentioned literature and based on the recommendations of other researchers, there is a need to focus future research efforts on the study of CSFs as they apply to the perspectives of key stakeholders and to ensure that this stakeholder approach is also comprehensive in its coverage of CSFs. Finally, there is need to conduct more in-depth research into the concept of change management and what it entails. All of the BPM success factors are important in their own rite; however, the need to approach the implementation from a change management perspective is central to the success of any BPM project. The gap in this aspect of the literature needs to be explored in more detail. Expressly, there is a need to identify the

strategies to be employed and the explicit tactics to be used to successfully manage an BPM implementation project.

There is a lack of methodological research constructs and variables suitable for conducting process oriented change research. In the measurement area, for instance, research has difficulties in measuring the success of projects that are semi-completed. In practice, it is not unusual to see several projects that have not been completely rolled out. Therefore there is a pressing need to develop multi-level measures that could provide assessment of the efforts more accurately.

While assessing the impact and results of a BPM-PDF in the light of organisational efficiency and effectiveness, the evaluator must address several critical questions. The strategic relevance of the reengineered-redesigned process should be accessed through:

- Cost displacement or cost reduction (COSTS)
- Development and offering of new or improved products or services (PRODUCTS)
- Development of new administrative control and planning processes (CONTROL)
- Offering significant tangible benefits (e.g., business cycle reduction, inventory reduction) (BENEFITS)
- Offering new ways of competing and customer-supplier relations (COMPETITION)
- Obtaining organisational changes (shift toward process organisation) (ORGANISATION)
- Work quality improvement, focusing on the organisations key measures and possible outsourcing (QUALITY)

Comparing the current corporate state (in terms of reengineered-redesigned business processes) to the state that existed, when starting a particular project, gives an indication or an assessment of the rate of progress that has been made. To recognise where the projects are on the development continuum we have to employ transition analysis. Wherever possible, the strategic relevance parameters of the previous and attained states must be compared or benchmarked against an industry average and not against the most aggressive competitor. These assessments are particularly appropriate in the field of cost reduction, business cycle or inventory reduction, shifting toward a process organisation, and quality improvement. The previous state of the other parameters is in most cases estimated by the researcher, with improvements evaluated by comparing to the planned values.

As BPM-PDF is a long-term programme of change, especially when embraced as a strategic improvement effort, it is more likely that a longitudinal type of research will be most suitable for studying such a phenomenon. This approach allows for more data to be collected, and enables more complete assessment to be made, and more rigorous evidence to emerge. Research that designs its quantitative and qualitative samples to be heterogeneous, representing different sectors, cultures, approaches and management configurations, should enable the emergence of more research findings, and facilitate comparative kinds of studies.

In view of the assessment related to the future of process oriented change concepts and practice, it would be interesting for researchers to explore how the BPM-PDF integrate with other management approaches, like enterprise resource planning, electronic commerce, learning organisation, and knowledge management. It is expected that organisations will begin to face the challenge of embracing different management tools in a complementary manner.

Bibliography

Al-Mudimgh, A. S. (2007). *The role and impact of business process management in enterprise systems implementation.* Business Process Management Journal Vol. 13 No. 6, 2007 pp. 866-874.

Akhafan, P., Jafari, M. and Fathian, M. (2006). *CSF of KM systems: A multi-case analysis.* European Business Review Vol. 18 No. 2, 2006 pp. 97-113.

Aladwani, A.M. (2001). *Change management strategies for successful ERP implementation.* Business Process Management Journal, Vol. 7, p. 266.

Al-Mashari, M. (2002). *Enterprise resource planning (ERP) systems: a research agenda.* Industrial Management & Data Systems, Vol. 102, pp. 165-70.

Al-Mashari, M., Al-Mudimigh, A. and Zairi, M. (2003). *Enterprise resource planning: a taxonomy of critical factors.* European Journal of Operational Research, Vol. 146, pp. 352-64.

Al-Mudimigh, A., Zairi, M. and Al-Mashari, M. (2001). *ERP software implementation: an integrative framework.* European Journal of Information Systems, Vol. 10, p. 216.

