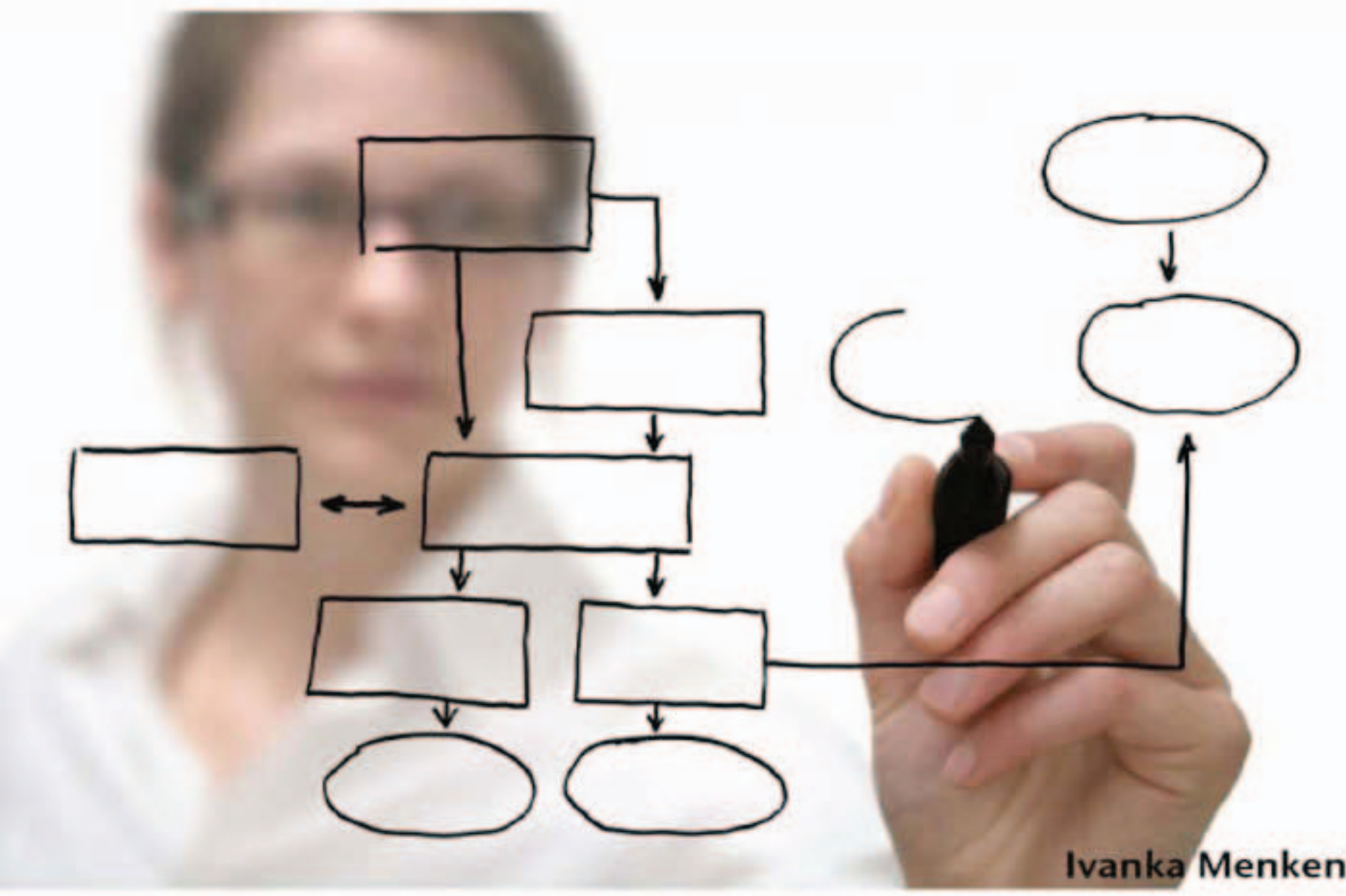
The Business Process Management Guide

Practical Methodology and Guidelines to Successful BPM



The Business Process Management Guide:

Practical Methodology and Guidelines to Successful BPM Implementation and Improvement

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INTRODUCTION ROADMAP

Many organizations are looking to improve their understanding with regards to aligning their business processes, and as a result are looking to implement/improve the Business Process Management process, as an overall improvement to the structure and quality of the organization.
This document describes the contents of Business Process Management guide.

The guide is designed to answer many of the questions that Business Process Management raises and provides you with useful guides, templates and essential, but simple assessments.

There are a total of 28 documents in this guide:

The below chapters: can be used to educate or be used as the basis for management presentations or when making business cases for implementation.

- Introduction Business Process Management
- BPM & Workflow Software
- Avoiding Disaster – Your first BPM Project
- Value & Benefits – Make your Case for BPM
- BPM & ROI
- BPM Continual Improvement

These presentations provide detailed and comprehensive guides through different aspects of Business Process Management. Starting, with an introduction to the concept, and a closer look at the Governance involved with BPM, and then following your progression in the implementation of BPM, avoiding disasters and risks, how to make a good business case for BPM – using the benefits and ROI opportunities, and finally a focus on continual process improvement.

16 Supporting documents: These supporting documents and assessments will help you identify the areas within your organization that require the most activity in terms of change and improvement. They underpin concepts initially covered within the presentations, and go into lots more detail to guide you in your Business Process Management maturity.

We have itemized and categorized the supporting documents into a logical order of **Plan, Do Check and Act**, relating to the stages of planning, implementation, or improvement, where they will be most helpful to you. You can use these documents and resources within your own organization or as a template to help you in prepare your own bespoke documentation.

PLAN

- BPM - The Business Process Model - An introduction to the terminology and icons used in the Business Process Model.

- Business Process Modelling Overview - overview of what Business Process Modelling is all about, and where it fits in an organisation.

- Business Process Modelling Notation – this document explores BMPN and explains how BPMN defines a Business Process Diagram (BPD), which is based on a flowcharting technique tailored for creating graphical models of business process operations.

- Medicare Case Study – A glimpse into a large organization who has successfully implemented BPM.

- BPM Benefits Checklist - A checklist that you can review for each of your processes or to get a general sense of the types of benefits you can expect from BPM – great for building a Business Case.

- Example Common Business Objectives – A supporting document from the BRM & ROI presentation, looking at the common business objectives for all organizations.

DO

- The Integration of Knowledge Mapping into Existing Business Processes - The creation, renewal and sharing of knowledge are clearly critical to the delivery of innovative, and cost effective, products and services, this document looks at how Knowledge Management and BPM can work together, to ensure organizational objectives and success.

- Business Process Management-How to Scale you're Process Documentation Initiative – This extensive document gives a clear, step by step pathway to a successful documentation initiative – a crucial element of BPM.

- RACI Methodology and BPM - A simple yet powerful methodology that focuses on the "human-side" of BPM is the RACI Methodology – used to identifying roles and responsibilities during a BPM implementation process.

- BPM - Design for Workflow & Rules Management Systems – Definitions and insight into Workflow and Rules Management systems, including characteristics, design considerations and interfaces.

- BPM Architecture Considerations - This document outlines three sets of key architecture considerations required for a successful configuration of an enterprise Business Process Management (BPM) implementation and deployment. These considerations are:
    - Deployment Environments
    - Architecture Options
    - Hardware and Database Sizing

CHECK

- KPI's - Key Performance Indicators (KPIs) are quantitative and qualitative measures used to review an organisation's progress against its goals. This document explains the concept and application of KPI's.

- Align Roles and Responsibilities to Make BPM Work - Business units and the IT organization are both responsible for ensuring that business process management initiatives are successfully executed. The more roles and responsibilities for each side that are defined at the onset of a BPM project, the more quickly an organization can reap the benefits. This document identifies the roles and responsibilities required for successful BPM.

ACT

- Project to Program - This document describes how the movement toward broad BPM Programs has changed what companies need in terms of BPM technology and "know how". It describes 3 steps for establishing a solid foundation for a BPM Program that will enable your organization to scale its process improvement capability in a way that will deliver maximum value to the business.

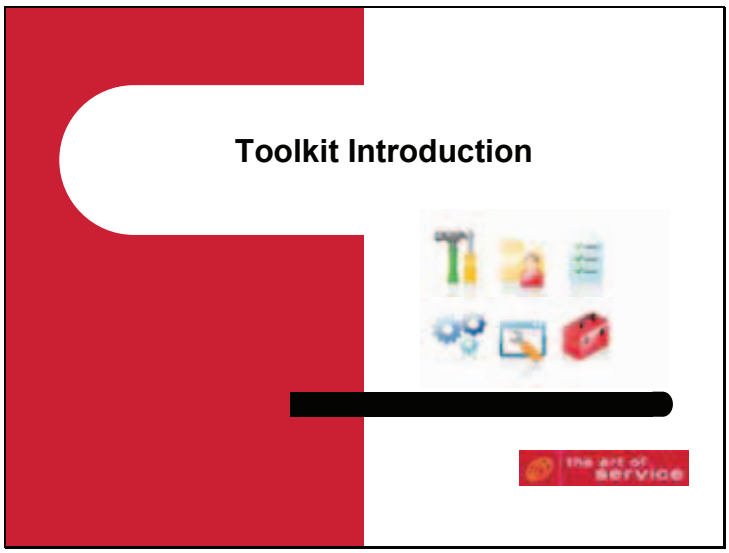
- Perform Business Continuity and Disaster Recovery via Business Process Management and Other Software Tools – This document is a great aid for organizations wishing to improve their Enterprise Architecture and their Business Continuity and Disaster Recovery capabilities, and explains the way to implement an approach using BPM tools for planning their business processes.

6 Bonus Documents: In addition, to the supporting documents, we have also provided some 'bonus documents' as part of this toolkit. This additional information will enable you to improve your organizations Business Process Management understanding and knowledge base.

These bonus documents are focused on the Six Sigma Methodology. As part of this file, you will find:

- Six Sigma Presentation – an introduction to the methodology, including –what it is, history and how and when to use it.
- Six Sigma – Short Overview – a detailed overview including statistics and the 'six themes' of Six Sigma.
- Six Sigma – Factsheet – A perfect tool for education –use this to update your own knowledge and understanding of Six Sigma, or as a development tool for your staff.
- Six Sigma Starter Kit – An extensive document, designed to easily guide you through the scary initial stages of Six Sigma.
- Six Sigma Defining Requirements - The objective of this document is to be a standard/template for the development of Service Level Requirements. The development of Service Level Requirements is the first step to quantify the desired service delivery.
- Simple Sigma Calculator – a fantastic tool to aid your Six Sigma understanding and implementation.

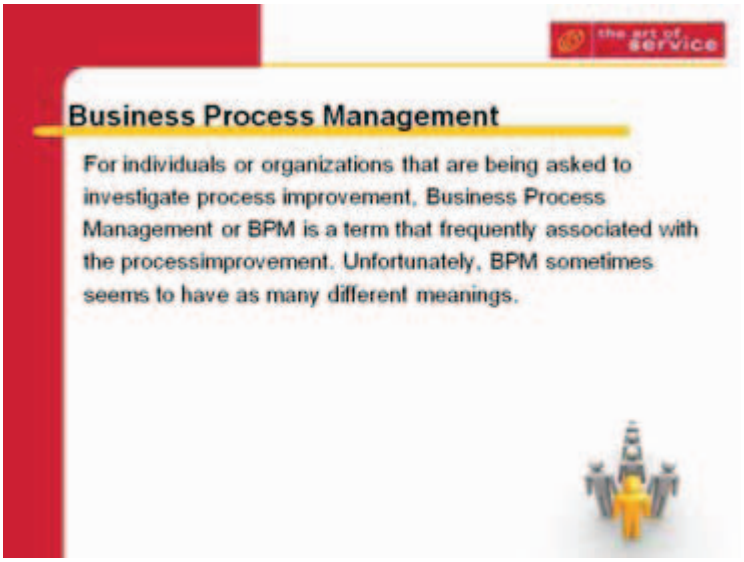
INTRODUCTION – BUSINESS PROCESS MANAGEMENT



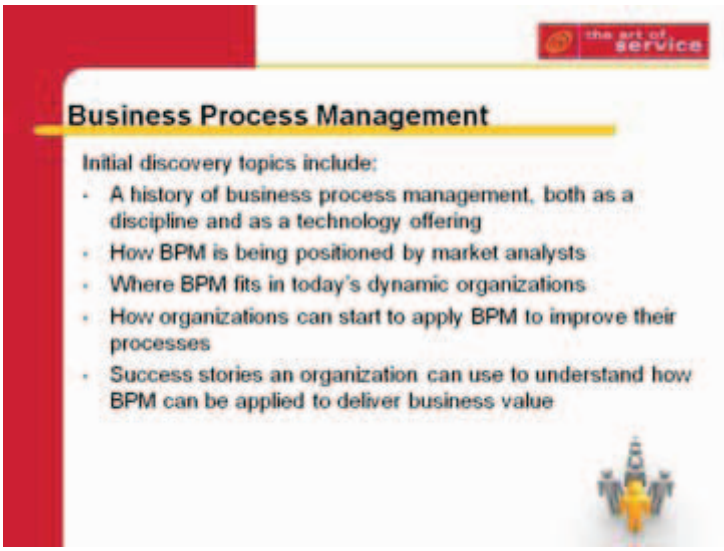
Aim of this guide

- Provide an introduction to the general principles with regards to Business Process Management;
- Provide user-friendly documents.
- Improve your knowledge and understanding.
- Provide educational and awareness tools for staff within your organization.

The importance of having an efficient system of business processes to drive an organization may seem like basic principle. If a business isn't running efficiently, it may not be realizing or maximizing its financial, market coverage or other strategic goals. In a recent survey of 1,400 CIOs by Gartner Executive Programs, the top business priority identified by CIOs was business process improvement.

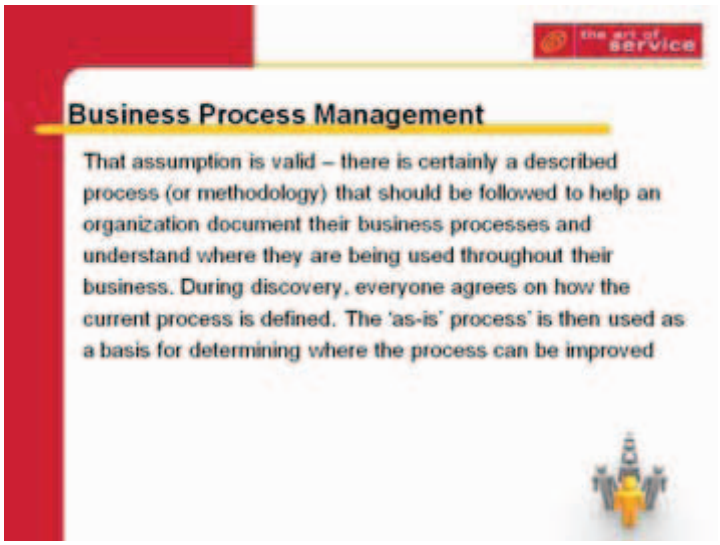


There are many sources of information about BPM and how it can be applied in organizations. These articles span all industries and address many different business processes. Finding, understanding and applying this knowledge are an evolutionary process. In this presentation, we will summarize the key BPM concepts relevant to early discovery and point readers to more in-depth concepts that build on BPM basics.

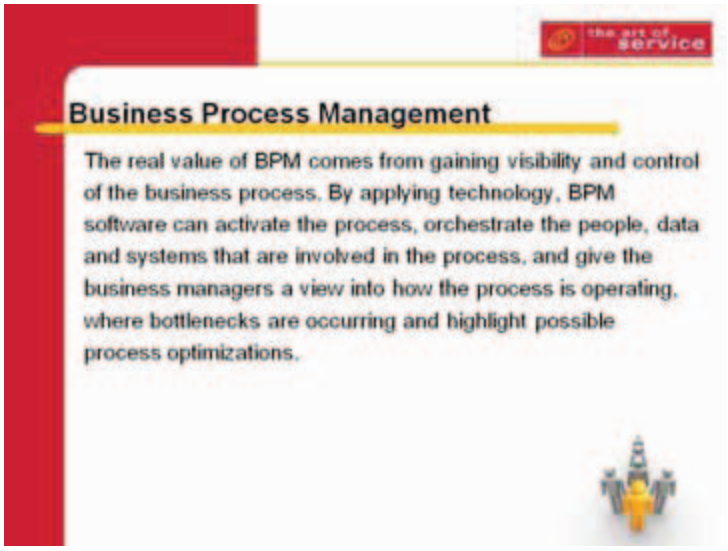


BPM Distilled

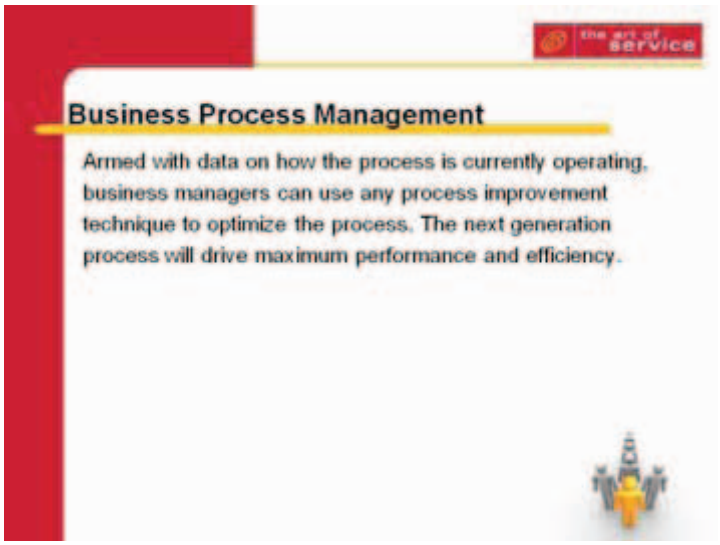
Business Process Management (BPM) is the understanding, visibility and control of business processes. A business processes represents a discrete series of activity or task steps that can span people, applications, business events and organizations. Based on this definition, the reader could logically relate BPM with other process improvement disciplines.



However, simply documenting what the process look like does not give the business managers (those responsible for the actual results) control over the process.



Process operational metrics are automatically collected by the BPM software. Business metrics or key performance indicators (KPIs) can also be measured to add specific process or organizational context to the data.



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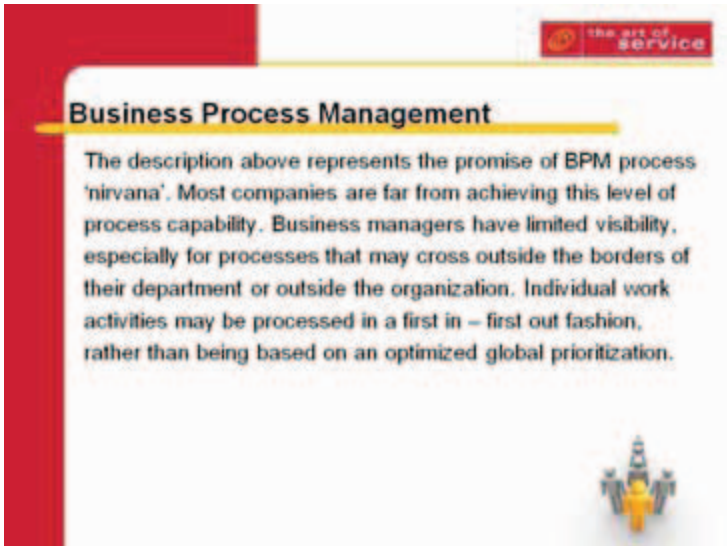
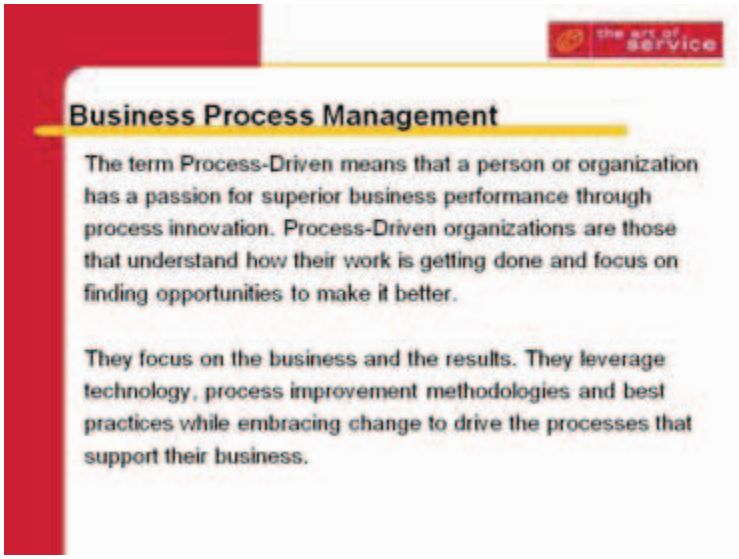
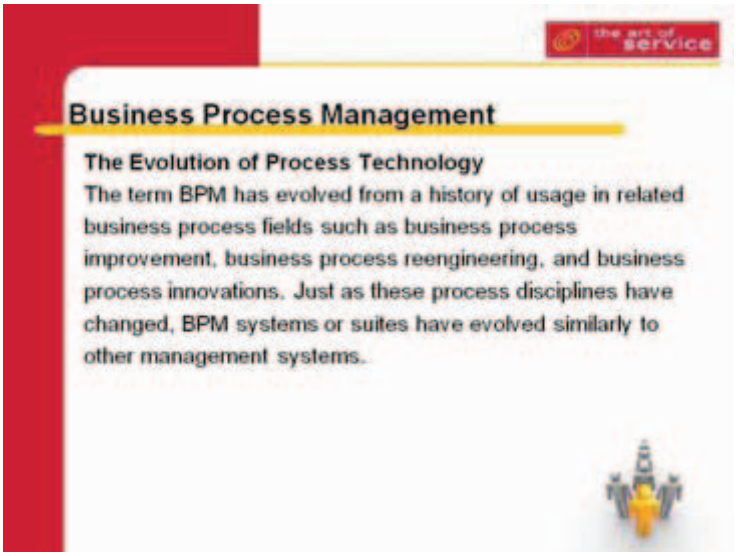


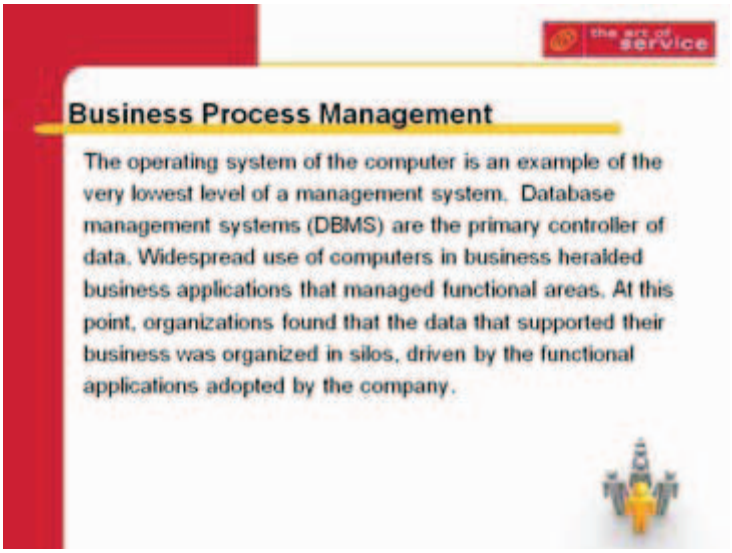
For organizations that have expanded or grown by acquisition, each business unit may perform similar processes, but each completing the work using specialized processes that don't Allow sharing of human and technology resources. Not knowing the current status of work paralyzes the business because managers cannot predict when work will be completed, who will complete it, if there are problems and how much the work is costing the company.



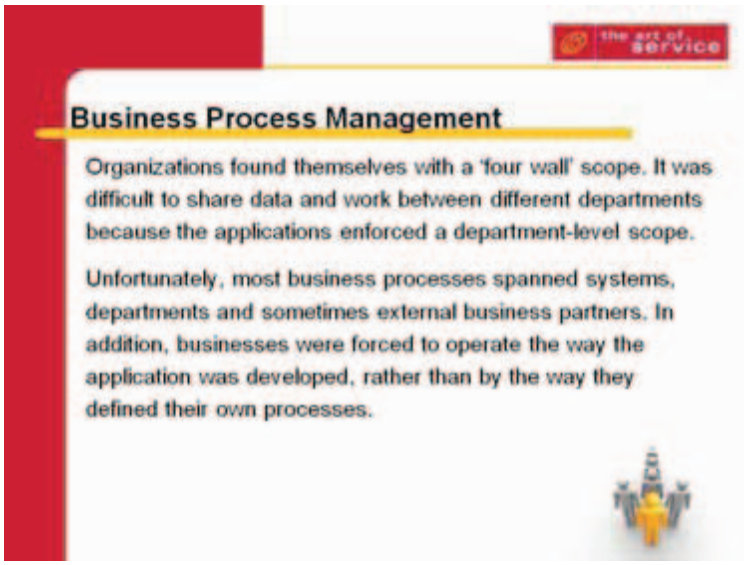
BPM is a business-oriented architecture that allows process owners to set improvement goals and orchestrate actions across the company to achieve those goals.



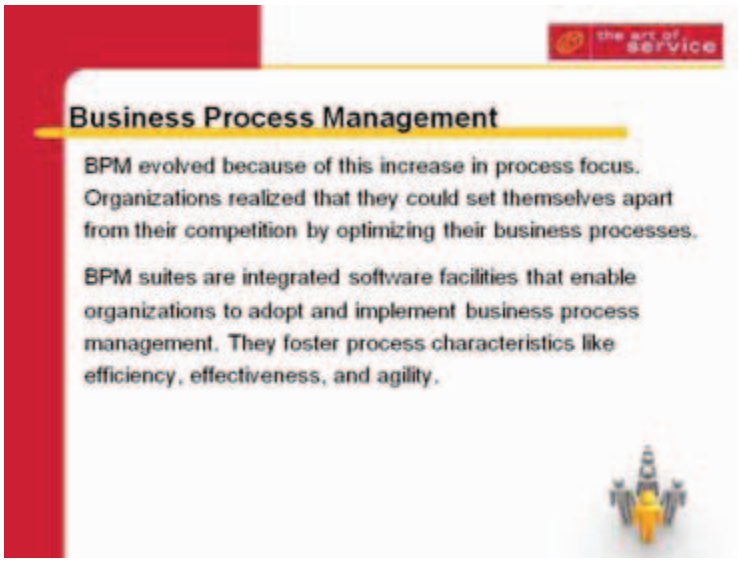
These advances can be mapped at the lowest level to the technology itself. Understanding these relationships is important to help ‘place’ a BPMS in the hierarchy of an organizations systems.



Examples of these types of application include Enterprise Resource Planning (ERP) Systems, Customer Relationship Management (CRM) systems and Order Management (OM) systems.

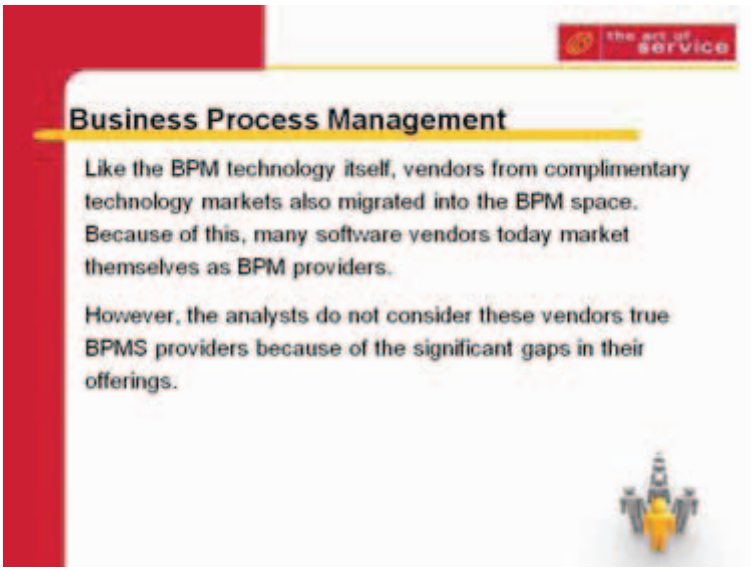


These applications were frequently and sometimes impossible to modify and it was typically and lengthy and costly undertaking. Technology came to the rescue again, and tools like workflow management systems and enterprise application integration (EAI) suites were introduced. These tools allowed work and data to be routed and synchronized across an organization, but they simply served as conduits. It was difficult to tie the activities back to a higher level business process. However, they did serve as an enabler of BPM because they provided cross-system accessibility



In order to accomplish this, they must contain features that support the following:

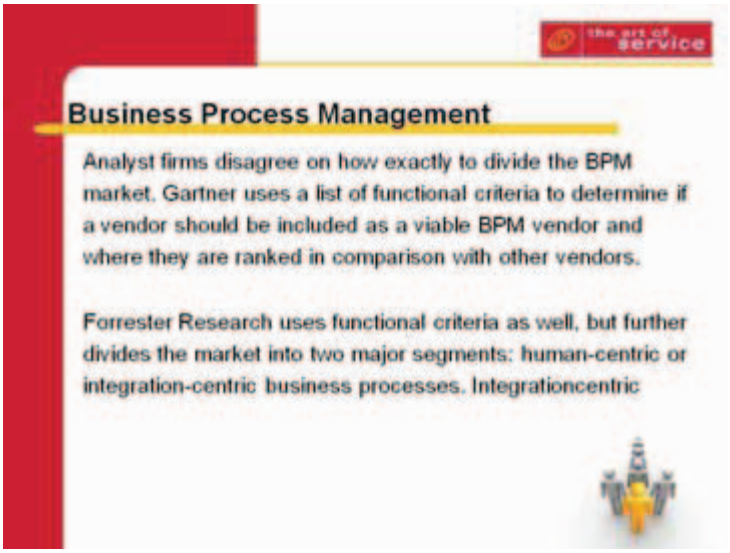
- A graphical modeling capability that can be used by both business owners and process analysts to create both workflow components and higher-level business processes. The processes must support human, business event and system activity steps.
- The ability to simulate one or many business processes, using test, historical and in-flight process data
- A facility to create user interface forms and reports
- A facility to create business process rules and allow their use to drive process flow and decisions
- The ability or framework to integrate with external systems, including many of the standard technologies or systems
- The ability to send and receive business and system event messages
- An embedded capability to capture and manage process performance and business indicators as they correlate to the business processes being executed
- The ability to create graphical scoreboards for reporting business process metrics in real-time (also
- referred to as Business Activity Monitoring or BAM)
- A shared business process repository to house all process and process-related artifacts
- Tools for the administration of the business process engine or server.


the art of service
Business Process Management
Like the BPM technology itself, vendors from complimentary technology markets also migrated into the BPM space. Because of this, many software vendors today market themselves as BPM providers.
However, the analysts do not consider these vendors true BPMS providers because of the significant gaps in their offerings.

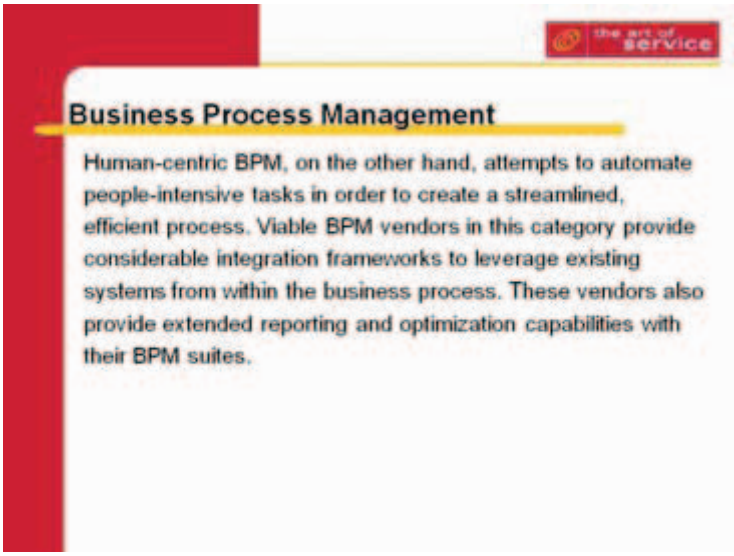
This table lists the leading software vendor categories that are adjacent to BPM and identifies the gaps in their offerings that preclude them from delivering on the full promise of BPM.

What Do the Analysts Say About BPM

BPM market analyst firms like Gartner and Forrester Research are uniquely positioned to have visibility in all phases BPM adoption. They work with BPM consumers as advisors during the BPM selection process. In order to facilitate this role, they work directly with the vendors to understand product individual BPM offerings. BPM consumers also share their successes with the analysts, so they get a varied view of BPM applications across industries and vendor products that they can share with the market as a whole.

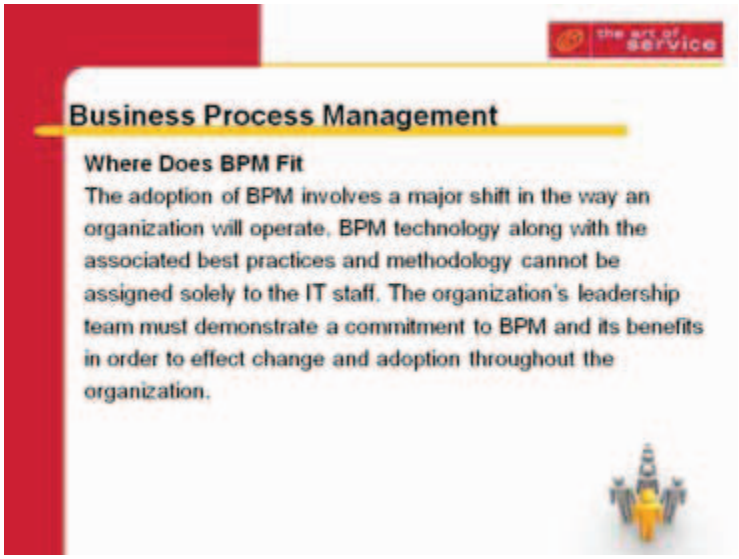


BPMS focuses on the coordination and orchestration of data at the system-level, rarely involving human participants. An example of this type of business process would be automating high volume trade reconciliation at a financial brokerage, creating a straight-through process.

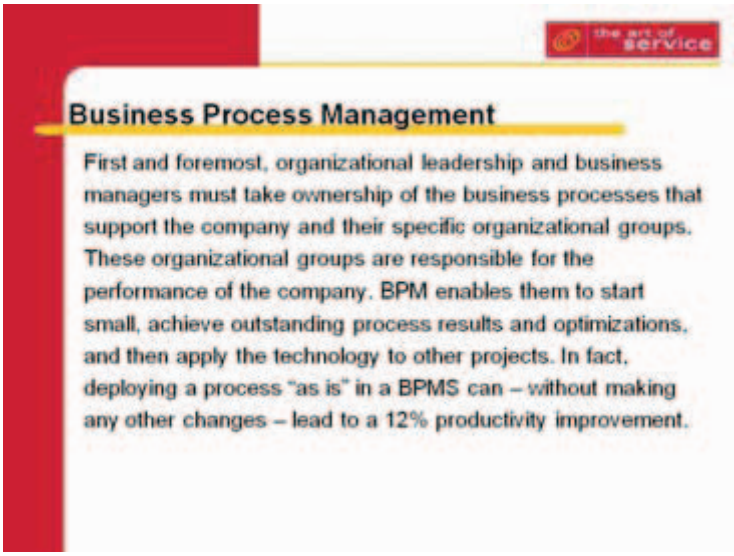


These features consider organizational nuances like resource constraints, costing models, bottleneck prediction, and process optimization recommendations. Integration-centric BPM suites can only focus on through-put type metrics that can be used to tune systems, not people and business processes. Sample processes in category include new employee on-boarding, exception handling from a supply chain management system or claims processing.

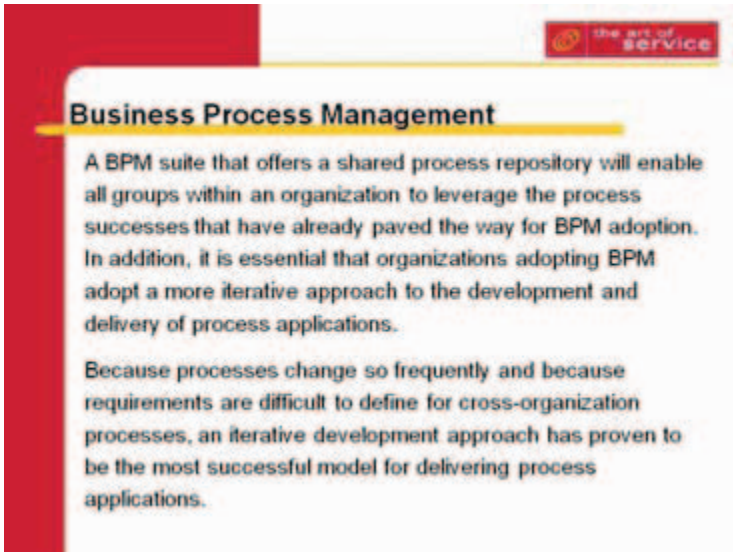
In 2005, the approximate size of the BPM market was $1.2 billion dollars. “Forrester expects the BPMS market to reach $2.7 billion by 2009”4, with the primary driver being the need for tools to enable process improvement. The demand will come from both the business and IT side of the organization. This type of financial commitment echoes the commitment organizations are making to becoming process-driven entities. Analysts also feel that BPM will be a key enabler for IT organizations that want to provide reusable process, application or infrastructure ‘services’ that provide efficiency and flexibility to business process managers.



Change is never east, but with BPM, the benefits can be easily demonstrated to build momentum across the organization.



This significant gain just sets the stage for further improvement. The ease in which an organization can deploy a new process or update an existing process is a key differentiator in a BPM suite.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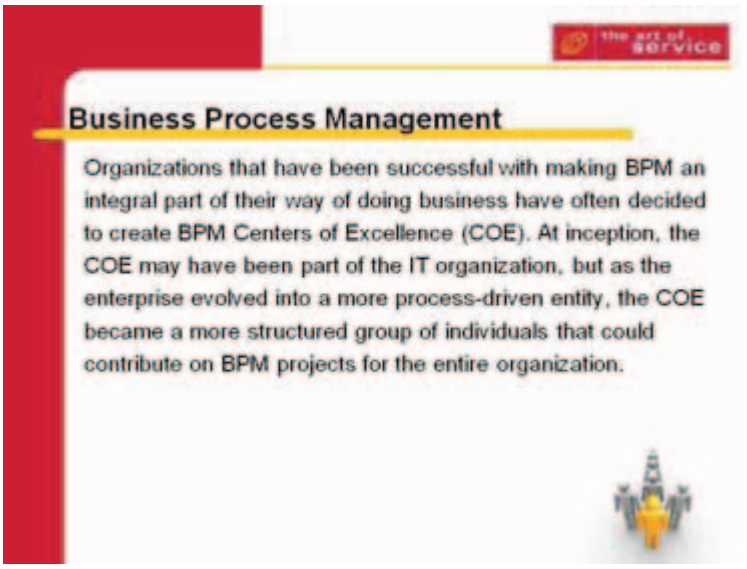
Business Process Management
A BPM suite that offers a shared process repository will enable all groups within an organization to leverage the process successes that have already paved the way for BPM adoption. In addition, it is essential that organizations adopting BPM adopt a more iterative approach to the development and delivery of process applications.
Because processes change so frequently and because requirements are difficult to define for cross-organization processes, an iterative development approach has proven to be the most successful model for delivering process applications.

This eases the IT adoption of the technology by increasing the interoperability or your processes as well as the portability of technology assets. For companies already using process improvement methodologies like Six Sigma or LEAN, a BPM suite adds new measurement and control capabilities helps scale the application of process improvement methodologies across the whole organization.



Gartner reports common themes of COE charters to include:

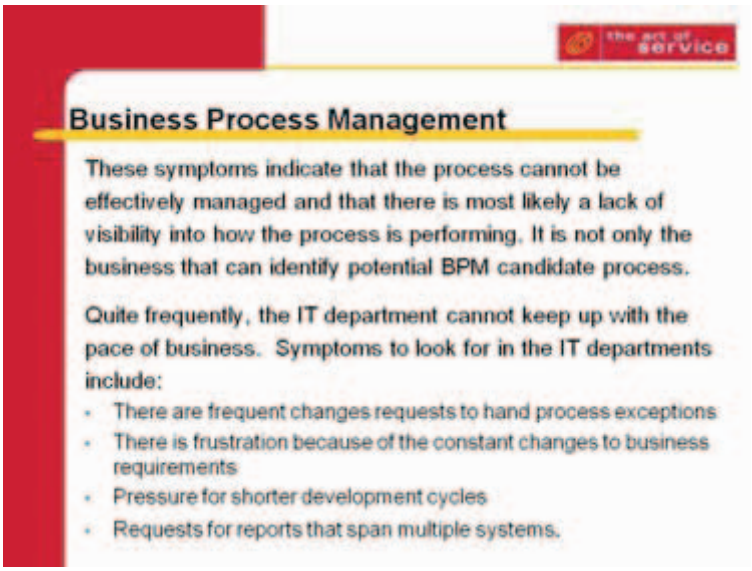
- Streamline internal and external business processes
- Maintain control and accountability
- Increase automation
- Provide end-to-end visibility BPM-related services that the COE can provide to the organization include:

- Coach and facilitate
- Provide best practices
- Deliver process training and education
- Maintain a business process knowledge base.

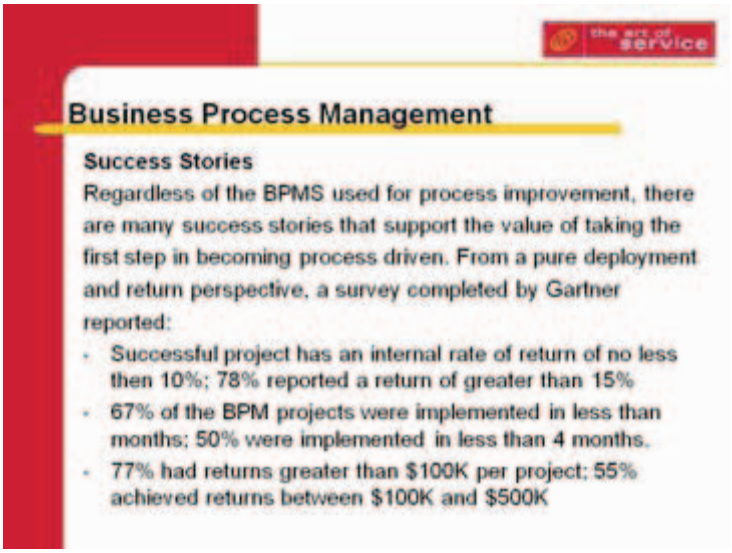
Where Do You Start

Organizations may recognize that the value of utilizing BPM for process improvement. The next question is inevitably “Where do I start” or “What process should I tackle first”? From a business perspective, some of the symptoms that could identify a process improvement opportunity include:

- High labor costs to execute the process
- Inconsistent work quality
- Inaccurate forecasting of work completion
- Difficulty in providing status reports
- Employee and customer satisfaction

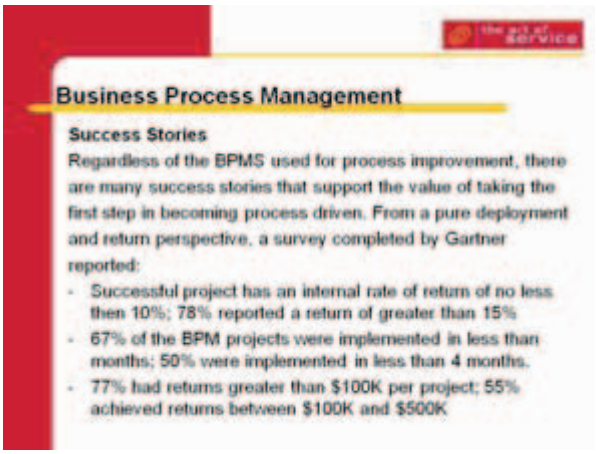


Regardless of what process is chosen, a clear understanding of who the process owner is and what objectives the process owner want to achieve is paramount. Good project management is also key in getting a sometimes complicated, cross-functional process improvement project rolling smoothly.



Specific process examples also stand out:

- A large computer manufacturer used BPM to manage resolution of all North American distressed shipments. The process is currently saving them $2M on average per quarter. First time delivery rates increased from 60% to 90%.
- SpectraSite, a cellular tower operator, launched a BPM initiative that reduced process cycle time by 65% and increased process throughput by 60% (without increasing staffing), all driving customer requests up by 46% in the first year10.
- A large insurance provider deployed a process to optimize invoice reconciliation and was able to reduce the to the error rate of handle the paper invoice by 30 percent.
- Lee Memorial Health Systems deployed their first BPM process in less than ninety days. It managed the new hire on-boarding process. They were able to cut recruiting time in half (from 16to 8 hours) and reduce new employee record creation time from 9 hours to 10 minutes. They were also able to deploy additional enhancements to the process six weeks later.

Continued… 

- Sprint, a global integrated communications provider used BPM to manage billing disputes and adjustments. They were able to reduce the time to resolve a dispute from 12 to 2.5 days, realized a 10 percent decrease in invalid and incorrectly processed adjustments and increased customer call centre productivity by 9 percent.
- American National Insurance Company streamlined a customer service processes that spanned four business groups, increasing workload capacity by 192 percent.

See Medicare Case Study Example on page 149 and Business Process Model – Medicare Australia, found on page 153 within this guide.

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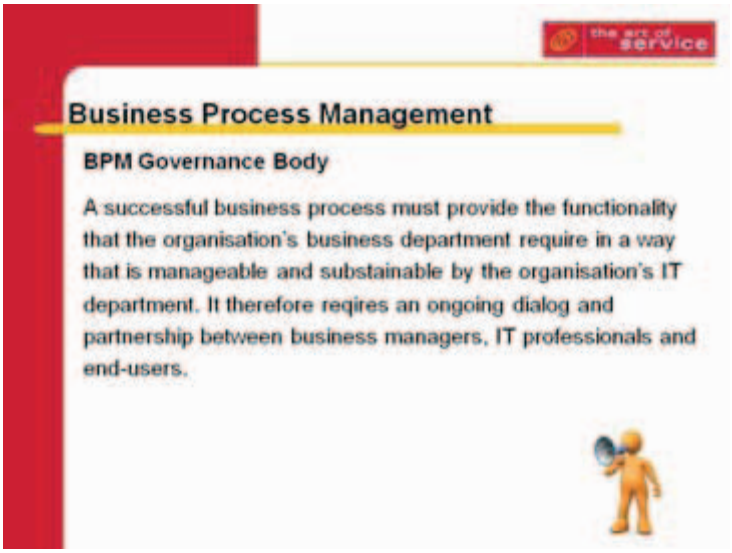
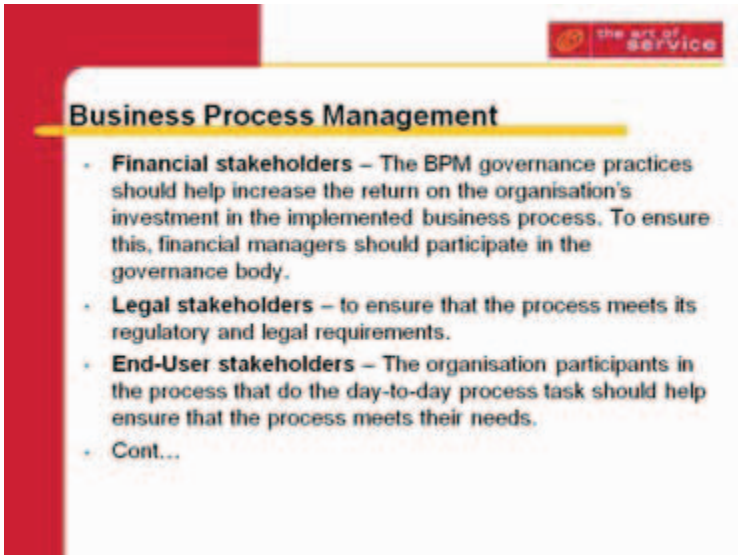
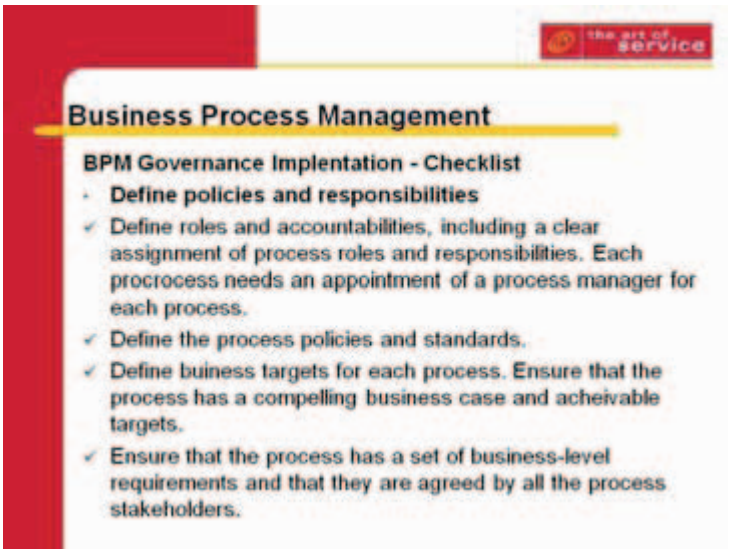


Definition

- Governance is a set of policies, roles, responsibilities and processes that set the way a corporation is directed, administrated and controlled.
- BPM Governance is a set of policies and processes that set the way that the organisation's business processes are run. Key elements of good BPM governance includes transparency, responsibility and accountability, and commitment to the organisation's business goals.



- **Compliance officer** - There needs to be one person that ensures that brings the process performance information to the knowledge of compliance body and ensure the governance body's decisions are implemented correctly. The compliance officer should not be a member of the groups above and should be as independant are inpartial as possible.



BPM Governance Implentation - Checklist

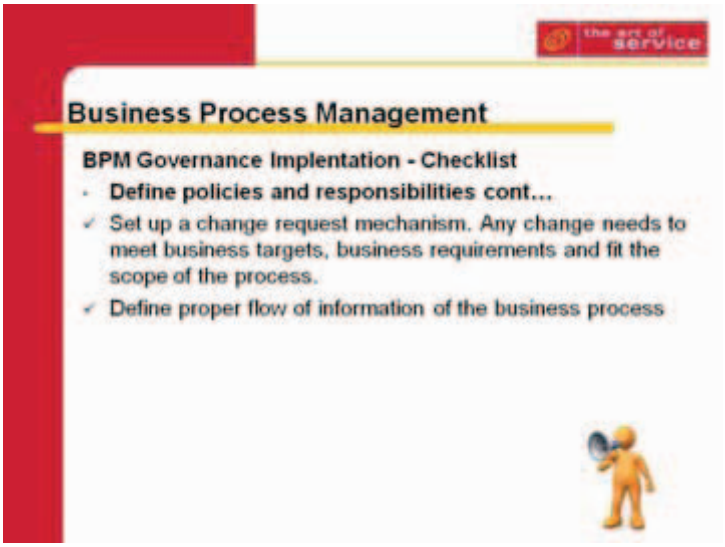
- **Define policies and responsibilities**

✓ Define roles and accountabilities, including a clear assignment of process roles and responsibilities. Each procrocess needs an appointment of a process manager for each process.

