RAPID AND AGILE STABILITY

Business Process Management Field Guide

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Abstract. As more technologies such as SOA, web services, collaboration, social networking, and handheld devices are adopted and deployed, typically through IT departments, the full benefits and return on the investments cannot be realized until the supported business processes are updated and modified to leverage and exploit these new technologies. This Business Process Management (BPM) field guide is a high-level practitioner’s guide to performing BPM. The guide takes a very practical approach to BPM illustrating techniques and supporting artifacts that will enable improvements and optimization of the business process relative to available technologies. The intent is to provide a means for the non-IT businessperson to be able to recognize the need, promote, and perform BPM within their own organizations.

1. Overview

This field guide takes a very practical view of BPM focusing on three simple but comprehensive steps: document, align, and optimize.

The underlying premise driving the need to perform BPM is that the full benefits and return on the investments of moving to new technologies cannot be realized until the underlying business processes are updated and modified to leverage and exploit the new technologies. The example I like to use is, if your business had a communication problem it could not be solved by simply providing all employees with cell phones. To truly solve the communications problem, changes to policies and processes would have to be made to leverage and exploit the new cell phone technology.

These three steps—document, align, and optimize—may be performed serially, focusing on one specific business process or may be performed in parallel for larger projects. The initial step, document, focuses on identifying, characterizing, and capturing the business process. The document step develops a model of the business process enabling analysis and refinement. It is most crucial to first define and understand the process, including its relationships and dependencies, before making any modifications or improvements. Once documented, the process can be aligned. The alignment step targets how the process is implemented and supported. The tools and technologies supporting the process are identified along with the required underlying hardware and infrastructure. Once the process is documented and aligned it can be optimized. The optimize step takes a variety of approaches from simple technology upgrades to full invasive process modification and improvement. The depth of the optimize step is dependent on the business significance of the process. Some processes are documented, aligned, and done; others will require and warrant full optimization. These decisions will be driven based on the outcomes and findings from the document and align steps.

This approach was developed and refined over the course of several years on a variety of projects in both the federal/DoD and private/commercial sectors. These engagements typically lasted eight to 12 weeks and focused on business processes in areas including: bid and proposal, finance and accounting, human resources, hotel and restaurant services, auditing and reporting, electronic purchasing, resource allocation process, and strategic planning.

This white paper will describe and define each of these three steps: document, align, and optimize, in terms of activities and products. Additionally, based on experience, one more initial, yet very crucial step, motivation must be added. Before embarking on any BPM project, management must first be convinced that there will be a pay off in order to gain approval and funding. Our discussion starts by providing some definitions and concepts to establish an overall context.

2. BPM Concepts

BPM is defined as a set of integrated, closed-loop management and analytic processes, supported by technology that addresses financial as well as operational activities. BPM is an enabler for businesses, defining strategic goals, and then measuring and managing performance against those goals [1].

BPM encompasses a broad set of capabilities and features including business process discovery, design, modeling, simulation, deployment, execution, administration, control, management, and optimization. Some of the key BPM attributes are:

- Alignment of overall organizational strategies with business objectives and supporting processes and technologies.
- Development of an enterprise process model that provides an end-to-end view of core processes.
- Performance management based on business driven metrics and measures.
- Business agility, accountability, and visibility.
- Robust process improvement methodologies including Lean, Six Sigma, Continuous Improvement, ISO assessments, AFSO21 [2], LM LM21 [3], and quality management systems to facilitate the transition from design to execution and help mature the process lifecycle.
Simply stated, BPM may be divided into two major phases: process development and process monitoring. Document, align, and optimize comprises the process development phase. Process monitoring, commonly referred to as Business Activity Monitoring, focuses on identifying and monitoring Key Performance Indicators (KPI) to determine process effectiveness, efficiency, and overall operational health.

3. Business Process Characteristics

To clarify our BPM approach we need to provide some definitions and descriptions for the terms and objects we will be dealing with and manipulating, starting with a business process. A business process is “a collection of activities that take one or more kinds of input and creates an output that is of value to the customer” [4].

This is a reasonable definition but not descriptive enough for our purposes so we will leverage the Zachman Framework [5], applying the six interrogatives to business processes; “how” are things performed, “who” is performing those things, “what” information is used, “when” and “where” does it occur and, “why” is it done?

It should be noted that the last question, “Why is it done?” referencing the process itself may be the most significant. Before embarking on any improvement activities, we always need to ensure that the business process being reviewed is still relevant and needed. Experience indicates that all processes do not meet these criteria and furthermore once a process is defined and in use, our natural resistance to change makes it very difficult to remove or modify it.