Bajwa, D.S., Garcia, J.E. and Mooney, T. (2004). *An integrative framework for the assimilation of enterprise resource planning systems: phases, antecedents, and outcomes*. Journal of Computer Information Systems, Vol. 44, pp. 81-90.

Bancroft, N.H., Seip, H. and Sprengel, A. (1998). *Implementing SAP R/3 – How to Introduce a Large System into a Large Organisation*. Manning Publications, Greenwich, CT

Belassi, W. & Tukel, O. I. (1996). *A new framework for determining critical success/failure factors in projects.* International Journal of Project Management, 14(3), 141-151.

Berg, B.L. (2004). *Qualitative Research Methods for the Social Sciences*. Pearson, Boston, MA.

Berry, L.L., Seiders, K. and Gresham, L.G. (1997). *For love and money: the common traits of successful retailers.* Managing Service Quality, Vol. 26 No. 2, pp. 7-23.

Black, J. (1990). *The role and development of a manufacturing strategy*. BPICS Control, pp. 29-31.

Boynton, A.C. and Zmud, R.W. (1984). *An assessment of critical success factors*. Sloan Management Review (pre-1986), Vol. 25, p. 17.

Brotherton, B. and Leslie, D. (1991). *Critical information needs for achieving strategic goals*. In Teare, R. and Boer, A. (Eds), Strategic Hospitality Management: Theory and Practice for the 1990's, Cassell, London, pp. 33-44.

Brotherton, B. (2004). *Critical success factors in UK corporate hotels*. The Service Industries Journal, Vol. 24 No. 3.

Chen, I.J. (2001). *Planning for ERP systems: analysis and future trend*. Business Process Management Journal, Vol. 7, p. 374.

Chrusciel, D. and Field, D.W. (2006). *Success factors in dealing with significant change in an organization.* Business Process Management Journal Vol. 12 No. 4, 2006 pp. 503-516.

Daniel, D. R. (1961). *Management Information Crisis*. In: *Harvard Business Review*, 111-116.

Davis, G.B. (1979). *Comments on the critical success factors method for obtaining management information requirements*. MIS Quarterly, Vol. 3 No. 3, pp. 57-8.

Davison, R. (2002). *Cultural complications of ERP", Association for Computing Machinery.* Communications of the ACM, Vol. 45, p. 109.

Devlin, G. (1989). *How to implement a winning strategy*. European Management Journal, Vol. 7 No. 3, pp. 377-83.

Duchessi, P., Schaninger, C.M. and Hobbs, D.R. (1989). *Implementing a manufacturing planning and control system*. California Management Review, Vol. 31 No. 3, pp. 75-90.

Dupuis, M. and Prime, N. (1996). *Business distance and global retailing: a model for analysis of key success/failure factors*. International Journal of Retail and Distribution Management, Vol. 24 No. 11, pp. 30-8.

Edwards, C., Ward, J. and Bytheway, A. (1991). *The Essence of Information Systems.* Prentice-Hall, Englewood Cliffs, NJ.

Finney, S. and Corbett, M. (2007). *ERP implementation: a compilation and analysis of critical success factors.* Business Process Management Journal Vol. 13 No. 3, 2007 pp. 329-347.

Geller, A.N. (1985a). *Tracking the critical success factors for hotel companies*. The Cornell Hotel and Restaurant Administration Quarterly, Vol. 25 No. 4, pp. 76-81.

Ghymn, K.I. and King, W.R. (1976). *Design of a strategic planning management information system.* OMEGA, Vol. 4, pp. 595-607.

Griffin, R.K. (1995). *A categorisation scheme for critical success factors of lodging yield management systems.* International Journal of Hospitality Management, Vols 14 No. 3/4, pp. 325-38.

Grunert, K.G. and Ellegaard, C. (1993). *The concept of critical success factors: theory and method.* In Baker, M.J. (Ed.), Perspectives on Marketing Management, Vol. 3, Wiley, Chichester, pp. 245-74.

Gulledge, T.R. and Sommer, R.A. (2002). *Business process management: public sector implications.* Business Process Management Journal, Vol. 8, p. 364.

Hammer, M. & Champy, J. (1993). *Re-engineering the Corporation*. Harper Collins Publishers, New York.

Harmon, P. (2005). *Business process change: A manager's guide to improving, redesigning and automating processes*. Morgan Kaufmann Publishers.