✓ Define the process policies and standards.

✓ Define business targets for each process. Ensure that the process has a compelling business case and achievable targets.

✓ Ensure that the process has a set of business-level requirements and that they are agreed by all the process stakeholders.



BPM Governance Implementation - Checklist

- **Ongoing actions**

✓ Monitor the process progress and KPIs

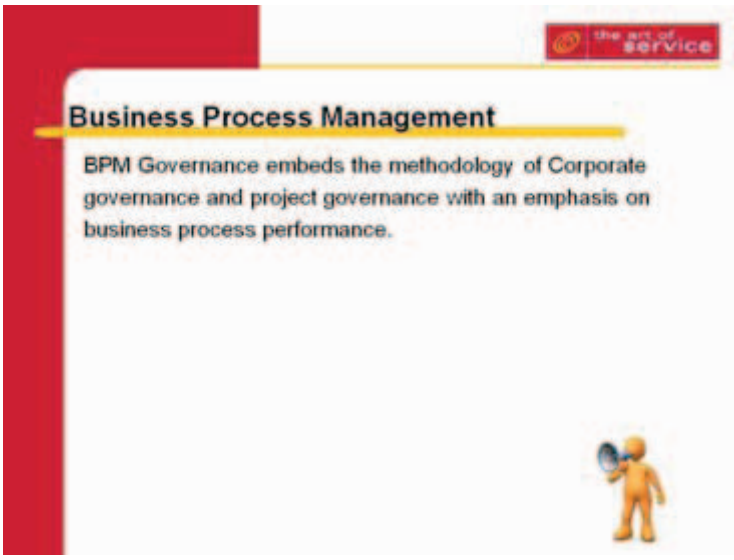
✓ Monitor risks

✓ Locate process obstacles and bottlenecks

✓ Control resource allocation for the process tasks

✓ Train process participants

✓ Get feedback from end-users


the art of service
Business Process Management
BPM Governance embeds the methodology of Corporate governance and project governance with an emphasis on business process performance.

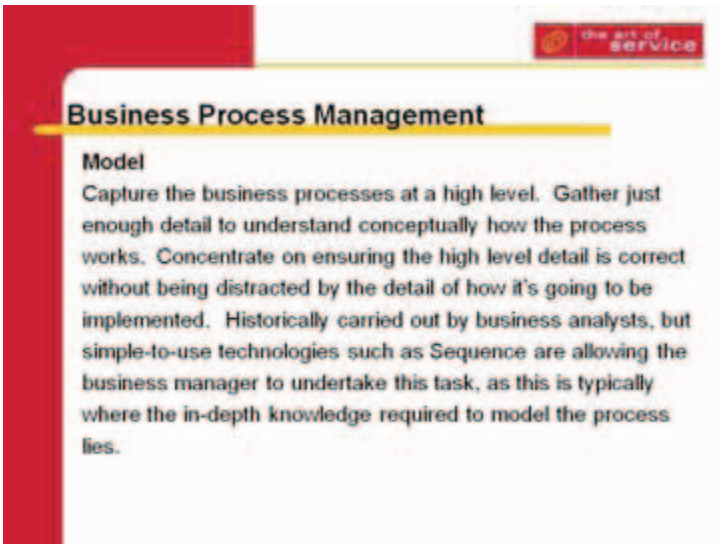
BPM AND WORKFLOW SOFTWARE

Traditionally, automation of business processes using workflow has implemented the automated process and then finished. BPM takes this to the next level BPM is about continuous business process improvement. As well as automating the process, we are capturing the process in a structured way, the monitoring and optimising the process. The process repeats continuously for the life of the process.

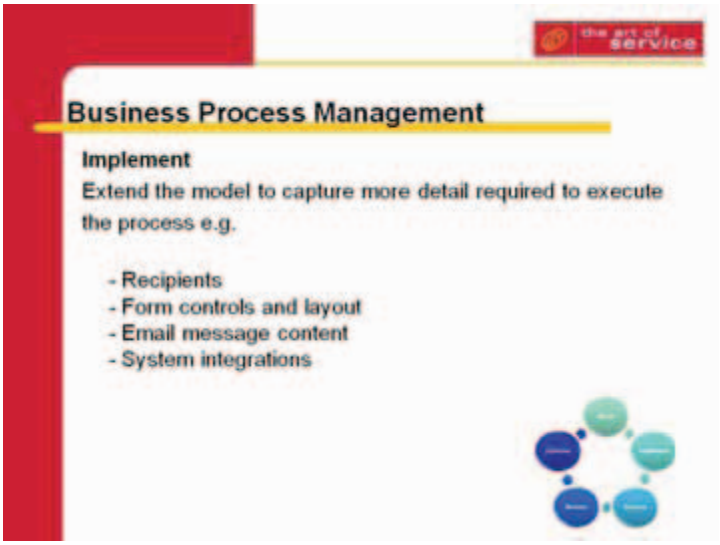
See BPM Design for Workflow & Rules Management Systems, found on page 155 within this guide.

The steps in a BPM Life Cycle are:

- Model
- Implement
- Execute
- Monitor
- Optimise



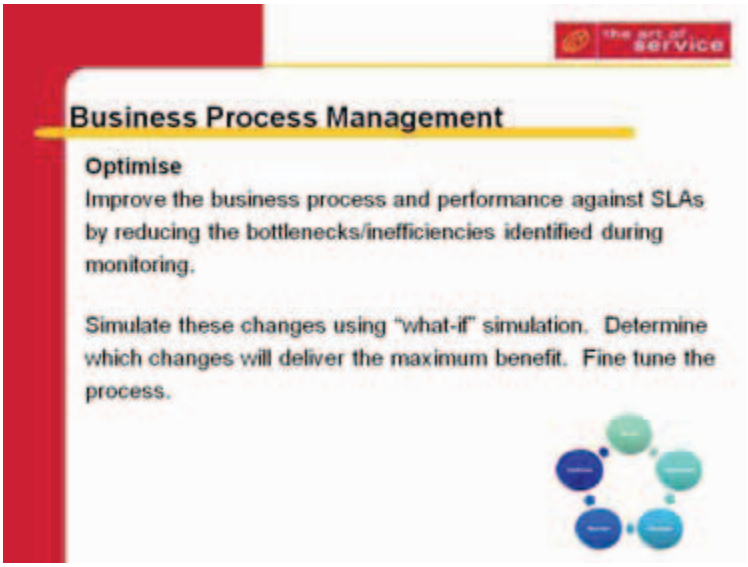
See BPM - The Business Process Model on page 171, Business Process Modelling Overview on page 175 & Business Process Modelling Notation (BPMN), found on page 185 within this guide.



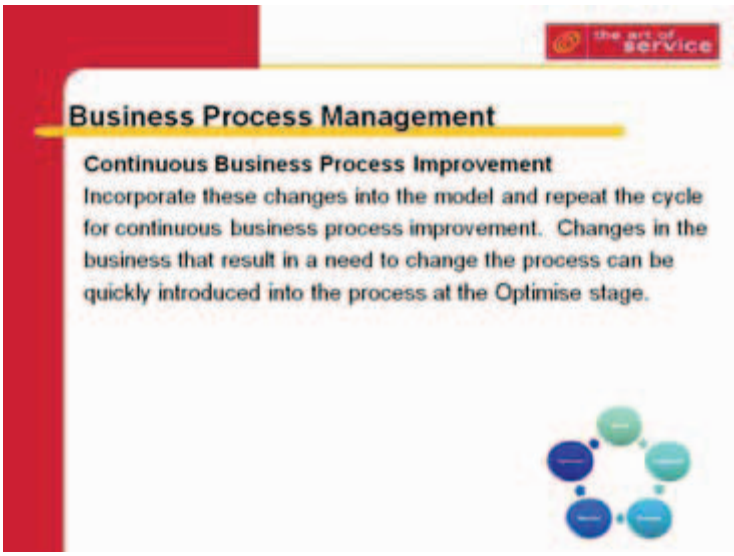
Execute

- Instances of the process are launched and interacted with by the end users
- **Monitor**

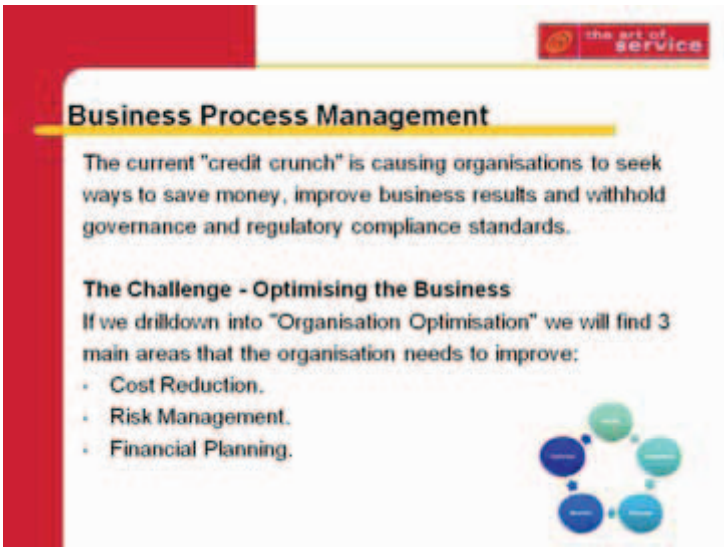
Measure key performance indicators and process Performance. View these vs. SLAs via graphical dashboards and textual reports to monitor how the process is performing.
Understand where the bottlenecks/inefficiencies in the process are.



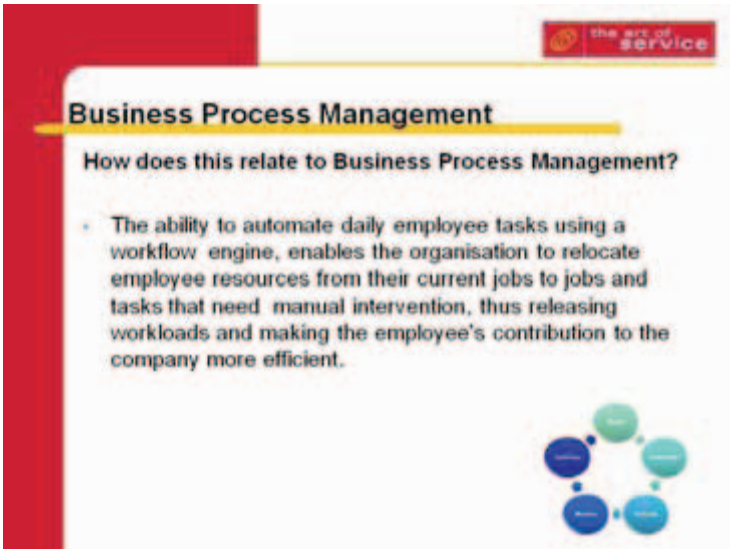
See The Integration of Knowledge Mapping into Existing Business Processes, found on page 191 within this guide.



For automating an existing process, we would typically start at the Model stage, as we already have a good idea of the process and how it is performing, good or bad. For a new process, we don't often know what is required, such as what resources we need at each stage. So we would typically start at the Optimise stage and try out some ideas, capturing these in the Model stage as our thoughts are formulated into a process.

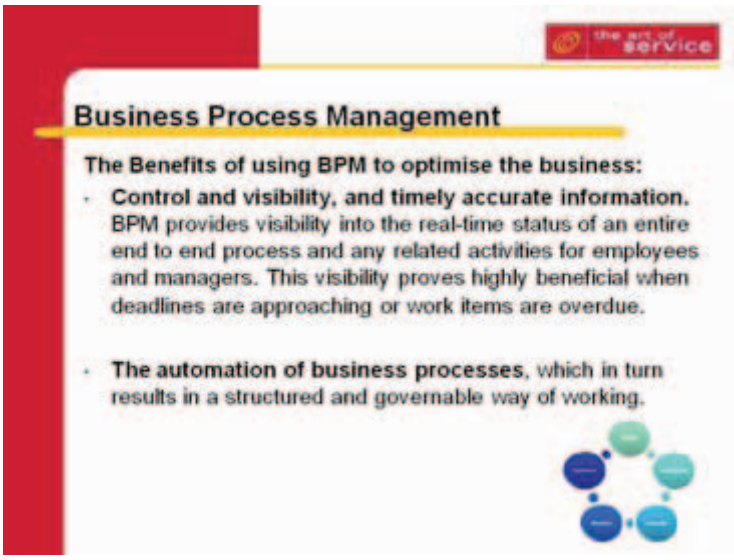


See BPM Benefits Checklist, found on page 201 within this guide.



- The ability to automate operational processes, making the business run smoother without wasting time and human resources on internal operations.
- The ability to automate the organisation's supply chain and run money transactions, thus removing human mistakes, "red tape" and errors.
- The ability to have visibility and transparency over the organisation's processes thus enabling manager's to make informed decisions.

See Perform Business Continuity and Disaster Recovery via Business Process Management and Other Software Tools, found on page 203 within this guide.

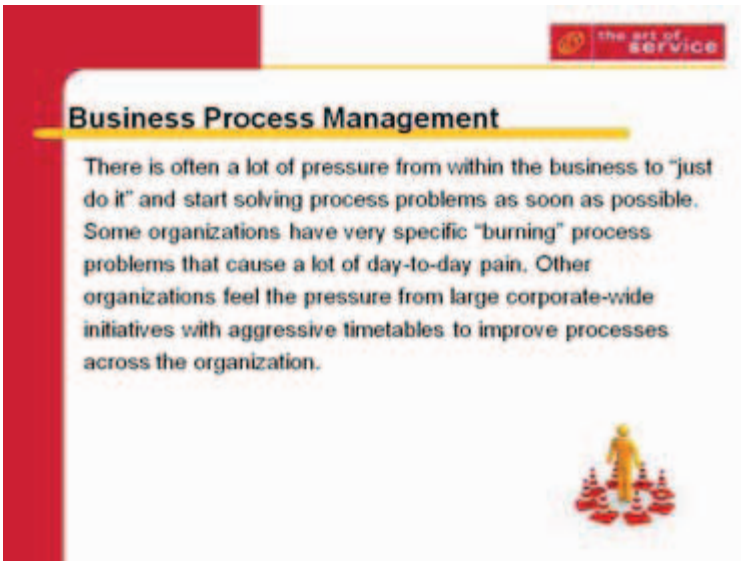


- **Accountability**, BPM creates a culture of organisational and personal accountability by tracking and auditing individual's turnaround time and quality of work.
- **Improved Productivity**
  BPM drives employee productivity by capturing and interpreting the business context of each task and proactively providing the worker with the content required to complete it.

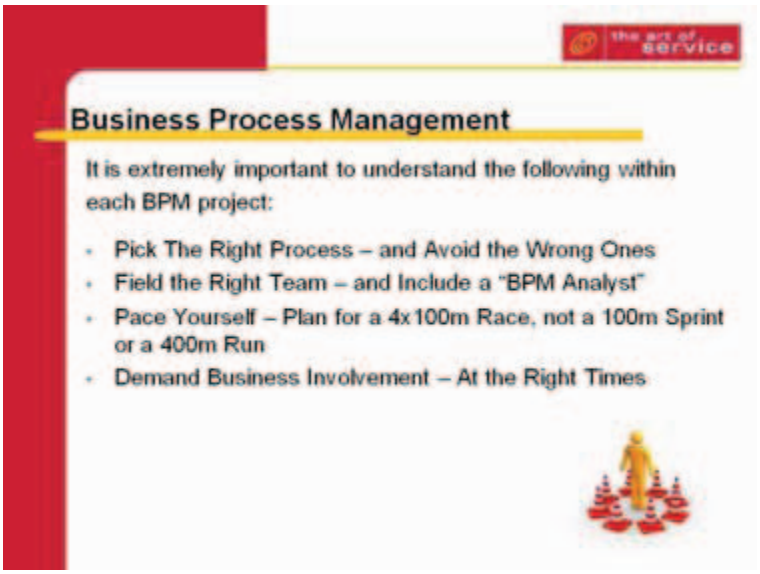
See RACI Methodology and BPM on page 209 & Align Roles and Responsibilities to Make BPM Work, found on page 215 within this guide.

AVOIDING DISASTER - YOUR FIRST BPM PORJECT

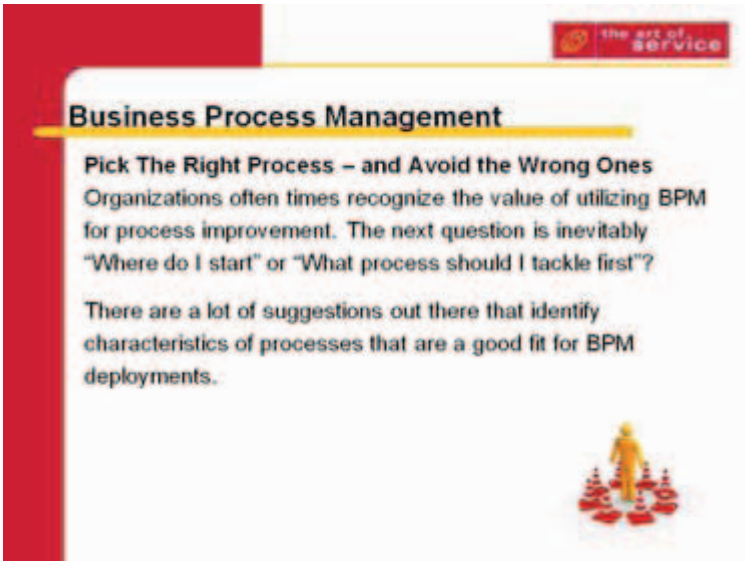
See Perform Business Continuity and Disaster Recovery via Business Process Management and Other Software Tools on page 203 & Project to Program found on page 221 within this toolkit.



BPM can clearly help. But, like any non-trivial endeavor, if you don't take the time and effort to properly set up your BPM project for successful implementation and ongoing improvement, you might just end up with a failure that leaves you in worse condition than when you started.



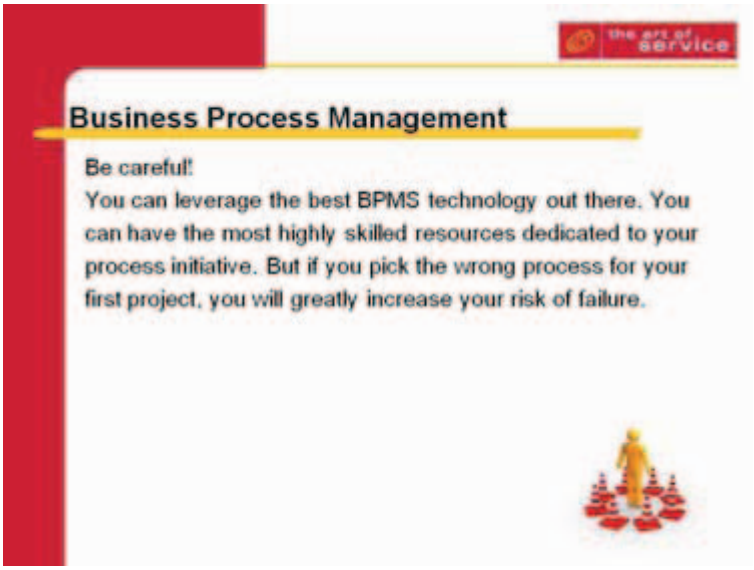
Of course, one should expect that after word spreads about the success of the first project, other projects will soon follow. So, in the same way that you will structure your BPM projects for success, you'll also want to build the foundation for a strong cross-project *BPM program that* serves as the vehicle for prioritizing and governing multiple concurrent projects and aligning them to your corporate goals and strategies.



Some of the symptoms that could help you identify a process

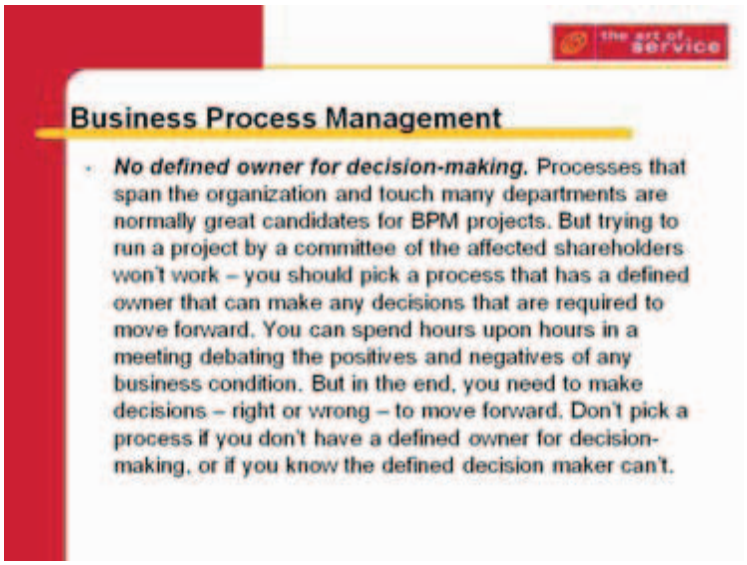
Improvement opportunities include:

- High labor costs to execute the process
- Inconsistent work quality
- Inaccurate forecasting of work completion
- Difficulty in providing status reports
- Employee and customer satisfaction

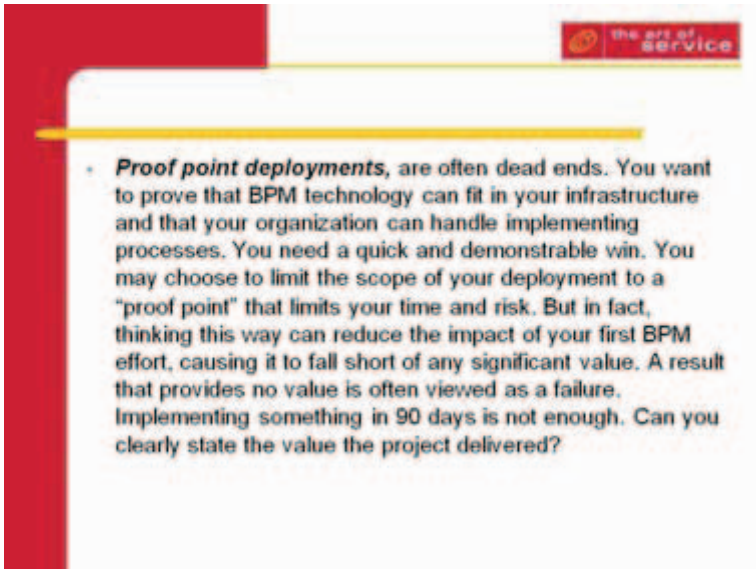


Avoid business processes with the following characteristics:

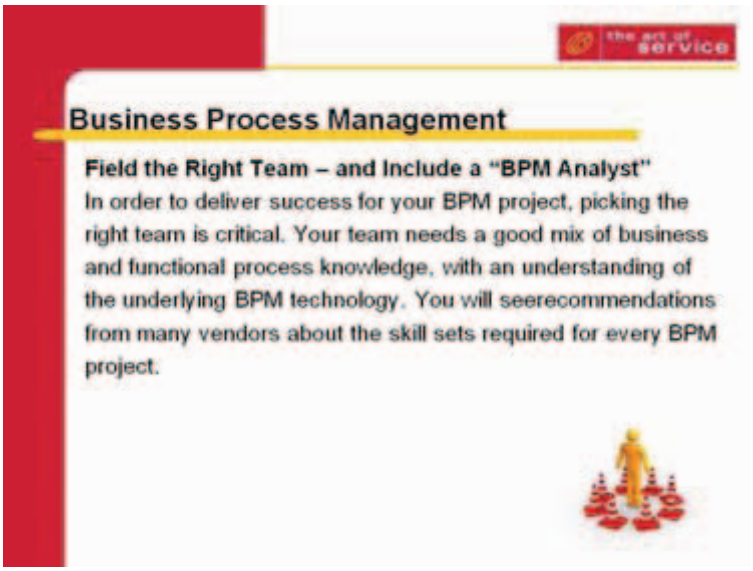
- ***A completely undiscovered process.*** You have no doubt heard about 90 day deployments, continuous iterations, and business involvement in BPM projects. If you pick an area of the business that is not well understood, delivering value back to the business will be challenging. This is not to say that you need binders and binders of process documentation and business requirements, but pick an area where the high-level milestones are defined, many of the “Level Two” activities are understood, and the business owners are identified. If you don’t, you might be spending the next 90 days doing process analysis instead of process implementation.



"Let's just implement as-is" with no desire to "make it better". BPM is all about continuous process improvement delivering real value to the business. Watch out for business areas that just want to implement as-is and don't want to make it better. The good news is that you don't have to it all in the first 90 days – most people love the fact that you don't have to implement everything in Version One. Many organizations start with implementing 90% of the as-is with very few improvements. These organizations understand continuous process improvement and will capture more value in further iterations.

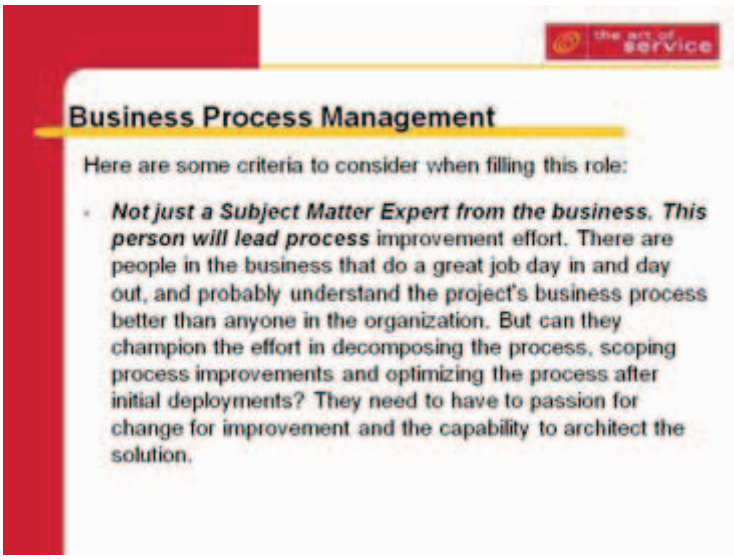


Is the value meaningful to the business? Will the business appreciate a simple “IT trouble ticket” example process? You will have challenges in getting your organization to adopt BPM if your only answer is, “It was just a proof point”. Avoiding these process characteristics will minimize the risks of your BPM project failing, and maximize the potential for BPM to be adopted in the organization.

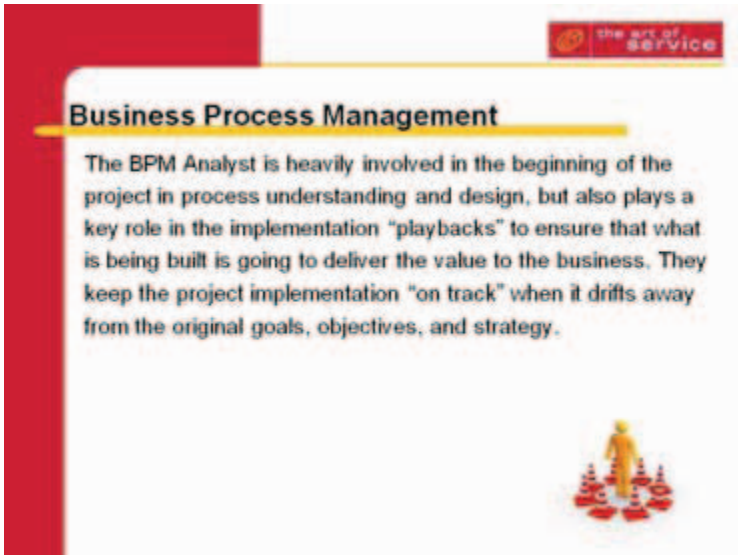


See Align Roles and Responsibilities to Make BPM Work on page 215 & RACI Methodology & BPM, found on page 209 within this guide.

Most of these roles are similar to those needed by traditional software implementations and application development projects. You will undoubtedly have people (or partners) that can be trained to use the BPM software technology as BPM consultants. Getting a resource from IT for the Technical Consultant role may be challenging, but at least the skill set of the role is well known. The toughest question that many organizations may have is “who is our BPM Analyst, to assist with process analysis and requirements definition?”.



Not too technical - Yes, you need a great problem solver that understands requirements and can articulate a vision of the solution. But they also need to understand the metrics of the business process, the Key Performance Indicators (KPIs) and Service Level Agreements (SLAs). "Technical People" sometimes show they build and deliver really great features, but do they deliver value and impact process improvement?

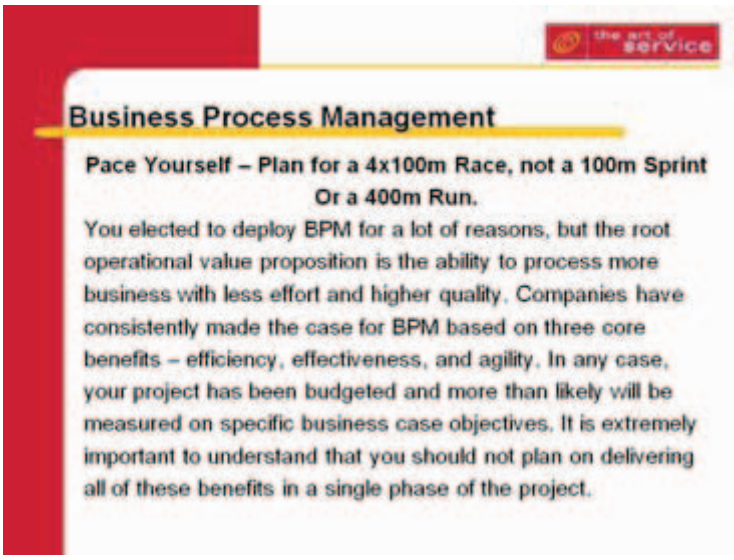


In the initial stages of the project, the BPM Analyst:

- leads process improvement efforts
- provides expertise in process decomposition, scoping, and optimization
- identifies key opportunities, develops business cases, and calculates ROI

During the Build and UAT stages of the project, the BPM Analyst:

- Enforces the delivery of KPIs, SLAs, and scoreboards



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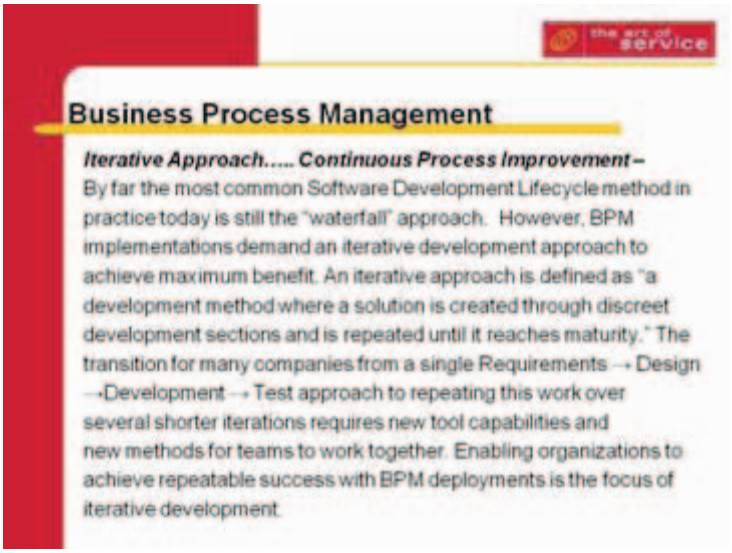
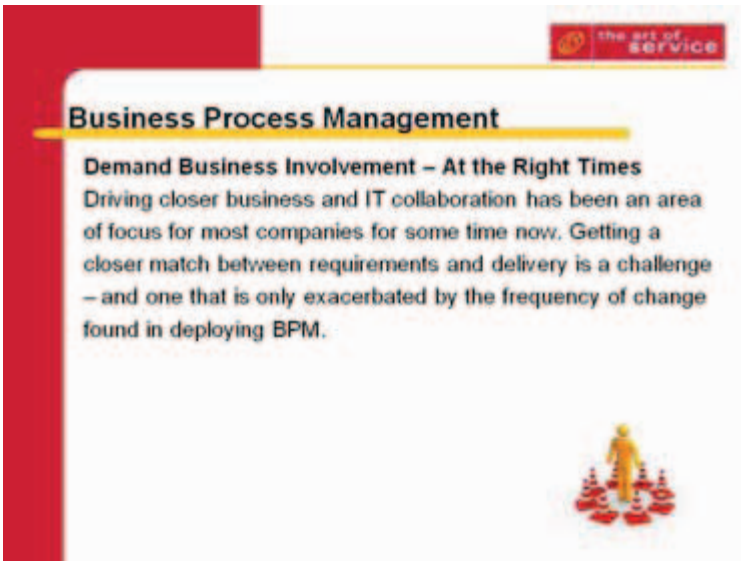
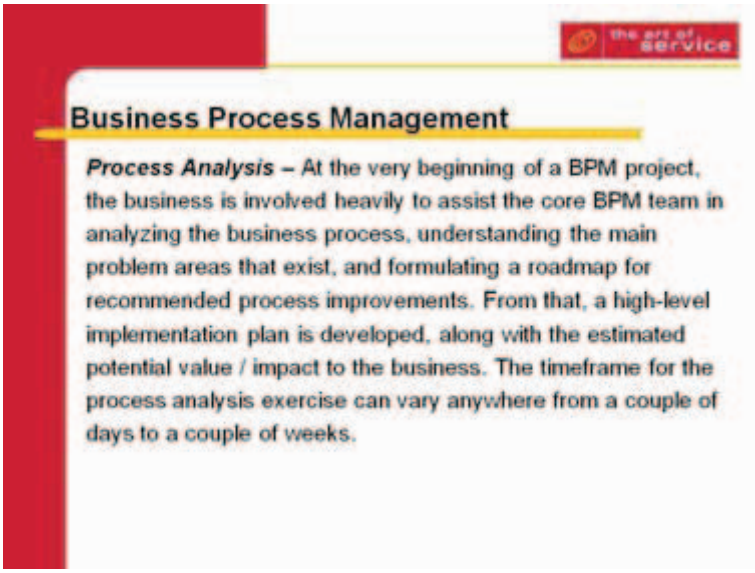


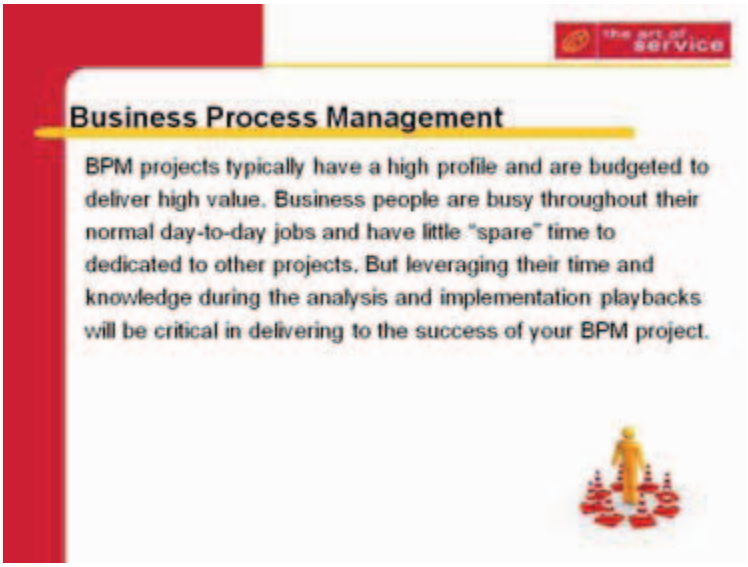
Prioritize and Trade Off (but don't always trade-off the reports!) What happens to the work that does not get completed within each iteration? You can't always push that remaining work to Iteration. The business has to prioritize the future work and requirements during each planned iteration. Typically, companies will prioritize in favor of the highest Return on Investment (ROI) items. The areas of lesser value that are still perhaps quite important to the overall process should be placed on the Process Roadmap. Note that one of the key values of BPM is monitoring and visibility but it is often one of the last things to be done in a project. Don't let you're reporting be the first thing chopped!



A project organization that allows for business and IT co-dependent on each other for success is a key for BPM project deployments. The willingness and ability of these two groups to collaborate is, in the end, critical to success at every stage of the implementation. Making sure to include the “right” business resources during the right times in your project is critical for success. But how much should the business be involved, and when?



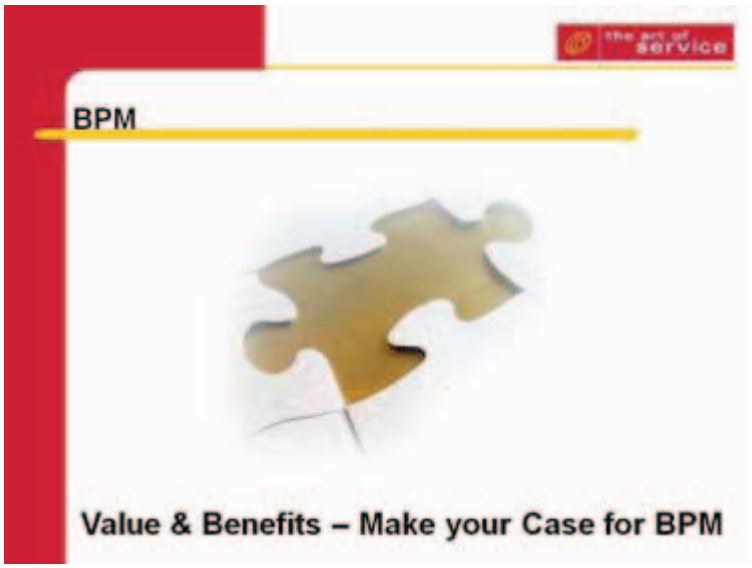
Implementation Playbacks – During the Iterative Approach, the business must be involved to ensure accuracy to the real needs and requirements of the business, and they must also prioritize the next iterations cycle that define the process roadmap. In a typical 90-day process deployment, there are three main “playbacks” with the business stakeholders for the project, each a 2-hour session separated by 2 weeks.



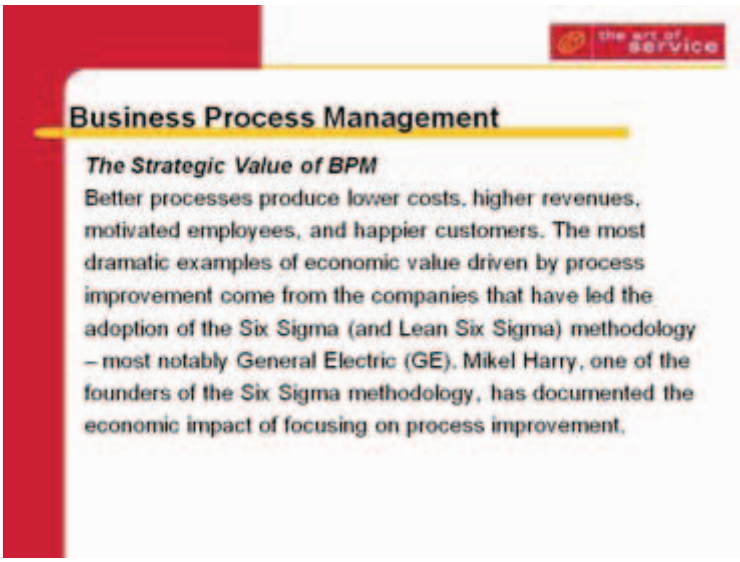
Summary

Many companies have been able to realize significant value with rapid returns by driving process improvement with BPM. Success rates on BPM projects far exceed other more traditional software development projects. However, structuring your first BPM project for success is extremely important in a long term BPM strategy. Picking the right process, fielding the right team, pacing yourself, and demanding business involvement are four small but important recommendations to help you and your organization establish a solid foundation for your first BPM project.

VALUE AND BENEFITS – MAKE YOUR CASE FOR BPM

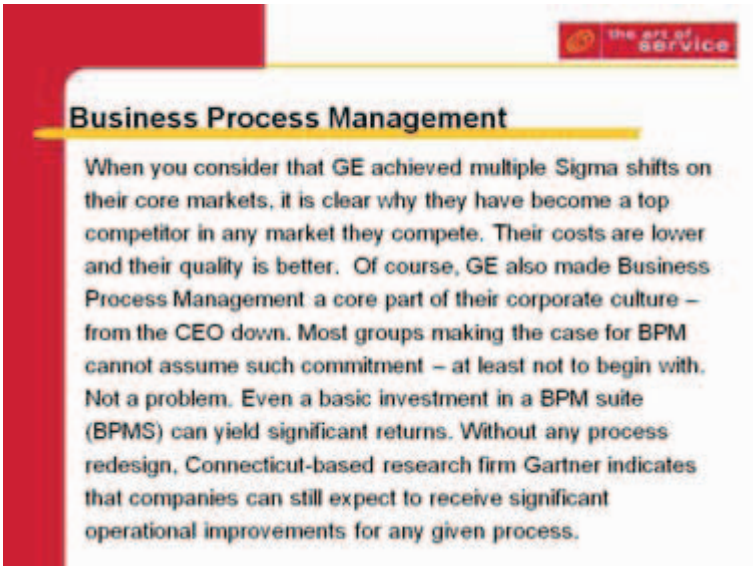


See BPM Benefits Checklist, found on page 231within this guide.



Using the base measure of his methodology – Sigma, Dr. Harry provides a tangible example of how companies like GE have benefited from a commitment to process improvement:

- *With just a one-sigma shift, companies will experience a **20 percent margin improvement, a 12** to 18 percent increase in capacity, **a 12 percent reduction in the number of employees, as well** as a **10 to 30 percent capital reduction.1***



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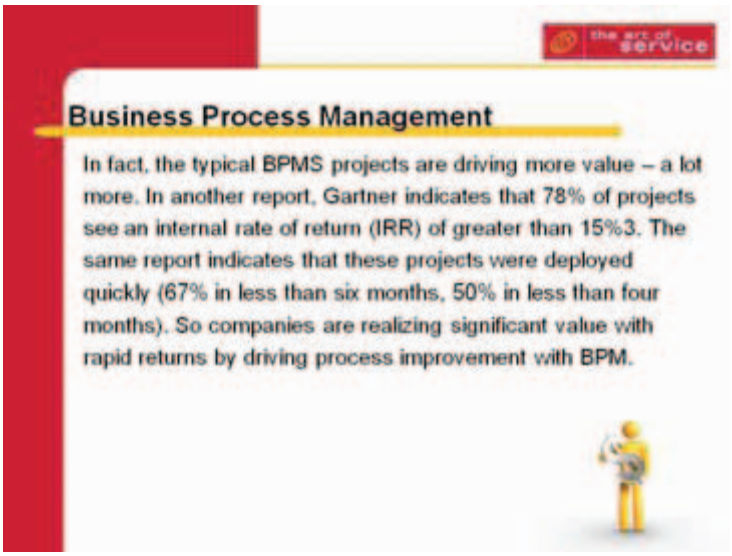
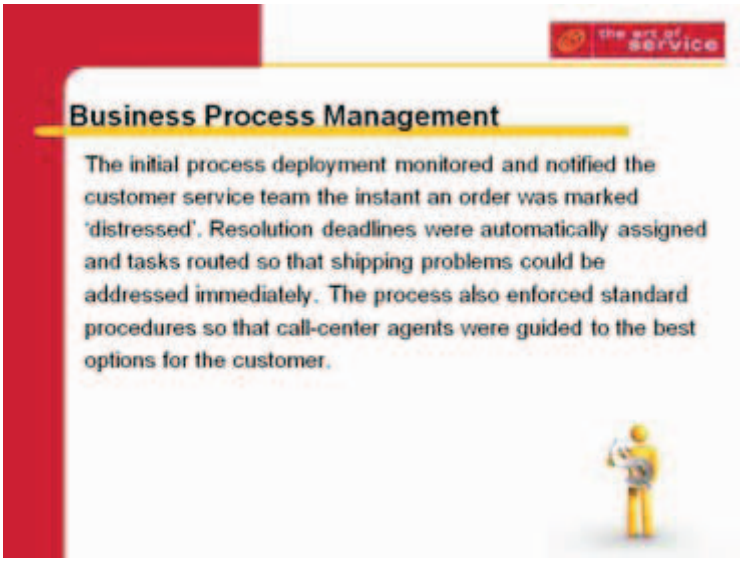


A Benefits Case Study: Logistics

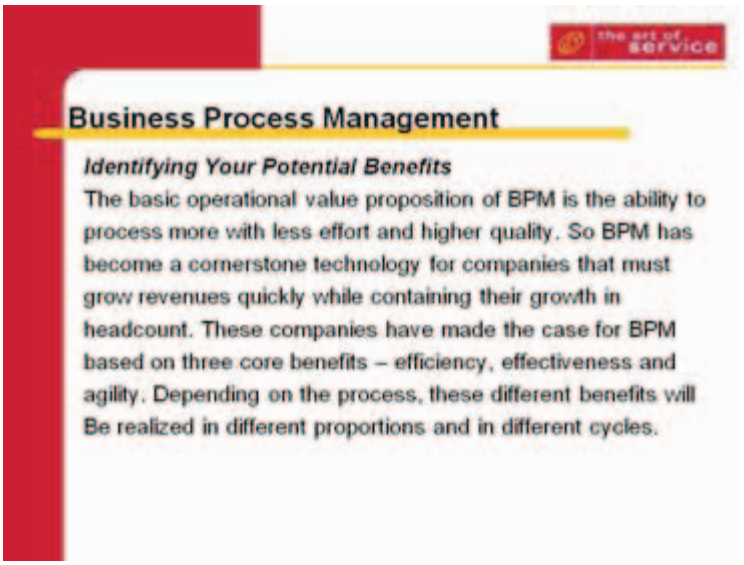
The concept of continuous improvement is at the heart of the BPM value proposition. In fact, the ability to continuously improve processes and gain incremental ROI on a consistent basis is what sets a BPMS apart from other means of driving process improvement. So, when making the case for BPM, it is critical to consider not only the first iterations of processes and what value they might bring – it is essential to consider the incremental value that will be added over time.

Process analysis confirmed that:

- Improvements were needed in many areas, and because internal departments and external partners were involved, a complete view of the order as it progressed through the process was difficult to obtain;
- The window of opportunity to save a shipment was a short 48 hours and work priorities, task completion and escalation was crucial to successful resolution; and
- Data about the order was often too little and too late. The organization needed real-time notifications in order to save the shipments.

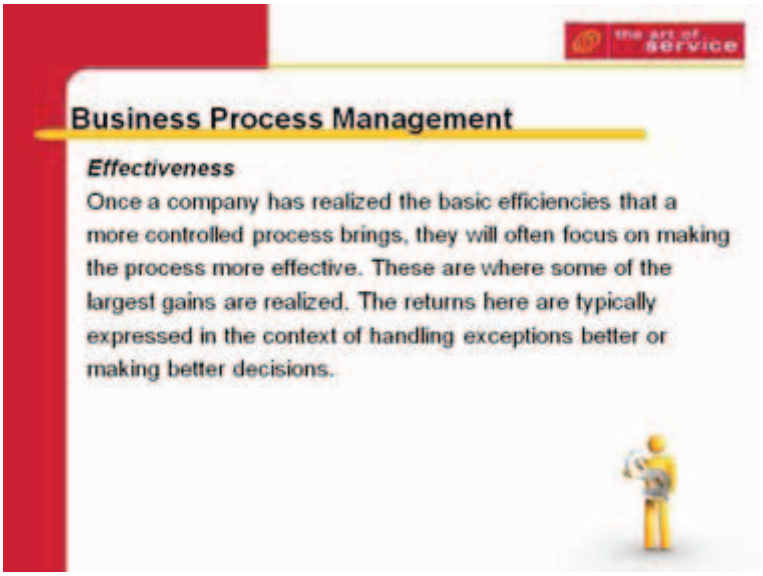


The results of proactive management of the current process yielded outstanding results. With each new version of the process, they moved their key metric of *Percentage Saved from 5% to nearly 70%. That* represents a savings of over $2 million each quarter. With continued global growth, that number continues to increase

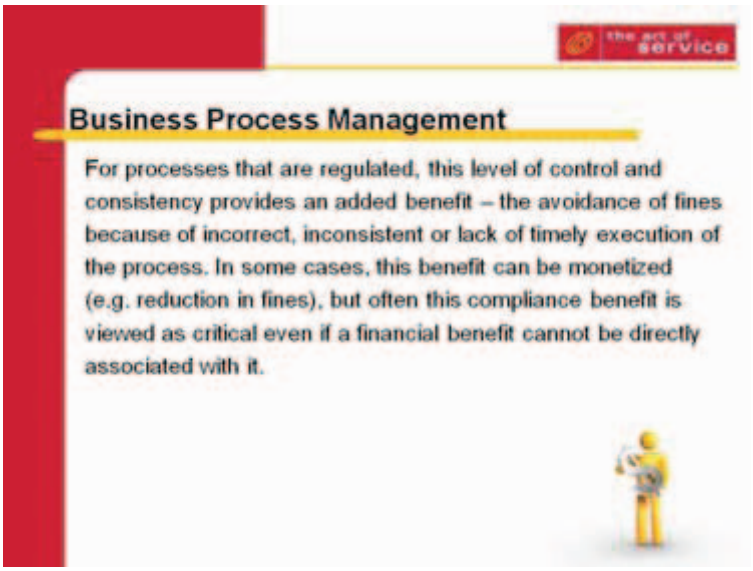


Efficiency

It is typical for a company to first see efficiency benefits when deploying BPM. Most processes have significant waste because of manual effort, poor hand-offs between departments and a general inability to monitor overall progress. The initial deployment of a BPM solution eliminates these problems – and the benefit is typically expressed in full-time equivalent time saved.

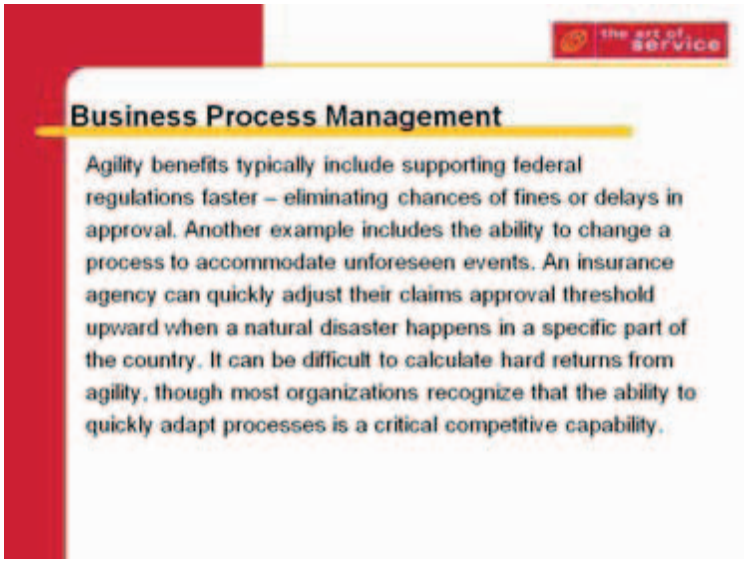


One telecommunication service provider found that by better controlling their billing disputes process better they were able to reduce by $3 million the amount they were paying out each quarter (approximately 10%). Their BPM deployment helped them identify duplicate issues, research disputes more completely and enforce more consistent payout policies.



