



A BPM Primer – Balancing Efficiency and Agility

Introduction

In traditional, functionally-oriented organizations, business processes are often fragmented, invisible, unnamed and unmanaged. Most IT systems developed in these environments have focused on point solutions that, over time have become ever more complex and difficult to maintain.¹

Business Process Management (BPM) technologies promise a new era of operational excellence and business agility. The vision is that, through effective standards, users can drag and drop their process definitions – developed using one product – onto the BPM engine of another and “it all just works”. Instead of building systems on the foundation of data, we should build them on a process management foundation. This new capability will empower the business to manage processes as effectively as it does data today.

These approaches are already fixing ‘broken processes’ in major businesses while, at the same time, dramatically reducing the cost of IT development. Since they can integrate virtually any third party application or technology, they insulate each application from those around it and the overall business process. As a result, firms can ‘evolve’ their technology architectures, reducing operational risk (rather than operating a ‘rip and replace’ policy), while at the same time dramatically improving business performance.

Examples include one of the biggest employers in the UK who, with a team of 4, in just 2 weeks, achieved what a team of 20 would have needed 6 months to do through packaged application redevelopment. At the same time, they reduced the elapsed time to resolve a customer query from 5 days to 5 minutes.

The team took the underlying CRM system back to a vanilla implementation, capturing the necessary process logic (that had been expensively and inflexibly hard-coded as custom software extensions) in the BPMS. Changing that process in future is now technically simple. Neither will it require hordes of application specialists or developers. Effectively, they put the end-users back in control.²

Understanding Processes

As firms struggle to deliver faster time to market, with best of breed services and products, managers must balance two sets of issues – efficiency and flexibility.³ However, we should first consider what is really meant by the term ‘process.’ When asked to describe the true nature of a business process, most people have quite different perceptions. In our workshops, participants offer various definitions for a business process, including:

- A sequence of activities performed on one or more inputs to deliver an output to a customer.
- A set of (partially) ordered steps intended to reach some goal.
- An organized collection of business behaviours that satisfies a defined business purpose and performs according to specified targets.
- A collection of business activities that create value for a customer.

- A systematic set of activities which take a 'business event' to a successful outcome.
- A number of roles collaborating and interacting to achieve a goal.
- "The way things get done around here".

To fully understand business processes, we have to be able to talk about a range of cultures, usages and, sometimes, conflicting perspectives. We also have to bear in mind the subtly differing agendas of those involved – in both the vendor community and also the organisation itself.

Some see work on business processes as a way to:

- Impose control on their organization.
- Achieve corporate compliance (a la Sarbanes Oxley or Basel II).
- Build a more customer focused and responsive organisation.
- Impose a performance assessment regime.
- Enable better traceability of customer requirements.
- Enable the sharing of 'Best Practices' across the firm, standardizing business offerings and reducing variation.
- Support more effective IT integration.
- Expose discrete services to customers and ensure that the commitments made are delivered upon.
- Enable a more nimble and adaptable organisation.

And this is just a partial list. Given these subtly conflicting objectives, it is interesting to note that a great many BPM initiatives have focused on driving sterile efficiency, ignoring processes that cannot be fully automated or situations where people need to exercise their judgement or where collaboration is a critical component. Perhaps, this merely reflects the traditional focus of IT.

The reality is that most firms want sublime levels of efficiency, yet at the same time, the ability to instantly redeploy their resources with a new way of doing things. While BPM technology can support that aim, careful thought is required to fully understand the nuances, because not all processes are the same.

Processes – Procedures, Practices, or Both

On the one hand, we have an image of the organization as a machine, with its hierarchical structures and the paths that run across them (i.e. one perspective of process). Technology is introduced to reduce the (human) resources required to undertake a given amount of work while allowing the business to scale. If productivity equals value divided by resources, technology tends to focus on the denominator side of the equation.

The emphasis is on speed and control. Employees are usually governed by 'Procedures' that are *imposed* on them to ensure control and compliance with the pre-ordained approach (the term 'Procedure' is more accurate than 'Process' in this context). Procedures rely on standardization and predictability – i.e., the nature of work is assumed to change relatively slowly. Further, there is a relatively low level of trust between management and employees – i.e., control is often a key driving force.

At the other end of the scale, the business is seen more holistically – in terms of its people, processes, and systems – all evolving together. The term 'Practices' is far more accurate here rather than the vague word 'Process.' A Practice might be thought of as a set of role interactions – with communication between participants (and their synchronization) more usually as important as the precise sequence of activities.

With Practices, the emphasis is on the goal – satisfying customers, quality, or better long-term relationships. Empowered workers make decisions in the front line, doing what is right for the customer and the business, rather than being constrained (unnecessarily) by a procedure.⁴ In these sorts of situations, employees need to understand the entire process (rather than just the scope of the current task or activity), growing their business acumen, and learning. As Practices evolve, the organization keeps in sync with its market and the needs of its customers.