Business processes may be viewed as containers for the business know-how of organizations; they are the value delivery systems for the enterprise. Business processes cut across functional organizational boundaries. An enterprise typically has four levels of processes, this is a common concept in industry, but the specific terminology is not industry common. For our purpose here we shall define these four levels to be: core processes, sub-processes, activities, and tasks.

A core-process is initiated in response to a customer request and crosses functional organizations providing value back to the customer. The sub-process typically resides within one functional organization to support a core-process request. The activity level is typically viewed as one step in the flow of a sub-process, this is what we typically model in business process diagrams and the task is one step of an activity typically performed by one person.

Core processes are what the enterprise exposes to customers. A typical enterprise may contain five to 10 core business processes. A banking enterprise would identify core processes such as: deposit to an account, withdraw from an account, and get account balance. These core processes are in turn supported by sub-processes such as: verify customer, and update account. A sub-process, like, verify customer, would be supported by activities like: validate customer name and validate customer PIN. Finally, at the task level you would find the look-up and retrieval tasks used to access the specific customer data elements.

4. Motivation

The initial hurdle to overcome and question to answer before embarking on any BPM task is, “Why do it?” Management typically withholds funding until they are very clear on what the return on their investment will be. This is typically best answered and presented to your management team in terms of quantifiable questions.

Does your business operate in a continual state of crisis?

• If you are always addressing problems and fire fighting, when and how do you have time to strategize and plan?

Is your business unable to keep pace with technology and customer expectations?

• Today’s customers are members of the so-called “Nintendo Generation.” These are the people regularly using Facebook, YouTube, text messaging, BlackBerries, smartphones and tablets, some of them every minute of every day. They are aware of new technologies and how things can be done better, faster, and cheaper using those technologies.

How outmoded are your business’s current set of practices?

• Have your business processes ever been reviewed for possible improvements?

• Have your business and processes grown up following an “urban sprawl” model, with no rhythm, reason, or plan?

• Have any of your processes been developed using built-in latencies that are no longer relevant or needed? For example, the QWERTY keyboard was originally created to slow the typist down due to mechanical short comings.

Answering these questions will illustrate and quantify the need for and motivate the action to perform the BPM task.

5. Document

In order to perform our document, align, and optimize BPM approach we first start by identifying the processes. Once identified, the process will be documented using the Object Management Group’s (OMG) standard Business Process Modeling and Notation (BPMN) [6] graphical notation. I will address each of these: identify and document steps separately, as the identify is typically the more difficult.

Identifying business processes, more commonly referred to as process discovery is simple in concept: describe your company’s key processes. Gartner indicated that process discovery might be the most difficult and important skill of all “the most critical practice to master is the initial discovery and definition procedure for the target process [7].” Our approach combines Hammer and Champy’s “Reengineering the Corporation” [8] with J. Womack’s “Lean Thinking” [9] techniques focusing on the customers, stakeholders, and users and the services and processes they are concerned with.

Starting at the core process level, we identify the customer-facing processes and then the supporting sub-processes. Keep in mind that the core processes cross-organizational boundaries and
sub-processes function within one organization. Some examples of core processes are: product development process, procurement process, marketing planning process, insurance claim processing, and government proposal process. You will typically model both core and sub-process levels in order to develop a holistic enterprise-level view of the processes.

Process discovery is one technique employed during the document step. Business process discovery may be accomplished by decomposition, that is the partitioning of the as-is processes into architectural significant business processes that are unique and required. Another approach is customer focus, focusing on how external customers obtain goods and/or services from the enterprise. The outcome of these approaches is a set of core and sub-business processes. The core processes are documented in a core business workflow similar to a value stream map using BPMN and textual process narratives. The resulting process narratives or process metadata includes key information about the process including ownership, users, activities, responsibilities, problems, products, outcomes, and relationships to the business’s mission objectives.

Once the processes are identified we can graphically document them capturing the process using BPMN (see Figure 1). The BPMN models contain activities and tasks, relative to: order of operations, products (input and output) organizational participation (roles and responsibility), events (business rhythms), and scope (start and endpoints). These BPMN business process models become the starting point for all changes promoting adaptability and agility to quickly see and understand the impacts and implications of business process changes. A technique employed to support the alignment phase is to include, as swim lanes, tools, and technology. This enables the association of sub-processes and activities to their supporting COTS software and hardware. Business processes are graphically documented using standard OMG BPMN supported by an enterprise architecture COTS modeling tool such as: IBM Rational System Architect, TROUX Métis, or Microsoft Visio 2010, the document, align, and optimize BPM approach, methods and techniques are tool agnostic.