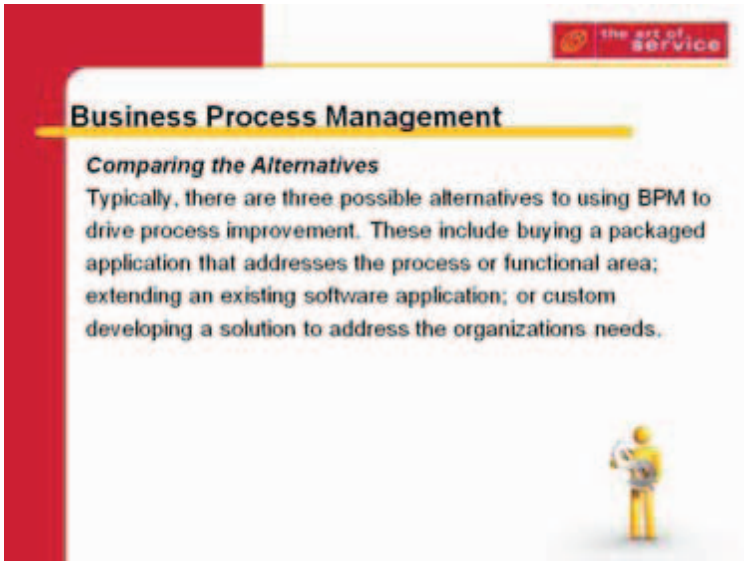
Agility

The final key benefit BPM provides is agility. In the era of the Service Oriented Architecture (SOA) and On-Demand , agility is a well understood concept. In the world of Process Management, the ability to change quickly is essential. Our customers change their key processes 4-7 times per year. The driver for change can be internal or external. New opportunities can arise. New partners or customers need you to support a different way of doing business. Federal or international regulations can require you to change your processes. BPM provides the platform you need to be able to change your processes – faster and in amore controlled fashion than any other option.



Comparing the Alternatives

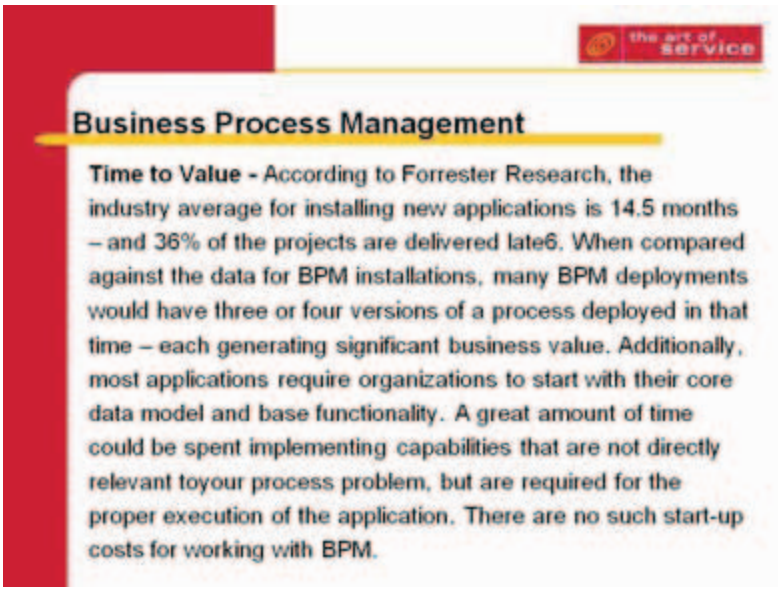
Typically, there are three possible alternatives to using BPM to drive process improvement. These include buying a packaged application that addresses the process or functional area; extending an existing software application; or custom developing a solution to address the organizations needs.



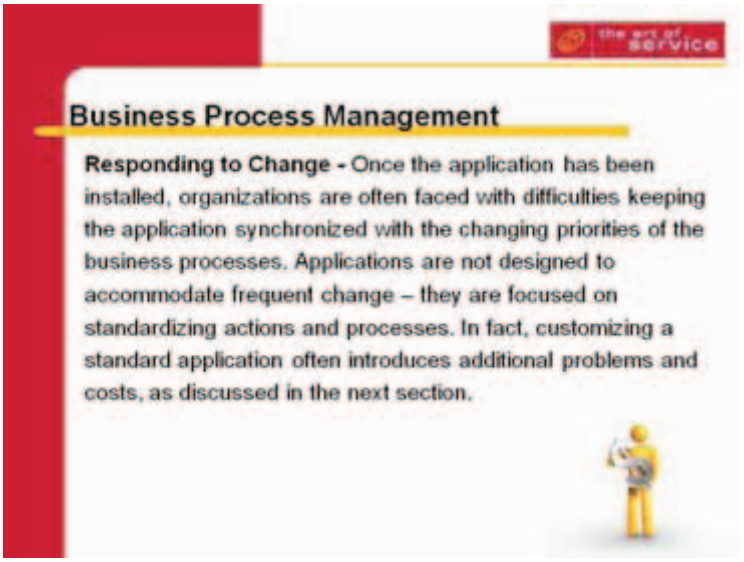
Buying an Application

There are four problems with buying applications to solve process problems: time to value, risk of adoption, responding to change, and expanding scope.

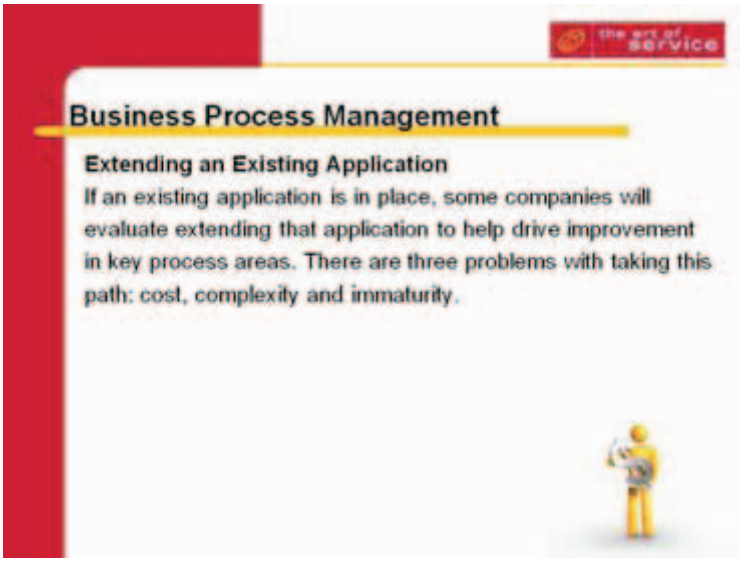
See BPM Architecture Considerations, found on page 231 within this guide.



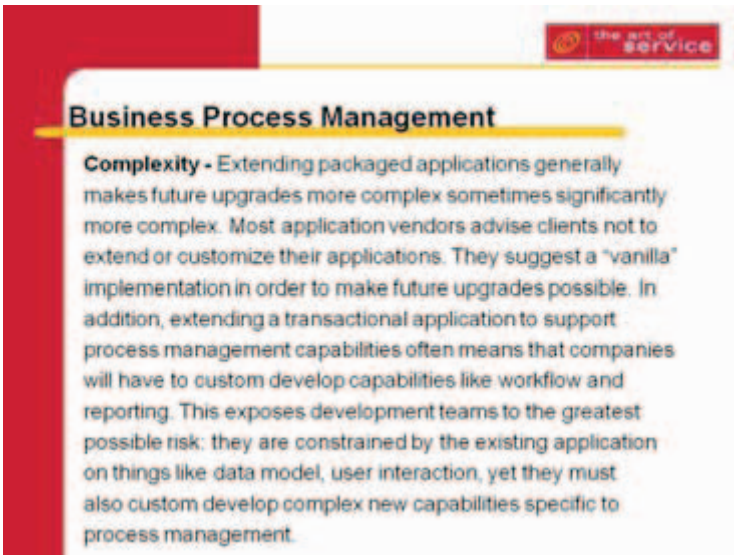
Risk of Adoption – Users often resist having to learn an entirely new application. Worse still, if the capabilities do not match the users' needs, then it will not be used and process efficiency will get worse – not better. In contrast, leading BPM solutions can bring process into the tools that users are familiar with today – like Microsoft Outlook. This virtually eliminates training and adoption hurdles. Furthermore, BPM allows project teams to focus on the specific capabilities needed by participants in the process – and no more. No time is lost identifying which application capabilities will not be used or need to be customized.



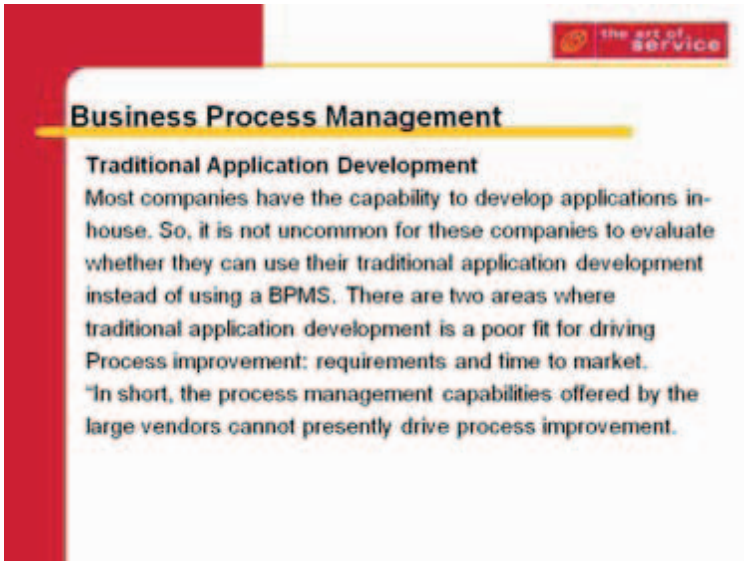
Expanding Scope – Process improvement requirements can come from all parts of the organization. While the first problem might be in on-boarding new employees, the next could be in managing shipment logistics. Buying specific applications for each of these process problems would not be practical. In contrast, a BPM suite can be used to improve any process.



Cost – The cost of purchasing additional modules and the development tools required to customize the existing application can often be extensive – more costly than buying BPM. In addition, extend the applications often requires unique, expensive skills. Often, applications must be extended using proprietary application specific languages. Contracting consultants with this knowledge can be expensive. In contrast, leading BPM solutions are standards based and many consultants have been trained in the core skills and technologies required for deployment.



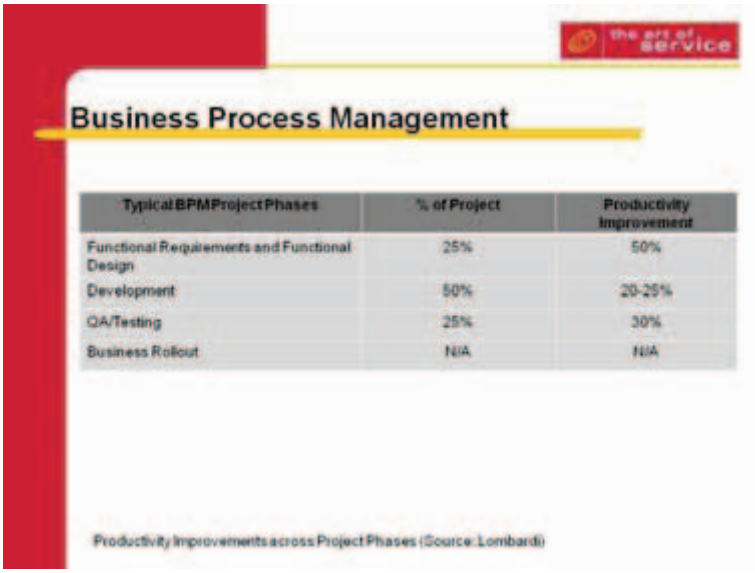
Immaturity – While many application providers are adding process to their applications and platforms, their offerings are still immature. According to Gartner, "many of the large vendors (such as IBM, Microsoft, Oracle and SAP) moving into the BPMS market are trying to capitalize on the current hype and interest in process improvement and adaptability, but they are looking forward to a time (circa 2009) when BPMS capabilities are part of a larger product offering.7" In short, the process management capabilities offered by the large vendors cannot presently drive process improvement.



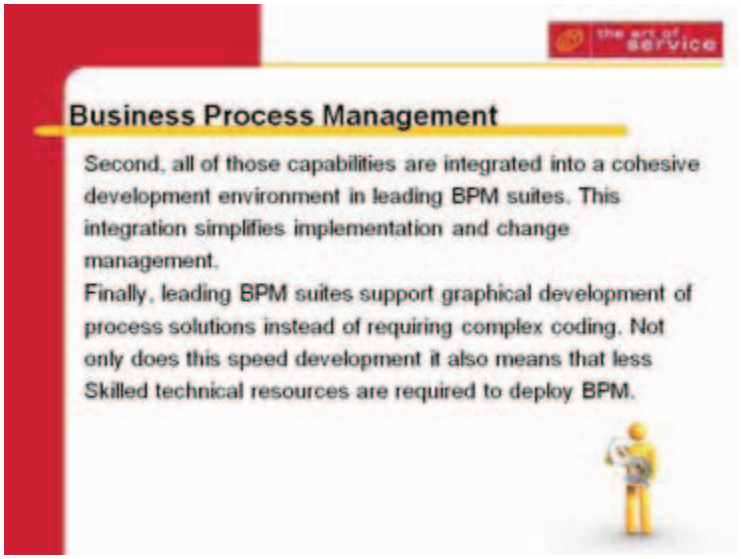
Traditional Application Development

Most companies have the capability to develop applications in-house. So, it is not uncommon for these companies to evaluate whether they can use their traditional application development instead of using a BPMS. There are two areas where traditional application development is a poor fit for driving Process improvement: requirements and time to market.

Time to Market – BPM projects tend to be delivered faster, cheaper and more reliably than most application development projects. How much faster? Based on our research with customers that have existing application development capabilities (e.g. Java-based development), BPM delivers productivity gains in virtually every phase of the project delivery.

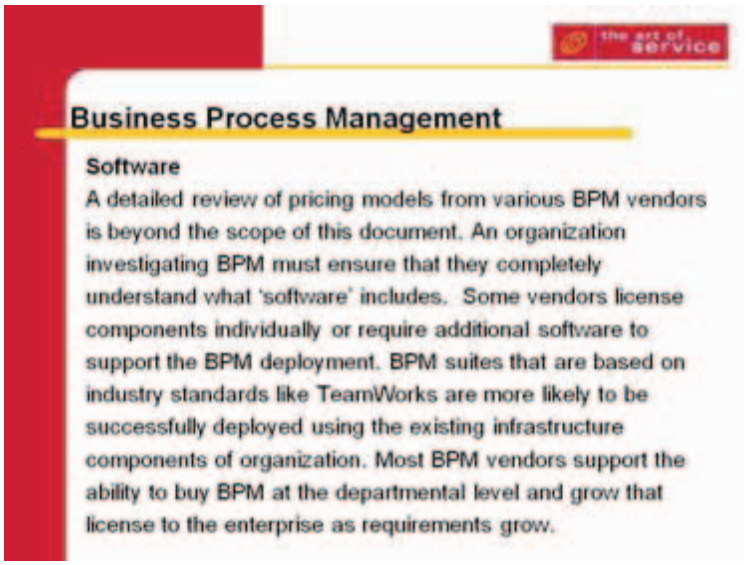


There are several reasons for this improvement in productivity. First, BPM provides the key functionality necessary to define process improvement requirements and implementation –modeling, workflow, simulation, etc. These are all capabilities that developments teams will need to custom develop or integrate if they are using traditional application development tools.

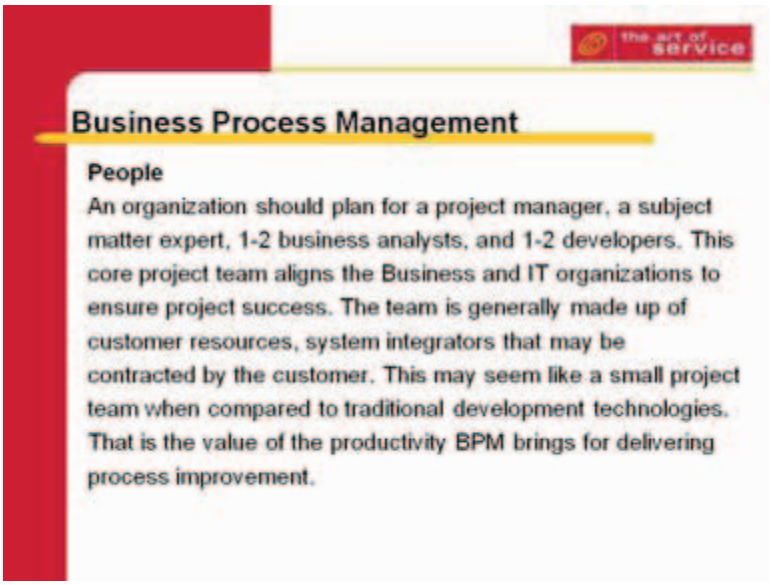


Common Areas of Cost

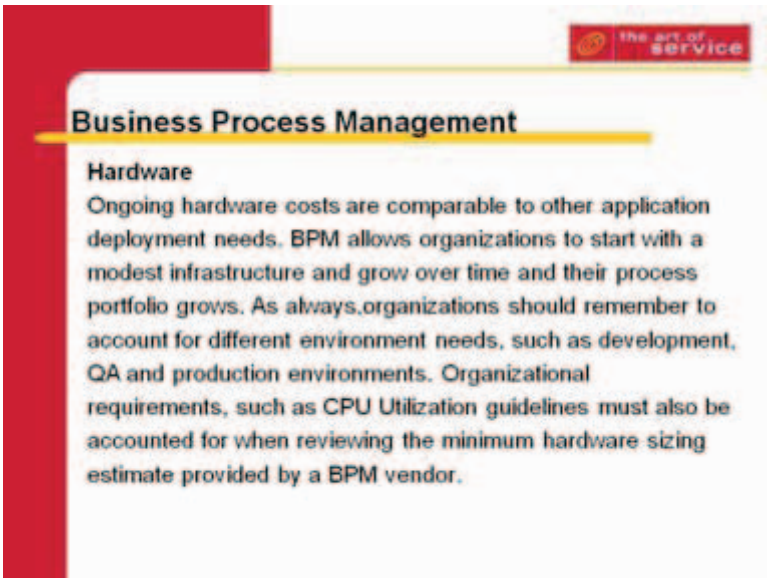
By now, the benefits of BPM should be clear. But what does it cost to implement this type solution? What should companies include on the cost side of the BPM equation? The primary cost areas are software, people, and hardware.



This allows companies that wish to grow their BPM footprint more slowly the ability to get started with process improvement at the departmental level.



Companies seeking to drive continuous process improvement must recognize that these teams need to be dedicated to ongoing BPM projects. They do not work and then disperse to other projects. This means that staffing BPM capabilities becomes an ongoing investment and one that will grow as companies add processes. Recognizing this, some companies set up Centres of Excellence (COE) for BPM through which all process management projects pass.

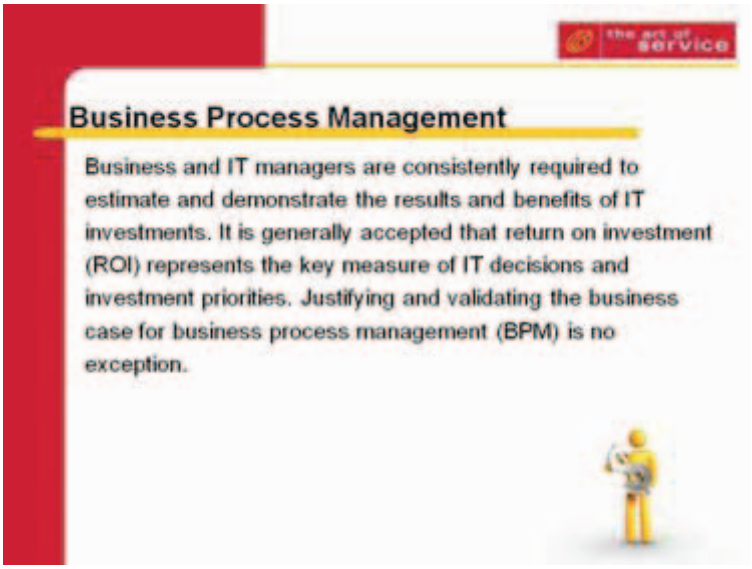


Summary

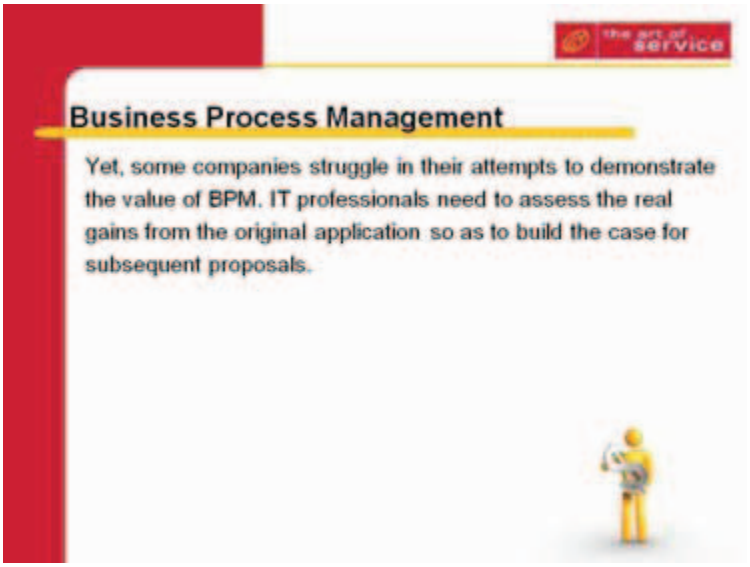
BPM is the best investment a company can make in establishing a platform for continuous improvement. The challenge for many companies is justifying the BPM investment instead of using traditional paths for solving process problems – like buying an application or building a custom application. When developing a business case for BPM, examples of successful BPM projects can help frame a value proposition or even highlight areas of benefit that may not have been considered. Using the customer stories and benefit checklist outlined in this paper, an organization is armed with the information required to make the case for BPM as the lowest risk, highest return investment a company can make to drive process improvement.

BPM AND ROI

Justifying cost – whether for daily business operations or for the technology used to support them – is a constant requirement for competitive industries. Business Process
Management (BPM) technology has reached a point of maturity to clearly show an impressive rate of return. This presentation explores how business and IT leaders estimate and frame the Return on Investment (ROI) for BPM projects.

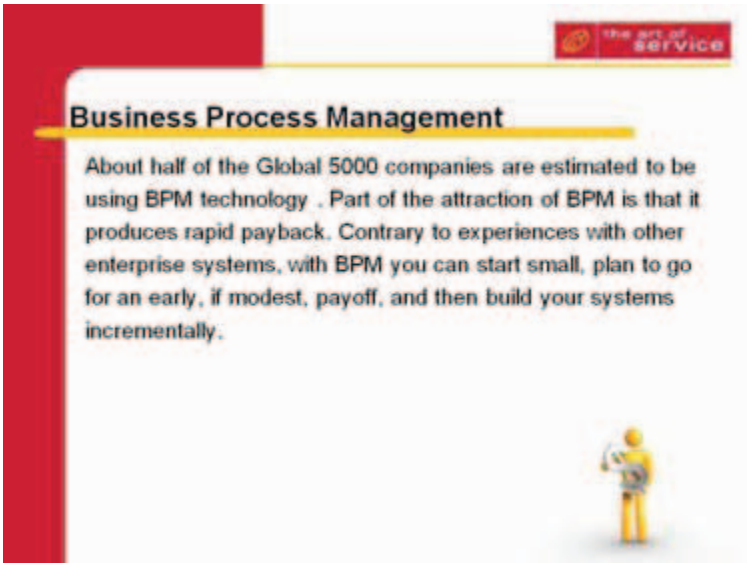


BPM continues to gain momentum as the number of real-life examples of success have increased. While many IT projects and programs continue to struggle to perform as promised, BPM projects, in contrast, produce real gains and payback in months versus years. Gartner reported that 67 percent of BPM projects in its survey were completed in less than six months, and successful projects had an internal rate of return of no less than 10 percent. Aberdeen has found that best in class companies more than recouped their investment, with some organizations realizing a return of more than twice the investment.

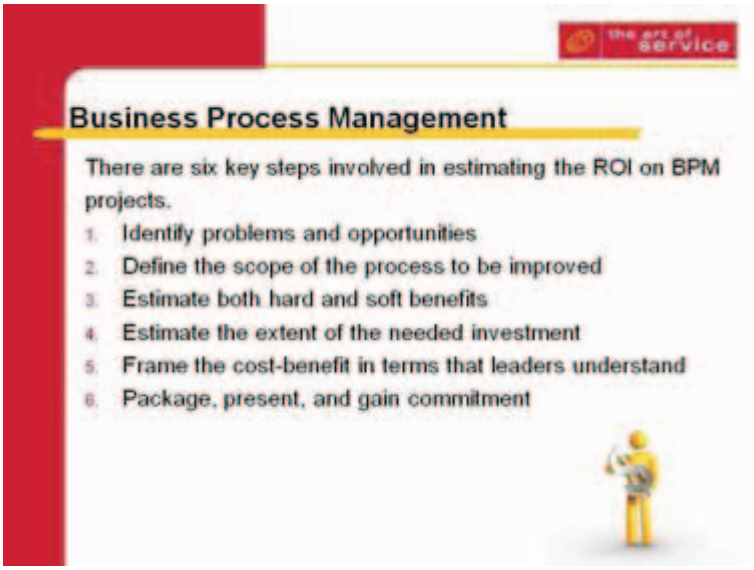


The return on an IT investment is best justified when results are expressed in monetary terms. Simply put, executives respond when value is expressed in terms of cost reduction or revenue increase. Successful BPM projects deliver just that by enabling process automation and improvement. That's why in a recent CIO Insight Magazine survey of the most important priorities for 2007, "improving business processes" ranked #2, just after delivering better service to customers.

The top ranked priority, “delivering better service to customers,” and the fourth ranked priority, “cutting costs,” also rely heavily on the improvement of business processes. After all, customer value and shareholder value is created by the level of performance of a company’s business processes.



In order to estimate the ROI from any IT project, it is important to understand the scope of investment, typically expressed in terms of the needed investment in software, people, training, and hardware. Then it's essential to understand the core components of calculating ROI – cost, time, quality, and productivity, and frame the anticipated benefits of the project in terms that leaders understand – customer satisfaction, revenue improvement, cost reduction, and risk mitigation and compliance.



1. Identify problems and opportunities

The first step to estimate ROI of a BPM project is to identify business problems to fix or opportunities for improvement that can be effectively addressed with BPM. In this respect, it is important to select an initial project area where the likelihood of creating value (increased revenues and/or reduced costs) is high and project complexity is relatively low. There are essentially two approaches to problem/opportunity identification. The first is to listen to complaints and feedback from customers or people in customer touching departments such as sales and customer service, compare the relative risk-reward of potential projects, and then scope a project accordingly. The second is to carry out a high level assessment of process candidates where BPM can be deployed to yield rapid, visible payback, compare the relative risk-reward of potential projects, and then scope the selected project

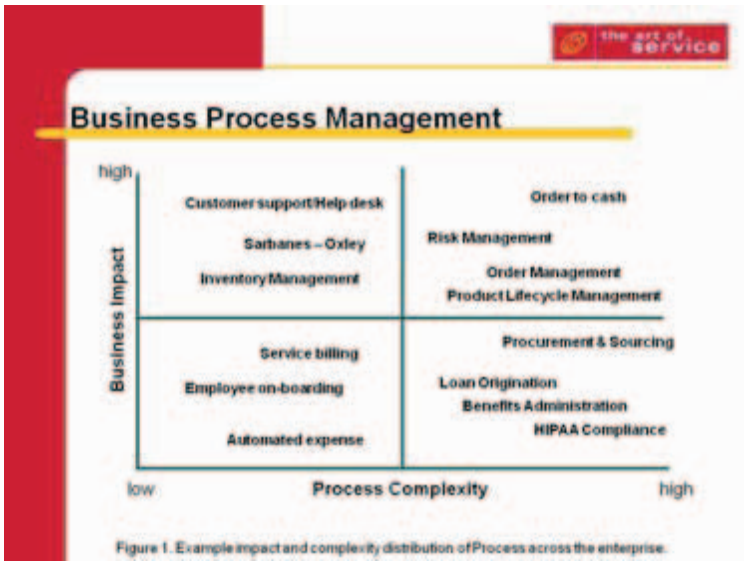
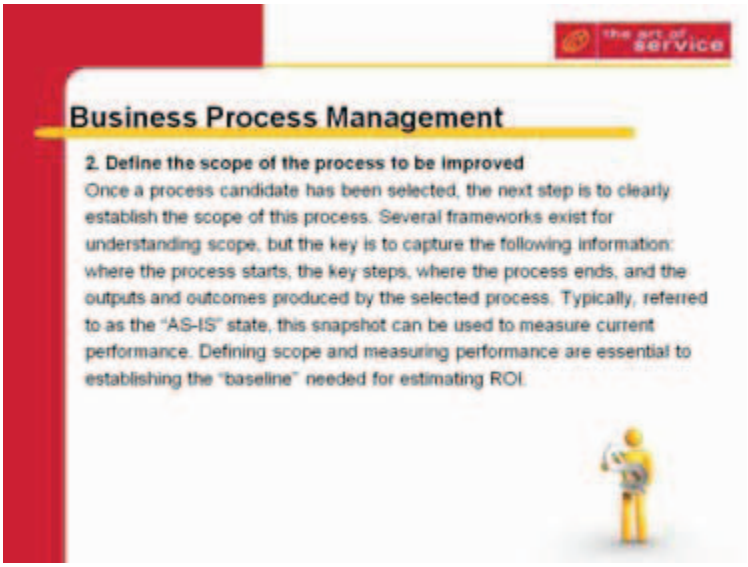


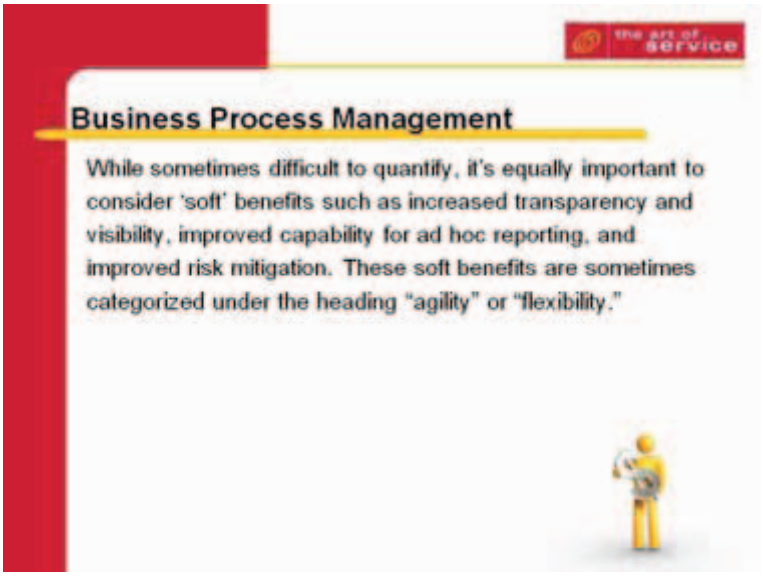
Figure 1. Example impact and complexity distribution of Process across the enterprise.

To illustrate one method of comparing the relative risk-reward of potential projects, this figure a view on the relationship of the estimated size of impact versus process complexity for selected BPM solution areas. While the example provides some general guidance, note that such an assessment will be different for each company.



3. Estimate both the 'hard' and 'soft' benefits

Think of the 'hard' benefits in terms of the core components of cost, time, quality, and productivity. BPM enables an organization to produce benefits in each of these areas. Estimating baseline performance of the process in the previous step will likely expose areas of cost reduction, for example, eliminating the need for certain manual tasks like data entry or manual report generation. These cost savings are often best described in terms of savings in full time equivalents (FTEs). Cycle-time compression is a multi-edged sword. Reducing the time to complete a process drives down cost, improves responsiveness, and positively impacts customer satisfaction. Similarly improving quality through the reduction of error rates has clear 'hard' benefits for customers and also to the company in terms of reduced costs such as manual exception handling, fewer returned products, and lower warranty costs. Productivity improvements such as increasing throughput (more transactions with the same or fewer resources) are also important to capture.

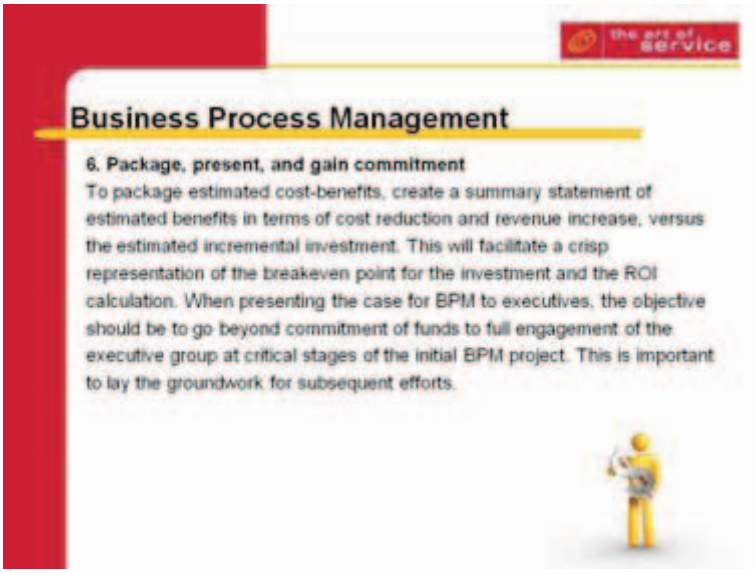


4. Estimate the extent of the needed investment

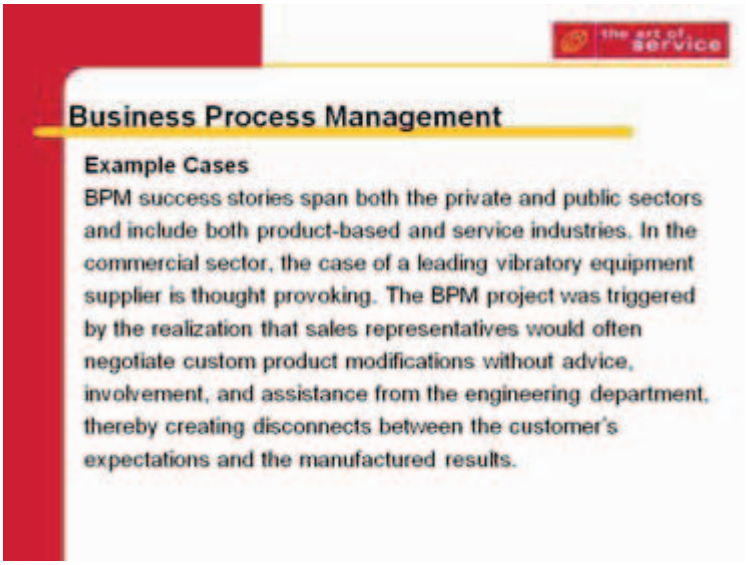
A realistic estimate of the required investment in software, people, training, and hardware is equally critical. In this respect, the focus should be on incremental costs, and core infrastructure expenditures should be treated as the "cost of doing business." To estimate the 'total cost of ownership' (TCO) pay particular attention to incremental staffing, training, and other incremental costs in areas such as quality assurance, capacity planning, other production related incremental expenses. Also consider the estimated savings once BPM systems are in place as a result of repurposing.

Once both the benefits of the BPM deployment and the needed investment are understood, it's vital to frame these factors in terms that executives will understand and support. This table outlines one example of a worksheet for framing the benefits.

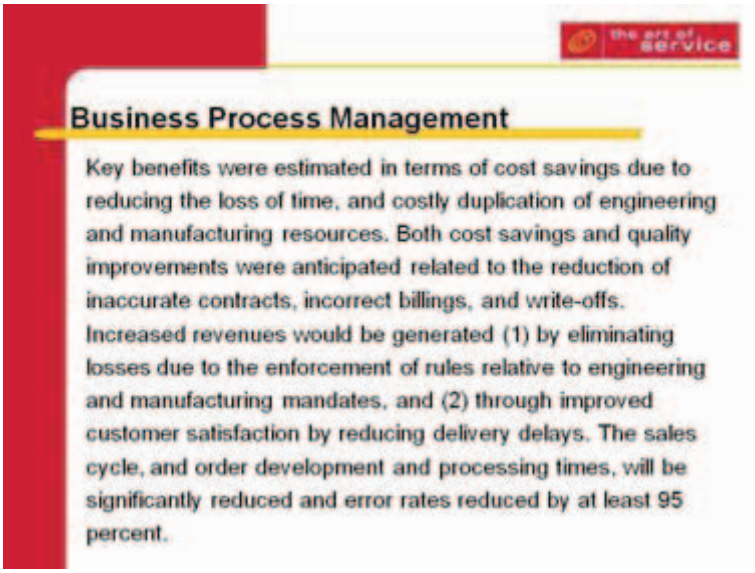
The actual completion of such a worksheet depends, of course, on the nature and scope of the selected process and should be populated with specific benefits relevant to the chosen project. Addressing customer-touching processes will generally have higher values in terms of "customer satisfaction" and potential revenue increase opportunities.



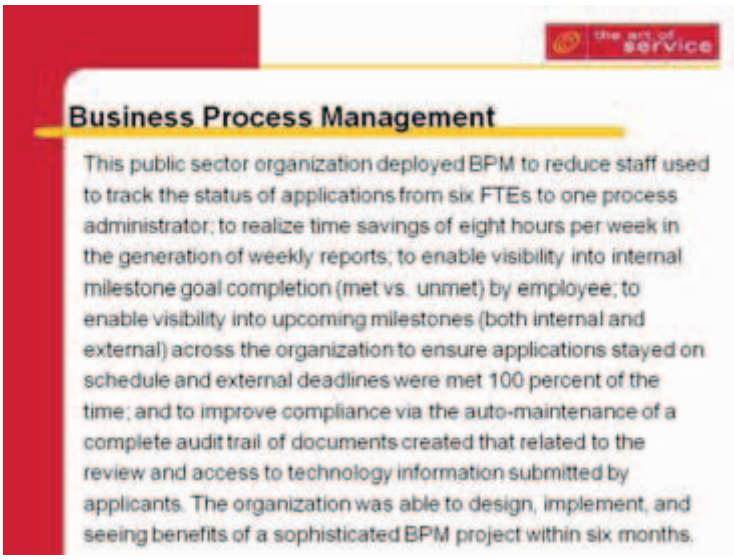
BPM initiatives yield significant results when properly scoped, planned, and deployed. Gartner reported that 78 percent of the BPM projects in their survey yielded an internal rate of return (IRR) of over 15 percent. Aberdeen has observed that 50 percent of organizations in their survey turned to BPM to complement ERP functionality. . Whether BPM is applied to targeted areas or used to complement an existing IT environment, research reinforces success using BPM, often a critical factor for gaining support and corporate commitment.



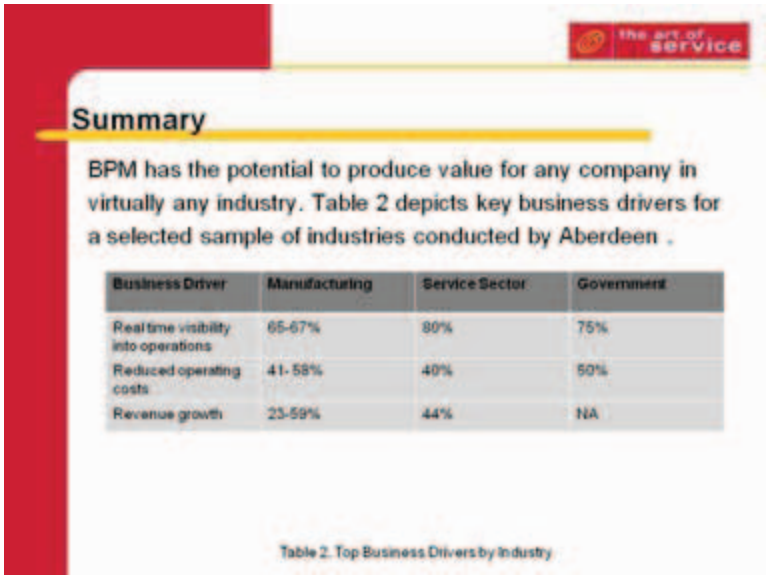
Moreover, sales orders were often incomplete, lacking certain information to ensure timeliness and accuracy of contracts and product delivery. While the entire contract to cash process needed to be addressed, the initial effort focused on the “contract to delivery” component of this process. In estimating the ROI of the BPM effort, the company expects that BPM project deployment would take place in under four months, the breakeven point to recoup project related expenses would be 10 months, and the estimated ROI was about 25 percent.



To illustrate the deployment of BPM in the public sector, consider this case of BPM applied to the application management process. An agency with the mission of encouraging the development and deployment of anti-terrorism technologies recognized that its capability to monitor and manage key applications was flawed. Several independent and unlinked Excel spreadsheets were being used to track application status. These spreadsheets were perceived to be inaccurate and out of sync with one another. Lists of applications and key deadlines were charted by way of whiteboards in various offices. The lack of visibility and the means to anticipate action on deadlines lead to a “fire-fighting” environment.



BPM Trends that affect ROI There are also a number of trends that are important to monitor, including the availability of BPM “software as a service” (SaaS), the increasing convergence of BPM and business intelligence (BI), better insight into the interdependence of BPM and Service Oriented Architecture (SOA), and the increasing use of BPM to provide added functionality to Enterprise Resource Planning (ERP) systems. In evaluating BPM vendors, it’s important to consider the extent to which a given vendor is a leader in these key trend areas. Appian is a leading vendor in this respect as it was the first to offer on-demand BPM through its Appian Anywhere product. Also, consider the extent to which vendors offer full Web-based modeling capability with desktop-like functionality (no downloads or installs), Business Process Management Notation (BPMN) compliance, and features such Microsoft Office integration.



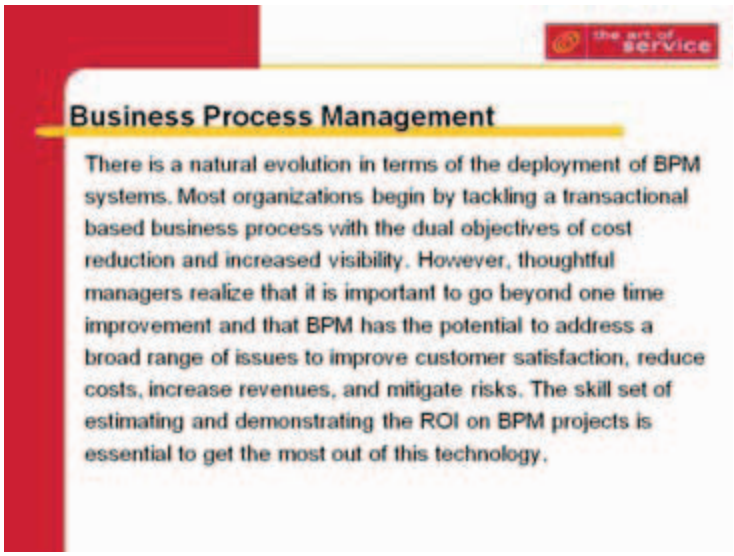
Summary

BPM has the potential to produce value for any company in virtually any industry. Table 2 depicts key business drivers for a selected sample of industries conducted by Aberdeen .

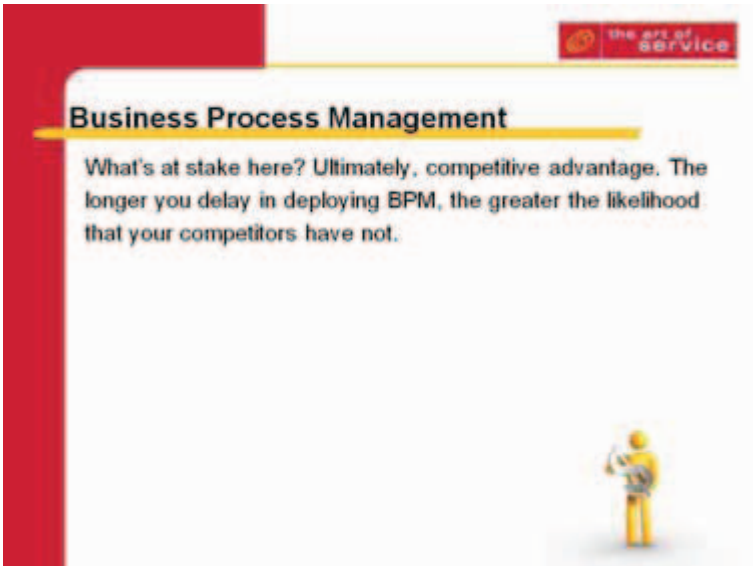
Business Driver	Manufacturing	Service Sector	Government
Real time visibility into operations	65-67%	80%	75%
Reduced operating costs	41-58%	40%	50%
Revenue growth	23-59%	44%	NA

Table 2. Top Business Drivers by Industry

Now, what should you look for in a BPM system or Business Process Management Suite (BPMS)? BPMS should offer a robust modeling capability, ease of use, scalability, and the ability to leverage rules-based logic, combined with powerful analytics. These key features should address both human-centric and system-centric processes, and should deliver increased control over and visibility into key business processes. Similarly, a BPM system should enable the organization to explicitly assign responsibilities to people or groups or to dynamically assign them according to business rules, policies, skills, or workload balancing algorithms, and provide the means to act as a sort of centralized, Web-based layer of logic atop legacy applications and ERP systems.



In spite of better project management, iterative development, and emerging Web infrastructure, the Standish Group estimates that in 2006 only about 35 percent of all IT projects were delivered on time, on budget, and meeting user requirements. BPM projects can significantly improve that proportion of success. Gartner noted that by simply “making the current-state handoffs, timing, and responsibilities explicit, productivity improvements of more than 12 percent are normally realized.” Aberdeen recently reported that some companies average a return of more than twice the original investment in BPM implementations. BPM practitioners realize that a significant portion of the ROI gained by using BPM isn’t just what is delivered, but how it is delivered.

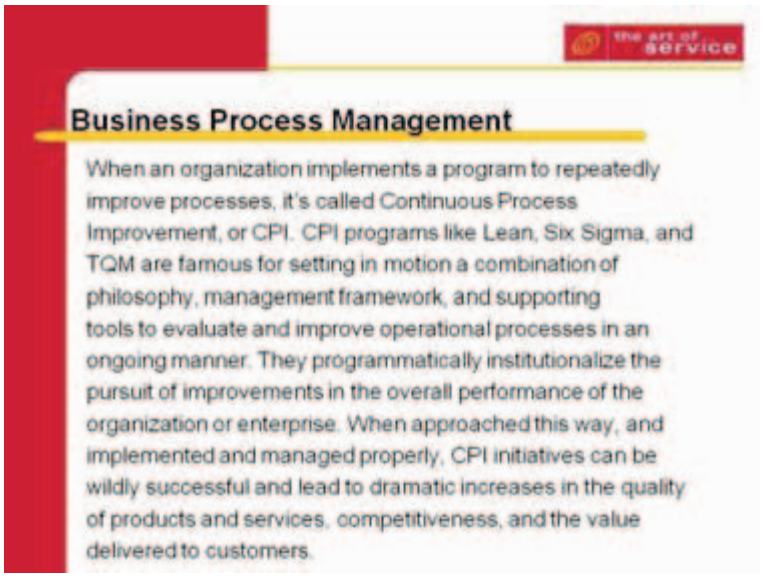


See Example: Common Business Objectives, found on page 235 within this guide.

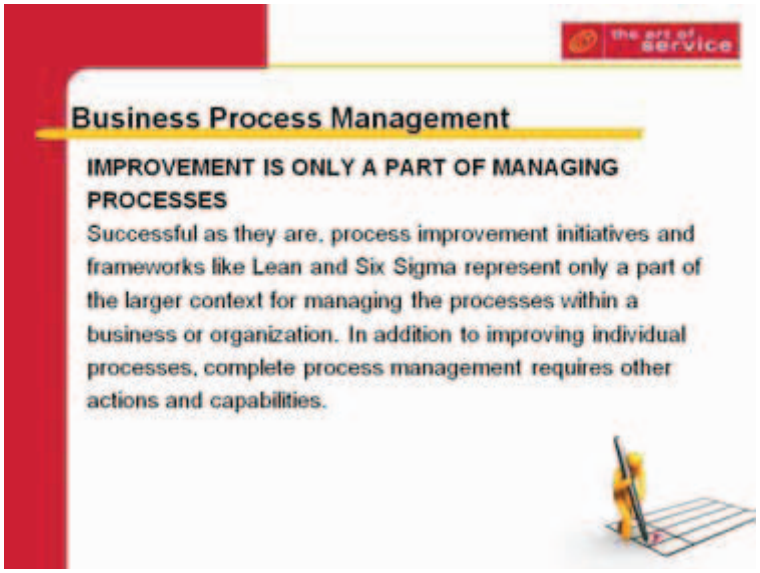
BPM CONTINUAL IMPROVEMENT

IMPROVING PROCESSES

Businesses and organizations of all types now regularly embrace some type of formal approach to improving their business processes. While every improvement program is tuned to the industry and environment at hand, each approach is based on a common-sense strategy: first select an area for improvement, then assess the current state and conditions next determine the change to a new state, and finally, implement the improvement.

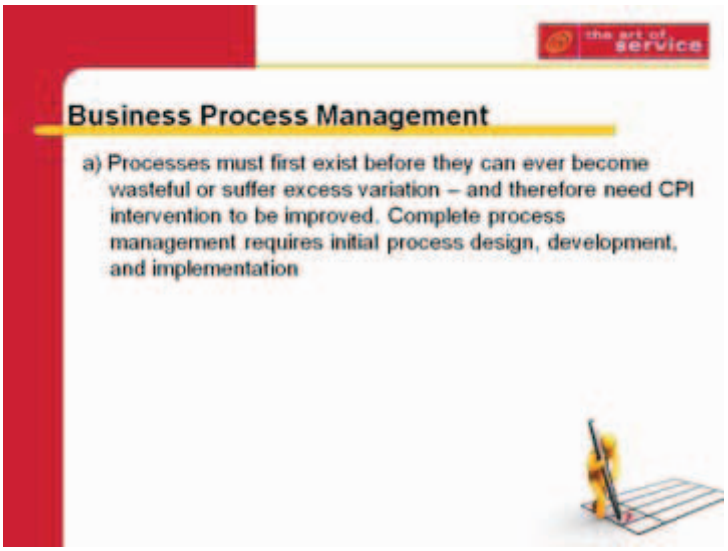


Because process excellence is a key driver of business performance, organizations with successful process improvement initiatives are zealous in their support for and commitment to CPI. They apply their CPI methodologies across the enterprise: top-to-bottom, wall-to-wall, and even beyond their own walls – with suppliers and customers. They live and breathe the language and the tools. They directly measure the effectiveness of their activities and go on the record with their results. For example, leading corporations practicing Six Sigma, report returns on investment of five times or greater, with collective results now exceeding $100 billion in total value.



In focusing on process improvement, CPI practices are only a part of an overall system of comprehensive process management.