In most businesses, the way of delivering ‘value’ to the customer is *invented* as a set of both Practices *and* Procedures. Over time, as the Process becomes better and better understood, more and more of the loosely described Practices are translated into discrete Procedures that are used to drive better efficiency.

Another way of thinking about this spectrum is that the ‘vision’ of management incorporates both Procedures and Practices – whereas all we often end up with is a relatively inflexible set of Procedures (the interpretation by technologists). If you unpick the Practices end of the spectrum (Process as a ‘purpose’), you can derive the behaviours of the Roles (their capabilities and competencies). From this definition one could then describe the desired organization. Indeed it is possible to model processes as a set of interacting roles, each of whom could be considered to be following their own private procedure.

The problem is that the normal start point for most process modelling exercises is the organization itself – with its legacy of functional and political baggage. Having drilled down from functional descriptions, activities are connected up to describe end-to-end procedures.

Indeed, if the only visible representations of processes are boxes and arrows, laid out in a linear sequence, then that underlying process paradigm often becomes the widely accepted reality – yet it doesn’t really reflect “the way work gets done around here”.⁵

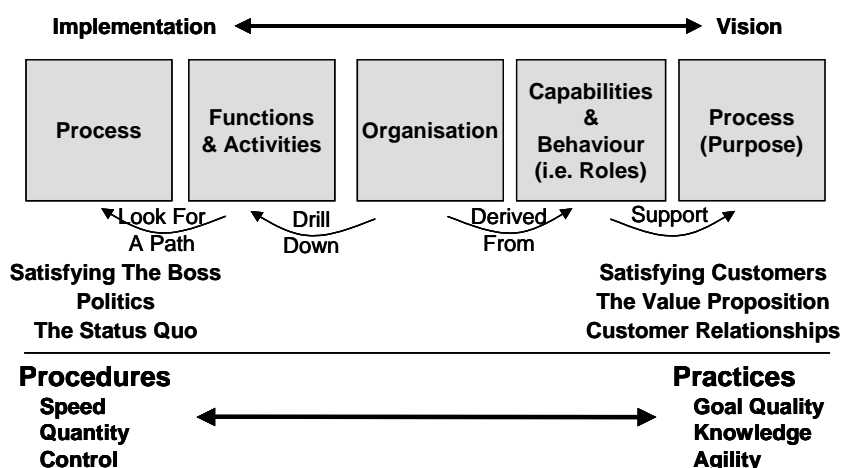


Figure 1 - Processes are naturally composed of both Procedures and Practices

Another way of thinking about this dynamic is that Procedures represent the ‘inside-out’ view of the process, whereas Practices are the ‘outside-in’ perspective. Innovation usually occurs where the firm interacts with its customers and partners (the outside-in end of Practices). And yet, to ensure efficiency and robustness, these Practices need to be rapidly turned into Procedures and then supported by technology – i.e. driven by a BPM engine.

When first embarking on this journey towards process-orientation, most people initially focus on the Procedural end of the spectrum, only to discover that Practices are the real challenge. The tendency is to design highly mechanistic process architectures that merely re-implement the old way of doing things. Control and perceived efficiency are foremost in their mind, with agility and evolution an afterthought. Without careful

design, complexity (and with it the Total Cost of Ownership), grows exponentially, as exceptions become routine or new functions added.

The point is that, to design appropriate process architectures – one that truly reflects the needs of both Procedures and Practices – is not a trivial exercise. This is not a technology problem but one of business design. First you have to understand the process fully. And that comes from contrasting different perspectives rather than slavishly following one true approach. Moreover, a range of models are produced that can help in designing the process architecture or aid in understanding processes prior to attempting to implement a technological support environment. These models are not necessarily transferable to that process support environment.⁶

Cultural Change

Moving from a functionally oriented mindset towards a process oriented environment implies a broad array of challenges. This is where the difficulty comes. Changes are needed at the very heart of the organisational body politic, implying personal changes in attitude in an environment where an unhealthy pre-occupation with structure usually encourages and perpetuates the functional mindset.

Applying technological support to reflect the needs of business processes necessarily implies translating the fuzzy “how things get done around here” into a set of interoperating procedures. And this is a difficult challenge when processes have never been truly documented or even fully understood – i.e. where the processes are contained in the heads of people or buried in an existing IT implementation.

Yet the benefits to the business will usually outweigh the perceived problems and cultural issues. Even describing the processes, identifying the procedural elements and the areas where judgement and knowledge are applied has a great many benefits.