Hardaker, M. and Ward, B.K. (1987). *Getting things done: how to make a team work.* Harvard Business Review, Vol. 65 No. 6, pp. 112-20.

Hickey, G. (1993). *Strategic IS/IT planning*. In Peppard, J. (Ed.), IT Strategy for Business, Pitman, London, pp. 79-96.

Holland, C. and Light, B. (1999). *A critical success factors model for ERP implementation*. IEEE Software, Vol. 16, p. 30.

Hooley, G.J. and Saunders, J. (1993). *Competitive Positioning: The Key to Market Success.* Prentice-Hall International (UK) Limited, Hemel Hempstead.

Jeston, J., J. Nelis (2008). *BPM Practical Guidelines to Successful Implementations*. BUTTERWORTH HEINEMANN.

Johnson, G. and Scholes, K. (1993). *Exploring Corporate Strategy: Text and Cases*. 3rd ed., Prentice-Hall International (UK) Ltd, Hemel Hempstead.

Kalling, T. (2003). *ERP systems and the strategic management processes that lead to competitive advantage*. Information Resources Management Journal, Vol. 16, p. 46.

Ketelhohn, W. (1998). *What is a key success factor*? European Management Journal, Vol. 16 No. 3, pp. 335-40.

Kraemmergaard, P. and Rose, J. (2002). *Managerial competences for ERP journeys*. Information Systems Frontiers, Vol. 4, p. 199.

Leidecker, J.K. and Bruno, A.V. (1984). *Identifying and using critical success factors*. Long Range Planning, Vol. 17 No. 1, pp. 23-32.

Miers, D. (2006). *The Keys to BPM Project Success*. BPTrends.

Miles, M.B. and Huberman, A.M. (1994). *Qualitative Data Analysis*. Sage, Thousand Oaks, CA.

Munro, M.C. and Wheeler, B.R. (1980). *Planning, critical success factors and management's information requirements*. MIS Quarterly, Vol. 4, pp. 27-38.

Nah, F.F-H., Lau, J.L-S. and Kuang, J. (2001). *Critical factors for successful implementation of enterprise systems.* Business Process Management Journal, Vol. 7, p. 285.

Nguyen, L.D., Ogunlana, S.O. and Do Thi Xuan Lan. *A study on project success factors in large construction projects in Vietnam.* Journal: Engineering, Construction and Architectural Management Year: 2004 Volume: 11 Issue: 6 Page: 404 - 413

Preece I. and Peppard J. (1995). The content, context and process of business process re-engineering. Kogan Page, London.

Quesada, H. and Gazo, R. (2007). Methodology for determining key internal business processes based on critical success factors. Business Process Management Journal Vol. 13 No. 1, 2007 pp. 5-20.

Robson, W. (1994). Strategic Management and Information Systems: An Integrated Approach. Pitman, London.

Rockhart, J.F. (1979). *Chief executives define their own data needs*. Harvard Business Review, Vol. 57, pp. 81-93.

Rosemann, M., Wises, J. (1999). *Measuring the performance of ERP software: a balanced scorecard approach.* paper presented at 10th Australasian Conference on Information Systems, Wellington, December 1-3,.

Rosemblum, J. and Keller, R.A. (1994). *Building a learning organisation at Coopers & Lybrand.* Planning Review, Vol. 22 No. 5, pp. 28-9, 44.

Rubin, I.M. and Seeling, W. (1967). *Experience as a factor in the selection and performance of project managers.* IEEE Transactions on Engineering and Management, Vol. 14 No. 3, pp. 131-5.

Rungasamy, S., Antony, J. and Ghosh, S. (2002). *CSF for SPC implementation in UK SME.* The TQM Magazine, Volume 14, Number 4.

Sanvido, V., Grobler, F., Parfitt, K., Guvenis, M. and Coyle, M. (1992). *Critical success factors for construction projects*. Journal of Construction Engineering and Management, ASCE, Vol. 118 No. 1, pp. 94-111.

Scott, J.E. and Vessey, I. (2000). *Implementing enterprise resource planning systems: the role of learning from failure.* Information Systems Frontiers, Vol. 2, p. 213.