- Consider the following:

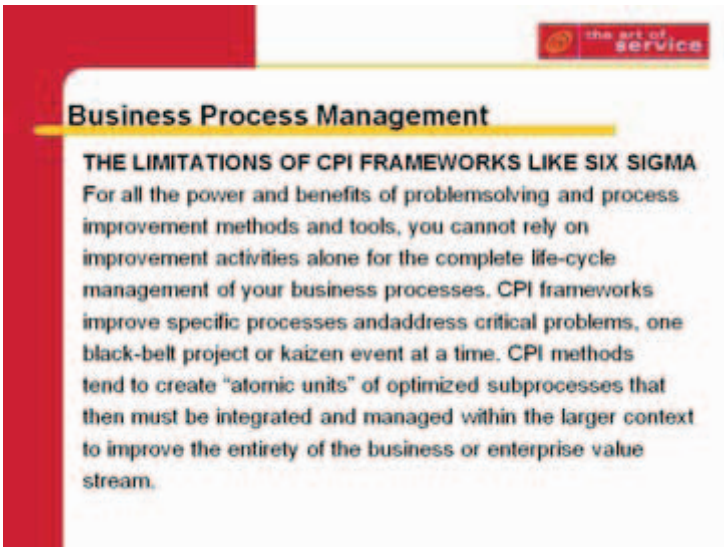


b) Managed processes include all types of processes: people processes, system (as in computer and software system) processes, and combination or hybrid processes – all along a value stream. It's not enough to manage or improve only one type or in one functional area.

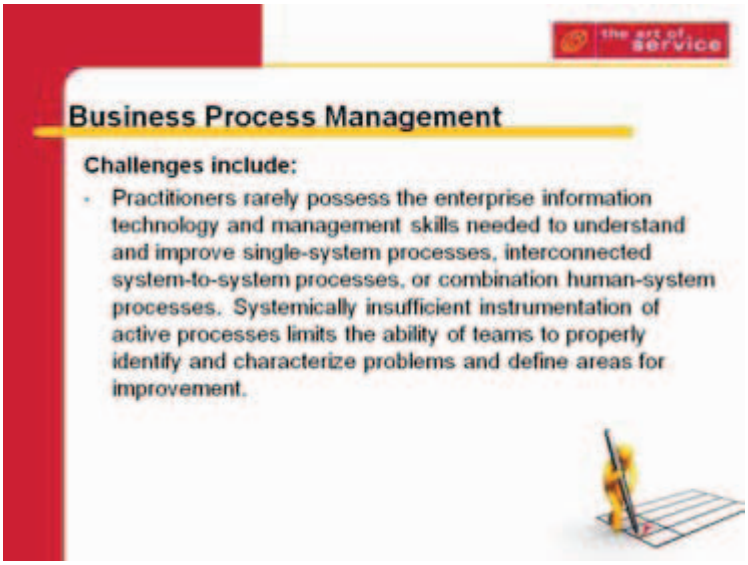
c) The act of implementing any new or changed process must in itself be well-managed. Improvement initiatives demand effective strategic alignment, governance, and project management, requiring project leadership, teamwork, configuration, and change management.

d) Most important, any effective, performing process must be standardized and managed to specifications – with controls. CPI methodologies like Six Sigma require such controls, but this part of CPI tends to be under-emphasized.

See more information and tools on Six Sigma, in your bonus documents, found within this guide

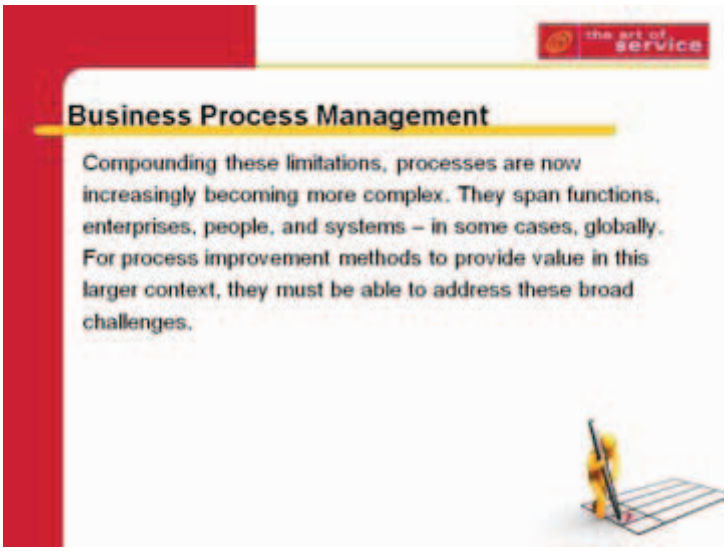


Process improvement frameworks like Six Sigma typically also fall short in managing broad-scale, cross-functional, and cross-organizational processes, and in addressing process challenges when the analysis and solutions require interplay with enterprise information systems.



- A lack of access to data across the enterprise or throughout a value stream restricts effective process measurements. Practitioners typically spend considerable time and effort collecting data in non-standard and non-repeatable ways. Project scope is limited, time is wasted, and error is introduced, because analysis and simulation tools are used off-line and data is entered manually.

- CPI practices are ineffective at controlling processes. Manual methods inhibit the ability of process teams to sustain performance gains over the long term.

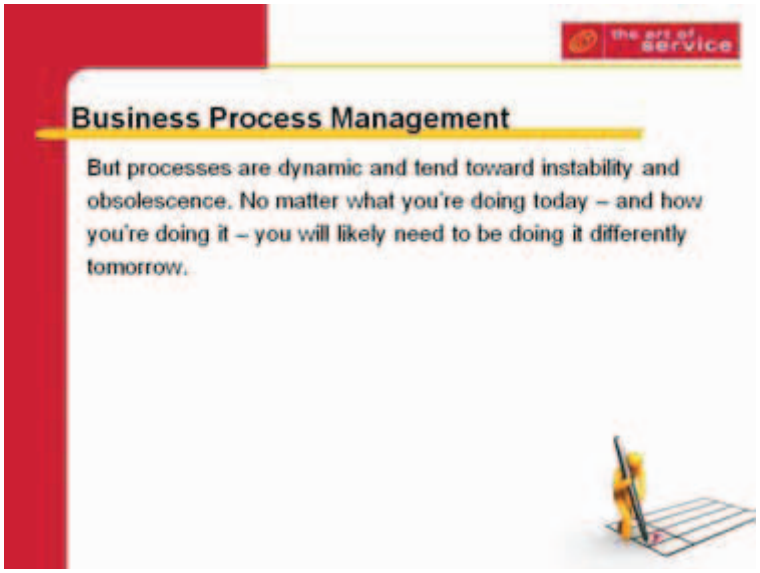


See The Integration of Knowledge Mapping into Existing Business Processes, found on page 191 within this guide.

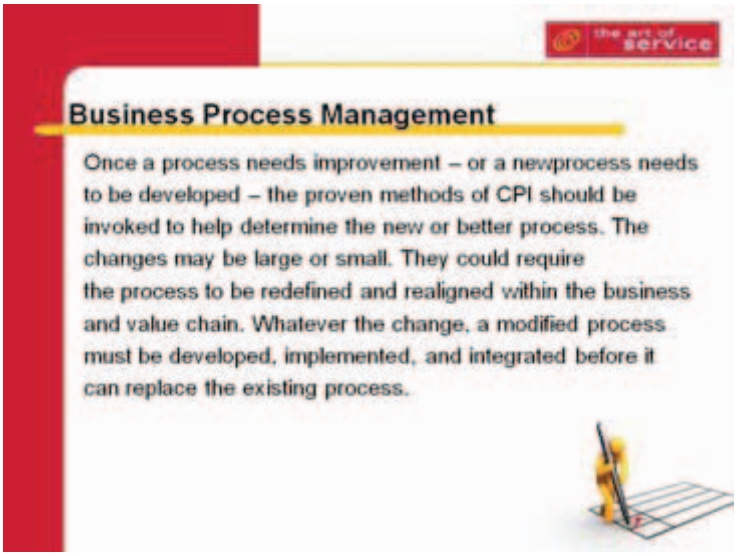
THE LIFE CYCLE OF BUSINESS PROCESSES

Within an operating business, all operational processes should be stable and performing at all times. Active processes should be well-defined and continuously managed and perform to specifications. Key performance indicators should be monitored to ensure that processes are working as desired, and that out-of-control or out-of-specification conditions are anticipated and responded to appropriately. This is one of the fundamental tasks of Business Process Management.

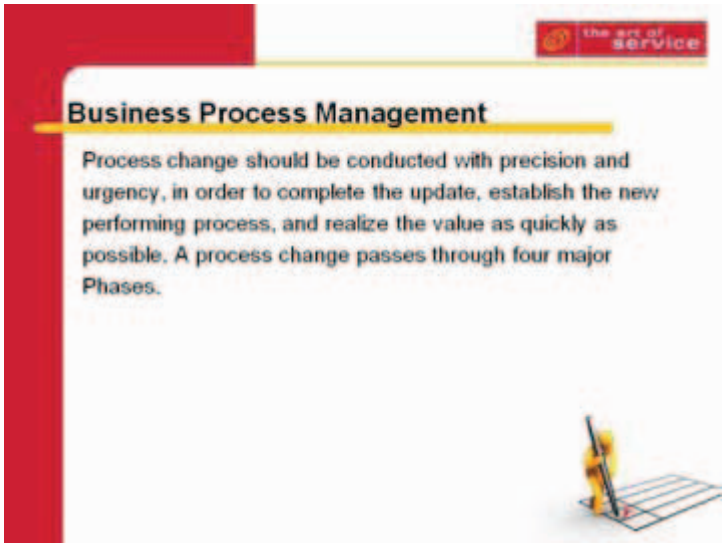
See KPI's, found on page 237 within this guide.



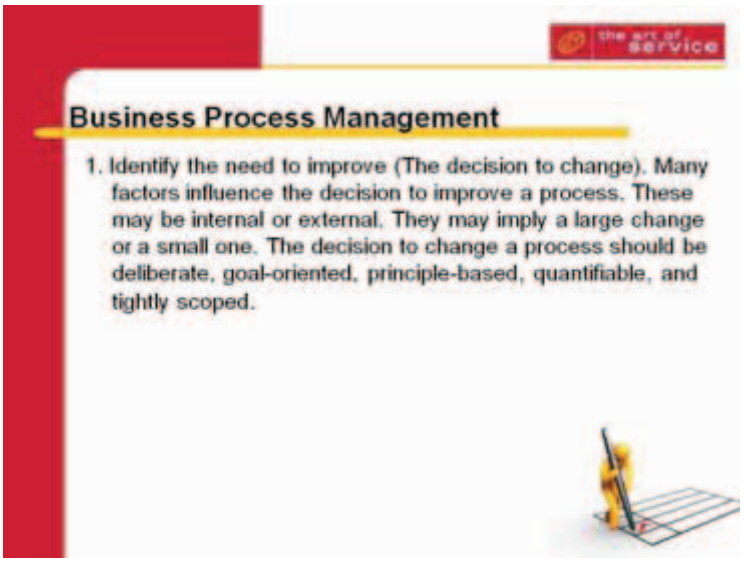
See Business Process Management-How to Scale your Process Documentation Initiative, found on page 247 within this guide.



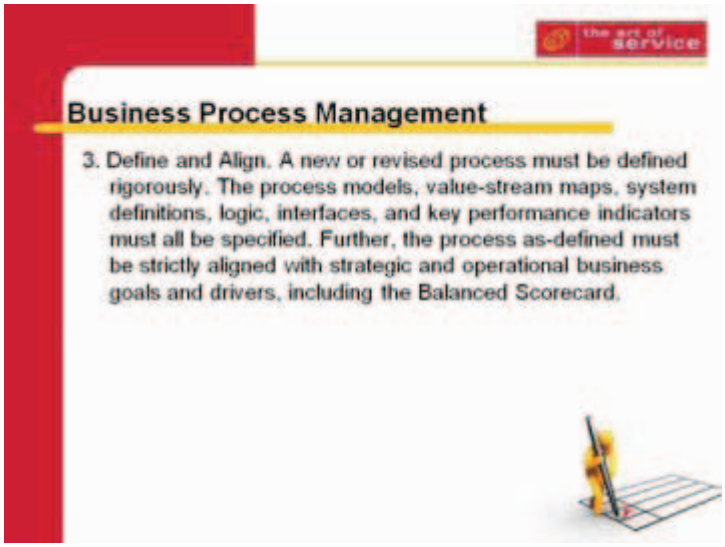
Once a process needs improvement – or a new process needs to be developed – the proven methods of CPI should be invoked to help determine the new or better process. The changes may be large or small. They could require the process to be redefined and realigned within the business and value chain. The changed process must then be developed, implemented, and integrated before it can replace the existing process.



1. Identify the need to improve (The decision to change). Many factors influence the decision to improve a process. These may be internal or external. They may imply a large change or a small one. The decision to change a process should be deliberate, goal-oriented, principle-based, quantifiable, and tightly scoped.

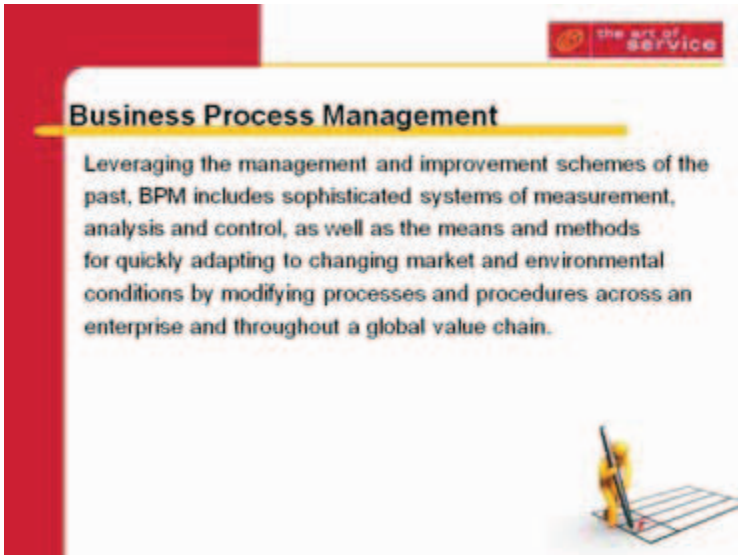


2. Determine the changes (using improvement methods). The time-tested techniques of CPI should be used to determine process improvements. Invoking a Six Sigma DMAIC project or conducting a Lean kaizen event will characterize the problems with the process, determine the process changes, and define the new process and standards of performance. If it's a new process, tools within frameworks like Lean or Design for Six Sigma (DFSS) should be used. Simulations, design of experiments, prototypes and models may also be appropriate.



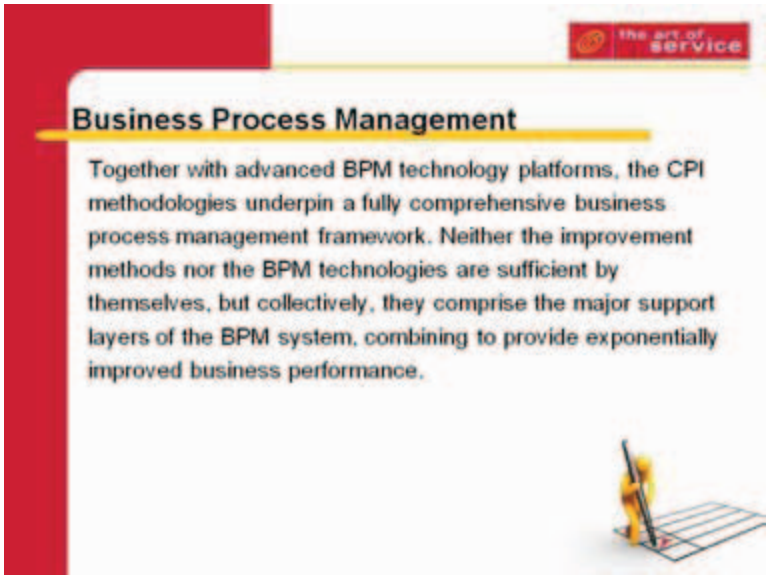
4. Implement and Integrate. The implementation of a new or revised process can involve many people, organizations, facilities, capital, material, and systems. The human and system elements of the process must be individually optimized and collectively integrated.

Organizations that apply BPM leverage a framework of prescriptive methods and tools. These include information technologies known as BPM Platforms for modeling, measurement, and control, as well as improvement methodologies like Lean, Six Sigma, and TQM for analysis and understanding that can be applied within the context of the vision and principles of the business.

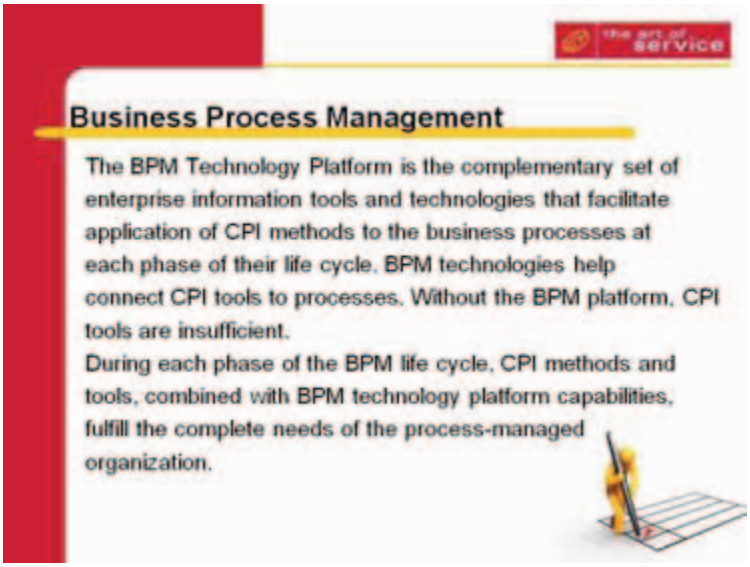


BPM: THE NEXT STAGE FOR CPI

The next stage for process improvement methodologies is the greater framework of Business Process Management (BPM). Within a BPM environment, individuals and teams working with improvement frameworks like Six Sigma and Lean can better leverage the tools and techniques of their trade to manage the complete life cycle of all types of business processes.



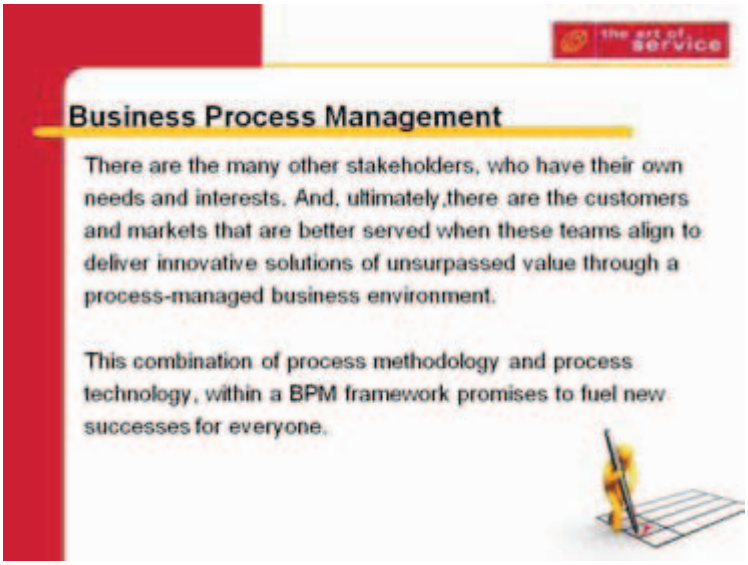
CPI Methods and Tools represent the necessary methodological foundation: the philosophy, principles, and techniques used to govern how teams systematically and repeatedly improve processes and enable teams to define and sustain stable, performing processes. The CPI framework adopted by an organization must be adapted to fit the overall BPM model for the enterprise. Without it, BPM is free-floating and ungrounded.


the art of service
Business Process Management
The BPM Technology Platform is the complementary set of enterprise information tools and technologies that facilitate application of CPI methods to the business processes at each phase of their life cycle. BPM technologies help connect CPI tools to processes. Without the BPM platform, CPI tools are insufficient.
During each phase of the BPM life cycle, CPI methods and tools, combined with BPM technology platform capabilities, fulfill the complete needs of the process-managed organization.

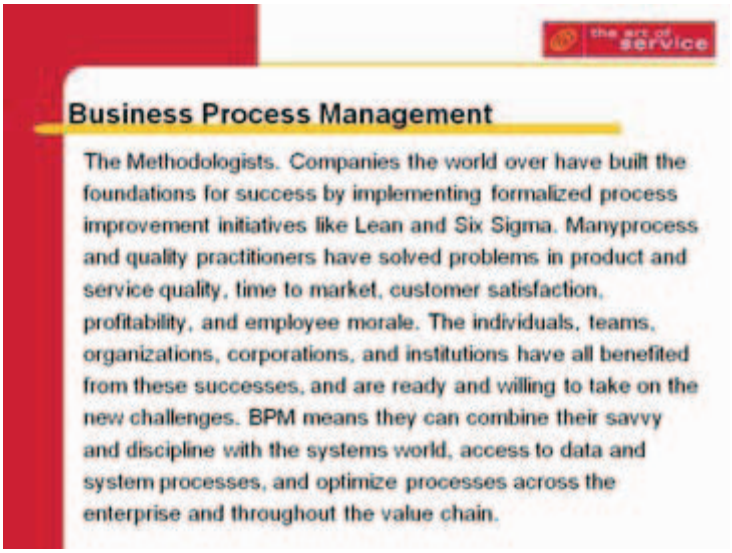
BPM – THE POWER OF PROCESS TO THE PEOPLE

These enabling forces are aligning with global forces in ways that are creating opportunities never before experienced in business. In the midst of these great movements are the professional practitioners:

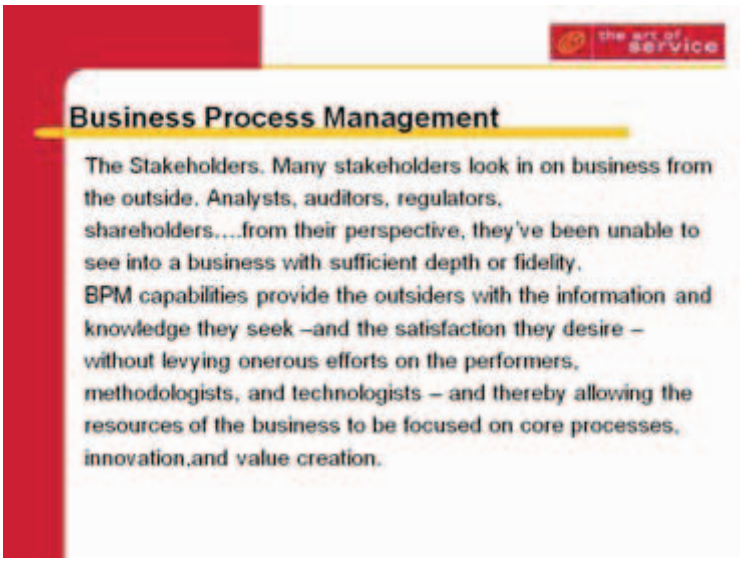
- the business people who own, live, and
- perform the core business processes
- the methodologists, who apply CPI tools to
- address shortcomings and improve outcomes
- the information systems teams, who create
- the technology environments that empower
- the business people and the methodologists



Consider the effects on each of the different constituencies: The Process Performers. The individuals within and across organizations who work in the core business processes directly create and contribute to the success or failure of the products and services in their markets. Through BPM, these process performers are increasingly empowered by instantaneous global insight into what's happening and the application knowledge of what's possible. This is what enables them to cope with the increasing urgency of global competition, tighter resources, and shrinking margins for error. For them, BPM means more innovation, greater leverage of intellectual capital, more effective operations, and more satisfied customers.

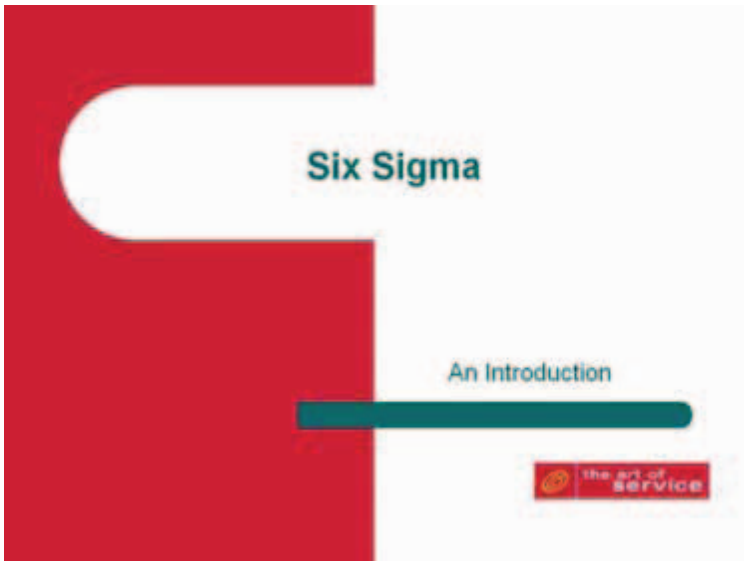


The Technologists. The evolution of the technologies in BPM platforms – including Enterprise Application Integration (EAI), Service Oriented Architectures (SOA), workflow, process modelling, simulation engines, codeless development, and standards like BPMN, BPEL,WSDL – have vaulted the Information Technology community forward. No longer is the IT staffs saddled with the frustration of large budgets and lengthy schedules. IT professionals can now assemble new processes and build new businesses more quickly and effectively than ever. And, combined with the methodological underpinnings of CPI, these new processes and businesses will be more effective and robust than ever before.



The Customer! And why is all this necessary? Because the customer demands value! Customers and markets have decreasing tolerance for waste and defects, for lost time and wasted effort, for products and services that aren't to their need or liking. BPM is important because it helps the customer – the one who matters most

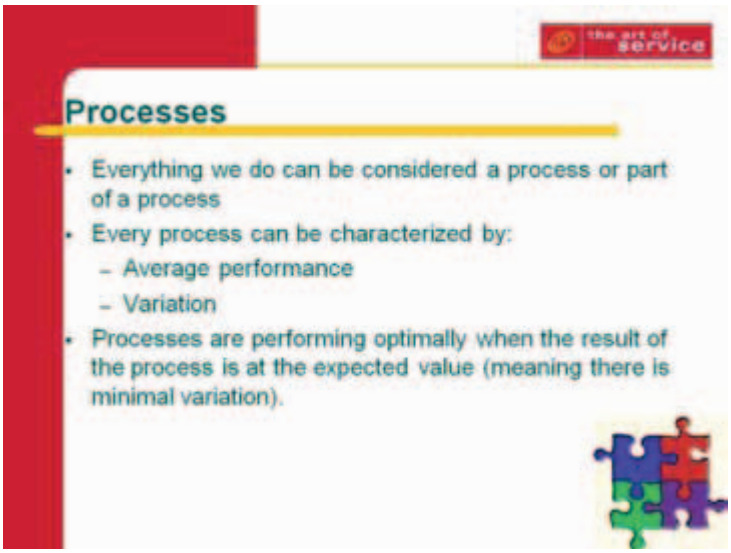
SIX SIMGA



What is Six Sigma

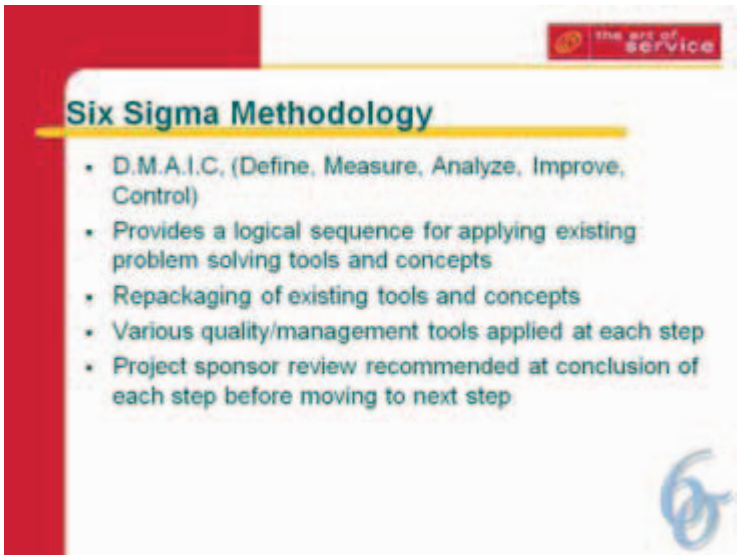
- A statistical measure of variation
- Full Six Sigma equals 99.9997% accuracy
- Methodology for improving key processes
- A “tool box” of quality and management tools for problem resolution
- A business philosophy focusing on continuous improvement
- An organized **process** for structured analysis of data

There is a Six Sigma Fact Sheet document available on page 257, within this guide.



History of Six Sigma

- Motorola developed the Six Sigma methodology in the mid-1980's as a result of recognizing that products with high first-pass yield rarely failed in use
- Statistical term dates back to the 1800's (Carl Frederick Gauss)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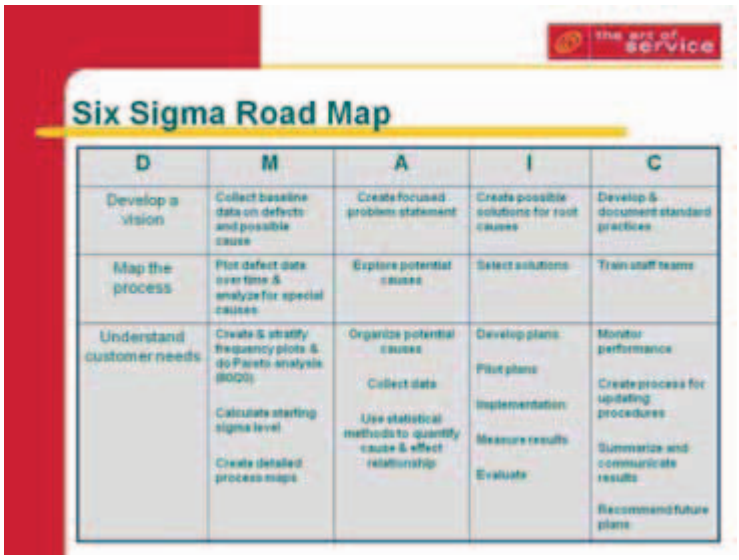
Six Sigma Methodology
• D.M.A.I.C. (Define, Measure, Analyze, Improve, Control)
• Provides a logical sequence for applying existing problem solving tools and concepts
• Repackaging of existing tools and concepts
• Various quality/management tools applied at each step
• Project sponsor review recommended at conclusion of each step before moving to next step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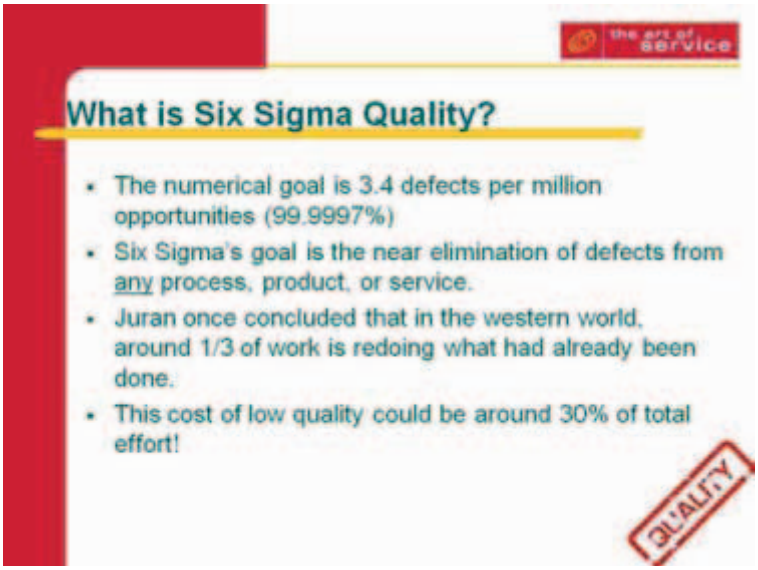
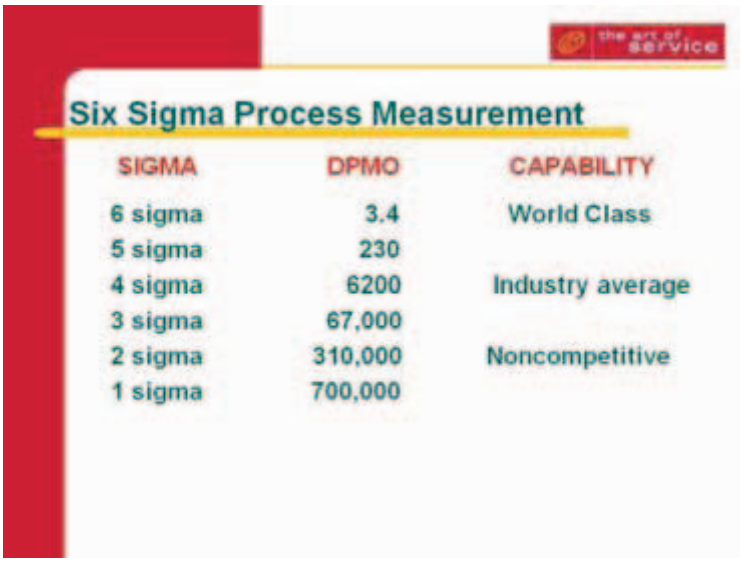
Six Sigma Road Map
D
M
A
I
C
Develop a vision
Collect baseline data on defects and possible cause
Create focused problem statement
Create possible solutions for root causes
Develop & document standard practices
Map the process
Plot defect data over time & analyze for special causes
Explore potential causes
Select solutions
Train staff teams
Understand customer needs
Create & stratify frequency plots & do Pareto analysis (80/20)
Calculate starting sigma level
Create detailed process maps
Organize potential causes
Collect data
Use statistical methods to quantify cause & effect relationship
Develop plans
Pilot plans
Implementation
Measure results
Evaluate
Monitor performance
Create process for updating procedures
Summarize and communicate results
Recommend future plans



One of the misconceptions with 6S is that 'It only works in manufacturing industries' – WRONG !!
6S started life in Motorola's manufacturing areas where the concept of Statistical Process Control was accepted.

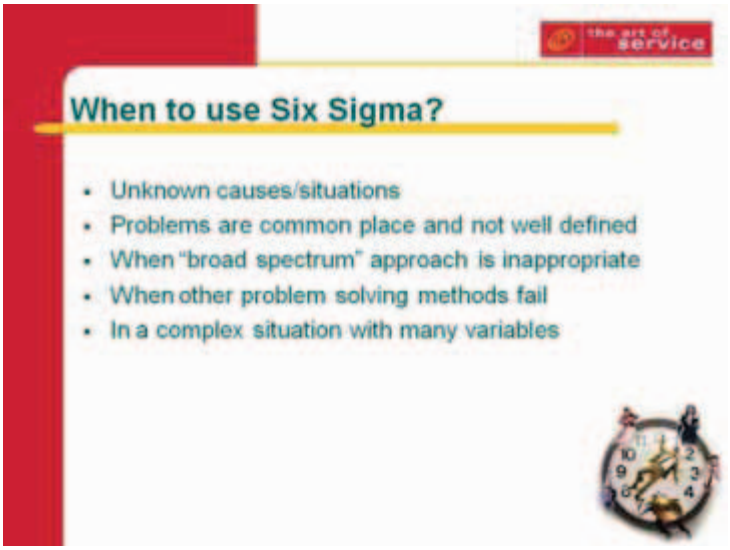
However, if we are going to continue to use the term "process" then we should also use SPC in order to measure and improve those same processes. Most service areas don't have a clue as to how well they are doing now.

This is a methodology, a concept that can be applied equally to manufacturing as it can to service.
AND look at the potential payoffs in terms of productivity increases, leading to direct cost savings.

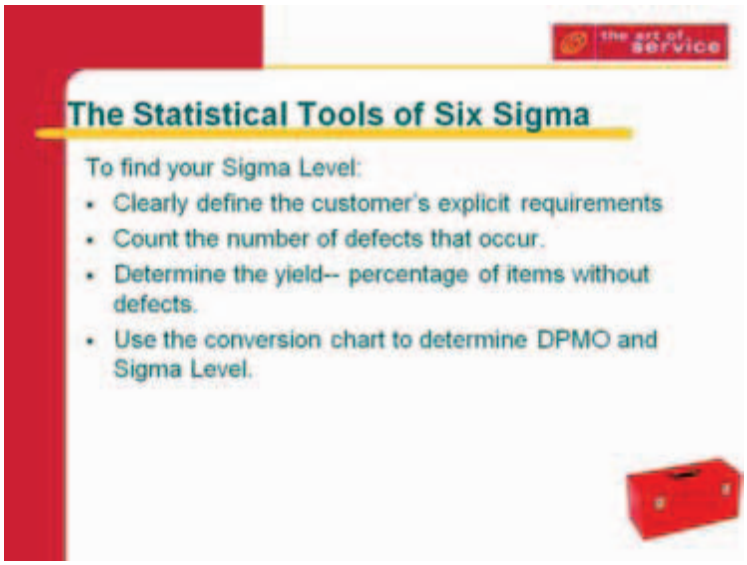


So here are the measurable levels for Six Sigma

DPMO – Defects Per Million Opportunities.



There is a Starter Kit document on page 261 and Six Sigma Short Overview document available on page 277, within this guide.

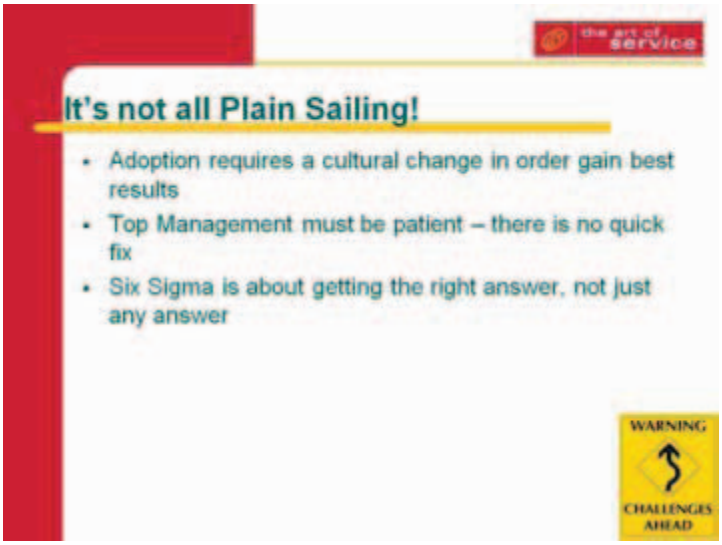


Defining what is to be measured is perhaps the hardest element – but it must involve the customer.

There is a Defining Requirements document available on page285, within this guide

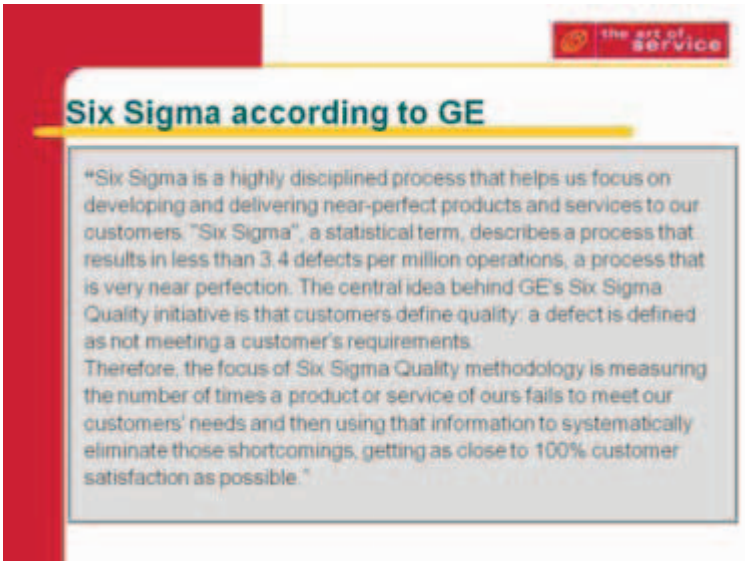
Why adopt Six Sigma?

- Defined process for problem solving
- Proven methodology to solve problems
- Consistency with results
- Focus on the “bottom line” which encourages credibility/support from the top of the organization



Six Sigma Summaries

- It's amazing what can be known when we look at data differently.
- DMAIC is not for every project
- When applied correctly, DMAIC will produce consistently better results than most other methods
- "New Culture" at many organizations today
- Very marketable
- A Six Sigma approach works!


the art of service
Six Sigma according to GE
"Six Sigma is a highly disciplined process that helps us focus on developing and delivering near-perfect products and services to our customers. "Six Sigma", a statistical term, describes a process that results in less than 3.4 defects per million operations, a process that is very near perfection. The central idea behind GE's Six Sigma Quality initiative is that customers define quality: a defect is defined as not meeting a customer's requirements.
Therefore, the focus of Six Sigma Quality methodology is measuring the number of times a product or service of ours fails to meet our customers' needs and then using that information to systematically eliminate those shortcomings, getting as close to 100% customer satisfaction as possible."

SUPPORTING DOCUMENTS

Through the documents, look for text surrounded by << and >> these are indicators for you to create some specific text.

Watch also for highlighted text which provides further guidance and instructions.

MEDICARE CASE STUDY EXAMPLE

Online claiming operational models

The diagram below identifies some of the business processes for transmitting data through Aged Care Online Claiming using integrated software.
These diagrams represent the most common scenarios for services to transmit data and can help you to identify which scenario best suits your business needs.

Legend

 Browses website - using user ID

 Lodges data and/or browses website – using Aged Care user ID.

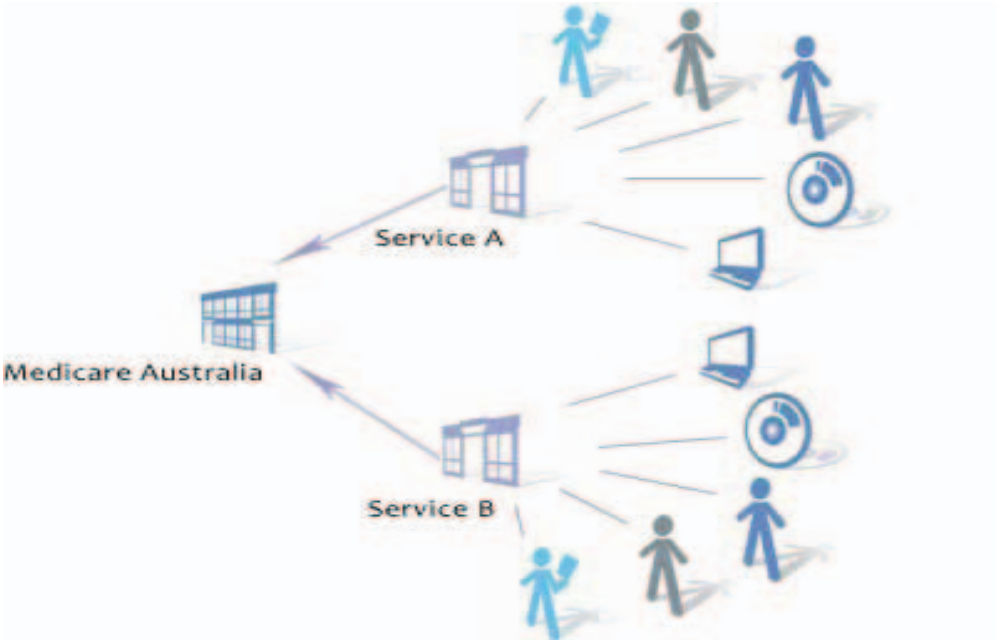
 Signs events, transmits events or lodges data and/or browses website - using individual certificate.

 Minor customer ID

 Site certificate REQUIRED FOR B2B ONLY

Scenario 1 - A single service that is transmitting to Medicare Australia
Service has a valid *Annual Aged Care approved provider statement* in place and integrated software incorporates this functionality.
No PKI individual certificates (iKeys) are issued.

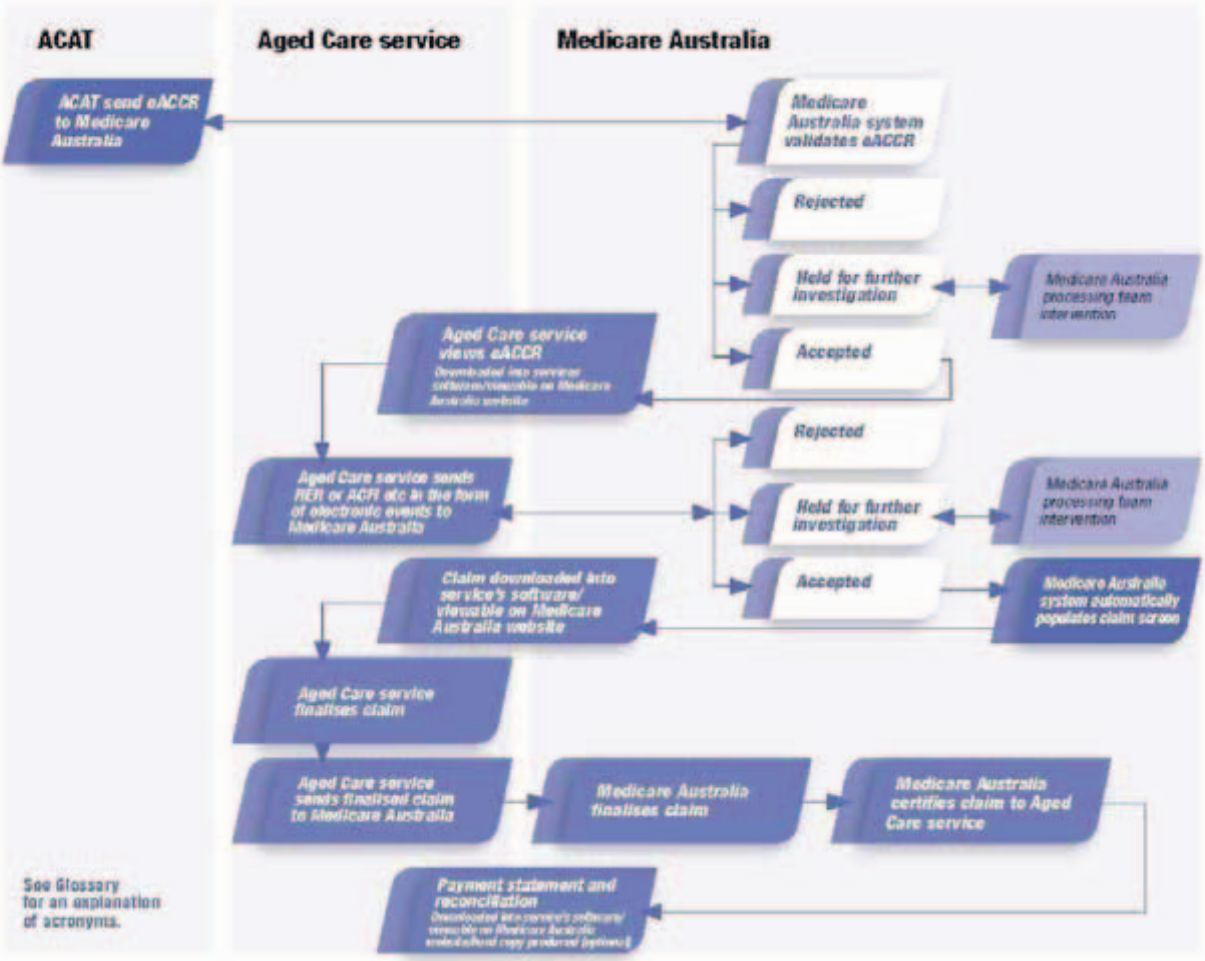
Scenario 2 - One provider with multiple services transmitting to Medicare Australia



Scenario 3 - An administration location transmitting to Medicare Australia on behalf of one service

Scenario 4 - Administration location transmitting to Medicare Australia on behalf of one or more services

BUSINESS PROCESS MODEL – MEDICARE AUSTRALIA



BPM DESIGN FOR WORKFLOW AND RULE MANAGEMENT SYSTEMS

Business process Management (BPM) solutions are frameworks used to develop, deploy, monitor, and optimize multiple types of process automation applications involving both people and systems. Applications like transaction processing that involve multiple systems but straight through processing which does not involve human interaction. BPM can also be used as a back end application, which can be automated to achieve greater efficiency (Business Functions like human resources, order management, payables etc.,) and effectiveness, thereby increasing the organizations responsiveness and profitability.

BPM Solutions share many components like Process Design Tools, Process Engines, Integration Components, and Measure and Performance Tools.

The Characteristics of Best BPM solutions are:

- **95% Process and Related Data Capture.** All metrics of a given process application must be captured in audit logs that can be easily mined, a capability native to all BPM products. Advanced Options to capture data from applications that uses the process.
- **95% Process Monitoring.** Once process metrics are captured, data must be displayed in real time, in a graphic format so that a supervisor or manager can identify bottlenecks and exceptions at a glance.
- **95% Process Analytics.** Process data must be available for sophisticated OLAP-style analysis.
- **95% Manual and Automated Process Change.** The solution should provide manual methods within the same interface, for a supervisor to take immediate action (for example, change a process or move work). In addition, the solution should offer automated actions that can be taken based on preset parameters and triggers that require no human intervention.
- **95% Process Simulation and Modeling.** The solution should be able to provide simulation and modeling of potential process metrics, with the goal of allowing business users to quickly make changes in the process design to deliver additional efficiency.

Workflow Systems Overview

Workflow is often associated with BPM, which is concerned with the assessment, analysis, modeling, definition, and subsequent operational implementation of the core business processes of an organization (or other business entity).

Workflow

- Definition - The computerized facilitation or automation of a business process, in whole or part.

Workflow Management System

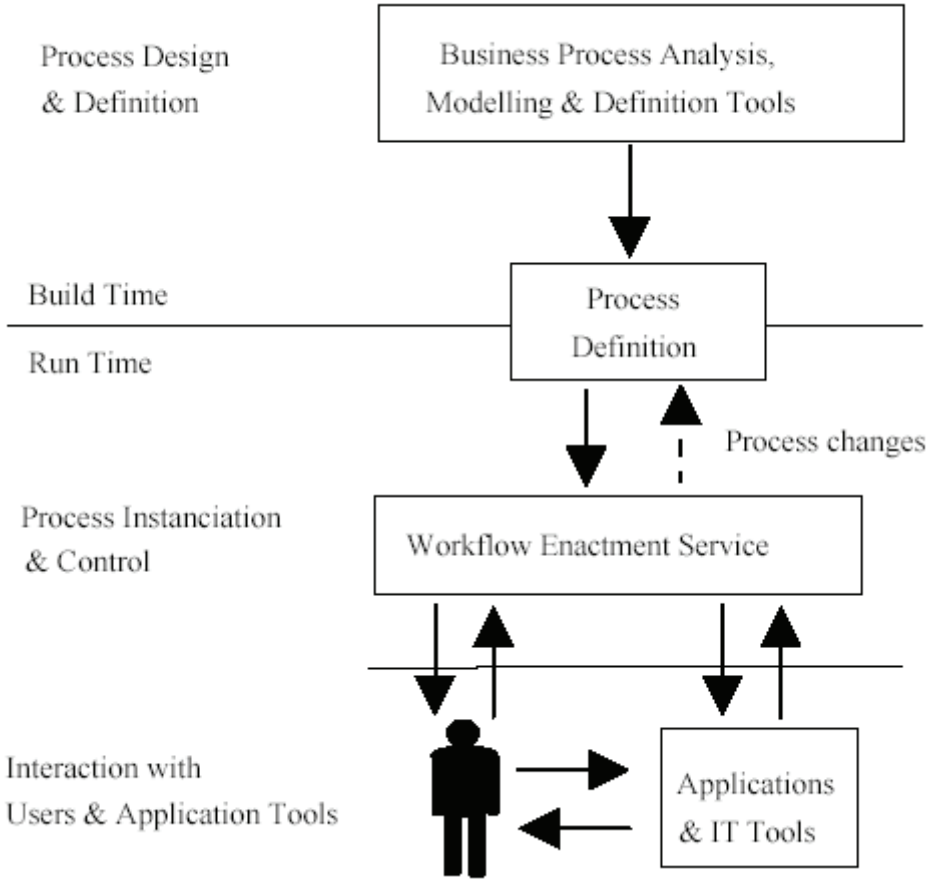
- Definition - A system that completely defines, manages, and executes "workflows" through the execution of software whose order of execution is driven by a computer representation of the workflow logic.