Where the process was once essentially invisible, unnamed and therefore unmanageable, it is now effectively understood at all levels of the organisation. Once employees understand the overall architecture of the process, seeing how the various procedures and practices combine and where they fit in, they will identify ways of reworking it that lead to performance and quality improvements or a better experience for the customer.

Deploying technology to support knowledge worker processes necessarily involves enabling those processes to evolve. This implies the need for knowledge workers to feel comfortable adapting (or selecting) procedures for their own use in the context of the case of work in hand.⁷

Standard Soup

Some argue that process oriented technology vendors have focused on this category of problems since the birth of workflow technology in the late 80's. They pursued largely proprietary approaches for how work is driven while, through the Workflow Management Coalition (WfMC), they agreed a standard (wf-XML) for passing work from one engine to another – i.e. interoperability between engines.⁸ They also agreed a ‘design-time’ language (WPDL) for defining procedures (that a workflow engine could interpret). These standards were based around the common denominator of activity sequences, assigned to people or machines.

Meanwhile, a different group of people (BPMI.org) focused on defining a common ‘*execution*’ language for all business processes (along the associated application logic, data handling and distributed communications). The result was Business Process Modelling Language (BPML), which is based on a much richer semantic conception of processes – one where a process is composed of a set of interoperating procedures. Indeed, every process could be thought of in this way allowing ever more sophisticated underlying process architectures.

Whereas BPML might provide a superior notion of how processes are composed, the industry gorillas (Microsoft, IBM, BEA) released a far more limited execution specification

(BPEL) to define how a service would execute inside a Web Service.⁹ BPEL is another XML-based language for describing a business process in which most of the tasks represent interactions between the process and external Web services. The BPEL process itself is represented as a Web service, and is realized by a BPEL engine which executes the process definition.¹⁰

And then there is Business Process Modelling Notation (BPMN), again developed under the auspices of BPMI. It is a standard set of diagramming conventions for describing business processes that allow the visualisation of a rich set of procedural flow semantics and the communication between independent processes. Under the covers, it can help capture sufficient detail to allow the generation of an executable process description (a direct mapping to BPEL is part of the BPMN specification).

Confused? There are subtle, but important, differences between all of these standards. They are all for the same purpose. The plethora of acronyms and standards bodies is confusing many individuals in the marketplace – both in the end-users and even those in the vendor community.

However, over time, these standards will enable direct user control of business problems that are neither routine nor based on easily programmable decision logic. They offer the opportunity to close the gap between the business conception of an idea and operational system support without resorting to the writing of code.

The Role of IT

The traditional role of IT has been to first understand the process well enough to describe its procedures (and their interactions with the data and documents of the process); and then secondly to turn this into well honed supporting systems.

Historically, in our functionally driven systems that focused on supporting the procedures of one group of employees, the logic of the process was left either inside the heads of the users, or intertwined with the user interface logic of the application itself. Over time, this made systems ever more brittle and difficult to change.

In the functionally oriented business, technology solutions are deployed to solve specific problems in a given department. Their primary aim is to reduce the cost of doing business for that department (driving efficiency). Business case justification relies purely on reducing cost from that functional budget and usually ignores the impact on the overall IT architecture. IT is, itself, viewed as a cost.

On the other hand, a process oriented business is primarily committed to the delivery of (customer) value. IT is seen as a means of enabling new ways of doing business and keeping the firm in peak operational performance. And for the IT department, this means facilitating change.

Process oriented firms tend to challenge the conventional wisdom about what IT can and cannot do. Rather than thinking about the purely routine, relatively slowly changing procedures, they are starting to look for cutting-edge capabilities that enable their knowledge workers to better support the delivery of value.

Conclusion

In order to support a sensible architecture that enables the business to leverage its existing technology assets (and more easily deploy new processes as needed) a common reference BPM framework is needed. Usually this is treated purely as a technology issue (in terms of choosing the right infrastructure products). However, given the sophistication of current products, it is clear that the issue is not really with the core technology itself. There is a wider set of business process issues that should be understood at the business level. In most situations, the appropriate technology implementation environment will become relatively obvious as those business issues are clarified. This framework will need to cover both:

- **Understanding The Business** - This will involve a selected set of business/process modelling notations and a couple of tool sets to assist users in modelling how the business actually works. The truth is that there is no single process-modelling notation that is applicable to all needs.¹¹ The core issue is the design of an appropriate 'process architecture'. One that facilitates re-use and evolution while also delivering on business efficiency.¹²
- **Supporting and Driving Business Processes** – this will involve identifying a suitable BPM Engine that can easily integrate the range of bespoke and packaged back-end applications, within a common forward looking business process infrastructure. Modern BPM systems are already providing the capability to re-use existing technology investments, cleanly leveraging their current functionality while enabling end-users to control the way the processes actually drive the business.