Silverman, D. (2000). *Doing Qualitative Research: A Practical Handbook*. Sage, Thousand Oaks, CA.

Siriginidi, S.R. (2000b). *Enterprise resource planning in reengineering business.* Business Process Management Journal, Vol. 6, p. 376.

Skok, W. and Legge, M. (2002). *Evaluating enterprise resource planning (ERP) systems using an interpretive approach*. Knowledge and Process Management, Vol. 9, p. 72.

Somers, T.M. and Nelson, K. (2001). *The impact of critical success factors across the stages of enterprise resource planning implementations*. Proceeding of the 34th Hawaii International Conference on System Sciences, Hawaii.

Sousa de Vasconcellos e Sa, J.A. (1988). *The impact of key success factors on company performance.* Long Range Planning, Vol. 21 No. 6, pp. 56-64.

Spurway, K. (2008). *The State of BPM: Perspectives of an Industry Insider.*

Strauss, A. and Corbin, J. (1990a). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage, Newbury Park, CA.

Tarafdar, M. and Roy, R.K. (2003). *Analyzing the adoption of enterprise resource planning systems in Indian organizations: a process framework*. Journal of Global Information Technology Management, Vol. 6, p. 31.

Tozer, E. (1988). *Planning for Effective Business Information Systems*. Pergammon, Oxford.

Trimmer, K.J., Pumphrey, L.D. and Wiggins, C. (2002). *ERP implementation in rural health care.* Journal of Management in Medicine, Vol. 16, p. 113.

Umble, E.J., Haft, R.R. and Umble, M.M. (2003). *Enterprise resource planning: implementation procedures and critical success factors*. European Journal of Operational Research, Vol. 146, pp. 241-57.

Underdown R., R. Wallace, J. Weddle, and J. Sarki. (1995). *Grasping the Agile Opportunity: A Small Manufacturer's Perspective.* Proceedings of the Agile Manufacturing Enterprise Forum.

Valiris G. and Glykas M. (1999). *Critical review of existing BPR methodologies; A need for a holistic approach.* Business Process Management Journal Vol. 5 University Press.

Vakola M. and Rezgui Y (2000). *Critique of existing BPR methodologies; The development and implementation of a new methodology*. Business Process Management Journal Vol. 6 University Press

Van der Meer, J. and Calori, R. (1989). *Strategic management in technology-intensive industries*. International Journal of Technology Management, Vol. 4 No. 2, pp. 127-39.

Ward, B.K. (1992). *Process performance measurement*. Proc. 5th Int. Conference on Total Quality Management, June, IFS Ltd, pp. 111-19.

Ward, B.K. (1992). *Process performance measurement*. Proc. 5th Int. Conference on Total Quality Management, June, IFS Ltd, pp. 111-19.

Watson, G.H. (1993). *How process benchmarking supports corporate strategy*. The Planning Review, Vol. 21 No. 1, pp. 12-15.

Williams, J.J. and Ramaprasad, A. (1996). *A taxonomy of critical success factors*. EuropeanJournal of Information Systems, Vol. 5, pp. 250-60.

List of figures

List of abbreviations

BPM – Business Process Management

BPM-PDF – Business Process Management Project Delivery Framework

BAM - Business Activity Monitoring

BPE – Business Process Engineering

BPEL – Business Process Extended Language

BPI – Business Process Improvement

BPMN – Business Process Management Notation

BPMS – Business Process Management Suite

BPR – Business Process Reengineering

CEO – Chief Executive Officer

CIO – Chief Information Officer

CoE - Centre of Excellence

COO – Chief Operating Officer

CRM – Customer Relationship Manager

CSF – Critical Success Factor

CXO - Chief Executive Officer

ERP – Enterprise Resource Planning

ES – Enterprise System

IDEF3 - Integrated Computer Aided Definition Language

IDE - Integrated Development Environment

IS – Information System

IT – Information Technology

KBO - Key Business Objectives

KCSF – Key CSF

KPI – Key Performance Indicator

LOB – Line Of Business

OSTN - Object State Transition Network

QM – Quality Management

RAD – Role Activity Diagram

ROI – Return Of Investment

SME - Subject Matter Experts

TQM – Total Quality Management

US DoD – United States Department of Defence

VP – Vice President