At the highest level, all WFM systems may be characterized as providing support in three functional areas:

- Build-time functions-concerned with defining and possibly modeling the workflow process and its constituent activities.
- Run-time control functions- concerned with managing the workflow processes in an operational environment and sequencing the various activities to be handled as part of each process.
- Run-time interactions with human users and IT application tools for processing the various activity steps.

Figure 1 illustrates the basic characteristics of WFM systems and the relationships between these main functions.

Figure 1 - Workflow System Characteristics



Build-Time Functions

The Build-time functions are those, which result in a computerized definition of a business process.

Run-Time Functions

At run-time the process definition is interpreted by software, which is responsible for creating and controlling operational instances of the process, scheduling the various activities steps within the process, and invoking the appropriate human and IT application resources, etc. This run-time process control function act as the linkage between the processes as modeled within the process definition and the process as seen in the real world and reflects in the runtime interactions of users and IT application tools.

Run-time Activity Interactions

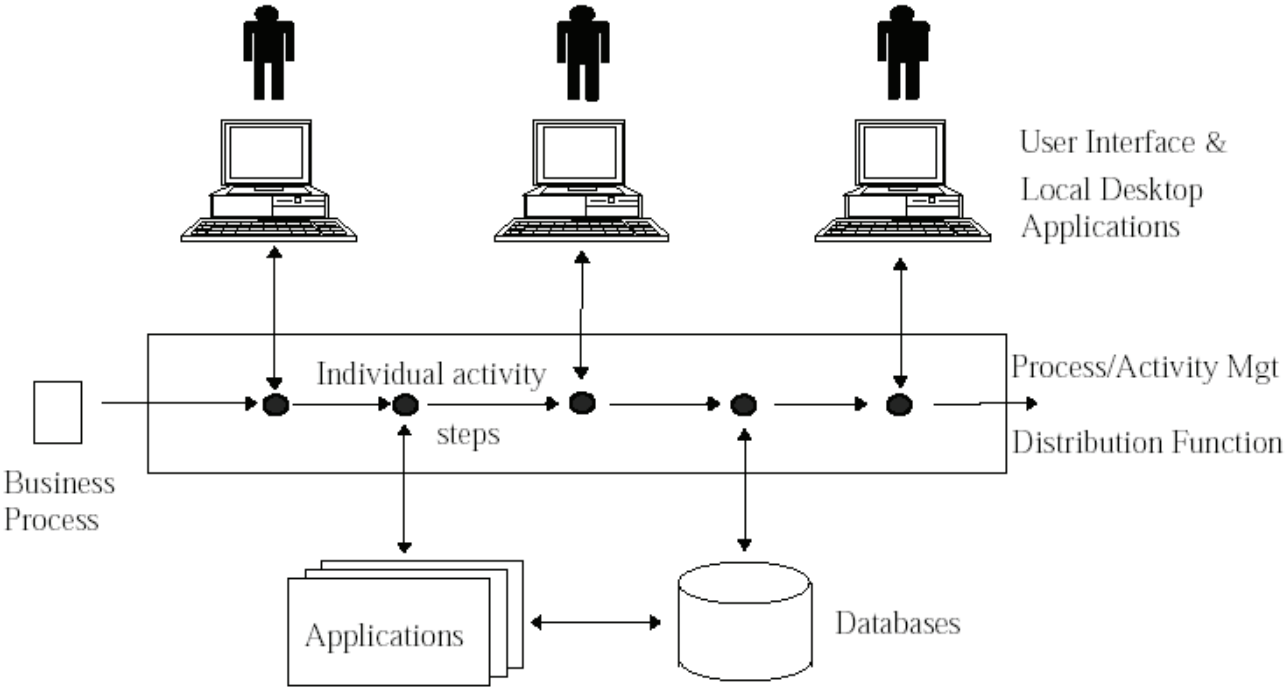
Interaction with the process control software is necessary to transfer control between

activities, to ascertain the operational status of processes, to invoke application tools, and pass the appropriate data, etc.

Distribution & System Interfaces

The flow of work may involve the transfer of tasks between different vendor's workflow products that enables different parts of the business process to be enacted on different platforms or sub-networks using particular products suited to that stage of the process.

Figure 2 - Distribution within the workflow enactment service



The Evolution of Workflow

The workflow as a technology can be used in a number of different product areas that includes:

- Image Processing
- Document Management
- Electronic Mail & Directories
- Groupware Applications
- Transaction-based Applications

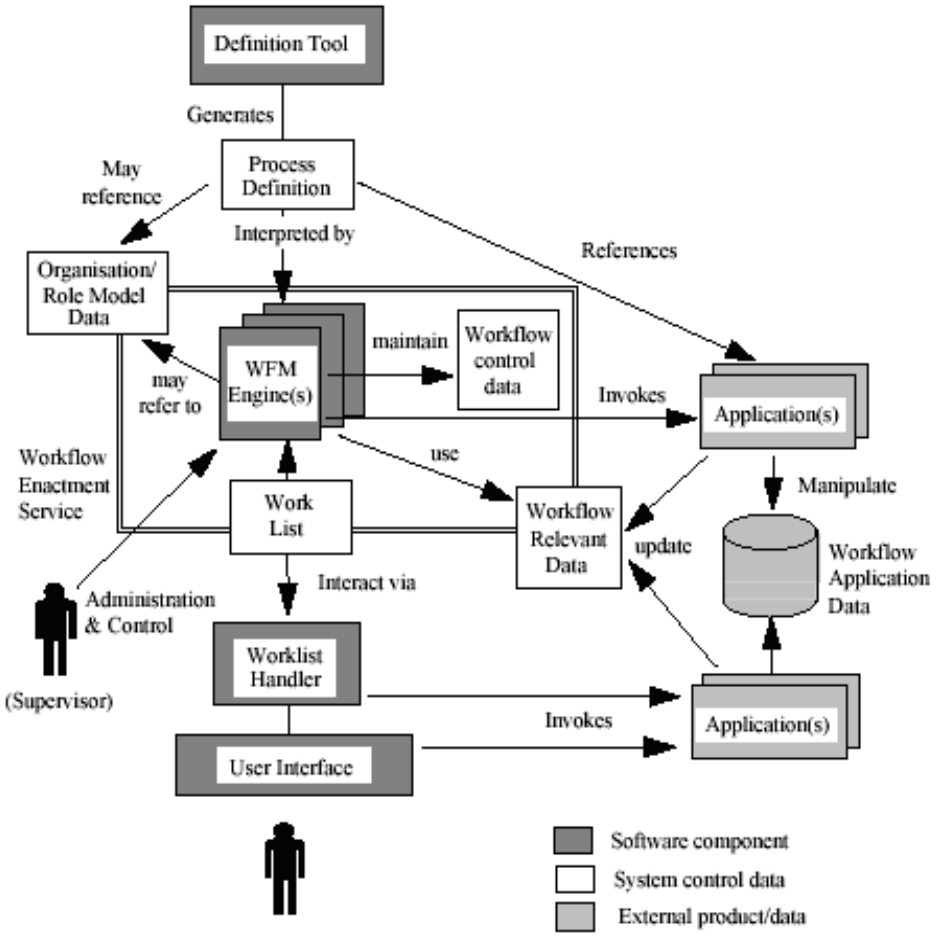
- Project Support Software
- BPM and Structured System Design Tools
- Separation of workflow functionality

Generic Implementation

A general implementation model of a workflow system can be matched to most products in the marketplace thereby providing a common basis for developing interoperability scenarios.

This approach identifies the main functional components within a workflow system and the interfaces between them as an abstract model. It is recognized that many different concrete implementation variants of this abstract model will exist and therefore the interfaces specified may be realized across a number of different platform and underlying distribution technologies. Furthermore, not all vendors may choose to expose every interface between the functional components within the model; this will be dealt with by the specification of a variety of conformance levels which will identify the particular inter-working functions where open interfaces are supported for multi-vendor integration.
Figure 3 illustrates the main functional components of a generic workflow system.

Figure 3 - Generic Workflow Product Structure



The generic model has three types of component:

- software components which provide support for various functions within the workflow system (shown in dark fill)
- Various types of system definition and control data (shown unfilled) that are used by one or more software components
- Applications and application databases (shown in light fill) that are not part of the workflow product, but this may be invoked by it as part of the total workflow system.

The roles of the major functional components within this system are:

- Process Definition Tool
- Process Definition

- Workflow Enactment Service
- Workflow Relevant Data and Application Data
- Worklists
- Worklist Handler & User Interface
- Supervisory Operations
- Exposed and Embedded Interfaces.

Alternative Implementation Scenario

The structural model of a generic workflow product identifies a series of software components and interfaces.

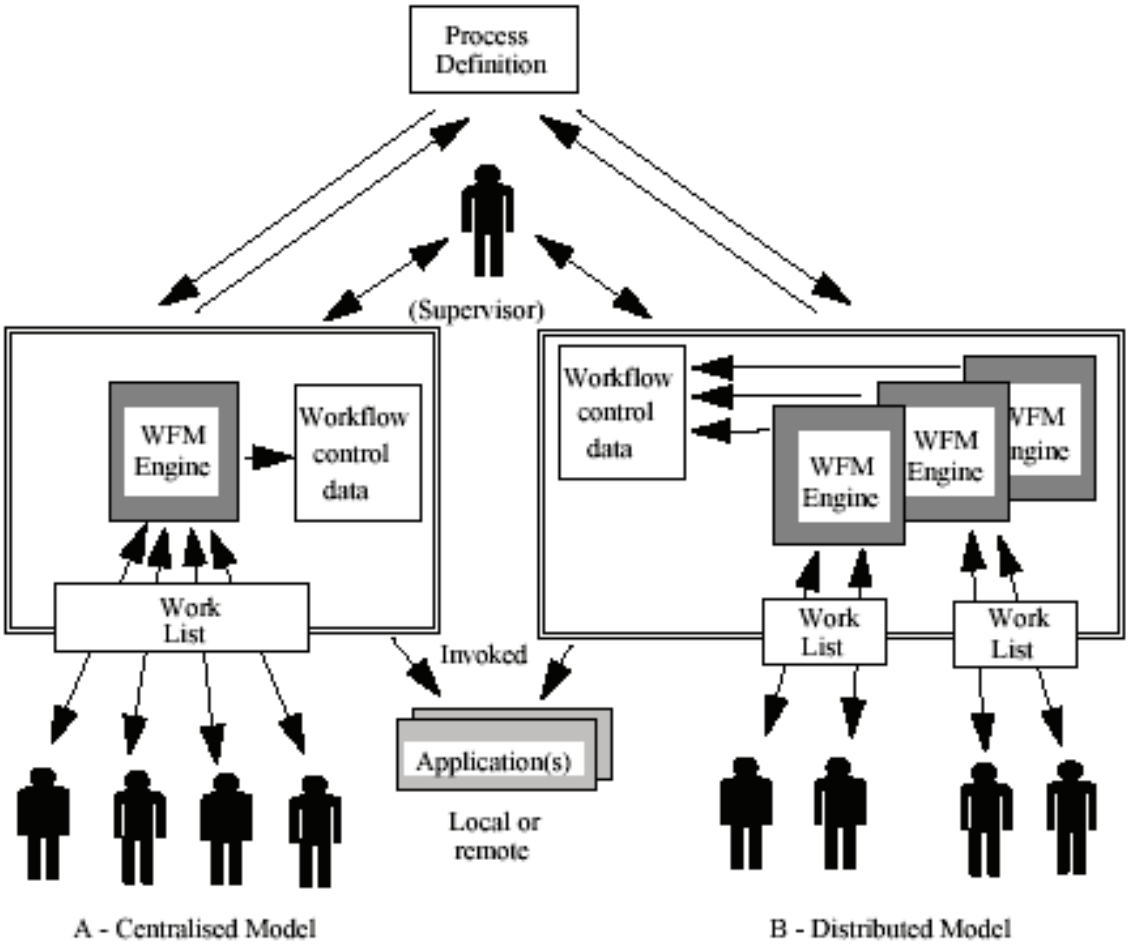
In a concrete product implementation this structure may be realized in a variety of different ways; this is an important area of product differentiation. Major distinguishing factors between products include choice of platform and network infrastructure, as well as the inherent functionality of the workflow software itself.

The generic model copes with variety of implementation approach, whilst retaining visible interfaces to facilitate multi-vendor product inter-working.

Workflow Enactment Software - Alternative Approaches

The workflow enactment software consists of one or more workflow engines, which are responsible for managing all, or part, of the execution of individual process instances. This may be set up as a centralized system with a single workflow engine responsible for managing all process execution or as a distributed system in which several engines cooperate, each managing part of the overall execution.

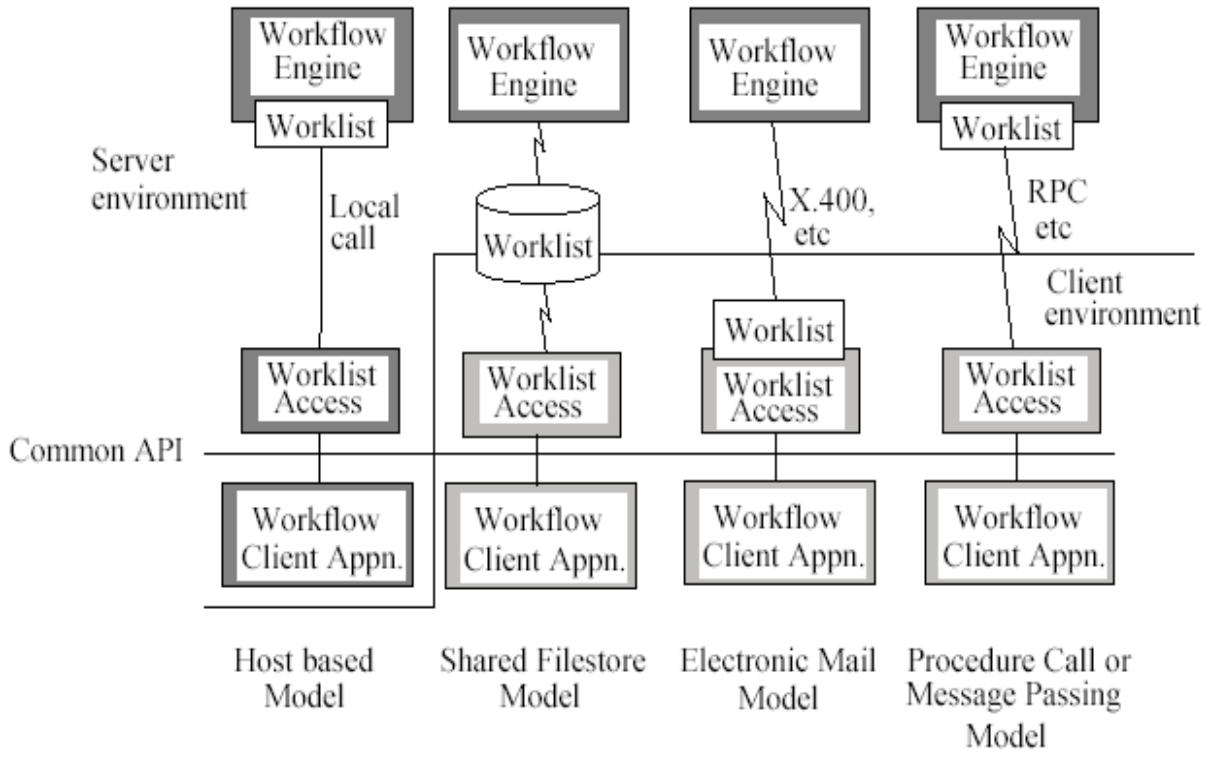
Figure 4 - Standard workflow enactment service boundary



In the above scenario the two workflow services exhibit common properties at the boundary but follow different internal implementation architectures, whose characteristics may be product dependent.

Workflow Client Applications - Alternative Approaches

Figure 5 - Alternative client worklist handler implementations



In the workflow model, interaction occurs between the worklist handler and a particular workflow engine through a well defined interface embracing the concept of a worklist - the queue of work items assigned to a particular user (or, possibly, group of common users) by the workflow enactment service.

Figure 5 illustrates the four possible approaches, one supporting centralized worklist handling and three supporting a distributed worklist handler function.

The four example scenarios are as follows:

- **Host based Model** - the client worklist handler application is host based and communicates with the worklist via a local interface at the workflow engine. In this case the user interface function may be driven by a terminal or a remote workstation MMI.
- **Shared filestore model** - the worklist handler application is implemented as a client function and communicates via a shared filestore, which lies on the

boundary between host and client platform environments and is accessible to both.

- **Electronic mail model** - communication is via electronic mail, which supports the distribution of work items to individual participants for local processing. In this scenario the worklist would normally lie at the client.
- **Procedure Call or Message Passing model** - communication is via procedure call, or other message passing mechanism. In this scenario the worklist may be physically located on the workflow engine or at the worklist handler according to the particular implementation characteristics.

Rules Management System

In recent years, data-driven organizations have increasingly recognized the limitations of traditional software development systems. Far too often, they find their key competencies and regulatory compliance information locked inside multiple software systems, expressed in highly technical languages, and generally inaccessible to the managers and subject experts responsible for implementing decisions.

BRMS typically need to have:

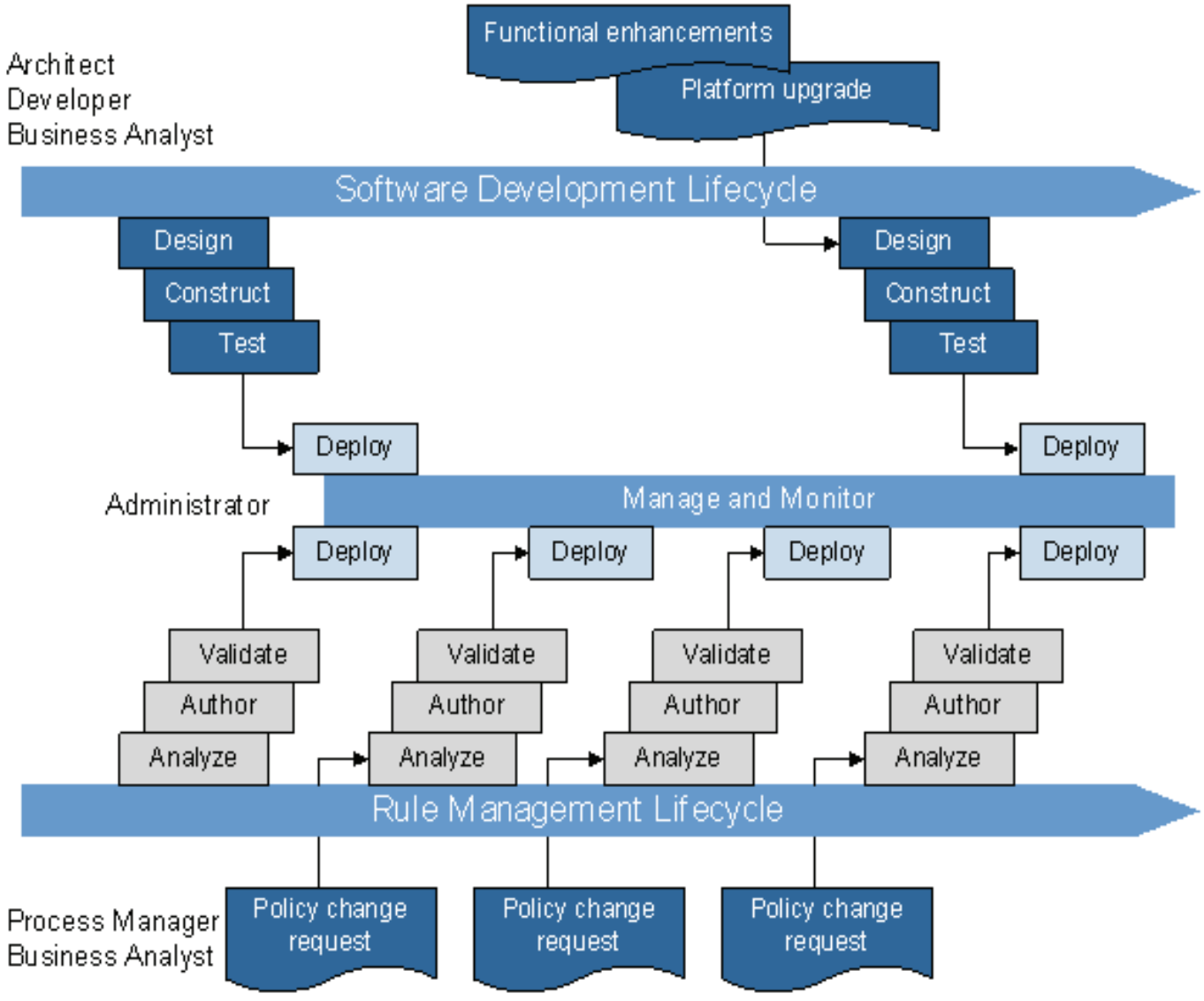
- Enabling knowledgeable business experts to write business rules or policies directly using a familiar and comfortable language and statement structure.
- Supporting high variability in business rules across time, products, jurisdictions, customers, and other domains.

This is done most efficiently by decoupling the business rule life cycle from the software development life cycle.

Doing so enables rule authors (i.e. policy managers) to operate independently of the software development cycle, leading to parallel software development and rule life cycles. This is illustrated in Figure 1. In the top half of the figure – the software development cycle – application releases are driven by major requirement changes and external product release schedules. These releases are produced by architects, business analysts and developers in following the traditional software development cycle of requirement specification, analysis, design, development, testing, and deployment.

In most situations, business rules change along a finer timeline and are driven by business policy changes that represent variants or extensions on the established functional base for the project's current release. This is shown as the "Rule Management Cycle" in the lower half of Figure 6.

Figure 6 - Rules and Software Management Cycle



Changes implemented here require a smaller, more focused cycle of authoring and testing by the policy manager, and timely deployment to production.

Depending on the needs of the application, this business rule cycle can take as long as a few months or as little as a couple of hours to complete.

BRMS will facilitate all the aspects of business rule management in the enterprise for following reasons:

Efficient and Scalable

Rule engines are a great way to collect complex decision-making logic and work with data sets too large for humans to effectively use. A rule engine can make decisions based on hundreds of thousands of facts, quickly, reliably, and repeatedly. It works by decomposing large sets of rules into a very efficient network of nodes, which can process and react to facts far more efficiently than it can be programmed manually. A Rule engine scales extremely well, almost linearly, with increases in rules and facts.

Improve Productivity and Maintainability

In business, the extremely complex interplay of hundreds or even hundreds of thousands of rules operating on tens of thousands of concurrent facts can influence the outcome of important decisions. Those decisions can be difficult or impossible to program using procedural or imperative programming techniques. Rule based approaches lend themselves for data/logic separation; where business rules looks on what it does, not how it does it, thus making it easier to manage extremely complex decision making processes.

Centralized Knowledge Repositories

Rule engines facilitate knowledge-transfer to centralized repositories and helps combat issues due to the loss of key decision makers, managers, executives, specialists, and highly creative employees from 'normal' turnover rates and aging populations. This loss of knowledge can cripple small businesses, and seriously hamper the efforts of medium sized companies or divisions of large companies.

Customized Products and Services

Rule engines can dramatically improve your ability to put knowledge resources to use in subtle ways. Rules can help you customize your product and service offerings for customers and partners on an individual basis, and they can be used to centralize the behavioral or execution logic of your commercial applications, allowing you to quickly tailor them to the demands of ever-changing markets.

Design & Architecture

The key stakeholders in a business rule management systems are:

- **Architect:** The architect is responsible for the overall design of an application, and assuring that the design meets long-term business needs for function, efficiency, and performance.
- Business Analyst:* The business analyst is responsible for understanding business requirements and translating them into data and process descriptions.
- Developer:* The developer creates and tests the application.
- Policy Manager:* The policy manager is a subject expert responsible for translating business policy into detailed business rules.
- System Administrator:* The system administrator manages applications in production to achieve required up-time and performance goals.

The requirement of a good BRMS product would be:

Comprehensive feature set

The comprehensive feature set typically includes:

- Tools and rule languages that help policy managers, business analysts, and developers to author, deploy, and manage business rules.
- Repository to store and protect business rules.
- Rule engine to execute rules.
- Extensive Java library to define, extend rule execution, and manage environments.

Reliability

The combination of high performance and robustness make the product's rule engine, the one to depend on with mission-critical business applications, regardless of the throughput requirements. It needs to be designed to fit into a modern computing environment seamlessly and efficiently, so there is no need for a custom or proprietary interface or adapter.

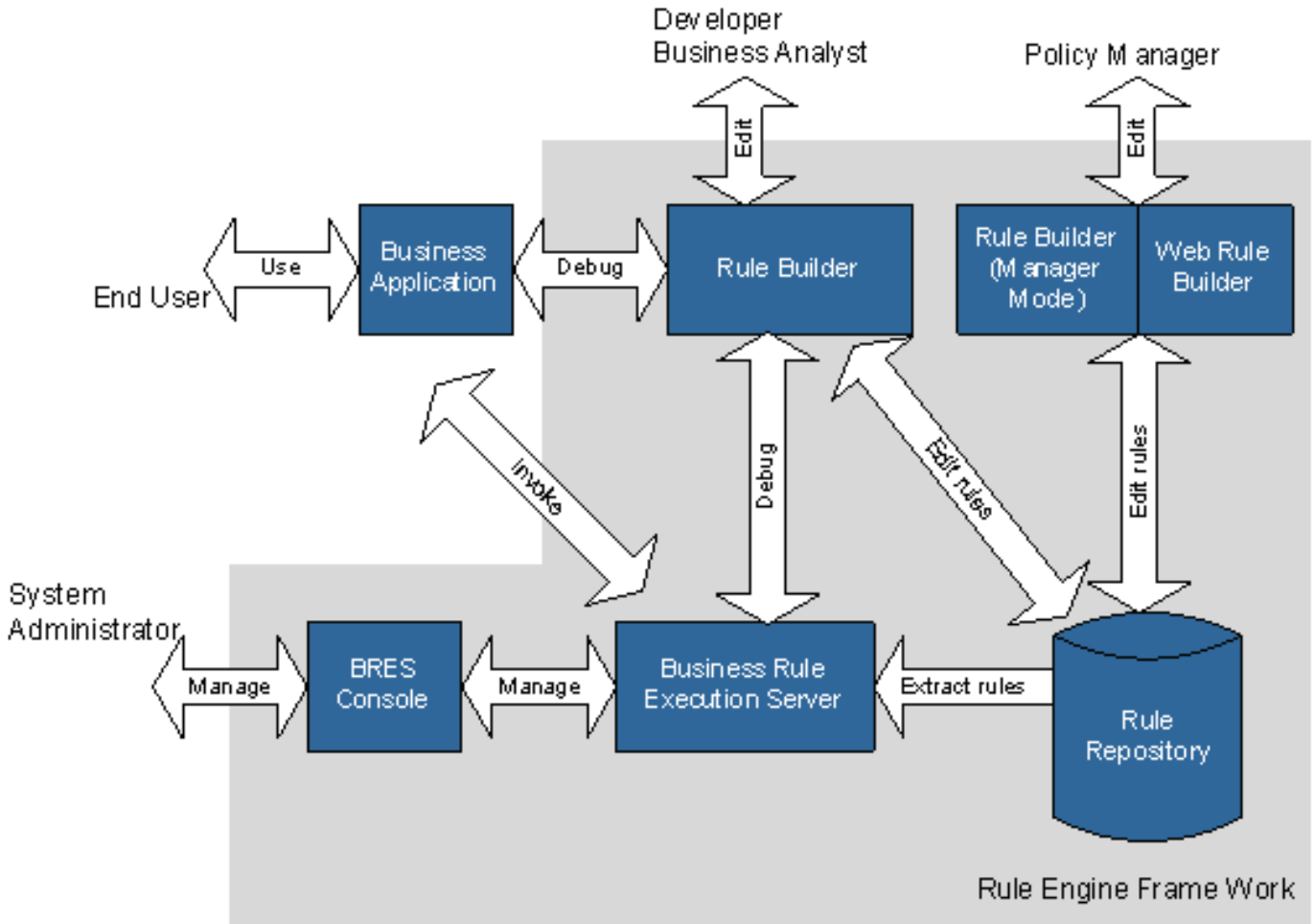
Customizable and Extensible

Practically every feature provided "out of the box" should be customizable and extensible to an unprecedented degree. The tools, repository, and engine need to be

supported with rich APIs, and frameworks that enable their extension programmatically.

The primary objective is to create an effective and efficient overall structure for an application and its associated data flows.

Figure 7 - Rules Management Architecture



Conclusion

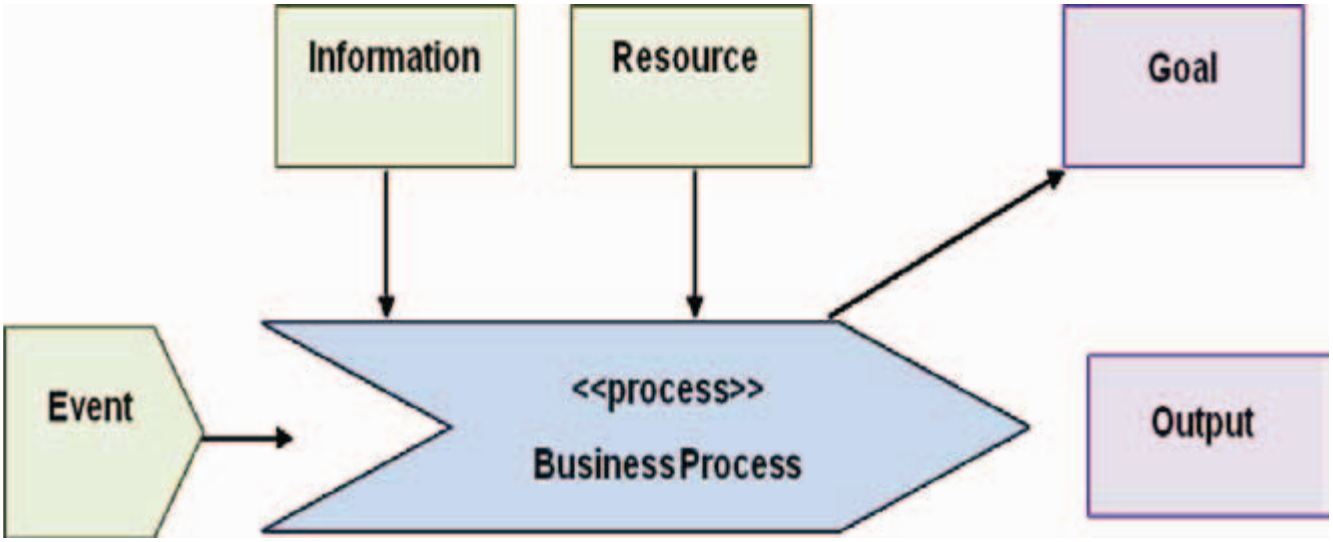
The workflow system, which assess, analyzes, models, and defines flow of business process. It basically handles the transitions of events and messaging when some actions are performed.

The needs of traditional methods of managing business are too complex and call for a need for solution to support policy changes effectively and fast. This calls for workflow system to adapt itself to be capable to handle the rapid changes in policies and rules of the core business processes.

The rapid changes and complexity of business rules calls for a solution capable of handling the business flow with complex rules. A workflow system with rules management system should be capable of handling the business processes.

THE BUSINESS PROCESS MODEL

An introduction to the terminology and icons used in the Business Process Model.



A Business Process:

1. Has a Goal
2. Has specific inputs
3. Has specific outputs
4. Uses resources
5. Has a number of activities that are performed in order
6. May affect more than one organizational unit
7. Creates value for the customer (internal or external).

Process Models

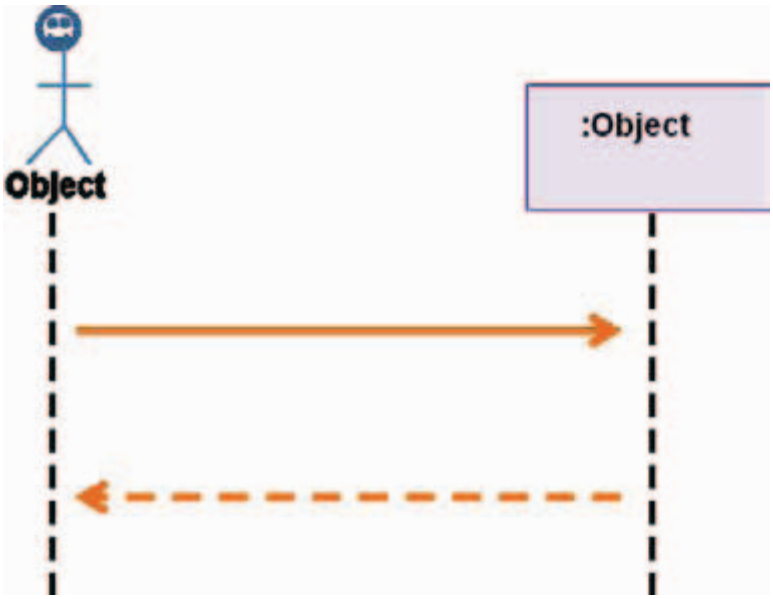
Business Process

A business process is a collection of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how the work is done within and organization, in contrast to a product's focus on what. A process is thus a specific ordering of work activities across time and place, with a beginning, an end, and clearly defined inputs and outputs: a structure for action.

Connections

- Supply link from object *Information*. A supply link indicates that the information or object linked to the process is not used up in the processing phase. For example, order templates may be used over and over to provide new orders of a certain style - the templates are not altered or exhausted as part of this activity.
- Supply link from object *Resource*. An input link indicates that the attached object or resource is consumed in the processing procedure. As an example, as customer orders are processed they are completed and signed off, and typically are used only once per unique resource (order).
- Goal link to object *Goal*. A goal link indicates the attached object to the business process describes the goal of the process. A goal is the business justification for performing the activity.
- Stateflow link to object *Output*
- Stateflow link from event *Event*. A stateflow link indicates some object is passed into a business process. It captures the passing of control to another entity or process, with the implied passing of state or information from activity to activity.

Fig 1. Workflow



Goal

Object:

A business process has some well defined goal. This is the reason the organization does this work, and should be defined in terms of the benefits this process has for the organization as a whole and in satisfying the business needs.

Connections

Goal link from activity Business Process. A goal link indicates the attached object to the business process describes the goal of the process. A goal is the business justification for performing the activity.

Information

Object:

Business processes use information to tailor or complete their activities. Information, unlike resources, is not consumed in the process - rather it is used as part of the transformation process.

Information may come from external sources, from customers, from internal organizational units and may even be the product of other processes.

Connections

Supply link to activity Business Process. A supply link indicates that the information or object linked to the process is not used up in the processing phase. For example, order templates may be used over and over to provide new orders of a certain style - the templates are not altered or exhausted as part of this activity.

Output

Object:

A business process will typically produce one or more outputs of value to the business, either for internal use of to satisfy external requirements. An output may be a physical object (such as a report or invoice), a transformation of raw resources into a new arrangement (a daily schedule or roster) or an overall business result such as completing a customer order.

An output of one business process may feed into another process, either as a requested item or a trigger to initiate new activities.

Connections

Stateflow link from activity Business Process

Resource

Object:

A resource is an input to a business process, and, unlike information, is typically consumed during the processing. For example, as each daily train service is run and actual recorded, the service resource is 'used up' as far as the process of recording actual train times is concerned.

Connections

Supply link to activity *Business Process*. An input link indicates that the attached object or resource is consumed in the processing procedure. As an example, as customer orders are processed they are completed and signed off, and typically are used only once per unique resource (order).

BUSINESS PROCESS MODELLING OVERVIEW

Overview

This paper will set out to give an overview of what Business Process Modeling is all about, and where it fits in an organization. BPM is not just about IT systems. It is about how a business carries out it is processes in the most efficient manner, and how it supports staff to achieve this. It is about designing IT systems to support what people do rather than to have people do what the system tells them to do.
Any significant transaction based system development should seriously consider a BPM as the starting point. Many failures in IT projects can be traced back to a mismatch between the physical process and the IT process. These systems create red tape around what was a fairly straightforward process. On the other extreme, if there is no consistent business process, how can you create an IT system to cater for all variations on the process? Is it better to agree one process before you start so IT is aiming at one target rather than many?

Why does a Business Process exist?

An organization has a purpose. It may be to build and sell cars – e.g. Ford; it may be to manage health services – e.g. Department of Health; it may be to manage distribution of water or electricity. It may be to sell bread or tin jam.
In order to achieve this goal as efficiently as possible, the work is broken down into a number of discreet functions. A function may be Marketing, Billing, Delivery, Human Resources. All functions work together to contribute towards what the organizational objectives.

Each of these functions will have its own purpose and responsibilities, which contributes to the overall goals. For example, Human Resources will be responsible for recruitment of staff, negotiation with Unions etc. In order to fulfill those responsibilities they create a number of processes, or “way of doing things in a repeatable manner”.

Repeatable Business Functions

There are a number of reasons for making business functions repeatable.

• By doing it the same way each time it becomes more efficient
• It is easier to train people if the process is consistent
• There is less chance of mistakes if it is done the same way every time
• Experience allows you to refine the process to take into account situations that may be slightly outside the normal

The Limitations of Business Process

The limitations of a business process are both internal and external.

- Internally, the process will not fit every possible situation. There will still need to be activities undertaken to address unusual needs
- Externally, the processes need to mesh with dozens of other business areas who have their own business processes. As one process changes, it can have a domino effect throughout the business. For example, a change to the format of an invoice, which may suit the billing department, can cause changes in the information collected from sales, processing payments, customer call centre and even the customer.

What is in a Business Process Model?

To create a business process model, you need to start by defining what the process is aiming to achieve, and how it fits with other processes. For example, a process to answer billing queries may have the following purpose.

“To resolve customer queries regarding payment so that the client will pay their bill.”

It contributes to the higher level goal of collecting money from clients, which in turn has another higher level objective of providing revenue for the organization.

Focus of a Business Process Study

The modeling of a business process needs to look at all the activities that go into achieving the purpose. These include:

- How the process contributes to higher level goals
- The physical steps involved
- The sequence in which those steps are undertaken

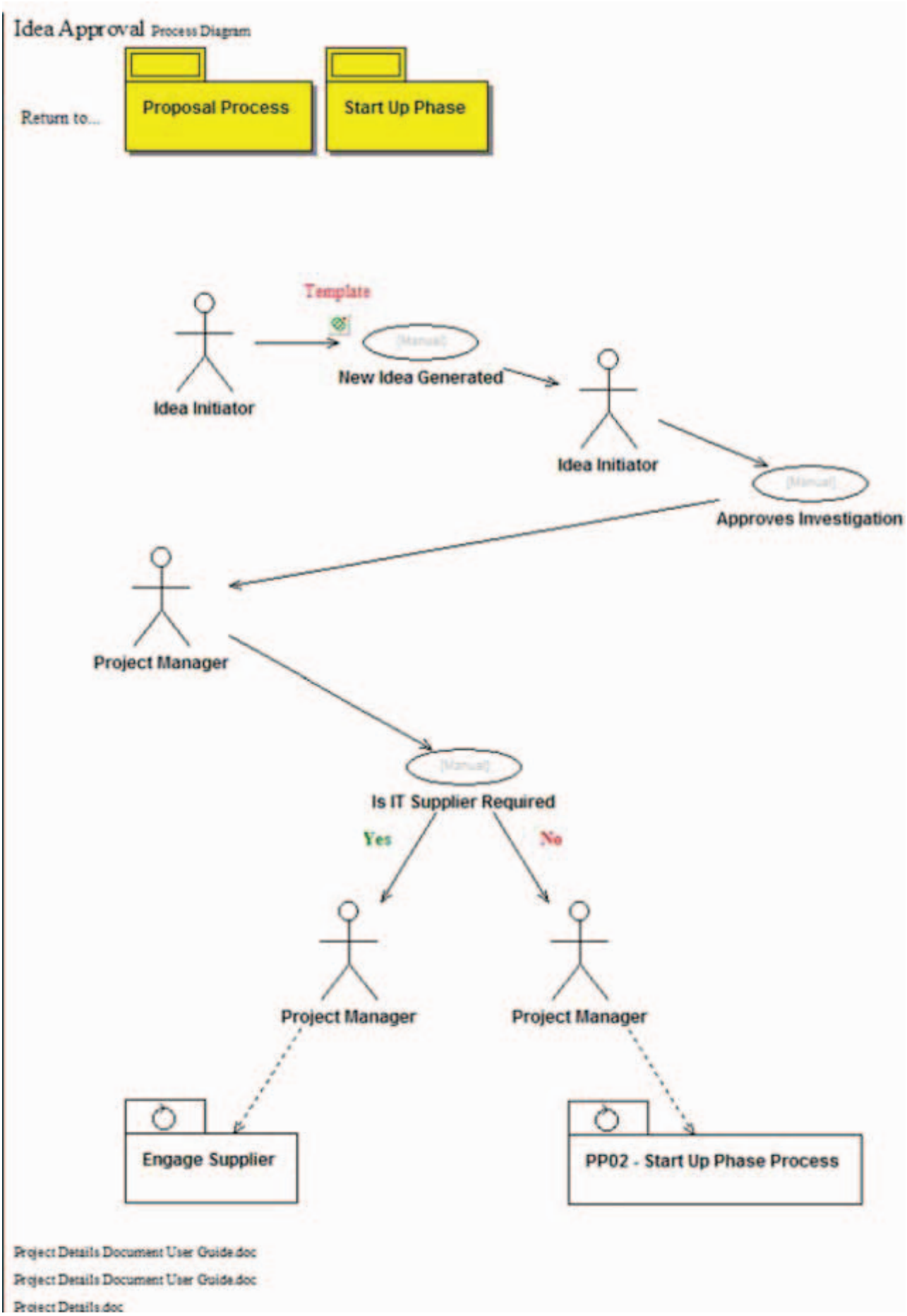
- The skills required by the people who undertake the work
- The authority the staff have to make decisions
- The escalation process for decisions beyond their authority level
- The organizational structure
- The roles and responsibilities of individuals (for example, it may be more efficient to have one person concentrate on billing enquiries rather than be a generalist)
- The physical location and how it might impact their ability to perform (for example, if they were located on a different floor, would they spend less time going to another department to find information).
- How the customer makes contact with the staff member (for example, do they always contact the right area. In a call centre, you do not want to take calls for internal staff, or perhaps you do).
- The interaction between customer and staff (e.g. what information is requested and provided).
- The documentation produced (how it is produced, and if it is in a format that is easy to produce. Do you have to make photocopies which are time consuming)?
- Why the documentation is produced and where it goes.
- The documentation used (training manuals, reference lists, checklists etc.).
- The information requirements of people to do their job (do they have access to the latest invoice as well as previous invoices? Do they have the date of the meter reading if it was for a provision of water to a property)?
- The timing of the various steps (how do you measure efficiency).
- What are the key performance areas (calls per day, types of call, administration time, time photocopying?).
- How does each process link internally and externally?
- The parts of the process that are supported by IT systems.
- How matched to the process are those IT systems.

What does a Process Model look like?

There are a number of ways in which it can be represented. The most basic is a flow chart produced with a tool like Visio or ABC Flowcharter. It may be useful for a snapshot of the process but does not allow you to link to things like documents

standards, reports and forms. Nor does it allow you to do things like automatically calculating the time for a complete process by adding up the time for each step or modeling changes to the process. Analysis that is more sophisticated is not possible.

A number of tools have been developed to make the process more comprehensive. One such is the Holocentric Modeler (www.holocentric.com). I will use this to illustrate some aspects of process modeling. It records the process as a series of drill down diagrams. The following is a single page produced for another organization by the writer using the Holocentric modeler. It relates to the approval of an idea for a new project.


Idea Approval Process Diagram
Return to...
Proposal Process
Start Up Phase
Template
Idea Initiator
New Idea Generated
Idea Initiator
Approves Investigation
Project Manager
Is IT Supplier Required
Yes
No
Project Manager
Project Manager
Engage Supplier
PP02 - Start Up Phase Process
Project Details Document User Guide.doc
Project Details Document User Guide.doc
Project Details.doc

Idea, Business Unit Approval, Initial Set-up

Purpose

- Initiate the project and ensure relevant people are engaged.

Description

- An idea is generated by an individual within the organization. Initial approval is given by the appropriate business unit to explore the idea. Initial set-up occurs. If a supplier is involved, they are engaged.

When not required

This process is always required

Inputs

- Not applicable

Deliverables Generated

- (Optional) Project Request Form
- Project Engagement Contact Sheet

Outcome

- Initial business unit approval to explore the idea.
- (Optional) Selected IT&T Supplier if external supplier is required.

Participants

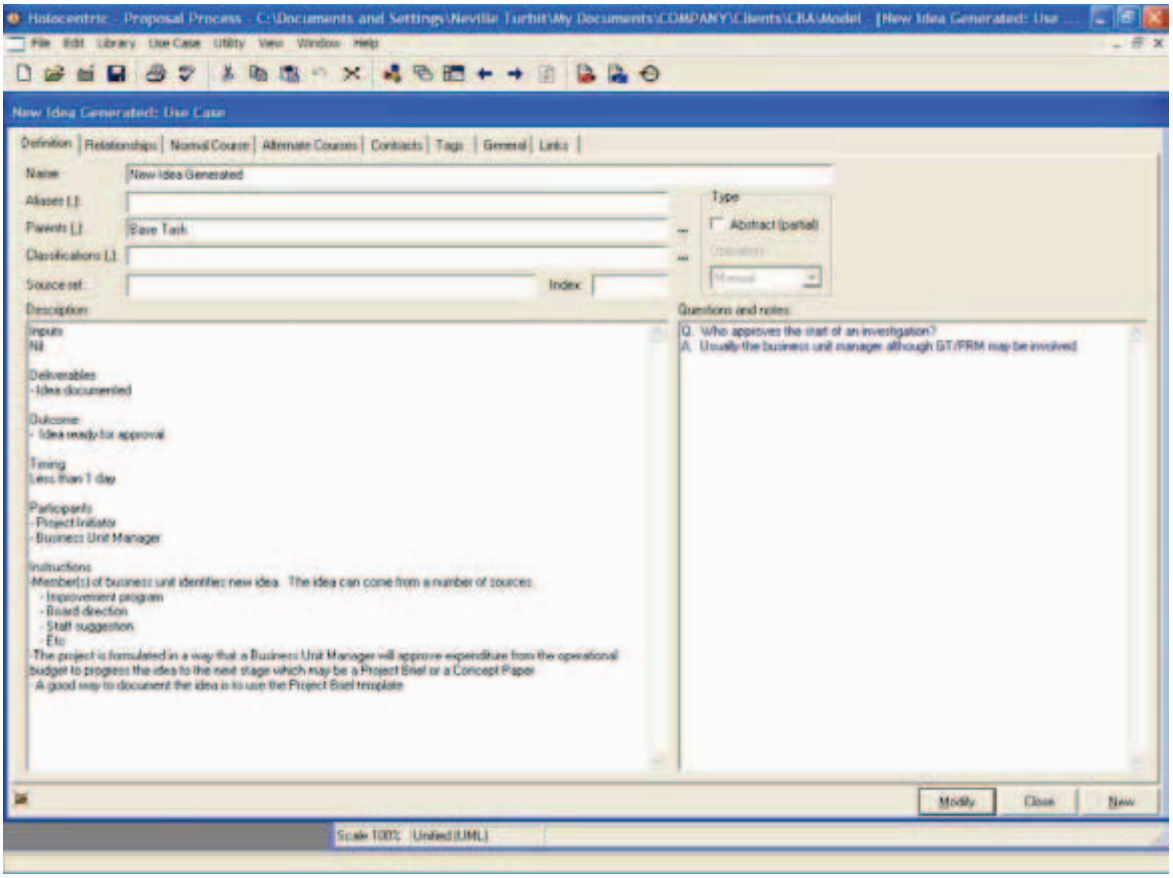
- Project Team
- Business Unit
- IT&T Supplier (if an external supplier is to be used)

Explanation of the Diagram

- The two boxes at the top “Proposal Process” and “Start Up Phase” indicate the hierarchy of this particular process diagram. The “Idea Approval” is one part of the “Start Up Phase” which is in turn part of the “Proposal Process”
- Beside “New Idea Generated” is an icon that if clicked, will display the template to be used.
- The “New Idea Generated” is a manual process as opposed to a “System Process”
- The box headed “PP01” is supplementary information regarding the subprocess
- By clicking on the “New Idea Generated” the following screen of information would be displayed.

One Process Bubble – New Idea Generated

To focus on one of the bubbles, it contains the following information. Only one of the tabbed screens is displayed.



There is facility to capture all sorts of information including the normal and alternate courses, contacts and relationships to other tasks. Time and resources can also be captured.

Use of Business Process Model

The BPM is used for the following purposes.

- Understand and document what we do now
- Understand and document what we want to do in the future
- Identify where the IT systems can support the process and hence provide a starting point for the design of those systems
- Become the basis for training staff
- Become a repository for knowledge regarding the business processes
- Identify where other departments and processes become an interface to this department

Using a modelling tool

Whilst it is not our intention to promote Holocentric in this paper by showing their approach, it provides a better understanding of what process modeling is all about. One key feature is that any tool should be simple enough for internal staff to use themselves. Whilst there is some skill in creating the initial model, it should be flexible enough for internal staff to use it to upgrade ever evolving processes.
The output should be available in an easy to use format. For example, the Holocentric tool outputs the process as HTML which can be loaded directly onto an intranet. It is all point and click to track through the model, and look at related documents.

Using a Business Process Model

The following example will indicate the value of a model. The example uses a Call Centre.

Suppose the first step in the model is to receive a call. How the call is answered will determine the next steps. Alternatively, the next steps may determine how the call is answered. Let us take three answers:

- How can I help you?
- Can I have your name please?
- Is this call in relation to your account?

Option 1

The first option would suit a generalist type of person on the phones. They know something about everything in the company. The screen they have in front of them has fast access to a number of different functions (accounts, deliveries, orders etc.). They would also need a broad responsibility to approve customer requests such as changing accounts, cancelling deliveries and changing orders. They need to be surrounded by a library of information which may be on their PC but might also be on files or microfiche. The need access to experts in particular areas. They may need parts manuals and telephone lists.

Option 2

The second option means that they need to be able to enter the customer name and immediately see the customer details such as address, order history, billing history, contact history. This approach may suit a CRM system. The other issue to consider is when the caller will not give a name. It may be a general sales enquiry, or relate to another customer (for example reporting an electrical black out in a particular area). In the particular business, is the customer name always important? There is also the issue of getting a customer to give you their name when they have been on hold for a significant period of time. They just want to tell you their problem.