Notes

¹ This set of perspectives is drawn from our recent paper "The Split Personality of BPM" (available from the Enix web site at www.enix.co.uk). Here we expand on several of the concepts introduced in that seminal work.

² Based on a case study example from Computer Science Corporation.

³ A wider discussion of some of the issues addressed here can be found in:

- C.K. Pralahad and M.S. Krishnan "The Dynamic Synchronization of Strategy and Information Technology" Sloan Management Review, Summer 2002, pp24-33;
- "Does IT Matter? An HBR Debate" contains a section by John Seely Brown and John Hagel III who point out that gaining value from IT requires innovations in business practices http://harvardbusinessonline.hbsp.harvard.edu/b01/en/files/misc/Web_Letters.pdf.
- "Flexible Information Technology, Better Strategy" The McKinsey Quarterly, 2003 Number 4. - Seely Brown and Hagel continue the discussion
- "The Performance Variability Dilemma" by Eric Matson and Laurence Prusak (Fall 2003, MIT Sloan Management Review) discusses the need for evolving Business Practices from the perspective of Business Performance Management (another interpretation of the BPM acronym). This paper takes an ethnographic approach, citing several case study examples in major corporations and discussing why it is vitally important to understand and treat processes (Procedures) differently from Practices. Moreover, it offers guidance on assessing the predictability and frequency of knowledge centric Business Practices that do not easily translate into Procedural replication.

⁴ This doesn't mean that workers operate without business rules. Policies, procedures, standards, responsibilities, and levels of authority exist at all levels of the organization, and they are continually changing. This is one of the key challenges for modern BPM systems to support when dealing with the problems of knowledge workers.

⁵ With a flow diagram, it is possible to prove just about anything. You can even travel in time - just put in an arrow and connect back to the beginning.

⁶ What is needed is a set of techniques/methodology that supports both defined Procedures and the more difficult Practices As described in "The Split Personality of BPM" I believe that the combination of Role Activity Diagrams and Business Capability modelling provides the best mix for this challenge (understanding the business in terms of both Procedures and Practices). On the other hand, the BPMN modelling notation (see www.bpmn.org) is rapidly emerging as the standard way of modelling procedures. While this technique is appropriate for definition and implementation of procedural fragments, I believe it is inappropriate for understanding the wider context of the process and for defining an overall process architecture.

⁷ But perhaps more importantly, these approaches can empower knowledge workers, who need to exercise their judgement in uncertain situations, giving them much greater control and ownership over the way things get done. For knowledge workers, processes are usually based on unwritten best-practices approaches. Their Practices are usually ingrained into the modus operandi of the core of the organisation. They need to evolve as required by the business situation – reflecting an evolving business relationship, a refined understanding of a particular problem, or a greater

pressure to fix some perceived 'problem'. At present, it is very rare to find technology products or approaches that are oriented towards the needs of these sorts of processes.

⁸ Think of wf-XML as a way for a workflow engine to invoke a process in another workflow engine and to then wait for it to complete.

⁹ BPEL represented a branch in the road toward development of BPML. It is relatively limited and does not, for the moment, concern itself with the collaborative aspects of office work – how people interact with each other and the systems around them to achieve a goal.

¹⁰ BPEL is, for the moment, effectively limited to a single thread of execution. Integrating these single thread execution instances into the wider business process is the key challenge (often referred to as Web Services Choreography). Most of the high-end modern BPM engines already incorporate this capability (to string together Web Service interactions) although they tend to do it in a proprietary way since the standard is not yet defined around this area, all approaches are proprietary (although one could argue that BPML provides this capability).

Because of its support from industry giants such as Microsoft and IBM, BPEL is perceived as the way forward although it is technically inferior to other standards such as BPML. The BPML have endorsing BPEL as the way forward, putting further development of BPML on hold.

<http://www.bpml.org/downloads/BPML-BPEL4WS.pdf> provides an overview of the similarities between the two specifications. There are still tough issues to tackle with BPEL including: transaction rollback and human involvement in long running processes, choreography, modelling, etc. The next version of the BPEL spec should be a lot more wide ranging.

¹¹ It is always a good start point to understand what you are modelling, why you are doing it and who the audience is for the model. This will help dictate the notation. The models used to track and support the process will probably not be the same as those models developed to understand the process. Developing a deep understanding of the process involves contrasting different perspectives – i.e. slavishly following one technique is not enough.

¹² Although we do not have time to explore it in this paper, the best approach is to think about isolating procedural fragments in such a way that they can be re-used across many different supervisory processes. Also, keep in mind that the process need not necessarily be limited to the organisational boundaries of a single company. Think about modelling and integrating the processes of your customers and partners, how they interact with your systems and employees.