Option 3

The third option may suit a call centre where most calls are accounts related. You then need to look at the process if it is not accounts. Where to then? If it is accounts, what information do you need? Can you prepare people by having a recorded voice asking them to have their account number ready, or give them options (dial 1 if it is in relation to your last account…).

Designing your process has implications on the dialog for the phone, the system design, the skill and authority of staff, and the design of supporting systems.

Summary

The purpose of business process modeling is to understand what you do now, and what you might want to do in the future. It challenges the way things are done now, and looks at what you need to get the job done. That includes IT systems, information, training, authority and responsibility, interaction with other areas and documentation. In a perfect world, it should be the first step in designing any transaction- based system.

BUSINESS PROCESS MODELLING NOTATION (BPMN)

BPMN defines a Business Process Diagram (BPD), which is based on a flowcharting technique tailored for creating graphical models of business process operations. It is a notation that is readily understandable by all business users, from the business analysts that create the initial drafts of the processes, to the technical developers responsible for implementing the technology that will perform those processes, and finally, to the business people who will manage and monitor those processes.
A BPMN model consists of simple diagrams with a small set of graphical elements.

Flow Elements

1. Activities. An activity is work that is performed within a business process and is represented by a rounded rectangle.
2. Events. An event is something that happens during the course of a business process which affects the sequence or timing of activities of a process. Events are represented as small circles with different boundaries to distinguish start events (thin black line), intermediate events (double line) and end events (thick black line). Events can show icons within their shape to identify the trigger or result of the event.
3. Gateways. Gateways are used to control how sequence flows converge and diverge within a process. Gateways can represent decisions, where one or more paths are disallowed, or they can represent concurrent forks.

1. Sequence flows. A sequence flow is used to show the order in which activities are performed within a process. A sequence flow is represented by a line with a solid arrowhead.
2. Message flows. A message flow is used to show the flow of messages between two entities, where pools are used to represent entities. A message flow is represented by a dashed line with a light-colored circle at the source and arrowhead at the target.
3. Associations. An association is used to associate information and artifacts with flow objects. An association is represented by a dashed line which may or may not have a line arrowhead at the target end if there is a reason to show directionality.

Swimlanes (Partitions)

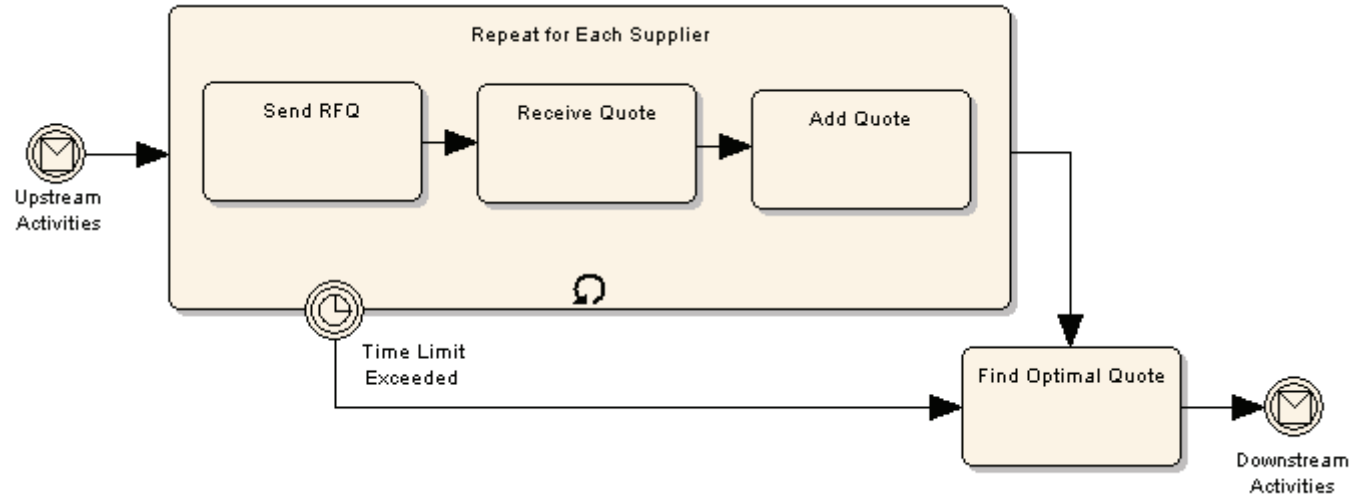
1. Pools. A pool represents a participant in a process, where a participant may be a business entity or role. It is represented as a partition of the process.
2. Lanes. A lane is a sub-division of a pool and is used to organize and categorize activities within the pool.

Artifacts

1. Data objects. A data object does not have a direct affect on a process but does provide information relevant to the process. It is represented as a rectangle with the top corner folded over.
2. Groups. A group is an informal means for grouping elements of a process. It is represented as a rectangle with a dashed line border.
3. Annotations. An annotation is a mechanism for the BPMN modeler to provide additional information to the audience of a BPMN diagram. It is represented by an open rectangle containing the annotation text.

BPMN Examples

Example 1:

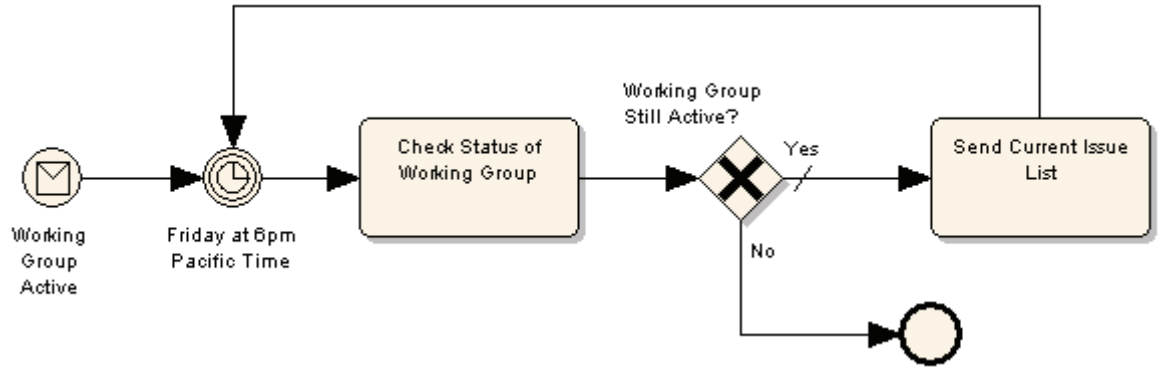


The above diagram illustrates a number of key features of BPMN, specifically the ability to create hierarchical decomposition of processes into smaller tasks, the ability to represent looping constructs and the ability to have external events interrupt the normal process flow.

"Upstream Activities" and "Downstream Activities" are link-triggered intermediate events; in other words, off-page connectors.

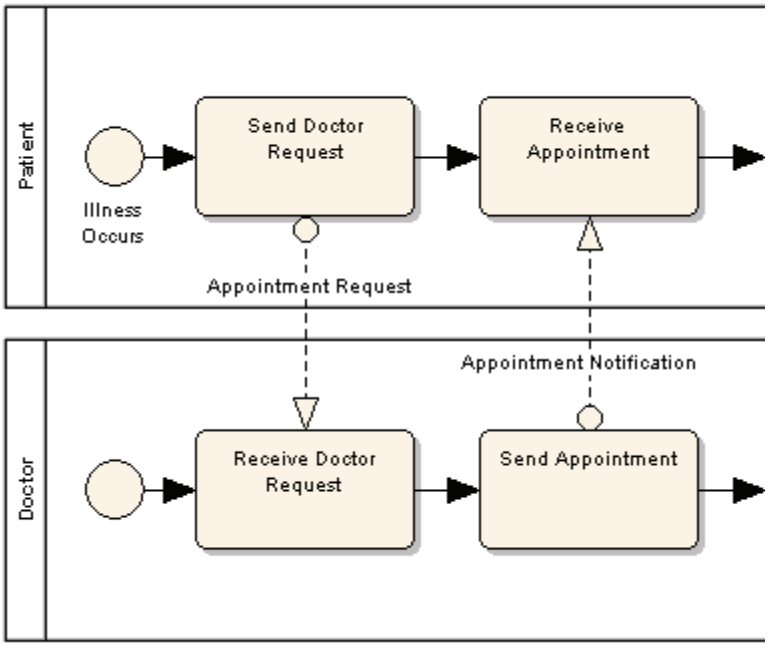
"Repeat for Each Supplier" is a looping activity, which repeats its three contained activities either once for each supplier or until a time limit is exceeded. The intermediate event mounted on the lower edge of the activity is a time-triggered event.

Example 2:



The above diagram shows a process being initiated by an event - in this case a message-triggered start event which notifies the process that the working group is active. The diagram also shows a loop being controlled by a timer event, and it shows a decision gateway (in this case, an XOR decision gateway) controlling when the loop is terminated.

Example 3:



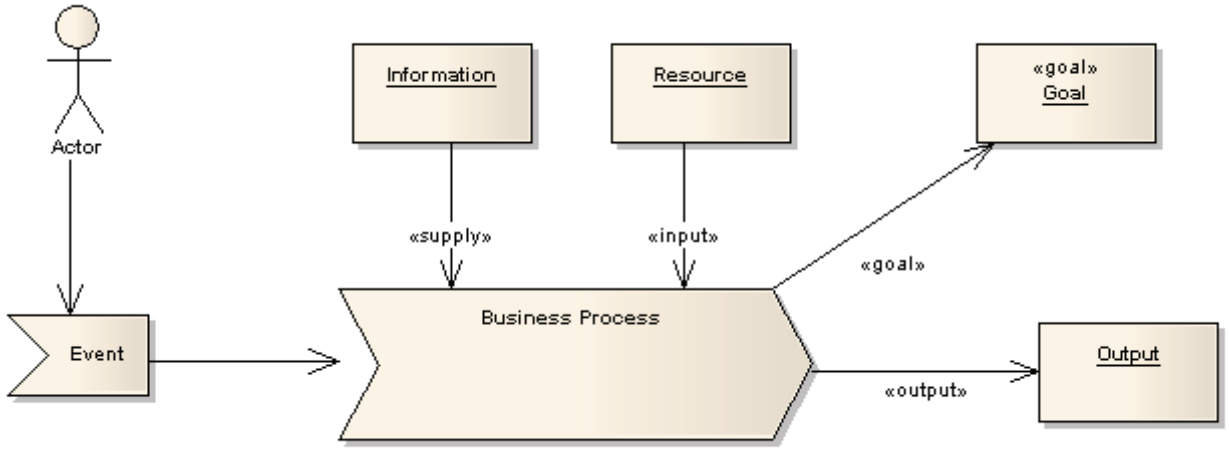
This diagram illustrates the use of pools to show interacting processes and the way that messages are passed between pools using message flow connectors.

Eriksson-Penker Business Modelling Profile

This section provides an introduction to the terminology and icons used in the Business Process Model, and gives a quick introduction to some Unified Modeling Language (UML) concepts and how they are applied in Enterprise Architect's Business Process Model.

A business process:

1. Has a Goal
2. Has specific inputs
3. Has specific outputs
4. Uses resources
5. Has a number of activities that are performed in some order
6. May affect more than one organizational unit. Horizontal organizational impact
7. Creates value of some kind for the customer. The customer may be internal or external.



Process Models

A business process is a collection of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how the work is done within an organization, in contrast to a product's focus on what a process is. Thus a specific ordering of work activities across time and place, with a beginning, an end, and clearly defined inputs and outputs: a structure for action.
Supply link from object *Information*. A supply link indicates that the information or object linked to the process is not used up in the processing phase. For example,

order templates may be used over and over to provide new orders of a certain style – the templates are not altered or exhausted as part of this activity.

- Supply link from object *Resource*. An input link indicates that the attached object or resource is consumed in the processing procedure. As an example, as customer orders are processed they are completed and signed off, and typically are used only once per unique resource (order).
- Goal link to object *Goal*. A goal link indicates the attached object to the business process describes the goal of the process. A goal is the business justification for performing the activity.
- Object flow link to object *Output*
- Object flow link from event *Event*. An object flow link indicates some object is passed into a business process. It captures the passing of control to another entity or process, with the implied passing of state or information from activity to activity.

Goal

A business process has some well defined goal. This is the reason the organization does this work, and should be defined in terms of the benefits this process has for the organization as a whole and in satisfying the business needs.

Goals link to Processes. A Goal link indicates the attached object to the business process describes the goal of the process. A goal is the business justification for performing the activity.

Information

Business processes use information to tailor or complete their activities. Information, unlike resources, is not consumed in the process – rather it is used as part of the transformation process. Information may come from external sources, from customers, from internal organizational units and may even be the product of other processes.

Information items link to Business Processes. A Supply link indicates that the information or object linked to the process is not used up in the processing phase. For example, order templates may be used over and over to provide new orders of a certain style – the templates are not altered or exhausted as part of this activity.

Output

A business process will typically produce one or more outputs of value to the business, either for internal use of to satisfy external requirements. An output may be a physical object (such as a report or invoice), a transformation of raw resources into a new arrangement (a daily schedule or roster) or an overall business result such as completing a customer order.

An output of one business process may feed into another process, either as a requested item or a trigger to initiate new activities.

Resource

A resource is an input to a business process, and, unlike information, is typically consumed during the processing. For example, as each daily train service is run and actual recorded, the service resource is 'used up' as far as the process of recording actual train times is concerned.

Resources link to Business Processes. An Input link indicates that the attached object or resource is consumed in the processing procedure. As an example, as customer orders are processed they are completed and signed off, and typically are used only once per unique resource (order).

THE INTEGRATION OF KNOWLEDGE MAPPING INTO EXISTING BUSINESS PROCESSES

The creation, renewal and sharing of knowledge are clearly critical to the delivery of innovative, and cost effective, products and services. Yet, despite this dependency, the processes and practices used by organizations to manage their knowledge assets are often disconnected from those employed to manage the services and products they underpin. This disconnect will often result in a failure to identify critical issues, and also reduces the visibility and uptake of knowledge management tools.

One symptom of this problem is the tendency for knowledge management initiatives to focus purely on capturing, and making visible, knowledge. Knowledge management should be equally concerned with ensuring processes and practices incentivize individuals to share knowledge. This shift in focus is required to address what many believe to be the biggest challenge facing knowledge management : Individuals, and hence projects and services, invariably show a reluctance to look for knowledge outside of their local, well established, networks. No matter how visible an organization's knowledge becomes, it will be ignored by most.
Knowledge management professionals talk about the need to create a culture in which knowledge is shared. But, if cultures change by persuasion or reasoned argument; they need to be forced to evolve. For this to happen knowledge management must be embedded into existing management processes, strategy, policy and accountabilities.

Management Processes

In most organizations, it is possible for a product or service to progress from cradle to grave without management checking whether knowledge has, or should be, exchanged with the organization's knowledge portfolio. This is clearly unacceptable, and can be remedied by ensuring knowledge management is addressed within existing management processes.

Almost all organizations make use of a range of standardized management processes; these can range from the completion of a datasheet to formalize the closure of correspondence with a customer, to the preparation of a business case to

demonstrate that a proposal meets pre-defined business criteria. In most instances, there is the opportunity to embed knowledge management criteria within these standardized processes.

These new criteria may do no more than seek confirmation that a check has been made to ascertain if there is knowledge that should be imported from, or flagged to, existing knowledge management tools. In the event that such confirmation cannot be given, then an explanation should be requested. However, these knowledge criteria must be chosen with care.

The simple example given above may be appropriate for minor tasks. In other cases a much more detail submission should be mandated, and in many instances the submission of a **knowledge plan** should be required. In the case of a project, say for the building of a waste treatment plant, such a knowledge plan would need to address:

- The completeness of actions being taken to control competitor, customer, supplier and distributor's access to the organization's knowledge.
- The completeness of actions being taken to maintain access to, and freedom to exploit, the knowledge required by the project.
- The sufficiency of the knowledge available to the project.
- Whether there is particular know-how that the project should be importing from, or exporting to, the rest of the organization.
- Whether the project's deployment of knowledge will have an impact on the organization are other activities.

It is clearly vital to monitor the adequacy of responses to these criteria or questions. Ideally such checks should be embedded in whatever processes are already used to approve the release of funding. Hence a failure to provide an adequate response to such knowledge criteria will result in a reduction in funding. Appropriate checks can also be made as part of any existing compliance monitoring and even feature within the organization's KPIs. In this way individuals will soon learn to manage, and

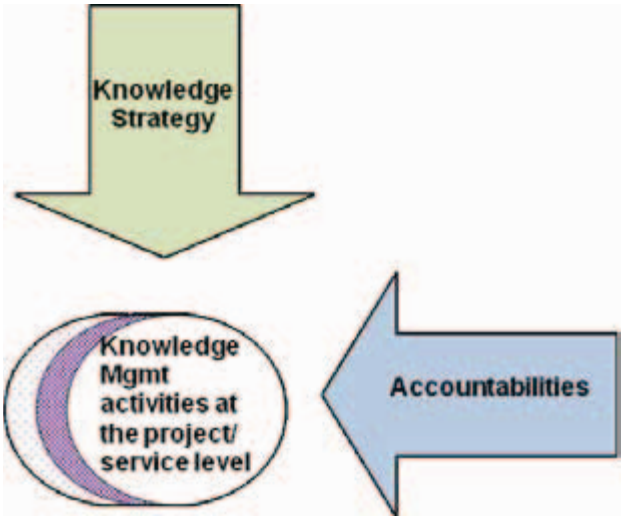
provide information on, knowledge with the same rigor as is currently applied to, say, financial data.

By integrating KM into existing business processes it is possible to create an environment in which KM is recognized to be part of normal good practice. It therefore becomes just another activity that is planned and budgeted for, and not an add-on activity that must be accommodated by stretching budgets and working longer hours. Ultimately, the checks and controls become invisible because participation in KM becomes second nature.

However, simply mandating that services and products should address knowledge management is not the complete answer. Generally, the organization also needs to provide guidance to help individuals contribute to knowledge management; this is especially important in two areas.

Firstly, it is important that everyone in the organization is clear who is **accountable** for carrying out the key activities needed to make knowledge management work. Secondly, there must be sufficient guidance, in the form of an overarching knowledge **strategy**, to steer decision-making so that all elements of the organization are working to a common approach.

An organization's knowledge strategy and accountability framework together to provide guidance and constraints on the decisions, which can be made at the project and service level.



Accountabilities (and Policy)

An organization's policy should describe the principles it will adhere to, in this case, when managing its knowledge assets. It is believed that key accountabilities should flow naturally out of this policy. For example:

Policy	Knowledge will be deployed, protected and shared so as to serve the interests of all stakeholders.
Accountability	Function Heads are accountable for commissioning and implementing fit-for-purpose local knowledge plans. The Board will monitor the adequacy of actions taken by Function Heads to deploy, protect and share knowledge. Budget holders are responsible for ensuring projects and services are compliant with local knowledge plans before funding is released.
Minimum action	Knowledge management criteria, identified by the Chief Knowledge Officer, will be built into processes used to approve the release of funding. The Chief Knowledge Office will develop a system of KPIs, describing the status of the Function's knowledge management activities, and report findings to the Board.

There is inevitably considerable variation in the detail presented within different organization's policy framework. Some organizations may decide to limit their policy to a series of statements analogous to those given in the top line of the above table. However, policy statements of this type are often little more than motherhood statements that rarely aid in the running of the organization. Conversely, some organization's policy contains detailed procedures describing not only what should be done, but how?

The recommend knowledge policy framework is normally structured as follows:

- A number of short policy statements are given defining the principles the organization wishes to follow in the management of its knowledge assets.
- Each policy statement is accompanied by clear accountabilities, identifying both those responsible for policy implementation, and the actions that need to be undertaken to ensure compliance.
- Supporting procedures can be prepared where necessary. However, in general these should be kept outside of the policy framework.
-

This structured approach provides a clear description of; the organization's policy, the minimum actions needed to ensure compliance, and identifies those responsible for monitoring compliance.

Strategy

It is believed that a knowledge strategy should provide a vision that helps services and projects to take decisions on the capture, maintenance, protection and disclosure of knowledge assets. (Instead of describing the approach being taken to knowledge management). As such it should, amongst other issues;

- Identify where, or the circumstances when, communities of practice and databases should be formed.
- Discuss knowledge gaps and how they are to be filled.
- Identify key knowledge assets and what actions are necessary to ensure it is appropriately managed.
-

For most organizations, the critical area of their knowledge strategy concerns the management of the knowledge that underpins their differentiatoring and enabling capabilities. Differentiators and enablers can be defined as follows:

Differentiators are capabilities to which an organization wishes to have unique access (these are critical to companies in the private sector).

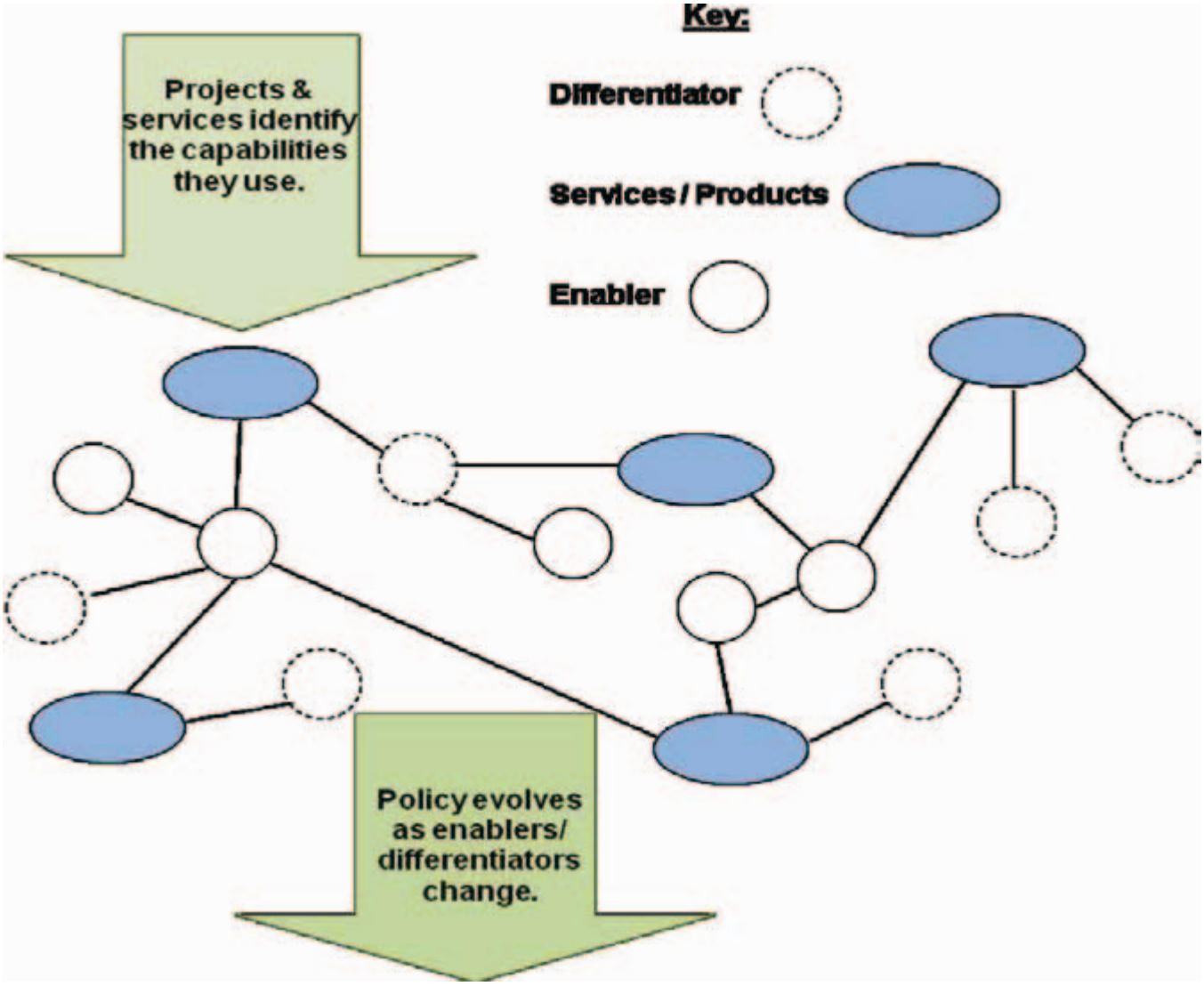
Enablers are capabilities, with limited availability, that are essential to product and service delivery (here the focus is on ensuring secure and cost effective access, rather than pursuing the creation of a unique capability).

Differentiating and enabling capabilities can range from disciplines such as project management, to technical expertise such as an understanding of specific chemical reactions. Enablers and differentiators are likely to exist in the following areas:

- Service delivery / product manufacture.
- The supply chain and its management.
- Customer management (attraction / retention /interface).

To be a true differentiator or enabler a capability will typically underpin a range of products or services.
Clearly, individual projects and functions should not be allowed unlimited freedom on how to manage the knowledge underpinning the organization's enablers and differentiators.
The knowledge strategy must therefore provide a framework to guide local decisions and actions. For each enabler or differentiator the knowledge strategy should therefore identify; key knowledge that should be captured and shared, whether inventions should -as a default- be patented or kept secret, which is responsible for decision-making, etc
.
Earlier we proposed that existing management processes should be adapted to encourage projects and services to exchange knowledge. These management processes can also be used to require projects and services to confirm the

importance, or alternatively update the enablers and differentiators captured in the organization's knowledge map.



This process will help an organization refine its view of its key know-how and hence allow its knowledge strategy to evolve.

Further, this process will help identify areas where communities of practice or database would be of utility, and ultimately, whether the knowledge underlying key capabilities are being correctly managed.

Targets and Challenge

It has been found to be the most important area to address when seeking to improve knowledge management in large organizations. Specifically, once strategy, policy

and accountabilities are clear, then the process of making visible the performance of accountability holders is an extremely effective lever for change.
Senior management, or the corporate body, should therefore routinely challenge how effectively knowledge is being managed by the functions. Metrics or other indicators can be of considerable use in this process of challenge and can both:

- Make visible the quality of the organization's knowledge management.
- Make visible the alignment of the organization's knowledge assets to strategy. i.e.: measuring the "role" and "utility" knowledge assets in each business area.

Monitoring the Quality of Knowledge Management: Here the choice of Key Performance Indicators (KPIs) is critical, the correct KPIs can be used not only to identify areas where improvement is required, but more importantly serve as guidance on the activities that should be undertaken to improve performance. Some KPIs will take the form of simple checks, which will have a "yes" or "no" answer, for example; Are accountabilities clear, and if delegated, are approvals and reporting structures clearly defined?

Monitoring the Quality of the Knowledge Portfolio: It is obviously not possible to review the alignment of all knowledge assets to business strategy. Instead the process of challenge should probably pay particular attention to the "health" of those knowledge assets underpinning the organization's key differentiating and enabling capabilities. It may be useful to develop a system of metrics to help in this process. Here it should be recognized that knowledge assets have two basic characteristics that should be examined. Role. Here metrics will seek to measure the potential importance of a given asset (e.g.: the extent to the knowledge is important in satisfying the customer's needs). Utility. Here metrics will seek to measure whether a given asset is fit for purpose, and if its longevity is consistent with this need (e.g.: whether the knowledge base is of sufficient quality to meet the needs of the customer).

Each knowledge asset will therefore have two characteristics, defining respectively its Role and Utility. If metrics are used to represent these characteristics, then any

misalignment between the Role and Utility scores will highlight potential problems that need to be considered by management.

Intellectual Asset Management

Intellectual asset management brings together knowledge and intellectual property management. Specifically, it seeks to:

- Minimize third party access to, and freedom to exploit, key intellectual assets.
- Ensure ongoing access, and freedom to exploit, key intellectual assets.
- Raise the visibility of, and ensure full exploitation of, key intellectual assets.
-

Ultimately, intellectual asset management, like knowledge management, must be addressed by its integration into existing processes, strategy, policy and accountabilities.

Specifically:

- Management processes should check whether projects and services are both managing and protecting key intellectual assets.
- Internal management reports should make visible both the strength of the intellectual asset portfolio and the quality of its management.
- Policy and accountabilities should clearly define responsibilities for the management of intellectual assets.
- Intellectual assets should be visible to projects and services.
-

In other words, intellectual asset management can, and therefore should, evolve naturally from knowledge management using the tools and processes described here.

BPM BENEFITS CHECKLIST

Below is a checklist that you can review for each of your processes or to get a general sense of the types of benefits you can expect from BPM.

Benefit	Example
Efficiency	
Eliminate Manual Data Entry	Reduction in time to add a new employee record into the HR e.g. system from 9 hours to 10 minutes.
Reduce Process Cycle Time	Reduction in compensation processing timing for 12,000 sales reps e.g. from 33 days down to 7.
Reduce Manual Analysis/Routing	Elimination of 80% of the manual work previously required to route invoice exceptions to the appropriate resolution teams.
Effectiveness	
Handle Exceptions Faster and Better	Evolve process from saving 5% of distressed shipments to saving 70% - yielding $2M per quarter in saved revenues.
Make Better Decisions	Better review process results in $3M saved in billing dispute write- offs that would formerly just been processed because the process was poorly controlled.

Consistent Execution	Customer satisfaction improvement to 92% based on proactive tasks that help ensure the home loan process executes better and faster.
Agility	
Faster Regulatory Compliance	Change customs related processes after September 11, 2001 within 90 days to comply with new federal regulations for better shipping visibility.
Support New Business Models	Ability to change shipping partners within 10 minutes in core process allows manufacturer to change primary shipper every quarter – based on best bid provided.

PERFOM BUSINESS CONTINUITY AND DISASTER RECOVERY VIA BUSINESS MANAGEMENT AND OTHER SOFTWARE TOOLS

Organizations wishing to improve their Enterprise Architecture and their Business Continuity and Disaster Recovery capabilities can implement an approach using BPM tools for planning their business processes, EA, and BC/DR right up front to dramatically increase their ability to plan for and recover from a disaster or other disruption to business operations. Currently, the BPM and BC/DR software industries represent two separate and distinct paths with little or no intersection between them. This capability can revolutionize the BC/DR discipline and empower business owners by placing more of the ability to perform the planning into their hands versus relying totally upon subject matter experts to plan and conduct their programs. This approach runs leaps and bounds ahead of traditional approaches where contingency personnel rely upon paper-based or other static plans that may be obsolete by the time they are activated or rendered ineffective by real-life circumstances. A plan is only as good as the last update. BPM tools can provide pre-planned and real-time capabilities to plan for and respond to a disaster or disruption.

This new approach in its very infancy employs a BPM application totally unanticipated by industry experts within the disciplines of BPM, EA, and BC/DR. BPM software tools can exponentially increase the scope and effectiveness of BC/DR planning either by themselves or in conjunction with other software packages such as BC/DR planning packages, regression testing and operational testing tools, IT management systems and Manager of Managers (MOM), and other potential applications. This approach holds the most potential for those organizations that find and retain professionals who understand the inter-relationships and how to develop business processes, which can design the enterprise architecture, and write BC/DR plans as well as run the programs. This capability facilitated by incorporating BPM tools can benefit all industry and government segments, regardless of type or nationality in focused or broad approaches depending on an organization’s individual tastes and requirements.

Almost universally, organizations address BC/DR as a parallel effort at best although they usually address it as an after-thought, if at all. BC/DR crosses all of an

organization's boundaries and affects external parties as well. Although largely not addressed to the degree organizations truly require, it represents one of the most complex business problems any organization could possibly resolve. To complicate matters, almost no one in the industry has the ability to perform BPM, design the EA, and write all the BC/DR plans as these skill-sets are normally discrete skill-sets and few understand the ramifications of these three disciplines combined and to sufficient depth. This gap between BPM, EA, and BC/DR often exists as each has skill-sets that often do not really incorporate the thinking of counterparts in other organizations.

Current state of BPM and BC/DR tools

Industry analysts do not predict BPM tool growth for BC/DR and no IT, BPM, or BC/DR professional seems to have heard of this application in current use or even forecasted to this degree. Within the information security profession, Gartner Group industry analysts and others expect that BPM tools would be only used minimally for IA and mainly for C&A in limited circumstances and not for BC/DR.

BPM tools range from extremely sophisticated BPM tools in the Gartner Group Magic Quandrant that have all-encompassing capabilities to interface and execute commands and procedures through and with other software packages to more simplified versions that mainly provide the capability to perform BPM within themselves and provide a repository for limited documentation.

BPM and BC/DR software companies focus on their own markets, regardless of its level of sophistication. However, one of the high end BPM software companies has written applications for the financial industry that address a sub-set of requirements. Typically, BPM tools are used more on the business and operations side with some applications for the IT side. This tendency probably exists because the business process management experts understand the power of harnessing these software programs for BPM and IT professionals would normally focus on business processes as they apply to EA.

The Impact of a BC/DR Program

Most organizations' business operations could be negatively affected by various types of disruptions and business owners would ideally analyze their implications

and plan accordingly. Disruptions may stem from seemingly benign causes to obvious and extreme disruptions. In the end, the resulting organization's disruption in its ability to provide services can be the same regardless of the type of disruption. Obvious catastrophes such as Hurricane Katrina and the San Diego wildfires provide some of the most vivid examples of recent major disruptions. Disruptions can also result from some of the following examples:

- Inability for staff to man jobs caused by illness, inability to access the work site, pandemic
- Power outages
- Supply chain complications interfering with the ability to provide parts and supplies in our increasingly just-in-time economy
- Equipment malfunctions
- Natural disasters
- Acts of war
- Cyber-terrorist attack, etc.
- Benefits of using BPM for BC/DR

Any type of BPM tool could facilitate designing the business processes, designing the EA, and BC/DR planning. Often the current BC/DR state entails use of spreadsheets and word documents in lieu of BC/DR software programs. Although this approach is in its infancy in part because IT system designers are virtually never the people who write the BC/DR plans, organizations would ideally plan the business processes to include those required for recovery from a disruption, design the supporting EA complete with its disaster recovery capabilities, and plan the BC/DR capabilities right up front. Unfortunately, the sad fact is that virtually none of the professional disciplines fully understands what it takes to accomplish the goals and objectives of its counterparts to sustain the continuum of BPM, EA, and BC/DR. Furthermore, the pool of professionals who possess the conceptual understanding and can provide the excruciating detail of what it takes to maintain and recover operations from a business process, humanistic, and technology perspective is minute but growing.

In varying levels according to the tool's sophistication and the user's abilities, BPM tools offer substantial benefits for both EA and BC/DR as well as for BPM.

- As with BC/DR tools, BPM tools can allow for pre-planning a series of likely scenarios and their requisite responses.

- Some of the more sophisticated BPM tools can facilitate the analysis required to develop BC/DR plans and programs by collecting data provided by personnel as well as systems and performing the analysis.
- Ability to start with a simpler application all way up to agency or headquarters level
- Provide capability of planning business processes in Visio or other tools
- Provide ability to associate processes with documentation, resources, and other elements necessary for plan execution
- Most importantly, provides ability to plan new processes and re-associate existing processes and resources according to need in real time should the pre-planned scenarios and associated resources become infeasible
- Often use web access to be accessible regardless of location
- Provide for security capabilities
- Provide ability to develop new processes for completely new alternate site if the original alternate and alternate processes sites are unavailable for some reason and needs require a totally new plan
- Provide varying levels of sophistication or simplicity to suit organizations budget, skills, and extent to which it wishes to incorporate BPM

BPM tools may be used in conjunction with or in place of BC/DR tools by building BC/DR processes and supporting resources within the BPM tool, just as one would build any other process. BC/DR tools range from fairly simple and easy for almost anyone to use to highly sophisticated ones that provide sophisticated capabilities but require a substantial manpower commitment to maintain properly.

Myths surrounding BC/DR

Many myths surround the discipline of BC/DR and often stem from the point of view of individuals and organizations. One of the most prevalent myths, just because an organization has an alternate or BC/DR site does not mean that it has an executable plan and an effective BC/DR program. Having a plan and program that the organization hasn’t tested does not indicate success under fire. Unfortunately, hiring so-called experts does not guarantee viability of plans as the BC/DR discipline is so complicated and broad-reaching that anyone can tell a good story and write fluffy plans that few can evaluate or execute properly. The only real way to test the

effectiveness of a BC/DR plan and program is a thorough testing program and feedback for improvement. Organizations could use BPM tools to assist with the testing and maintenance aspects of a program as well as other processes.

Conclusion

BPM tools used separately or in conjunction with other software tools such as BC/DR could revolutionize the incredibly complex and all-encompassing realm of BC/DR planning and life-cycle management. These tools could exponentially facilitate an organization's ability to prepare for and recover from a disaster in pre-planned and real-time scenarios. Using any BPM software tool could enhance an organization's BC/DR program and its selection can be based upon an organization's budget, desire to incorporate this solution, and its ability to harness the human capital possessing the ability to implement this approach in greater or lesser degrees.

RACI METHODOLOGY AND BPM

A simple yet powerful methodology that focuses on the “human-side” of BPM is the RACI Methodology. The RACI methodology is similar to the Responsibility Assignment Matrix (RAM) from the Project Management Institute. In the Project Management Body of Knowledge, RACI chart is explained as a type of RAM because it assigns the role that the resource is to play for each given activity. Additionally, the RACI Methodology can be found in Business Process Management as a useful method of helping to identify activities, roles, and responsibilities.

The methodology is a relatively straightforward tool that can be used for identifying roles and responsibilities during a BPM implementation process. BPM projects require organizations to transform and adapt to new culture. Transformation does not happen overnight, and it sure does not happen automatically. People who are involved in the process from top to bottom have to contribute so that successful transformation happens. BPM projects of any size will be controlled and systematic, if roles and responsibilities are defined.

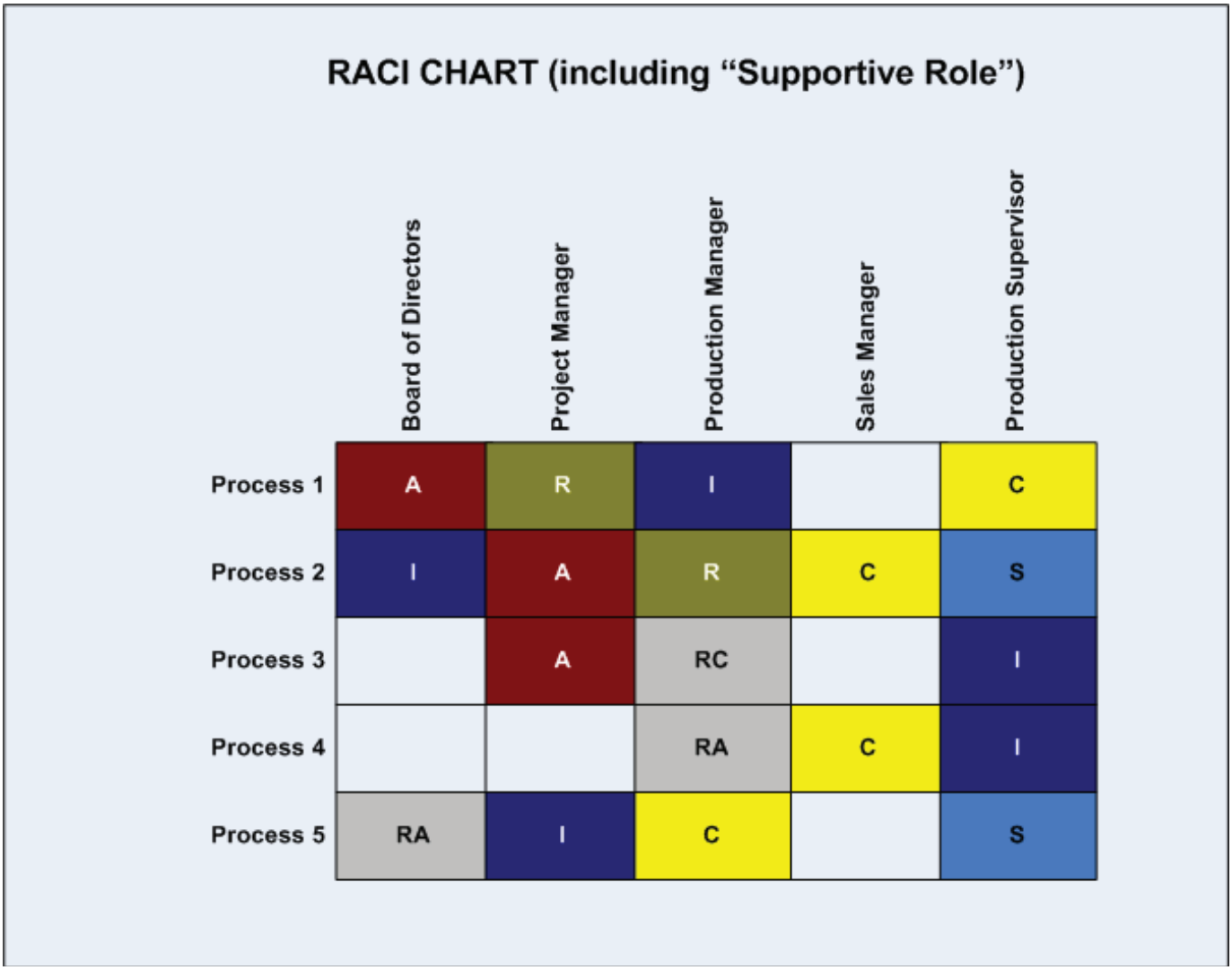
RACI helps organizations to assign roles and responsibilities for every process, so everyone involved in the process know what they are responsible for.

• **Responsible** – The person(s) responsible for the process or project.
• **Accountable** – The person(s) to whom “R” is accountable. He/She must sign off or approve assignments and is ultimately accountable.
• **Consulted** – The person(s) who has information and/or resources needed to successfully complete the assignment. He/She must be consulted for the successful completion of the assignment.
• **Informed** – The person(s) who must be informed of project status, updates, and milestones. He/She need not be consulted, but needs to be informed on the status and progress of the assignment.

*A variation of RACI uses “S “– Supportive, person who can provide resources or play a supportive role in the implementation.

RACI is typically supported by a RACI chart (or RACI matrix), which helps players involved understand what their role is and who is responsible, and who is ultimately accountable. A RACI Chart is useful for clarifying roles and responsibilities in a cross-functional/cross-departmental project or assignment.

Below is a simple example RACI chart:



RACI Chart

• The first step in developing a RACI chart is identifying all the processes/activities in the BPM project. Once the processes are identified, create a matrix and list the processes on the left hand side of the chart.
• The second step is to identify all the key players (roles) and list them along the top of the chart.
• The third and final step is to complete the cells in the matrix and identify who has the R, A, C, and I for each process.

Important Considerations

• As a general rule of thumb, every process should preferably have only one “R”.
- A gap occurs when a process exists that has no “R” and an overlap occurs when a process exists that has multiple “R”.

• Avoid gaps and overlaps. If a process exists and does not have an “R” or has more than one “R”, the process generally can be broken down into sub-processes.
- Every process should have a unique process owner. This will ensure that all activities within the process are streamlined through the process owner.
- If a process exists without an “R”, the person accountable should determine who is responsible for the process.

Taking time to document these key roles and responsibilities for processes will uncover all of the stakeholders involved, identify who’s accountable, who’s responsible, and who should be consulted and informed. The RACI Chart is straightforward and takes minimal effort and time. Once completed, however, the chart is of great value as everyone involved in the process knows exactly what their role is and who is responsible, and who is accountable.

RACI – Business Case

In a recent consulting engagement with the human resource department for a mid-market manufacturer, the client was assisted to streamline their processes and implement a department-wide BPMS application. The initial project schedule was based on the vision of the client company’s CEO, which was tightly integrated with his vision for the entire organization. Working with the HR department and with the

VP of the Human Resources department, it was discovered that the VP had several priorities of his own. The CEO had appointed the Director of HR as the Project Manager for the project, who had priorities of her own. With three different individuals, with different priorities spearheading the project, the project team was a bit confused, to say the least.

The CEO was preoccupied with various other priorities; he had very little time to devote to the project. The Director of the department had several issues within the department, which kept her firefighting, even though she was the Project Manager, she had very little time to work on improving the processes. The VP of the department, in the middle of the project changed his priorities for the department, which caused changes in project priorities and reallocation of resources. The reprioritizing was done without consulting or informing the CEO, making him quite upset.

The whole incident created tension within the client's project team. The team wasn't sure who was responsible, who was accountable, and to whom they needed to consult and inform. It was at this point, the team finally developed a RACI chart. Developing a RACI chart was the turning point of the project. The RACI chart helped uncover all the stakeholders involved. The team was able to identify who was accountable, responsible, and who should be consulted and informed. By developing a RACI chart, all stakeholders involved, their roles and responsibilities were clearly visible for the clients. They were able to assign roles and responsibilities for all the processes involved.

Once the RACI methodology was in place, the project implementation phase progressed quickly and successfully. The project team was able to implement its process improvements while knowing who was accountable, who was responsible, and who should be consulted and informed throughout the implementation phase.

Summary

A key ingredient for successful BPM implementation is the involvement from all key participants. The RACI methodology helps organizations clearly assign

responsibilities and ensure that key participants are involved. BPM success largely depends on a given organization's culture, and how well the players involved can adapt to change. In order to become a "process-driven" organization, top management's involvement and support is a must, especially if processes are cross-functional and cross-departmental.

Change is rarely successful if driven from anywhere other than the very top of the organization chart. Using the RACI methodology, organizations can clearly identify all the key participants, including stakeholders for a given process, and ensure that tasks are performed, while everyone is kept in the loop.

ALIGN ROLES AND RESPONSIBILITIES TO MAKE BPM WORK

Business units and the IT organization are both responsible for ensuring that business process management initiatives are successfully executed. The more roles and responsibilities for each side that are defined at the onset of a BPM project, the more quickly an organization can reap the benefits.

What you need to know:

IT organizations have little time to take on the roles and responsibilities of the business process architect or the business process analyst. For an organization to take advantage of this new era of competitive differentiation, the business side of the organization must embrace the new roles required to manage business processes. Tight alignment between business units and the IT organization will be a critical success factor. Establishing a common vocabulary and setting up clearly defined roles and responsibilities are key to achieving success.

Analysis:

Companies that have the best-orchestrated business processes will become the leaders in their industries. Business process management (BPM) is a clear path toward orchestrating business processes; however, BPM requires tightly aligning business and IT responsibilities.

Some companies mistakenly view BPM as just another IT project. Yet, BPM is not only about technology. It is a business strategy and structured approach to governing an organization's activities and processes, and it involves employing methods, rules and execution tools. Enterprise leaders understand the dynamics of their businesses, so they need to take charge of the tools that manipulate the rules governing decisions being made in their business processes. Business leaders must be actively involved with any implementation from the start, not only to understand the broad benefits of BPM, but also to keep their organizations' initiatives on track. This is because BPM aims to harness a complex ecosystem of processes

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To make BPM work, companies must better align business units with the IT organization, as well as clearly define roles, responsibilities and a common

vocabulary. Here, we recommend best practices to business executives for creating such a structure.

Managing Change

The more roles and responsibilities are defined at the onset of a BPM project, the more quickly an organization is able to reap the benefits. IT managers do not want business leaders to go off on their own to experiment with BPM technologies, such as modeling, simulation and process analysis technologies. Likewise, the last thing business leaders want is to have the IT department managing their business processes. Before engaging in a BPM implementation, establish some guidelines delineating the responsibilities for the members involved in the project. In the short term, business and IT personnel will share responsibilities for:

• Process deployment
• Process execution and performance
• Business and process rule analysis and management
• Operational procedures, including version-level control
• Creation of processes and rule repositories
• Detailed process design
• Training and education
• Event analysis and management

The business side is responsible for:

•Strategy and business case development
• Business performance metrics
• Process discovery
• Functional process design
• Simulation, optimization and scenario creation
• Process monitoring and analysis
• Business change management and communication
• Business rules and event discovery and analysis
• Policy management

The IT department is responsible for:

- Standards for technical and best-practice procedures
- Service orchestration
- Integration of process steps with physical orchestration
- Templates and frameworks to support discovery and deployment
- Scalability issues supporting scope and complexity
- Process-level and system-level security
- BPM tool evaluation, testing and integration
- Fault tolerance and redundancy
- Clustering and load balancing

New Roles:

In terms of best practices, the industry has seen some leading companies place senior business executives in the IT organization to lead large-scale projects and place project finance people in the IT organization to drive the business-case approval process. In both circumstances, the primary objective is to better align the IT organization with the business. By embedding a business vocabulary and mind-set into the IT organization, the language begins to change, and business value is more easily understood.

The lack of a common "language" between business units and the IT organization has resulted in a significant stumbling block for BPM implementations. Terms such as "repositories," "load balancing," "rules" and "version-level control" apply to business units and the IT organization; however, they have different meanings. When crafting business process management software suites, leading software vendors are increasingly focusing on the business side of the organization as an important user of their tools. This makes it essential for IT organizations to understand a more-business-oriented vocabulary. In companies that have successfully deployed multiple BPM projects, two new roles have emerged that reside in the business units, not the IT organization:

Director of business process management:

This director focuses on the human, organizational and value stream aspects of business processes and their transformation.

• Gain consensus of internal constituents around new process concepts.
• Identify business performance and incentive metrics.
• Draft organizational alignment requirements.
• Design the organization's hierarchy of processes for reusability.
• Build and sustain a process-managed organization.

Business process analyst:

This analyst deals with the more tactical aspects of discovering, validating, documenting and communicating business-process-related knowledge through modeling, simulating and analyzing current and future states.
• Identify opportunities for ‘best in class’, disciplined and shareable process knowledge.
• Embrace methods, techniques, notations, standards and best practices.
• Show the organization the best way to identify problems and to solve them.

Conclusion:

For IT professionals involved in BPM, the roles and responsibilities are straightforward, such as exposing modeling options for the business, leveraging the capabilities behind a service oriented architecture and constantly evolving the maturing BPM suite of technology solutions. IT professionals need to make a business unit's processes work better through technological enhancements. The reality of executing on this mission is far from simple. It involves managing technology and support for the entire business process life cycle, from strategy through implementation and ongoing improvements. Executives on the business side must figure out how to tightly align business and IT functions.

Tactical Guidelines

BPM will only work in organizations if senior executives recognize that:

• Business units and the IT organization must share responsibilities.

• The IT organization must learn the business units' vocabulary.

• Business units must create new roles.

PROJECT TO PROGRAMS

3 Steps for Moving from BPM Projects to PPM Programs

Introduction

Business Process Management (BPM) is in a period of transition. For the past several years, companies have been getting familiar with BPM, undertaking specific *projects* to address “burning process problems”, or launching tightly-scoped *project*s to understand the capabilities of BPM Suites (BPMSs) and how they should be used.

The successes of those initial projects and pilots have given companies the confidence and vision to take their BPM efforts to the next level – moving beyond that first project to a broader *program* encompassing multiple projects that are part of a larger business process improvement initiative.

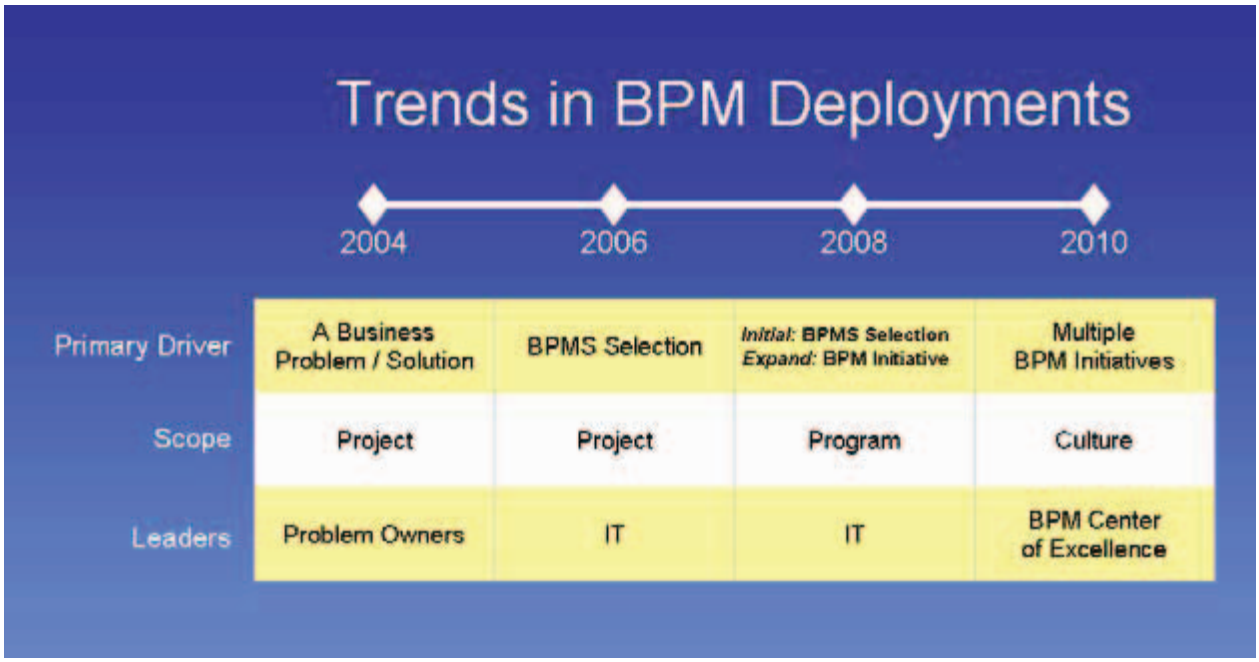
That leads to the logical questions: “What processes should we focus on next? How do we scale the discovery, development, deployment, and usage of process applications across the company? What are the best practices we should follow to maximize reuse across projects to achieve economies of scale?”

This whitepaper describes how the movement toward broad BPM Programs has changed what companies need in terms of BPM technology and “know how”. It describes 3 steps for establishing a solid foundation for a BPM Program that will enable your organization to scale its process improvement capability in a way that will deliver maximum value to the business.

The Trend from BPM Projects to BPM Programs

Over the years there has been a gradual change in how companies have approached business process management. Four or more years ago (before “BPM” became such a well-known buzzword), companies simply sought solutions to specific process problems. These types of improvement projects were usually driven by the “owners” of the problems, who were experiencing specific process pains on a

daily basis. Their goal was to simply “make the pain go away”, with little vision beyond that. Many times, vendors were able to recognize these opportunities to apply BPM tools and technology. In most cases, a poorly performed manual process was replaced with some amount of BPM-based automation to improve both efficiency and accuracy of the process. These early projects could be considered “tactical” in scope (even when they continue to provide significant business value years later).



The awareness of BPM within companies began to increase a few years later (now 2-3 years ago), especially as word spread about the successes from early projects. At the same time, there was a shift in project ownership from the business to IT, as IT sought to standardize upon common BPMS platform technology, either within a line of business or across an entire enterprise. But even as those BPMS selection exercises had an enterprise-wide scope, the scope of the initial usage was usually limited to an initial pilot in order to get acquainted with the new technology.

Today, we are seeing that many companies are moving beyond those first BPM projects to larger-scale BPM Programs, in order to repeat and expand their process improvement successes across a wider range of business processes. A BPM Program consists of a series of follow-on process projects, which are usually

adjacent in scope to the initial deployments. Within the context of a BPM Program, a series of BPM projects can be identified, prioritized and aligned to key process improvement initiatives. As a result, BPM Programs are more strategic in nature, providing end-to-end cross-functional solutions to the business. A BPM Program is the vehicle for scaling BPM properly across the business.

The end game for many companies is to create a BPM Culture, where every white-collar worker is aware of process improvement goals (at personal, departmental, and corporate levels), has complete visibility to their performance against those goals, and leverages tools to carry out their day-to-day tasks in ways that help them meet and exceed those goals.

A Project-to-Program Example: Pulte Mortgage

Many are going through this transition from project to program. One that is far along in the transition is Pulte Mortgage – the financing subsidiary of the nationwide home builder, Pulte Homes. In 2003, the COO of Pulte Mortgage was tasked to find ways to create 300% growth over an 18 month period, primarily by improving their customers' experience in order to increase repeat sales within their extremely competitive industry. Their loan origination process was basically "working" – at the time they already had customer satisfaction ratings of 85%. But they had no visibility into how individual loans were being processed by the 1200 employees across a dozen back office systems. You can't improve what you can't see.

In turn, they initiated a BPM project to track the flow of each loan through the origination process. With this new visibility, they were able to identify bottlenecks in the process that would cause loans to be delayed, and they were able to better prioritize loan processing tasks in order to guarantee that loans would be completed on time. From their process improvement they were able to improve customer satisfaction ratings to a very high 92%.

Based on that positive experience, Pulte Mortgage laid out a long-term BPM Program to implement workflow, tracking, and SLA management for every part of the business. By 2007, 100% of the business tasks at Pulte Mortgage were managed using BPM.

The result: the employees' entire relationship with their work has changed. No more "green screens". Every employee can see their performance against 48 different SLAs in the process that are tied to the strategic initiatives of improving customer satisfaction and enabling company growth and efficiency. Management can see a holistic view of performance – all loans, all tasks, all SLAs, all in real-time.

The entire organization is driven by BPM, and everyone understands where they fit in the end-to end process. Pulte Mortgage is now moving beyond their BPM Program to a BPM Culture.

What is Required for a BPM Program?

BPM Programs bring with them new requirements to enable scalability well beyond the normal requirements of a typical BPM project:

- **Highly-Scalable Execution Platform**
  Today's BPMS platforms do a reasonable job of managing a small number of projects. But in a long-term BPM Program, the scale increases by at least an order-of-magnitude: the number of BPM projects, the number of BPM authors and developers, the number of users, the number of process versions can all expand dramatically. In order to achieve economies of scale from sharing and reusing process components across a long-term BPM Program, the underlying BPMS must make it easy to manage many more BPM projects, and support many more process authors, developers, and users. Categorizing and finding reusable process assets in the shared library is critical. Moreover, *understanding* the implementation and performance of multiple versions of processes and their underlying subcomponents will be imperative.

- **Highly-Scalable Communication Platform**
  What process improvement opportunities exist in your company? Often there is that "burning process" whose business pain forces an organization to investigate BPM in the first place – by definition, these processes and their specific problems are well-known to all. But how do you discover and prioritize the other improvement opportunities in an enterprise? For each opportunity, how do you agree what the problem details really are, and what are acceptable ways to

resolve them? How do you get your business stakeholders, domain experts, and technical developers aligned on what needs to be done? This frequently presents a huge communications problem – especially when your organization is geographically distributed. You will need a communications tool that has the potential to reach every single white-collar worker in the enterprise. Traditional technical BPMS modeling tools are doomed to fail here – the time, money, and effort associated with installing and using these tools are just too high to reach large numbers of non-technical users. A completely different communication platform is required in order to meet the scale.

- **"Know How" to Scale**
  Of course, tools and technology are only part of any BPM solution. What's often more important for success is the "know how" to make BPM Programs work: how to share, how to govern, how to scale. Someday, much of this knowledge will be institutionalized – but we're not there yet. We are still discovering the patterns and best practices for large scale BPM Program execution – so today we must rely on BPM experts and thought leaders to provide specific guidance on how best to transition from implementation of single projects to multi-project BPM Programs.

Structuring a BPM Program

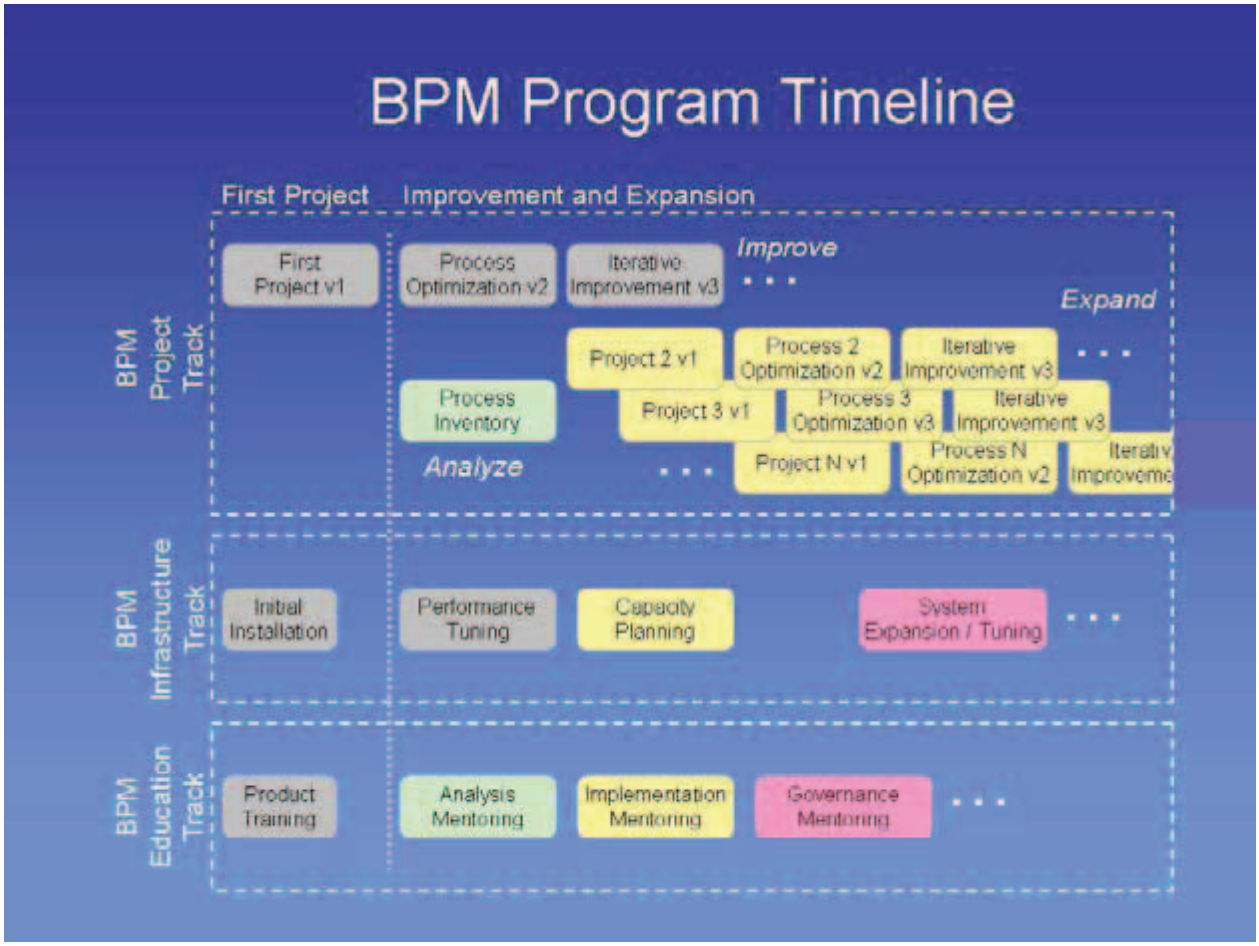
In today's deployments, not all BPM Programs will start out with an up-front "start up" period. Many or most BPM Programs will evolve out of an initial deployment project that serves as the "proof". In those cases, we can build upon the existing project deployment by using a parallel track approach:

- ***BPM Project Track***
  In this track, the BPM team performs a quick, high-level inventory of potential process improvement opportunities. This is done with all business stakeholders. The opportunities are prioritized based on potential business value and alignment with corporate strategy. A prioritized opportunity roadmap dictates the order in which BPM projects will be subsequently analyzed, implemented and deployed. The project track "expands" over time, as additional projects are added to the BPM Program. After each deployed project

has been in production for some time, an optimization analysis can be performed to guide its next set of process improvements. Process inventories can be repeated to reprioritize the project improvement roadmap.

- ***BPM Infrastructure Track***
  This track focuses on tuning the existing system infrastructure, as well as capacity planning for future growth.

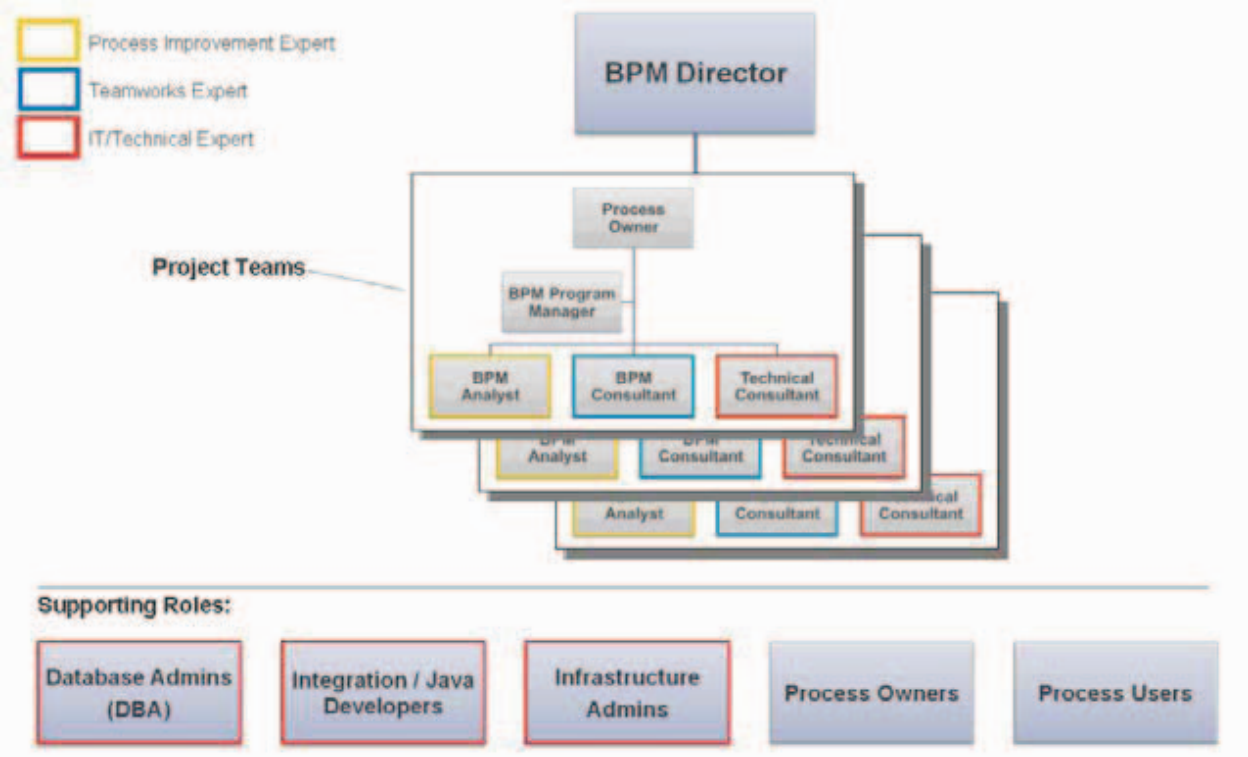
- ***BPM Education Track***
  This track administers the educational packages that are required to build a self-sufficient BPM team. Beyond the generic product training, much of the education comes in the form of mentoring, to show the "how to" of analysis, implementation, and governance. This mentoring is best done in the context of the actual program implementation and deliverables.



Of course it is important to set up a capable team to carry out the BPM Program. For every project, we recommend:

- One or more **BPM Analysts** to assist with process analysis and requirements definition;
- One or more **BPM Consultants** for process design, implementation, and deployment;
- One or more **Technical Consultants** to provide assistance with overall solution architecture, and integration into your enterprise infrastructure;
- A **BPM Program Manager** who is responsible for guiding the deployment effort to success; and
- A **Process Owner** who is empowered to quickly make decisions regarding process delivery, scope, and budget.

A **BPM Director** leads the overall BPM Program effort, across all projects. The BPM Director typically heads the BPM Governance committee that establishes the policies for proper sharing, access, and reuse of processes. Other technical and subject matter experts (SMEs) play supporting roles, as needed.



Starting Your BPM Program

Building a successful BPM Program requires the right foundation – one that can scale. As we described earlier, there are 3 critical steps to laying the foundation for your BPM Program:

Step 1

*Make sure you have a BPM Program **execution platform** in place that can scale to handle the design, execution, sharing, and governance of many projects across your enterprise.* The following platform features enable scaling up from individual BPM Projects to full-scale BPM

A *collaborative design environment* built to support concurrent development by multiple teams of process authors and developers, as they create and share process implementation components. A shared multi-user development environment maximizes sharing, and enables teams to discover and fix implementation conflicts immediately, instead of waiting until test time to resolve problems when merging components that were developed separately.

- A *Shared Model architecture and repository* that links all aspects of the process design, implementation, and run-time data, to ensure that all of the Business and IT views of a process are always in-synch. Only platforms with true Shared Model architecture directly link everything about a process together: the process diagram, the implementation details, KPI and SLA definitions, in-flight process data, historical performance data, and so on. This linkage is critical to providing Business and IT with the visibility they need to remain constantly "on the same page" about their shared understanding of the process design and operational implementation, across all process changes, and across all process versions, that occur during the BPM Program lifetime.

- A *clustered J2EE-based enterprise execution environment* that is incrementally expandable, highly available, and easily partitioned as additional projects are added over time. J2EE technology platforms are proven to support and manage large-scale, enterprise deployments. Teamworks' innovative Shared Model architecture enables implementation teams to select a specific process version, visualize performance "hot spots"

directly on the process model diagram, drill down to the underlying performance facts to uncover root causes, and "playback" any proposed fixes in order to assess the impact – all within a single development environment.

Step 2

*Make sure you have a BPM Program **communications platform** in place that can scale to allow every business stakeholder or domain expert to collaborate on the discovery and documentation of processes and potential improvements.* Traditional BPMS modeling tools are too technical and too costly, and consequently can't scale. In order to support the scale required for large-scale, long-term BPM Programs, your communications platform should have the following capabilities:

- *Real-time collaborative editing of process documentation* stored in a shared, versioned repository, so everyone has an up-to-the-second view of a process definition.

- *Extremely intuitive process editors* that is as easy to use as PowerPoint or Word, so that even non-technical users can fully participate.

- *Entirely web-based and hosted services,* so that users anywhere in the organization can be added immediately with no software installation required.

Step 3

*Make sure you have the BPM Program **"know how"** in place to assist and guide your team in defining, implementing, and deploying the projects in your BPM Program.* To avoid wasting time and expense from trial and error, you will want to leverage the knowledge of BPM professionals that can show you how to implement:

- *Process inventory and analysis* – to help you identify and prioritize the "pipeline" of process improvement opportunities in your BPM Program, that are aligned with your company's strategic goals.
-
- *BPM mentoring* – to provide you with detailed, hands-on guidance on how to best approach process implementation, operations, and change management in BPM projects.

- *Process improvement* – to assist you in setting up the correct KPIs, SLAs, reporting, and analytics needed to optimize your production process applications.

- *Process infrastructure* – to assist you with installation, configuration, performance tuning, and capacity planning of your BPM platform as new projects are rolled out to production. *Process governance* – to help you establish a Center of Excellence and institutionalize best practices for managing and governing BPM Programs as they expand across the enterprise.

BPM ARCHITECTURE CONSIDERATIONS

Introduction

This paper outlines three sets of key architecture considerations required for a successful configuration of an enterprise Business Process Management (BPM) implementation and deployment. These considerations are:

- Deployment Environments
- Architecture Options
- Hardware and Database Sizing

In addition to architecture considerations, another important success criteria for BPM implantations is ensuring the organization's IT group be involved in the early stages of the BPM tool selection process. This is due to the fact that many decisions made and issues uncovered in early stages will have long-term consequences and will be much more difficult to resolve after the BPM tool has already been selected. When IT is involved at the early stage, there is a much better opportunity for ensuring balance between both business and technology factors.

I. Deployment Environments

Although this issue may seem obvious for any software deployment, it is important nonetheless to address how the BPM architecture will be configured in order to get out of the way any preconceived ideas. Typically there are four distinct (yet related) environments that need to be configured during the course of a BPM implementation. These environments are:

- Development: This is used primarily for developing the BPM solutions. All the unit tests, bug fixes, and R&D type of work is done on the Development (or Dev) environment. This environment is not as robust as the others. Sometimes, the Dev environment may end up being the developers and analysts workstations depending on the type of BPM tool selected as outlined in subsequent sections.
- Test/QA: The environment is used primarily for deployment of solutions for testing the features and overall functionality and user-acceptance of solutions. There is no development taking place on the Test/QA environment.

Sometimes this environment is as robust as the Staging and/or Production environments.

- Staging/QA: Depending on the IT infrastructure and governance, this environment is a duplicate of the Production and/or Test environments. This environment may be considered optional depending on the scope of the implementation.
- Production: This environment will be used primarily as a live environment. The final, time-stamped solution is deployed to Production.

There are subtle differences in the way the #3 and #4 environments above are configured. Each will have its own architecture options and sizing as discussed in the next sections.

II. Architecture Options

Depending on the BPM tool selected, there multiple architecture options to be considered. Below we have identified the four most commonly used options and typically most appropriate for BPM implementation. The selection of these options for each environment depends on different factors such as existing IT infrastructure, budget, and solutions to be deployed.

- Single-tiered or Standalone: This option provides a single and simple deployment for all the BPM components (BPM Engine, Application Server, and Database Repository) on a single machine. In addition, this option provides a simple administration, less overhead, and limited transactional capabilities. This option is for simple to moderate BPM deployments.
- Double-tiered: This option provides a two-tiered architecture deployment where on the one hand, the BPM engine and the App Server are installed on one server and on the other hand the database repository is installed on another server. This usually happens when the IT infrastructure already has some database instances that can be leveraged. This is a mid-level architecture option where there are a little more overhead and more transactional capabilities. This option is for moderate BPM deployments.

- Three-tiered: This option provided dedicated services for all BPM components. In addition, this option provides more complex deployment and administration; there is much more overhead but it is scalable.
- Multi-tiered: This is the most complex architecture where BPM components are divided into multiple dedicated servers for large-scale BPM deployments in an established IT infrastructure that includes clustering, load-balancing, and/or fail-over.

III. Hardware and Database Sizing

In addition to the architecture options, other considerations for architecting a BPM solution relate to calculating and estimating hardware and database sizing. These considerations are:

- Number of Process Instances per Year/Month/Week/Day
- Number of Users
- Number of Participants per Process Instance
- Number of Activities per Process
- Number of Attachments per Process
- Number of Notes per Process
- Third-party systems that will integrate with the BPM Engine (including identity management, enterprise content management, portal for displaying work lists)
- Benchmark Test results
- Vendor experience with other customers who have implemented similar architectures
- Current IT infrastructure

The considerations above relating to specific quantities directly relate to hardware performance – the more users and process instances involved, the greater the computing capacity is for the BPM Engine orchestrating the process. The benchmark results will determine the hardware (CPU, Memory and Hard Disk) and database sizing recommendations for the BPM tool.

EXAMPLE: COMMON BUSINESS OBJECTIVES

OPERATIONAL	FINANCIAL	STRATEGIC	INDUSTRY
Shorten development time	Improve return on assets	Establish or enhance strategic positioning	Increase market share.
Increase productivity	Avoid costs	Introduce competitive results	Improve market position
Increase capacity	Increase discretionary spending as a percentage of budget	Introduce competitive products	Increase repeat business
Increase reliability	Decrease non-discretionary spending	Improve professionalism of organization	Take market leadership
Minimize risks	Increase revenues	Provide better quality	Recognized as producer of reliable or quality products and/or services
Improve resource utilization	Increase margins	Provide customized offerings	Recognized as low price leader
Improve efficiencies	Keep spending to within budget	Introduce new products or services	Recognized as complaint to industry standards.

KPI’S

Key Performance Indicators (KPIs) are quantitative and qualitative measures used to review an organization’s progress against its goals. These are broken down and set as targets for achievement by departments and individuals. The achievement of these targets is reviewed at regular intervals.

KPIs are used to monitor the performance of a company, department, process or even an individual machine. They will also help shape the behaviors of employees within the company.

KPIs need to be flexible and reflect the changing goals of the organization. Goals change as the organization changes in reaction to external factors or as it gets closer to achieving its original goals.

Individual KPIs need to be directly linked to organization goals and objectives, or overall organization KPIs where they are used.

They need to reflect organization culture and values, by indicating the types of behavior and performance the organization will recognize as 'successful' and reward employees for.

KPIs need to be measurable and reflect a balance between operational and people orientated measures.

KPIs are a fundamental component of sustaining a change process and maintaining a performance management culture. KPIs should be aligned with the organization’s vision and direction.

When performance is measured, and the results are made visible, organizations can take action to improve.

SMART KPIs

The acronym SMART is often used to describe KPIs.

- Specific
- Measurable
- Achievable
- Relevant
- Timely

Specific

KPIs need to be specific to the individual job and if possible expressed as statements of actual on-the-job behaviors.

For example, a KPI should:

- explain clearly to the employee what he/she has to do in terms of performance to be successful
- have an impact on successful job performance, that is distinguishing between effective performance and ineffective performance
- focus on the behavior itself, rather than personality attributes such as 'attitude to customers'.

Terms such as 'work quality', and 'job knowledge' are too vague to be of much use.

Measurable

KPIs must be measurable, that is based on behavior that can be observed and documented, and which is job-related. They should also provide employees with ongoing feedback on their standard of performance.

Achievable

Performance management needs to be an open, collaborative communication process. KPIs must be seen by all that they are achievable. The KPI must be

realistically achievable. If it is set too high for the circumstances (such as an ambitious production target), not only will it be irrelevant but it will ensure failure.

Relevant

It is essential that employees clearly understand the KPIs, and that they have the same meaning to both parties. Consultation is more likely to result in standards that are relevant and valid.

Timely

KPIs should have an appropriate time frame.
It should be possible to collect the relevant information either 'as it happens' or within a short time afterwards, otherwise it will lose its relevance.
As outputs of the performance management system, KPIs also need to be in alignment with other HR-related functions, including training and development, recruitment and selection, rewards and recognition, and career planning.

Business aspects that require KPIs

KPIs should cover every aspect of the business. Sample examples are

- customer satisfaction
- employee satisfaction
- staff turnover
- absenteeism
- department/division specific measures
- triple bottom line: financial, environmental and social responsibility
- finance including revenue and costs
- OHS reporting including incidents and related costs
- equipment usage and OEE
- maintenance costs and effectiveness
- new product development & innovation
- lead times and down times
- quality.

KPI components

KPIs should identify the required outcomes, for example:

- the minimum acceptable performance e.g. daily breakeven point
- target performance e.g. desired daily output.

KPIs should:

- be communicated to all staff so that they are aware of how they are to be measured and how their KPIs impact on the organization as a whole
- be aligned with the vision and direction of the organization
- have relevant reward and recognition criteria linked to each KPI.

When implementing new KPIs, having baseline data to measure improvements is very important. Progress on KPIs should be communicated at regular times to highlight emerging trends. As these trends emerge, corrective action can be implemented in a timely fashion. KPIs need to be communicated via multiple media.

The measures that are selected must be carefully specified to ensure they do not cause non-lean behaviors. In many cases there will need to be a selection of measures that balance quality and quantity factors to ensure the correct behaviors are encouraged.

Listed below are some examples of the behaviors and outcomes that measures in isolation can cause.

Measure in isolation	Behavior	Outcome
Production output	Make more	Overproduction
Machine efficiency	Run machine longer Run in most efficient sequence for machine	Unnecessary stock Customer orders late

Maintenance costs	Reduction in maintenance activities to reduce costs	Machine breakdowns
Cash flow performance	Pay suppliers as late as possible	Supplier deliveries XX unreliable

Creating KPIs

KPIs must be designed for each proposed change to the production process so that:

- there is a base line measurement taken to establish a starting performance standard
- there are measures developed to track the team's performance
- there are measures established that can highlight any variability. This can assist in future diagnoses
- reward and recognition can be effectively implemented.

Before data is collected three questions need to be asked.

1. What is the purpose of collecting this data?
2. Will this data tell us what we want to know?
3. Will we be able to act on the data we collect?

The goal is to create an easy-to-use, accurate measurement system with as few measures as possible.

The following questions need to be answered when setting up a data collection system:

- What type of metric is it (financial, behavioral or core-process)?
- Why was it selected?
- Where will the data be collected from?
- How will it be collected?

- How often will it be collected?
- How often and where will the metric be displayed?
- Who will use it?

KPI examples

Some examples of measures that can be used to monitor the performance of a competitive manufacturing company are listed below.

Financial	Examples
Costs	Material costs Labor costs Operations costs Inventory Overtime Warrantee costs Cost of Sales Interest on overdraft Number of projects completed on time and on budget
Revenue	Sales Gross margins Return on assets or investment Product profitability
Team metrics	Overtime Material costs Revenue generated by team Inventory value in team's area Number of projects completed on time and on budget

Core metrics	Examples
OHS	Lost time injuries Number of staff off work Length of time staff are off work
DIFOT	Delivery in full on time
Quality	First time through quality Yield
Leadtime	Order to cash in bank Raw material to dispatch Dock to dock
Inventory	Inventory turnover rate
OEE	Overall equipment effectiveness
Schedule performance	% changes to the weekly schedule
Value added ratio	Ratio of value adding time to lead time
Team metrics	Turnaround time for jobs Output rates

	Quality rates Equipment OEE Attendance rates Schedule compliance Customer feedback Number of deadlines/milestones met Metrics relating to specific team tasks

Behavioral metrics	Examples
Employee satisfaction	Gained from regular Employee Satisfaction Surveys Staff turnover rates Participation levels in improvement activities
Customer satisfaction	Gained from regular Employee Satisfaction Surveys Retention rates
Skill uptake	Skill matrices
Absenteeism	Absenteeism
Error rates	Error rates Time spent on managing under-performing staff
Team metrics	

	Number of team meetings Members at team meetings Number of ideas generated Number of ideas implemented Total Savings generated

BUSINESS PROCESS MANAGEMENT – HOW TO SCALE YOUR PROCESS DOCUMENTATION INITIATIVE

How to scale your Process Documentation Initiative.

The 10 Point Checklist

- □□ 30 minutes with your Executive Sponsor every week
- □ Dates and Deliverables Create Urgency
- □ Find the Right Documentation Tool - is yours up to the task?
- □ Build your Company's Process Chart
- □ An Owner for Every Process
- □ The 1 Hour Training Bootcamp
- □ A 2x6 Workshop for Every Process
- □ Sort out the Good, the Bad, and the Ugly
- □ Organize a Project Completion Day
- □ Set the Guidelines for Sustainability

30 minutes with your Executive Sponsor every week

Get Executive Support with 30 minutes Every Week

Strong, visible sponsorship is essential for an initiative of this nature to succeed – you will require time and effort from a large number of people across the business. This weekly meeting creates a definite time commitment on the executive's schedule, keeps them engaged, and is essential to the initiative's success. Each week, you will get push back from groups who are busy "fighting fires" and may not want to prioritize your process documentation initiative. Utilize this meeting to place executive pressure on those groups to ensure commitment is kept. The meeting agenda should be limited to the number of completed processes vs. goal and the support needed in the upcoming week. Do not show process maps or workflow diagrams – this is too much detail.

Clearly & Regularly Communicate with Senior Management

Clear, regular communication with senior managers in the business unit should be established early. These people will have the power and influence to allocate the resources you need and to support your overall initiative. The initial communication should clearly state the benefits they will receive as a result of this initiative. When possible, take the extra 15 minutes to identify each major group's current process pains and show how this initiative will help support its improvement. Talk to someone who has "been around" – you don't necessarily need management input for this. Ongoing communications should state progress (number of completed processes vs. goal) and identified opportunities when available. This open two-way communication will promote trust and a cooperative environment and identifying potential opportunities will get your emails read.

Dates and Deliverables Create Urgency

Documentation for the Greater Good

No one wants to do documentation for documentation's sake. A process documentation exercise spanning an entire business unit must have clear and compelling benefits such as: identifying and prioritizing process improvement projects; enabling organizational consolidation, standardization, and load balancing; meeting regulatory and compliance requirements (such as Sarbanes-Oxley). These objectives will also determine the level of detail sought and any specific requirements of the exercise.

Dates and Deliverables Create Urgency

Setting dates and deliverables for your initiative is critical to ensuring you receive the support needed to be successful. Create a plan incorporating all of these checklist items (deliverables are explained in each checklist item). Work backwards from any hard dates to gauge the degrees of freedom you have to work with – the size of your team, the length of time to complete, and the level of detail and analysis required. The project plan will be a living document while you clarify the number of processes involved, the team you can mobilize, and any logistical considerations (such as

availability of key staff or no-go times like financial yearend). Ensure that key stakeholders are supportive of your planning. Their feedback at this stage may further calibrate the objectives, duration, and team size for the initiative.

Have a Passion for Communication

Plan the frequency, objective, medium, message, and style for audiences including senior management, process owners, your team, subject matter experts, and rank-and-file staff. It is recommended you have the following sets of communication, meetings, and reviews:

- Meeting: Weekly 30 minute meeting with executive sponsor (Checklist Item #1)
- Meeting: Weekly 1 hour meeting with core team (Checklist Item #8)
- Email: Weekly management summary (Checklist Item #1)
- Email: Bi-weekly status check for core team (Checklist Item #8)
- Email: Status check of facilitators progress by project manager (Checklist Item #7)
- Review: Weekly review of prioritized list of processes (Checklist Item #8)
- Review: List of documented and signed off processes (Checklist Item #7)
- Review: Daily review for consistency by project manager (Checklist Item #8)
- Review: Daily progress review (Checklist Item #7)

Find the Right Documentation Tool - is yours up to the task?

The Right Tool for the Task

Obviously, you'll need a tool to document your processes. Be sure your current tools are capable of supporting your initiative and do not create significant additional work. The more difficult it is to get started with a tool the more push back and resistance you will receive. The tool should meet all of the following requirements:

- Simple enough for business users without significant training
- Minimal setup required
- Quickly deployable to a large number of users
- Supports collaboration by multiple users on one process at the same time

- Multiple views of process information for different audiences
- Provides a standard format for gathering process details
- Easy version controls to manage sign offs
- Provides a sustainable repository of process documentation

Create a Standard Format based on the Objective

Establishing a list of standard formats is necessary and helps to speed up documentation times. Make sure to follow your organization guidelines but like most things, this list is best kept short & simple. Most documentation initiatives only need the following information:

- Activity Name
- Associated Milestone
- Participant
- Owner
- Brief Description
- Subject Matter Expert
- Key Inputs & Outputs
- Problems

Build Your Company's Process Chart

The Process Chart Defined

Most organizations view themselves in terms of their organizational chart. Instead build a process chart to organize your company by activities. A process chart details the key processes that make up a company's Value Chain from start to end and organizes your company against the key activities of those processes. Remember to organize by functional groups such as customer dispute or new product engineering instead of departments such as operations or engineering. Be prepared to dispense with notions of geographical, functional, and product based groups that may be firmly entrenched in your organization's culture. Your process chart will facilitate your process mapping by identifying where resources are needed and help you identify participants for the 2x6 workshops, described in item #7.

Define the Value Chain

Start with a short workshop for the senior managers – two hours should be enough. Capture the Value Chain – how does your organization create value? Break the value chain down into the high level activities representing groups of processes. Make sure to capture categories (such as manufacturing, customer service, etc.) and key owners of those processes. At the end of this workshop, make sure you have approval of the value chain as it will guide the rest of your documentation initiative.

Identify your Process List

Armed with the list of process categories and key owners, approved by senior management, you need to determine the full list of processes that you will be documenting. This may require separating the categories to the next level down, perhaps the process supervisors. A series of focused, one-hour meetings, one for each distinct area within the business unit should be sufficient – again make certain to obtain management validation at the end of each session. Remember, you are looking for processes that support your value chain. Processes such as minor exception processes or data entry processes for a tool are not needed unless they significantly impact the value chain.

An Owner for Every Process

Finding the Process Owner

This is most likely a new concept in your organization – ownership of processes, rather than business units, particularly where processes cross functional lines. When processes cross functional lines it may be difficult to identify an owner. You may find that multiple managers are seen as the process owner. In this situation, use your key objectives to determine who the process owner becomes. For example, if identifying opportunities to cut costs is a key objective, assign ownership based on whose functional unit requires the most resources.

With Great Power comes Great Responsibility

Make sure process owners understand they have responsibility for signing off on the documentation generated and sponsoring subsequent process improvement

projects. This means they must be available on a daily basis to review, provide feedback, and give sign off for the processes they own. They will also be required to ensure that the documentation remains up-to-date.

The 1 Hour Training Bootcamp

Find your Facilitators

Before you can begin documenting, you must identify facilitators to drive the 2x6 workshops (explained in the next section) where the actual documentation is done. Enlist process-savvy staff from across the unit – ideally green- and black-belts, business analysts, and SME's with previous project experience – which will speed up your delivery, encourage the cooperation of junior management and rank-and-file staff, and create a broader level of expertise and process understanding across the organization.

The 1 Hour Training Bootcamp

The next steps is to level-set and train your team of facilitators. Keep to the top 10 facilitators per process category. If you need more facilitators for your project, these first ten can then turn around and train the next level of facilitators. A one-to-two hour workshop session should be sufficient to provide a summary of the project, its objectives, the project plan, and tools training. It is critical to gel this team with a sense of purpose and excitement! Empower them with the potential benefits to the company and how they will be instrumental in achieving them.

A 2x6 Workshop for Every Process

The Workshop Overview

Armed with a complete list of the processes to be documented, you can now schedule the detailed mapping workshops that should be 2 hours long and have no more than 6 participants. It is recommended to plan for no more than two workshops per day per person to allow some time for any follow-up research if necessary. The facilitator, process owner or supervisor, and the most experienced SME's should attend. The facilitator should not be the process owner or executor but instead is a neutral party who can help move discussions forward and ensure the documentation is understandable to an outside party. In the 2x6 workshop, you must create the process map and workflow diagram during this session. Do not leave creation of the process diagram for afterwards. Your deliverables for a 2x6 workshop are a completed process diagram following the standardized format and approval from the process owner.

The Simple Math Plan

Documenting the process across your objective is now a matter of simple math. The more processes you have, the more 2x6 workshops you will need. The first step is to start at the highest level, your business's Value Chain, with your first 2x6 workshop described in item #4. Next, step down through your process categories to identify the key groups of processes. Finally, step down to individual processes until you get to the level of detail you need. Each step downward should utilize a 2x6 workshop. Based on the number of processes you need to document and sticking to the two 2x6 workshops per day rule, you can determine the time frame and number of participants needed.

Get Immediate Signoffs

At the end of each 2x6 workshop, the process owner must sign off that the process and supporting information has been correctly captured. As groups of processes are documented, they should be signed off by more-senior process owners. It is critical

to capture sign offs immediately at workshop's end. Otherwise, you will be forced to reengage process owners and experts resulting in longer turnaround times.

Sort out the Good, the Bad, and the Ugly

Ensure Consistency

The core team should meet weekly to compare notes, share problems, and ensure consistency of documentation. This discussion will lead to the 30 minute meeting with your executive sponsor. The project manager should check the status of the documentation on daily basis. This check can be quick (about 30 minutes) and seeks to ensure that the standard format is being followed and processes are being signed off on after each 2x6 workshop. Make sure you are watching for consistency and signoff. If this does not happen, you can quickly end up with documentation in dozens of formats with no firm idea about which has been approved on and which has not. Standardization and signoffs are two of the biggest delayers in a large documentation initiative!

Prioritize Continuously

As processes are documented, the results should be analyzed against the objectives of the initiative. Develop a matrix utilizing weighted criteria to create a prioritized list. The weighted criteria should match the objectives of the initiative and be approved by senior management prior to conducting any 2x6 workshops. Prioritization should happen on a weekly basis at the core team meeting. Individually, each member of the team should prioritize their list of processes at least twice a week to ensure any follow-ups are addressed before the weekly meeting. Attempting to collate all this information for hundreds of processes will quickly become a daunting task. Do not wait for the end of the initiative but prioritize continuously.

Organize a Project Completion Day

Present the Outcome

When all the process documentation is completed and the results analyzed, the output should be presented to the executive sponsor and senior managers. Your presentation should include: summary of the initiative & documentation results, recommendations for follow-up activities, the numerous quick wins that will likely have been identified as a result of visually capturing and then analyzing these processes together with the owners, supervisors, and SME's.

Congratulate the Team!

This kind of initiative is not a trivial exercise – make certain to congratulate the team on their success, thank them for their efforts, and encourage their participation in subsequent program activities. The real movers and shakers will be obvious to you and their efforts as change agents can be enormously valuable in the future – these are people who "get" process and speak the vocabulary of change. Celebrate their success – cake is preferable but cookies will also do.

Set the Guidelines for Sustainability

Maintain Your Process Repository

You now have a compilation of process documentation with process diagrams, inputs and outputs, problems, and descriptive information. Now you need to ensure that this documentation is maintained and is easily accessible. Ensure that supervisors and SME's have access to this documentation (which is ideal for staff training) and that the process owners take ongoing responsibility for keeping this information current and useful. The ideal solutions should be:

- ✓ Easily accessible – not requiring additional tools or systems
- ✓ In a central location accessible from anywhere in the company
- ✓ Quickly retrievable to facilitate usage in meetings or business planning
- ✓ Maintainable without continuous effort

Keep the Momentum Going

The combination of having a process view of your organization, current documentation, and raising process awareness will naturally lead to a large number of obvious process improvements. You may find that you've identified suitable candidates for further process education and talent development and have a willing pool of people to get involved. Keep up the momentum, empower staff to realize quick wins, and encourage people to get involved. Good luck!

SIX SIGMA FACTSHEET

WHY SIX SIGMA:

Quite simply because it's very hard to argue against the benefits of making improvements.

Failure to continually strive for improvements will lead to a culture of stagnation and standing still.

While that may make for a peaceful working day – it gives your competitors the chance to leave you behind.

GOAL:

The Six Sigma Objective is quite simply to Minimize Variation. The target of minimized variance is all of the organizations critical processes. Culturally, this means needing to learn how to be nearly perfect in executing key processes because flawless execution is critical to both customer satisfaction and increased productivity.

A simple lesson in Statistics:

1. A **defect** is any incident or event that fails to meet the customer's expectations.
2. **Standard deviation** is the measure of variation within a process. It is indicated by the symbol, sigma (s).
3. Typical deviations can be demonstrated by looking at a "bell curve". The distribution of defects on a bell curve shows that:

    68% of defects fall within 1 Sigma (s) of the mean (average)

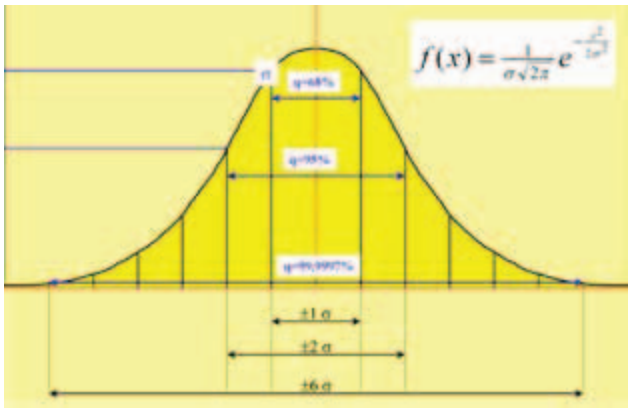
    95% of defects fall within 2s of the mean

    99.99997% of defects fall within 6s of the mean

Six Sigma may sound mystical, but in reality **it's a mathematical formula**. "Sigma" is a statistical term indicating to what extent a "process" varies from perfection. The number of potential defects per unit is multiplied by the number of units processed. That answer is divided into the number of defects actually occurring and then is

multiplied by 1 million. The result is the number of defects per million operations. The ultimate goal for Six Sigma is to reach level 6.

Six Sigma level	Number of defects per million opportunities
1.0	690,000
2.0	308,000
3.0	66,800
4.0	6,210
5.0	320
6.0	3.4



The Greek Symbols for Sigma are: Upper Case□□□□□Lower Case□□
Did you know: Sigma is the 7th last letter in the Greek alphabet

SERVICE INDUSTRIES:

The Six Sigma concept grew from the Motorola organization in the mid 1980's. It is initially fairly simple to picture how defects can be measured in a manufacturing business. However, there are plenty of things to count measure and benchmark regardless of the type of business, whether it's an attorney's office or a car rental company.

NO NEW FUNDAMENTALS:

The concepts of Six Sigma are not to be considered new age. Talk to customers and find out what the defects are. Work on big errors first. Try to decide how they happen and how to correct them permanently.

There are a variety of tools and methodologies that would work in conjunction with such a goal (e.g. ISO Quality standards, Adherence to standards, ITIL in IT Service

Management, Kepner Tregor for Problem Solving).

CERTIFICATIONS (People Power):

There are a variety of recognized levels of proficiency in the Six Sigma philosophy.

The Master Black Belt; has technical expertise in the Six Sigma process as well as statistical methods. Typically an individual from a Six Sigma consulting firm who instructs the Black Belts on the Six Sigma process.

The Black Belt; The Black Belts of the Six Sigma process are the leaders of process change. Where the executive level may decide what needs to be done, the Black Belts decide how to do it. They must have both management skills and technical skill to work with the Green Belts and others to bring the projects to fruition. Because of the importance of this position and the details involved, Six Sigma is their only responsibility.

Green Belts; The Green Belt position works closely with the Black Belts to decide how to complete the project. They are individual who are trained in Six Sigma but are also “close to the action” so they can provide the necessary constructive input to improve the process

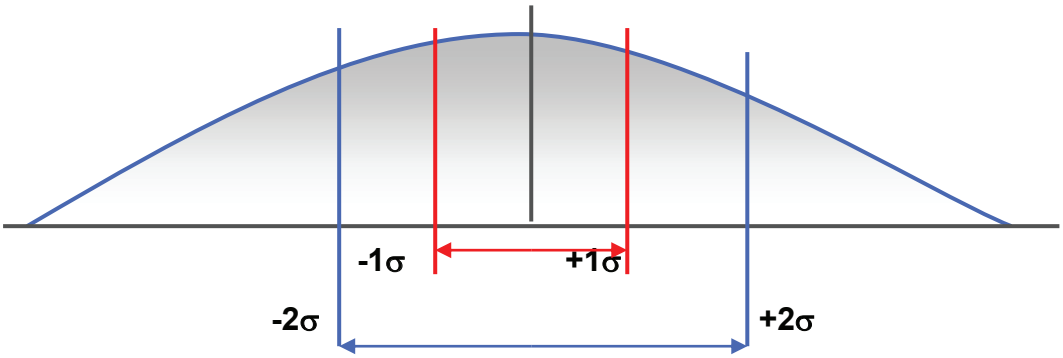
HOW TO IMPROVE (Process Power):

Six Sigma defines a 5-step process towards making improvements.

D - **Define** what the problem is (in numerical terms)
M - **Measure** the current levels of performance
A - **Analyze** and determine where the problem lies
I - **Improve** the situation
C - **Control** the new process to ensure continued better performance

Is anyone using Six Sigma?

Motorola	1986
Allied Signal (Merged With Honeywell in 1999)	1994
GE	1995
Honeywell	1998



Imagine you work in a pizza delivery business. If you deliver pizzas on time 95% of the time you are at a 2 sigma level. If that sounds pretty good, how about on-time deliveries of 99.73%? That's only operating at a 3 sigma level. In order to be at a six sigma level you would have to deliver on time 99.9997% of the time. So that means for every million deliveries made, you would only be late 2 or 3 times. Now that's a good pizza delivery business!!

Bottom Line

Six-Sigma can work for anybody. It's a management philosophy based on FACTS not emotion. Six-Sigma is a known quantity; however for best results an open and safe environment must be encouraged.

SIX SIGMA STARTER KIT DOCUMENTS

Introduction

Are you surprised at the mention of business processes in a strategic context? Then you may be surprised to know that the methodology was developed originally for use at a strategic level. Like so many great ideas, business processes have been relegated to the mundane – suffering from the contempt of familiarity! Everyone is an expert!

However, the term business process is used more often than not to refer to only one of a whole range of techniques for modeling an organization. Many so-called business processes are procedures in disguise.

This document seeks to redress the balance and re-introduce business process modeling as a key strategic tool.

What is a business process?

Firstly let us start with a common understanding of the term business process as used in this document - “a sequence of linked activities that recognizes a need (external or internal to the company), takes the necessary steps to deliver a solution, and instigates appropriate complementary action”. An example can be found at Appendix A together with a list of conventions.

Strategic Planning

The four main stages to the strategic planning process are generally accepted as:

- Analysis
- Strategy creation
- Strategic decision
- Implementation.

These are interdependent and hence tend to be iterative. Planners have a number of tools and methodologies to help them along the route to good strategic decisions. (Examples at Appendix B)

However, as evidenced by a number of surveys, a major concern is the difficulty of achieving successful implementation and expected benefits. Failure rates between 50% and 75% have been quoted. A dismal situation!

The cause of this problem? Many blame lack of senior management commitment. After several years designing and operating strategic planning processes I blame sheer complexity and lack of enabling structure. On the left are a few examples of factors to be considered. Many are interdependent with values and influence that are dynamic – if not volatile. Forecasting future interrelationships of both internal and external influences is no easy task.

Strategic Analysis

Traditionally, a company reviews at regular intervals its overall strategic competence, using a range of techniques – some examples at Appendix B. These techniques may be applied company-wide or to specific strategic options. In either case, the danger is that the analysis is carried out on too broad a scale, without sufficient focus on implementation issues. The generally poor success rate in achieving planned benefits proves the inadequacy of current methods.

The strategic tools themselves are not at fault. They are extremely effective in providing comparative evaluation of financial and other factors affecting company strategy. Scenario Planning is a particularly popular and useful tool. However, most tools concentrate on the commercial/financial impacts on the whole business or on a significant sector of it. They leave two major gaps: they frequently fail (1) to identify operational nodes that cry out for strategic review, and (2) to define adequately the link between strategy creation and operational implementation. On the one hand significant opportunities for performance improvement may never come to light, on the other: those that are addressed may not deliver expected benefits. Too often excellent strategic plans are not well grounded in the realities of operational practicality.

So what is the answer?

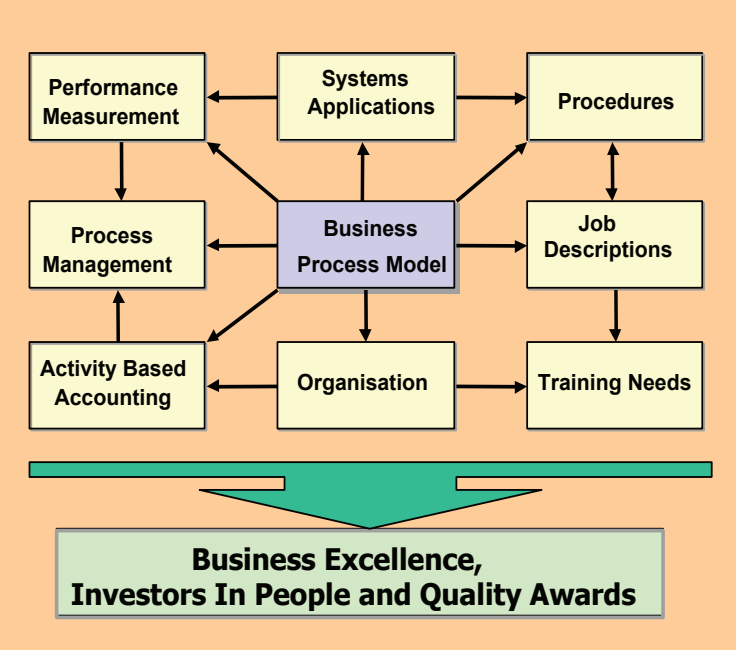
Business Process Modelling

The concept of a business process is described in Appendix A, which includes examples of a business process modeling formats.

Business Process Modelling is the keystone for Business Process Management, which uses process as the common denominator for analysis and control. The

business process model provides a powerful strategic underpinning for all managerial activity.

A business process model provides a *designed* logical structure that enables the optimization of the efficiency and effectiveness of work across the organization. It makes visible all work sequences, interactions, and interdependencies. Thus it supports a discipline, which avoids unnecessary duplication, optimizes workflows through business operations, and ensures the enablement of management and quality controls. Systems and procedures are linked to this framework.
A comprehensive process model will support efficiency optimization both horizontally by business process and vertically by function or department. [In many approaches to change only one or the other dimension is addressed.] As shown left, a process model can be used in several ways:



1. As an aid to designing roles and hence as a basis for job descriptions
2. Through the provision of a comprehensive picture of the business, as a foundation for organizational development and strategic planning
3. With (1) and (2), as a means of identifying skills requirements, skills shortages and training needs
4. As a "road-map" for determining computer systems applications requirements
5. As a framework for operational procedures, for managing human/machine interfaces, and for planning security and anti-fraud measures
6. For identification of key performance factors and the determination of suitable measures by which to control quality and throughput
7. As the fundamental structure for Activity Based Costing/Accounting
8. Combining (6) and (7), as a full process management system

9. As a basis for identifying and testing the means of delivery of new products, as well as providing a structure for the product development process itself
10. With the right process support software, to simulate and test different operational options and scenarios, identifying probable delivery timescales and resource consumption in each case.

The comprehensive use of a process model in these ways constitutes a very powerful business tool. It provides a foundation for Six Sigma, ISO9000 series, European Quality and Investors in People awards, as well as supporting NVQs.
NB Much of the above can be achieved with the aid of a simple drawing tool or flow-charting tool to capture the process diagrams. However, to reap the full benefit of process modeling, specialist tools are required - especially for simulation exercises. Some 300 applications are available to support various aspects of business process development and management.

Business Process Modelling as a Framework for Strategic Analysis
A process model converts business complexity into a series of structured representations that can highlight:

- critical nodes of activity
- opportunities for IT systems rationalization and integration
- the impact of external factors on specific areas of business operation and the knock-on effects,

And enable:

- the focusing of performance indicators (measures, benchmarking)
- the distribution of critical success factors
- realistic comparative appraisal of strategic choices (in the light of predictable impact on operations)
- a check on the comprehensiveness of project implementation plans
- optimum prioritization of action

A process model also provides an orderly approach to strategic planning itself. Firstly, to dispel any anxiety about the effort required to create a process model, a strategic model does not need great depth of process analysis. Although the ideal would be to use the higher levels of an existing process model, it may be expedient

to create a model specifically for strategic purposes. The time factor need not be prohibitive. In fact investment is likely to improve significantly the speed of response to dynamic situations.

Creating a strategic Process Model

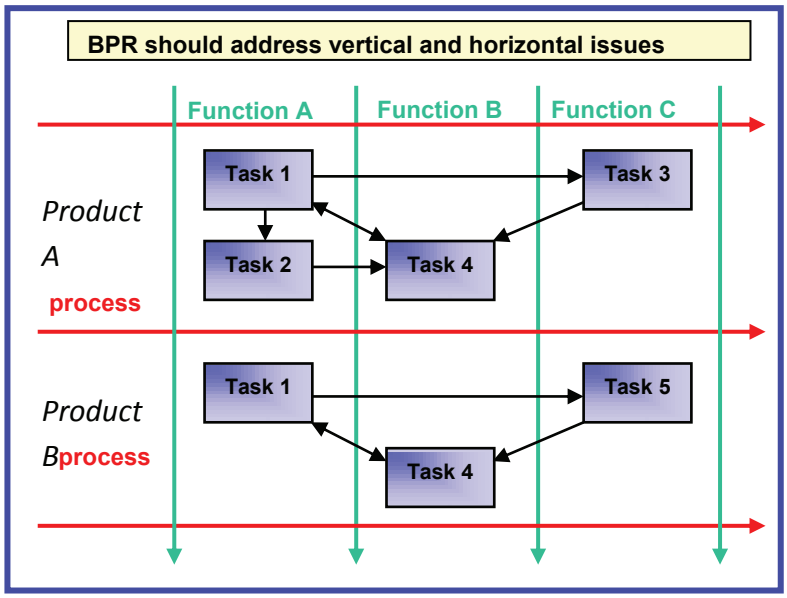
Appendix A includes examples of three types of process diagram: a business process map, a process hierarchy, and an enterprise model. For strategic analysis it is likely that all three perspectives will be required. However, detail is not required and the examples show the correct level of detail for most strategic purposes. In terms of the process hierarchy this is usually to the fourth level of decomposition. A series of business process maps covers activities necessary to achieve key external deliverables (products and services) or internal requirements such as a procurement process. The maps capture the end-to-end activities required to achieve particular objectives and may span the functional organization. They enable the optimization of the horizontal workflow.

An enterprise model presents a comprehensive picture of all interfaces between functions. This gives the vertical perspective for all deliverables and facilitates the optimization of the functional (or vertical) organization.

A process hierarchy provides a view of the overall structure of the model and enables a very logical activity numbering scheme.

The next stage: mapping significant factors

During the creation of the strategic process model, patterns will start to emerge, giving an enhanced understanding of the way the business operates. The next step, mapping significant factors against tasks, will enrich that picture. For example, mapping IT applications against tasks across the



whole organization will indicate (a) the balance between automated tasks and manual intervention, (b) any unnecessary duplication of systems, and (c) any systems integration issues. (See Appendix C1.)

Mapping staff numbers & costs can produce some surprising insights. Unless Activity Based Accounting has been implemented and aligned with the process model, identifying staff by task may require an element of estimation. Traditionally accounting systems track staff and other costs by functional hierarchy rather than process. Surprises will occur particularly where estimates have been necessary. The exercise will reveal where most effort is being expended and therefore which tasks or processes would yield most benefit if performance could be improved.

Similar principles apply when mapping other aspects such as Critical Success Factors, capital costs, location, performance & quality indicators, and in fact any of the factors mentioned on page 2. The analysis by task will highlight the importance of a factor to business operations or conversely the significance of any particular task. The pattern that emerges is not always what we anticipate.

Further analysis

Any of the strategic analysis tools mentioned in Appendix B can be used in conjunction with appropriate sections of a process model. The analysis empowers and facilitates strategic decision. It enables decision-makers to identify very clearly how their strategies will impact business operations and which business operations are in need of strategic review. The potential for change, the ease or otherwise of its implementation and its benefits can be determined. New products and ventures can be evaluated in the context of their impact on existing business processes and of their inherent process requirements.

The quality of strategic decisions still depends upon the skills and intuition of the decision-makers. However, the value of the information available to them will be much improved. Competing strategies can be appraised with a realistic understanding of resource requirements for implementation and on-going operation. This must improve the odds in favor of delivering success. (Appendix C2 demonstrates one type of analysis.)

Strategy Implementation and Benefits Delivery

Because the strategic decisions have been made with full knowledge of their impact on business operations, implementation planning and prioritization is easier. The processes involved have already been identified. Much of the relevant information about them has been gathered.

Implementation is linked from the start to business processes. Equally, because the impact on business operations has been identified early, it is possible also to determine at an early stage which groups of staff will be affected. Change management practices can be introduced sooner and therefore have a much greater chance of success.

Where it is necessary to re-engineer processes, the task is simplified through the knowledge of existing processes. The transition can be planned with greater precision. The functionality of any new or enhanced computer systems can be checked against process requirements well in advance of going live. Systems or procedures can be changed to accommodate mismatches. Last minute unpleasant surprises can be avoided.

Expectations of benefits too, having been linked to processes/activities, are more realistic. The method of achieving the benefits is better understood and progress against target can be more easily monitored.

Conclusion

From beginnings that were much more management focused, business process modeling has grown into a specialist IT development tool. The proliferation of esoteric systems applications to support process modeling (230 at last count) is evidence of the shift in emphasis. Its value as an IT tool is not in any way disputed. However, the consequent loss of “process thinking” in the general management and strategic development arena is sad and potentially costly.

One major benefit of a process model was its use as an aid to communication between functional specialists. The judicious choice of terminology enabled them to understand each other’s problems and to develop methods of improving the

management of “white space” between departments. Now that process diagrams have become so detailed, they are comprehensible only to experts in the field. They have lost that valuable attribute.

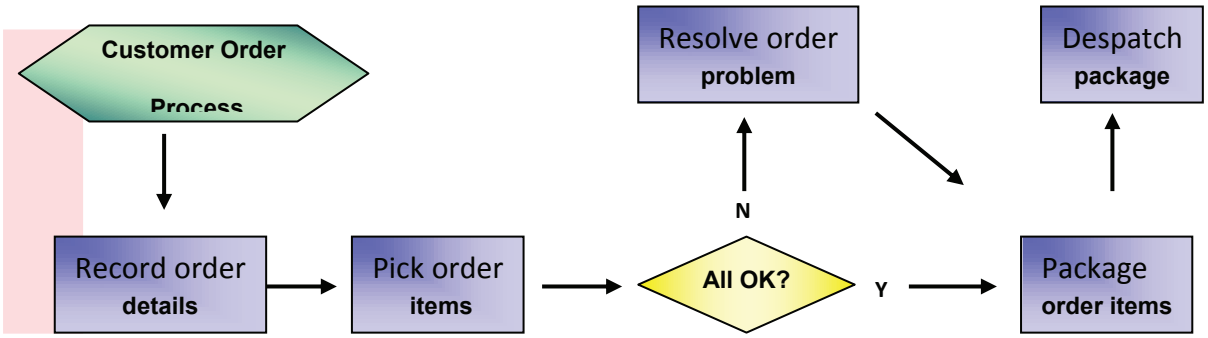
Business process modeling can still play a powerful role in strategic management, if we let it. This article has already demonstrated its huge scope as a foundation for management structure and as a framework for strategic planning.

Unless positive action is taken to remedy this trend, strategic management will be missing out. The control of the higher levels of the business process model needs to be returned to the domain of general management rather than IT specialists. The detail required for IT purposes can be added after the strategic structure of the business has been decided.

Appendix A

Definition of a business process + example

A business process can be described as a sequence of linked activities that recognizes a need (external or internal to the company), takes the necessary steps to deliver a solution, and instigates appropriate complementary action.
An example might be a simple provisioning process – it recognizes a need through the receipt of a customer order form; it records details, it picks the ordered items from store, resolves any problems, packages the items, and dispatches the package; it initiates the complementary processes of invoice preparation and customer service follow-up. This could be diagrammed as follows:



A business process describes what needs to happen, not how it is done. It should be comprehensible to everyone. Hence technical terms and jargon are avoided.

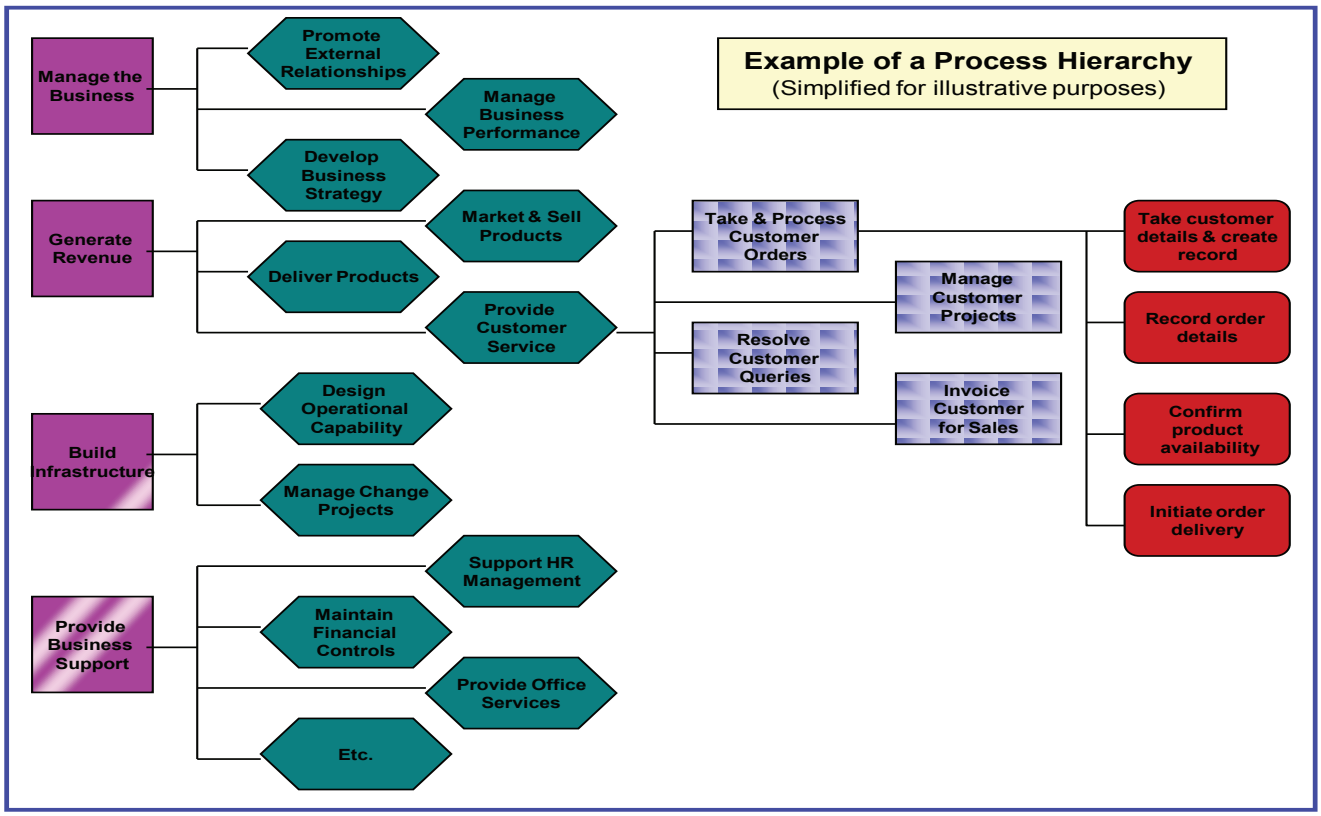
Diagram conventions

In preparing business process flow diagrams such as the one above, certain conventions and assumptions are applied.

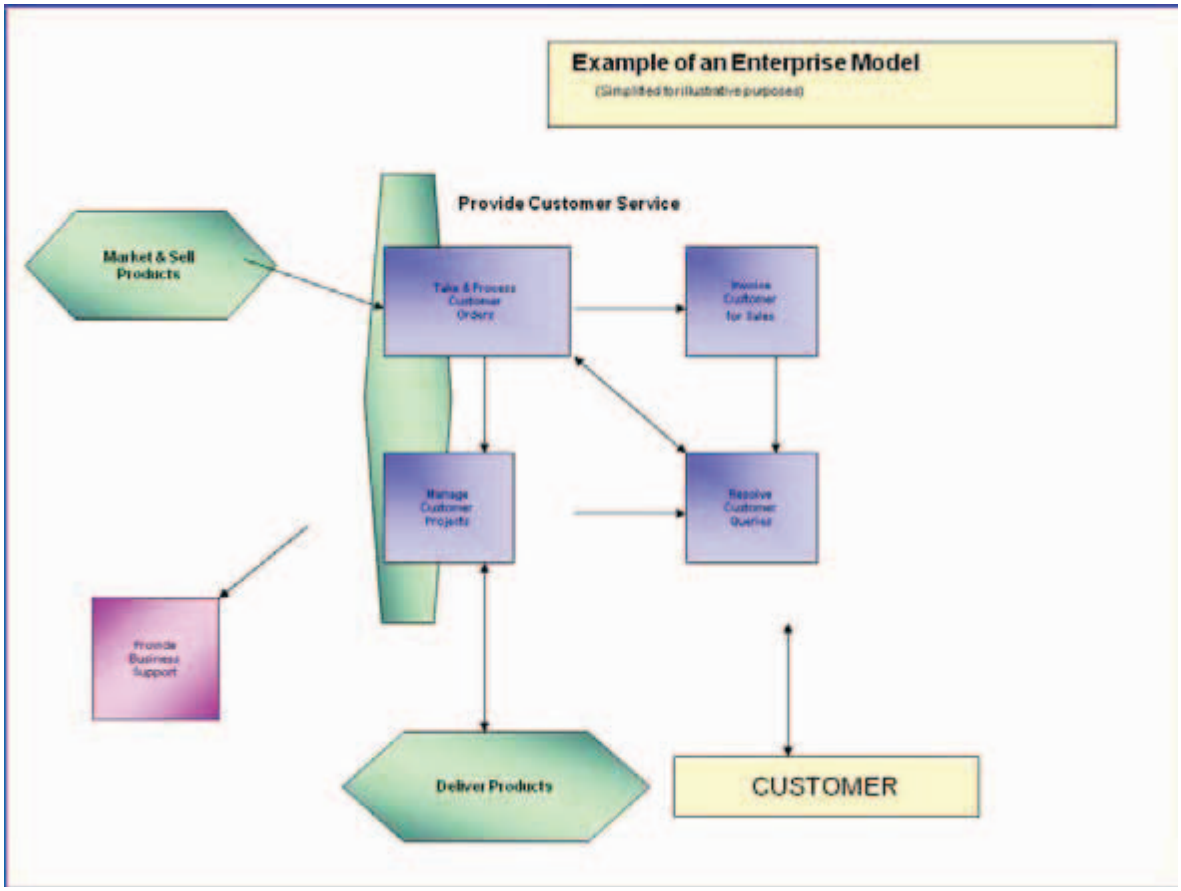
- The diagram covers the end-to-end activity in respect of a specific type of deliverable.
- Information is collected at all appropriate points and is made available to all activities that need it. Recording of or access to information will be shown on the diagram only when the activity represents a key point in the process – generally the instigation of further activity.
- Similarly, management of activities (including environment, resourcing, quality and throughput) is implicit throughout the process. Only key interactions with the Work Management Process will be made explicit.

Other Types of Process Diagram

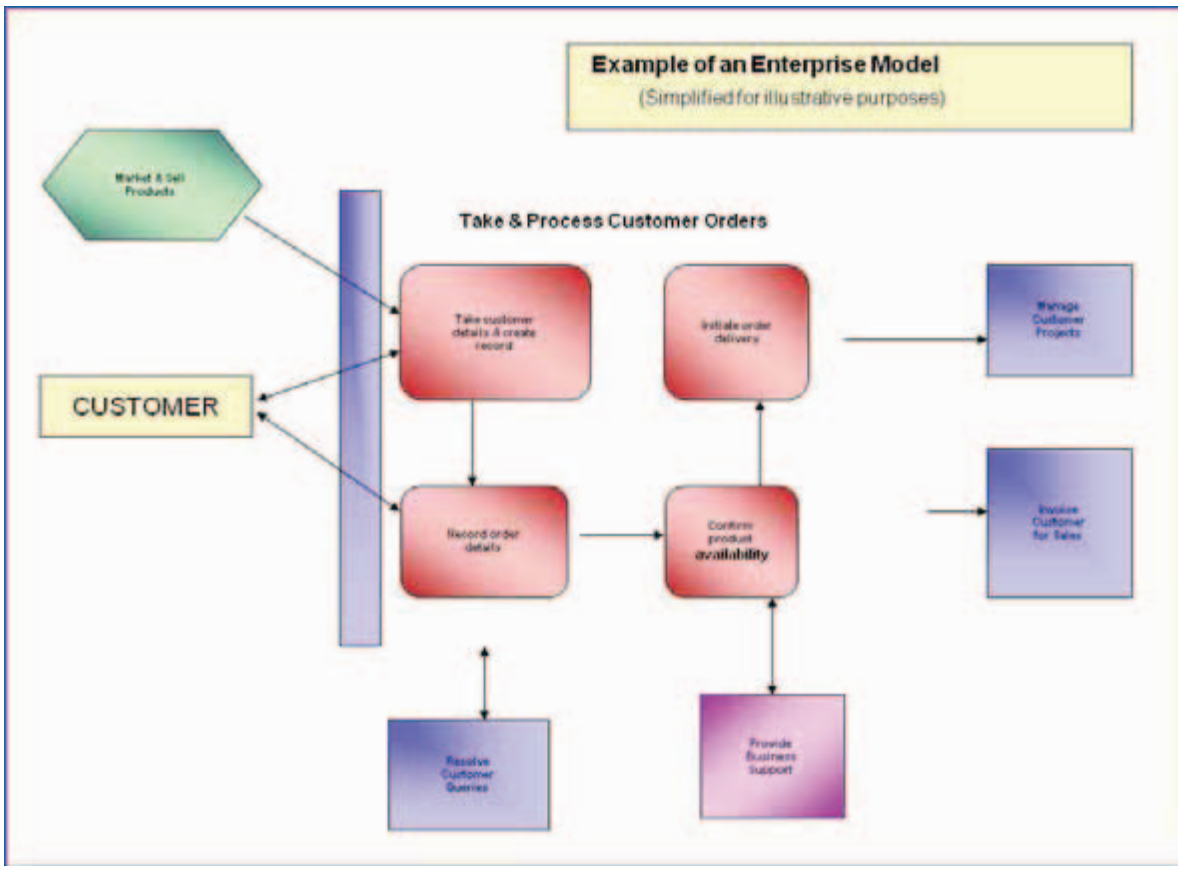
3.1 A process hierarchy shows how business operations can be broken down into finer and finer detail. In order to run the business it is necessary to Manage the Business, Generate Revenue, Build Infrastructure, and Provide Business Support. To Generate Revenue …..



3.2 An enterprise model shows how elements within a given business process interact with each other and with external processes. Its main value is in the analysis of those interactions. The model can be drawn at any level, as demonstrated in the following two examples.



3.2 cont. Example of enterprise model at the next lower level of detail.



Appendix B

Tools for strategic analysis

The following is a selection of some of the better known tools used in strategic analysis.

- **SWOT and PEST analyses** may be used in conjunction to evaluate the whole business, a single department, or a particular strategy in terms of its **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats and taking account of the **P**olitical, **E**conomic**, S**ocial, and **T**echnological implications.
- **Scenario Planning** models the answer to the question "what will the financial outcome be if we follow this strategy and these particular conditions apply?". Usually the financial implications of a series of alternative scenarios will be examined in detail. A variety of analytical techniques may be used for this purpose, including:
    - *relevance tree:* this technique subdivides broad topics into increasingly small subtopics with corresponding refinement of detail. The output is a pictorial representation with a hierarchical structure.
    - *nominal group technique* is a form of multiple voting used to assist expert groups in reaching consensus through progressively reducing the pool of candidate issues or strategies. The aim is to isolate the 3-5 most likely scenarios so that analytical effort can be focused accordingly.
    - *the Delphi method,* likewise, is a tool for group communication. It allows experts to deal systematically with a complex problem or task through the use of questionnaires that elicit and develop individual responses to the problems posed and enable the experts to refine their views as the group's work progresses. The aim is to overcome the disadvantages of conventional committee action.
    - *cross-impact analysis* aims to track interdependencies between events and conditions. It provides a mechanism for discovering mutually exclusive or conflicting outcomes and for analyzing conditional probabilities: for example the likelihood fulls employment and a low rate of inflation.

- **Balanced ScoreCard** methodology translates an organization's mission statement and business strategy into specific, quantifiable goals and monitors its performance against these goals. It analyses performance in four ways:
    - *financial analysis* includes assessments of measures such as operating costs and return-on-investment;
    - *customer analysis* looks at customer satisfaction and retention;
    - *internal analysis* looks at production and innovation, measuring performance in terms of maximizing profit from current products and following indicators for future productivity;
    - *learning and growth analysis* explores management effectiveness in terms of employee satisfaction and retention, and information system performance.
- **Six Sigma** is a statistically based measure of quality that strives for near perfection (no more than 3.4 defect parts per million). Strictly it is more a business policy than a tool for strategic analysis. However, the tests to gauge the level of compliance with the Six Sigma objective may reveal the need for strategic action to remedy any shortfall.
- **Strategic Gap analysis** evaluates over a given timeframe the difference between (a) the forecast levels of income and expenditure assuming no change to current business plans and strategies, and (b) the levels that the business ought to be achieving if it is to fulfil shareholder expectations. The difference is the gap that needs to be filled by new strategic initiatives.

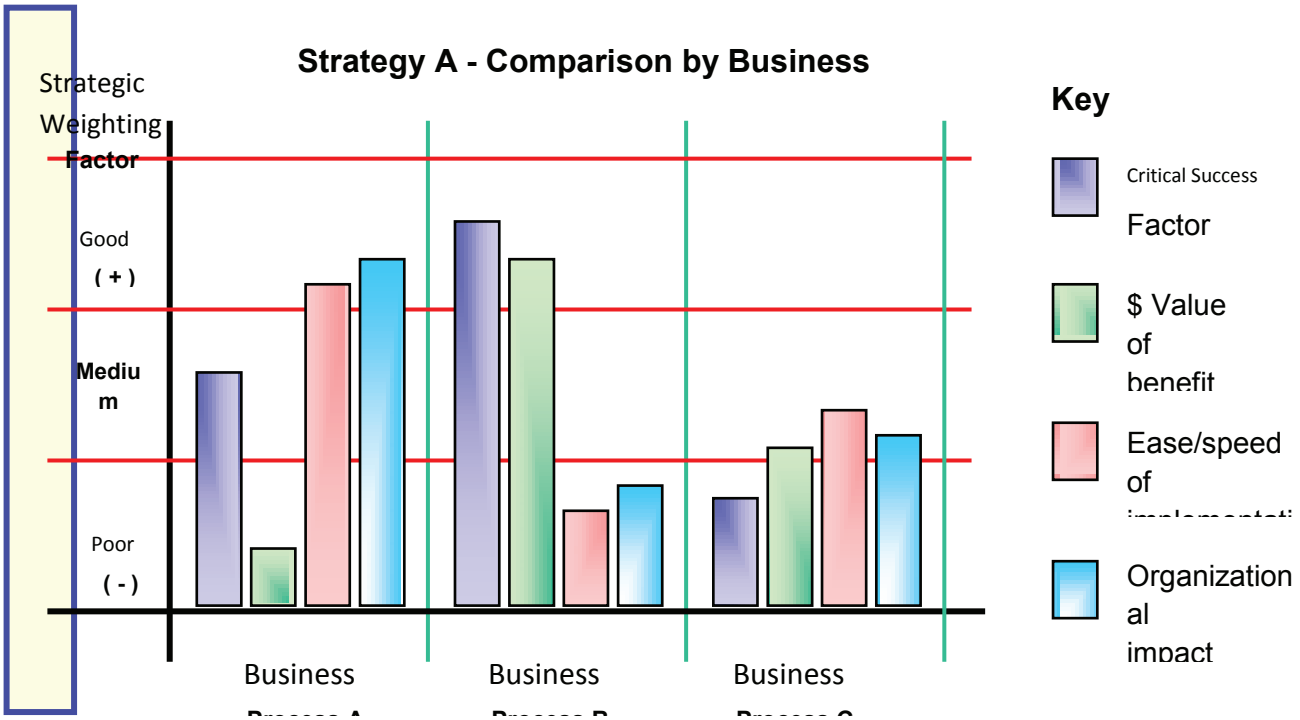
Appendix C1

This analysis reveals a number of points:

Systems to Process Analysis														
Location	1				2				3				Total systems	Total versions
Product	A	B	C	D	A	B	C	D	A	B	C	D		
Process item														
Take & Process Customer Orders													4	6
Take customer details & create record	m/a1	m/b1	m/a1	a2	m/d1	m/b1	m/d1	a2	m/b2	m/b2	m	m	3	5
Record order details	m/a1	m/b1	m/a1	a2	m/d1	m/b1	m/d1	a2	m/b2	m/b2	m	m	3	5
Confirm product availability	m	m/c1	m	a2/c1	m/c1	m/c1	m/c1	a2/c1	m	m	m	m	2	2
Initiate order delivery	m	m	m	a2	d1	m	d1	a2	m	m	m	m	2	2
Key: m = manual; a1,a2, b1, b2 = versions of a systems applications														

- systems support for the 4 products in 3 locations ranges from nil (totally manual) at one extreme to fully automated at the other
- for this one process the company uses 4 different systems applications in 6 different versions
- there is no consistency across locations even for the same products
- Standardizing to best practice could reduce costs substantially by eliminating manual intervention in operations and by removing the need for IT staff to support so many applications and versions.

Appendix C2


Strategy A - Comparison by Business
Strategic Weighting Factor
Good (+)
Mediu m
Poor (-)
Business
Business
Business
Key
Critical Success Factor
$ Value of benefit
Ease/speed of
Organization al impact

SIX SIGMA SHORT OVERVIEW

Six Sigma – In A Nutshell!

A discussion document

Six Sigma is a process-focused methodology designed to improve business performance through improving specific areas of a strategic business processes.

6σ

Key Concepts

Six Sigma is different from Quality Programs of the past:

- Six Sigma is customer-focused. The customer's needs are the primary focus and top priority.
- Six Sigma projects produce major (measurable) returns on investment. For example, at GE the CEO, Jack Welch, reported, "that in just three years, Six Sigma had saved the company more than $2 billion."
- Six Sigma changes how management operates. Through the introduction of new tools and new approaches, management is challenged towards new thinking.

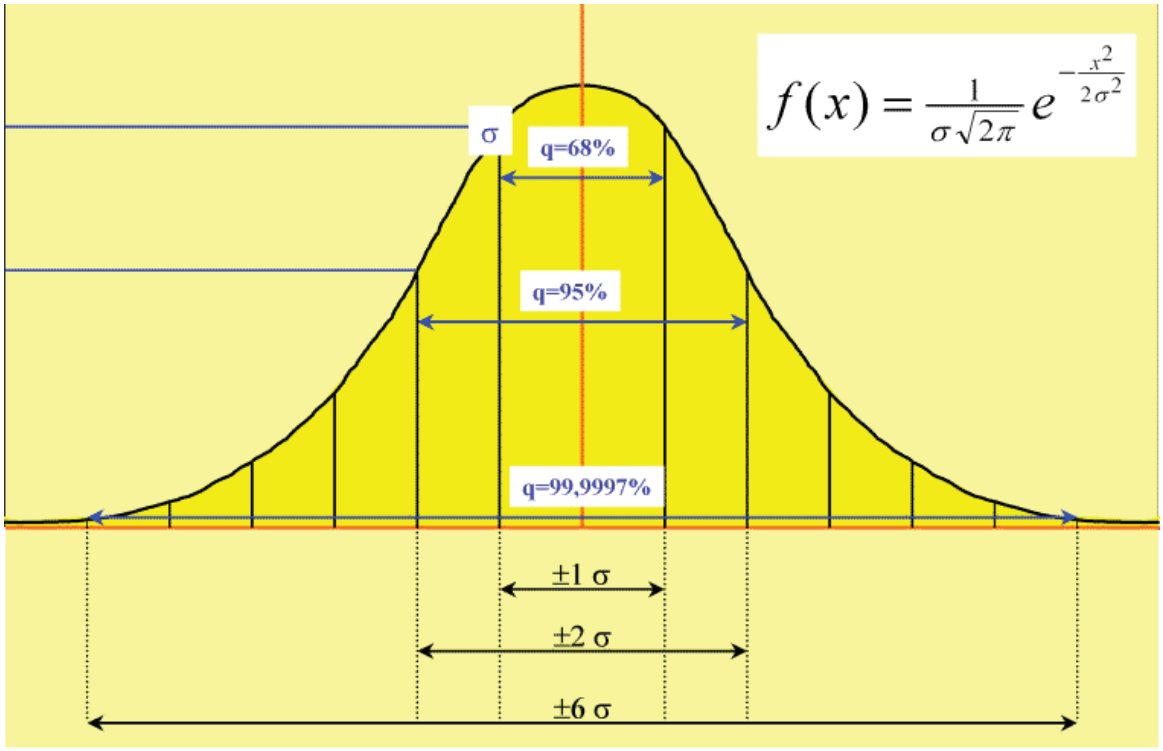
There are some basic fundamentals that must be understood at this early stage:

Critical-to-Quality Characteristics	Attributes that are most important to the customer
Defect	Failing to deliver what the customer wants
Process Capability	What your process can deliver
Variation	What the customer sees and feels
Stable Operation	Ensuring consistent, predictable processes

The Statistics Behind Six Sigma

A brief discussion of the statistics behind Six Sigma will help us understand why it is such an effective measurement tool and what it means to the bottom line (i.e. profit).

Sigma (σ) is a symbol meaning how much deviation exists in a set of data. It is sometimes called a "bell curve." In statistics, this is called a standard normal distribution, but the idea is the same. In a bell curve, 50% of the values lie above the mean (average) and 50% of the values lie below the mean. In Statistics we take it a step further and delineate certain data points within that timeline.



The Bell Curve may look tricky to read. But in simple language if you run a pizza delivery business and you set a target of delivering pizza's within 25 minutes of receiving the order. If you achieve that 68% of the time, you are running at 1 Sigma, if you achieve it 99.9997% of the time then you are at 6 Sigma (or you are late on average only 3.4 times out of every one million orders).

So what is all the fuss about and the desire to get to Six Sigma – if my Pizza Shops delivers all Pizza's within 25 minutes, then we are there… BUT … imagine your Pizza competition

has a program in place to reach Six Sigma based around a target delivery time of 20 minutes.

> You have to make a business decision whether you will make improvements, rely on other areas to compete or simply do nothing and see what happens (the last choice is not generally considered good business practice).

Measure the Variance, don't rely on the Mean

All too often businesses base their performance on an average and average-based measures of the recent past. However, customers don't judge businesses on averages; they feel the **variance** in each and every transaction. Customers value consistent, predictable business processes and products that deliver world-class levels of quality. *Six Sigma* focuses first on reducing variation and then on improving process capability.

The Six Sigma Objective: Reduce Variation

Our goal with a Six Sigma program is to minimize variation within all of our critical processes.

Examples of key processes include:

- Invoicing/Billing customers
- New product development
- Processing customer orders
- Managing human resources (including payroll, holiday applications, etc.)
- Hiring employees
- Budgeting
- Paying bills
- Evaluating vendors
- Improving distribution of products
- Inventory Management

Quantitatively, this means working towards *Six Sigma* quality, or fewer than 3.4 defects per million "opportunities." An **opportunity** is defined as a "chance for non-conformance" (or put another way not meeting required specifications). So the business must adjust its culture towards accepting a near perfect operation in executing key processes. Such a cultural change will directly contribute towards **customer satisfaction and increased productivity.**

Six themes of Six Sigma:

1. **Focus on the Customer – first and foremost.**

Simply understanding your customer can lead to monumental improvements. Six Sigma improvements are measured by customer satisfaction and value.

2. **Fact-Driven Management, not estimating**

   Six Sigma clarifies key metrics that gauge business performance success. Then problems can be effectively defined, analyzed and resolved, permanently.

3. **Focus on Process.**

   Six Sigma focuses on the process rather than the end result. By analyzing and fixing the process itself, it enables a much higher quality rate. The most powerful part of Six Sigma is: by mastering the process, companies are able to build competitive advantage in delivering value to customers.

4. **Proactive Management.**

   Being proactive is the opposite of being reactive. Instead of reacting to change, management shifts to being proactive by defining ambitious goals and reviewing them frequently, setting clear priorities, focusing on problem prevention rather than “putting out fires,” and questioning why we do things instead of doing them because “that’s the way we’ve always done it.”

5. **Boundaryless (no borders) Collaboration.**

   A term coined by GE’s CEO Jack Welch. All parts of the organization including vendors and partners need to keep their focus on the customer in mind. If everyone works towards the same goal, the boundaries will disappear. Organizational leaders need to work to break down the barriers and improve teamwork between all parts of the organization (up, down and across).

6. **Strive for Perfection, Tolerate Failure:**

   Nothing new ever comes without risk. If people are afraid of the consequences of mistakes, then they’ll never try. Tolerate failure by learning from those mistakes and continue your goal towards perfection.

A new view on the Sigma Levels – Competitive Position

Sigma	Parts per million out of specification	% out of specification	Comparative position
6	3.4	0.00034	**World leader**
5	233	0.0233	**Best in industry**
4	6,210	0.621	**Industry average**
3	66,807	6.6807	**Under Industry average**
2	308,537	30.8537	**Non competitive**
1	690,000	69	**Out of business!**

And it must be remembered that the capability applies equally to manufacturing, service and support processes.

What are the roles?

Champions Suggested names:_____

These are senior managers who are responsible for the various business processes. Champions select and approve projects, provide resources, and facilitate the teams while working on projects. Champions are in a position to resolve any issues that arise among people, priorities, and resources. They can make decisions.
The number of Champions should reflect the number of processes that need to be improved. Champions must meet regularly with the Black Belts to review project status.

Master Black Belts Suggested names:_____

Master Black Belts are “teachers”. They review and mentor Black Belts. Selection criteria for Master Black Belts are quantitative skills and the ability to teach and mentor. In larger organisations this is generally a full time role.

Black Belts Suggested names:_____

Black Belts are the process/project subject matter experts. They lead process improvement teams that are responsible for using the *Six Sigma* methodology to improve business processes that influence customer satisfaction and/or productivity growth.

Green Belts Suggested names:_____

Green Belts are individuals trained in the *Six Sigma* methodology and tools. They are team members. They also use the techniques to achieve improvements within their own current work environments. They support the goals of the project, typically in the context of their existing responsibilities. Green Belts are the operational force behind the cultural change.

How Does Six Sigma Work?

The *Six Sigma* process can begin once a project has been identified that has definable and measurable benefits. Master Black Belts would typically educate Black Belts through the *Six Sigma* approach: Define, Measure, Analyze, Improve and Control.

Define

Identify and rank the business process and their key input variables and the key output variables. Decide which process or group of processes will be targeted.

Measure

Review and confirm as accurate the measurement systems used in the process. Establish the baseline performance for the process. The end of this phase occurs when the Black Belt can successfully measure the defects generated by the current process and establish the baseline capability of the process.

Analyze

The objective of this stage is to begin to understand why defects occur. The output of this phase is the identification of those variables that are most likely to create a deviation from the expected.

Improve

During the improve stage, the root cause analysis or “cause and effect” relationship between is established. This phase concludes when targets and acceptable ranges are established (i.e. the tolerance is set).

Control

This is the operational phase of delivering improvements. During this stage, process control plans are developed which reflect the new targets. Operators are trained on statistical process control charting. The objective of this phase is to ensure the variables stay on target and within the acceptable ranges.

The Training Process

Six Sigma Green Belt Training

Green Belts are a vital component to any successful Six Sigma program. Many organizations begin Six Sigma deployments by training Champions and Black Belts and quickly realize the need to involve a larger critical mass of people to achieve breakthrough level results from their Six Sigma initiative.

Green Belt training is an excellent way to enhance the effectiveness of both process owners and team members as they learn to apply the tools and methods used in the Six Sigma methodology.

Green Belt training is typically conducted during two 5 day sessions taken a month or six weeks apart.

Six Sigma Black Belt Training

Black Belts are at the core of every Six Sigma Implementation. These individuals will continually work towards institutionalizing the effective use of these tools throughout the corporation, its customers, and its suppliers.

Black Belt training follows a standard model of four weeks of training spread over four months. Between one-week sessions, Black Belt candidates return to their business environments to apply the tools and methods studied in class.

Other Six Sigma Training

Many vendors offer a variety of Six Sigma awareness, Executive Overview and implementation workshops and courses. The Master Black Belt program is also offered, but completion of the MBB program is linked to your personal experience. Some vendors offer the lower levels as e-Courses.

Reference Material

These are some of the excellent texts you can look for to build your Six Sigma library.

- Black S and Porter L J, “Identification of the Critical Factors of TQM”, Decision Sciences, Vol.27, No.1, 1996
- Blakeslee, J.A. Jr., “Implementing the Six Sigma Solution,” Quality Progress, July 1999
- Harry M J and Schroeder R, Six Sigma: The Breakthrough Management Strategy Revolutionising the World’s Top Corporations (New York: Doubleday, 2000).
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- Howell, D, “At sixes & sevens,” The Professional Engineer, May 2001
- Maguire M, “Cowboy Quality:Mikel Harry Riding High as Six Sigma Makes its Mark,” Quality Progress, October 1999
- Oakland, J.S., Total Organisational Excellence (Butterworth Heinemann, Oxford, 1999)
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SIX SIGMA DEFINING REQUIREMENTS

Product description:	Service Level Requirements
Product number:	
Date:	
Status:	Version number/Draft/Final

Introduction

The objective of this document is to be a standard for the development of Service Level Requirements. The development of Service Level Requirements is the first step to quantify the desired service delivery. To guarantee that all expectations (explicit and implicit) are quantified it is necessary that these Service Level Requirements are developed in close consultation with the client. If aspects from this document have already been described in other documents (e.g. Norm sheets) than these can be referred to. However, the client will need to be aware of these.

If aspects are mentioned here that do not apply to described service delivery then this must be explicitly stated.

The format of the template is as follows:

- General Information
- Definition Service delivery
- Content Agreements
- Service Windows
- Glossary
- Modifications form
- Procedure descriptions for relevant procedures

Template Service Level Requirements

Compiled by:

Date:
Version:
Status:
Filename:
Author:

General Information

This chapter describes general information required for the specification of the service delivery and the development of the SLA based on these Service Level Requirements.

General information

Date compilation Service Level Requirements	
Version of Service Level Requirements	
Status Service Level Requirements	
Reference number/code Service Level Requirements	
Replacement of existing Service Level Requirements (Yes, i.e./ No)	

Persons involved

Name	Role	Phone number	E-mail address

The completed roles must be known in any case. In addition to this it makes sense to involve a number of specialists in the compilation of agreements to guarantee that both implicit and explicit expectations within the shortest achievable time-frame are known.

Duration1

Date **from** which these requirements applies	
Date **to** which these requirement applies	

Conditions with regard to extension of these current requirements:

Defining service delivery

In most improvement initiatives there may be new services introduced. These new services must be clearly identified and metrics put in place that allows them to be defined in terms of availability.

1

Requirements change. What are requirements today may be inappropriate next week, next month or next year. This is why the requirements for the initiative must be dated.

Availability is the core factor regarding customer satisfaction. Failure to make required services available that support the initiative starts the journey towards “doom”.

This section of the template can be reproduced for multiple new services.

This chapter describes the service in a language understandable to the client as well as the requirements stated with regard to the availability of the service.

Description of service and desired availability

Describe the service as it will be delivered to the client here. This description must be worded in clear language with a minimum of technical terms. Unavoidable technical terms must be explained in a Glossary.

Service to be delivered

Description of the service to be provided:

Availability of the service

The availability of the service depends on the aspects listed below:

- The definition of unavailability. i.e. under which circumstances can the client indicate that the service is not available;
- The business hours. i.e. during which times will the service be provided; and
- The availability metrics. I.e. how do we measure the availability?

With regard to these an answer will need to be provided here to measure and present the availability unambiguously.

Definition of unavailability

A Service is unavailable if any of the required functionalities cannot be used at any point of delivery (where the equipment is still owned by the supplier and also maintained by the supplier), while the conditions for availability (business hours,

service window etc) are met. These conditions imply that errors made by the client are not taken into account when downtime is calculated.

Business Hours:

The business hours for the service:

Day	From	To	24-hours (y/n)
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

The approach to official holidays:

Other days when the service varies not mentioned before:

Which procedures must be followed if, at the request of one of the parties, the business hours are to be adjusted temporarily?

If for some components of the service delivery different arrangements apply than discussed before these must be mentioned separately in an appendix. The exceptions must be described unambiguously, that is they can only be interpreted in one way (e.g. Consider the differences between batch and on-line).

Availability metrics:

To eliminate differences in interpretation and measurements consideration should be given to the following points:

The availability metrics can be sub-divided as follows:

- The duration periods of downtime (availability-ratio, mean-time to repair);
- The frequency with which periods of down-time occur (mean-time between failures); and
- Fluctuations in the above.

Selection:

In addition to this they can be presented in several ways:

- Percentage;
- Hours/minutes/days per period;

Selection:

There are also three alternatives for representation:

- Average values;
- Minimum and/or maximum values; and
- Percentages.

Selection:

Lastly, various methods exist to measure:

- During a fixed period (by specified day, week, month etc);
- During a sliding period (e.g. The sliding average over the recent quarter).

Selection:

The final calculation however consequently assumes the following formula:

$$Availabilityratio = 100\% * \left(1 - \frac{(\text{Downtime during businesshours})}{\text{Businesshours}}\right)$$

If there are aspects of availability for which different arrangements apply than are explained above, these should be mentioned separately in an appendix. Exceptions should be described unambiguously i.e. they should only interpretable in one way only.

Support for the service

Description of the support we provide to the client when providing the service (such as on-site support, phone helpdesk, training, access to skilled/qualified people, etc), as well as the requirements to be met for the availability of this support. If there are different levels of support, depending on the day of the week, this should be mentioned explicitly.

Support to be provided

Describe the support to be provided:

Availability of support

Business Hours:

The Business Hours for support:

Day	From	To	24-hours (y/n)
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

The approach to official holidays:

Other days when the service varies not mentioned before:

Which procedures must be followed if, at the request of one of the parties, the business hours are to be adjusted temporarily?

If for some components of the service delivery different arrangements apply than discussed before these must be mentioned separately in an appendix. The exceptions must be described unambiguously, that is they can only be interpreted in one way.

Response-times:

The response-time is the time between the detection of down-time and the commencement of the diagnosis.

Response-time:

Time	Time-unit

If various response-times are involved than these must be mentioned separately. They must be described unambiguously, i.e. they can only be interpreted in one way.

Reinstatement of service delivery:

If a service is not available for any other reason than a calamity. Which measures must be undertaken to per cause to reinstate the service delivery as quickly as possible (consider the stocking of spare parts, both by the service provider and the client). Both parties also need to carefully consider the possible causes of disruptions of the service delivery (e.g. the breakdown of components/parts, inability to gain access to qualified people).

Possible cause	Measure	Responsible party

If classification based on the possible causes with maximum recovery-times is possible than this should be indicated below. They must be described unambiguously, i.e. they can only be interpreted in one way.

Class/Category	Description	Maximum recovery-time (hour)

Reliability

In this context reliability involves the arrangements with regard to making a required service (re) available after failure.

Describe below which entities are important with regard to the service delivery:

Service name or component of service	Associated entity

Indicate which party is responsible for the effort involved with assessing requirements for ensuring continued availability:

Service name or component of service	Efforts required	Responsible party

Indicate per relevant service/component how and with which period a restore must be performed (in case of more than three relevant services or components it is preferable to record this in an appendix).

Data: <Name relevant service>

When is restore possible	How to apply for restore	What is the lapse time for availability	What is the consequence

Data: <Name relevant service>

When is restore possible	How to apply for restore	What is the lapse time for availability	What is the consequence

Data: <Name relevant service>

When is restore possible	How to apply for restore	What is the lapse time for availability	What is the consequence

Describe below how to deal with the aspect of reliability during a major failure or calamity.

Security

Describe below how service, is guaranteed and to what level the guarantee goes to.

Describe below how to deal with the confidentiality of the data both from client towards the service and from the service towards the client:

Describe below how to deal with the aspect of confidentiality during a major failure/calamity:

Content agreements

An accurate definition of content agreements requires a good insight into all entities involved with the service delivery. Specifically because content agreements are usually based on these entities that will be mentioned by name.

Schema with all relevant entities and their mutual relationships:

The following paragraphs contain a number of concrete aspects. These aspects are not necessarily relevant and/or comprehensive, but they are intended to indicate how this should be completed/complemented. Concepts used in this chapter must be explained. They may be included in the Glossary in appendix A.

Types of Q-attributes

Q-attributes are used to identify a product or a service during the compilation of service requirement.

Below is a list of the most frequently used Q-attributes, accompanied by their definitions, to be used when compiling service requirements.

This list is not comprehensive.

Q-attribute	**Definition**
Accuracy	: % of the total that complies with .....
Completeness	: % of the total
Timeliness	: absolute or relative time unit
Achievability	: % responded calls of the total calls per time unit
Readability	: print quality (% blackness)
Neatness	: folded straight, not wrinkled up, not torn
Answer-time	: absolute time unit, i.e. for a % van the total

Availability : % of a total period

Response-time : absolute time unit, i.e. for a % van the total

Expertise : % of all questions that can be resolved immediately

Service delivery

All aspects related to the service deliver are discussed below.

Q-attribute service delivery

Aspect	Content description
Q-Attribute	
Q-Unity	
Q-Norm	
Q-Control	
Q-Frequency	
Q-Rapport	
Q-Controller	
Q-responsible	

Miscellaneous Agreements

Contacts

Contacts (Service related):

Name	Role	Phone number	E-mail address

Contacts Client:

Name	Role	Phone number	E-mail adress

Organisational Charts

Indicate below what the organizational charts both for the client and for service look like, from the point of view of the other party

Consultation structures

The consultation structures required described here ensures that correct communications are conducted at a strategic, tactical and operational level. Indicate clearly which roles are involved and what the frequency is. Also clearly indicate who the chair person is:

Strategic consultation:

Relevant roles client side	Relevant roles in service provide side	Frequency & duration

Chairperson:

Tactical consultation:

Relevant roles client side	Relevant roles in service provide side	Frequency & duration

Chairperson:

Operational consultation:

Relevant roles client side	Relevant roles in service provide side	Frequency & duration

Chairperson:

Escalation

Below, describe in which cases escalation takes place (by whom and who to).
Preferably in the format of an escalation tree:

If escalation takes place, which reaction times apply with regard to taking action?

Resources

How we deal with costs of the below mentioned additional resources:

Resources	Expenses included to maximum	Per period

Service Windows

Describe below during which times the service deliver is not available as a result of planned or know periods of maintenance/ holidays and/or changes (e.g. the 1st Sunday of each month, weekends, after 5:00pm):

Appendix A GLOSSARY

Appendix B CHANGES FORM

Appendix C RELEVANT PROCEDURES

From this point include the relevant procedures. Consider the following:

- Change procedure;
- Reporting procedures incidents;
- Specific procedures of the client

FURTHER INFORMATION

For more information on other products available from The Art of Service, you can visit our website: http://www.theartofservice.com

If you found this guide helpful, you can find more publications from The Art of Service at: http://www.amazon.com

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