As-is to To-be Modeling Approach

The initial process model is the so-called as-is model and is intentionally sparse with regard to process documentation because our approach is to-be focused. We define the as-is model to the level of detail needed to expose and understand the issues and shortcomings of the existing process. Based on our experience in performing BPM tasks, we have found this to-be focused approach appropriate and necessary in order to move people from the comfort of the existing as-is world ahead into the new to-be world. The as-is model provides a baseline to begin the in depth analysis needed to develop and document the improved to-be process.

Note: BPMN provides a standard set of diagramming conventions for describing business processes and is intended to support the capture of sufficient details to allow the documented process to be the source of an executable process description. BPMN is to be the graphical front-end to Business Process Execution Language (BPEL). BPEL process descriptions enable automated process execution; automated BPMN to BPEL conversion is still a work in progress. The current industry wisdom is to use tools that generate standard OMG BPMN to position your business to leverage automated BPEL generation products when available and mature.

6. Align

Our BPM approach takes a holistic enterprise view. Our view of an enterprise is a collection of business systems or a “system of systems.” These systems control and manage the enterprise’s functional areas, generically: facilities, regulations, operations, procurement, human resources, finance, and supply (see Figure 2). Many of today’s business systems were developed as disparate sets of applications, these are the existing “as-is” legacy business applications typically described as “functional silos” or “stovepipes.” These disparate applications are the result of years of development without a central vision or strategy (no architecture). Applications have grown up that serve a single purpose for a single set of users, with no thought to integration. Today, in our enlightened state, we realize that these collections of disparate applications need to be modernized and consolidated into an agile set of unified and integrated business processes. The facilitating discipline to achieve this is enterprise architecture.

An enterprise’s competitive edge and ultimate success are enabled by the ability to rapidly respond to changing business strategies, governances, and technology. This competitive edge translates into higher levels of customer satisfaction, shorter work cycles, and reductions in schedules, maintenance costs, and development time, all resulting in lower overall costs of ownership. Enterprise architecture is the key-facilitating ingredient, providing a holistic view and a mechanism for enabling the design and development, as well as the communication and understanding of the enterprise. The overarching goals of enterprise architecture are to manage the complexity of the enterprise, align business strategies and implementations, and facilitate rapid change in order to maintain business and technical advantages.
Our Enterprise Model

How is the enterprise aligned? The enterprise is divided into four views (dimensions): value, strategy, process, and technology (see Figure 3). The value view contains the enterprise value proposition. The goods and services produced by the enterprise that customers are willing to pay for. The strategy view includes: the business drivers, strategies, goals and objectives. This is defined in the business charter and mission statement along with the business strategic plan. The process view describes the core business functions, supporting processes and enabling activities. Finally, the technology view describes the applications, reusable components (commercial and developed products) as well as the integration and technology services (middleware, security, communications) and the supporting infrastructure.

Figure 2 Abstract Business Processes

7. Optimize

The optimization step starts with the as-is process documented in BPMN. Our view of optimization is a continuum from technical to functional. The technical end is the most basic, focusing on simple, narrow scope changes which may include upgrading screens or replacing functionality with a COTS package. The technical end starts by targeting the so-called "low-hanging fruit" to provide quick tangible working results. At the other end of the continuum is functional where we consider a long term, broad view. Functional modernization is invasive, performing process modeling and optimization as required, typically resulting in major changes to processes and associated technologies.

Typically, technical modernization realizes medium, and immediate gains in lowering the total cost of ownership and improving the Quality of Service (QoS). These technical changes will plateau moving the project into the functional modernization phase targeting the business processes and sub-processes for additional improvements in costs and quality.

If we recall, that core customer facing business processes cross organizational boundaries, then it follows that these processes cannot be optimized organizationally, but must be viewed from an enterprise perspective. We need to take a process-oriented approach. Start by identifying who uses the process, these are the process customers, and then identify the things, goods and services provided. This process oriented approach shares similarities to Object Oriented (OO) methodology. Always keep in mind, that we are focusing on the people using the process and the value added things (objects) being produced not the specific activities (procedures); again similar to an OO approach.

Our experience indicates there are several recurring process improvement themes that typically come to play during the course of process optimization:

• Team Approach: This situation may present in the form of needing to perform numerous hand-offs during the course of executing the process. Hand-offs are typically problematic especially between departments or organizations. This may be resolved by taking a team or caseworker approach and empowering the team to make required decisions. Also, certain sub-processes naturally occur in order to complete a whole piece of work.
An example may be a typical bid and proposal process. One team designs the technical solution; another team determines a price to win. Once these two activities are complete, they are reconciled. Why not cross-pollinate the teams by combining technical experts with financial experts, allowing the team to self-correct as they proceed, and eliminating the need for after the fact reconciliation. By combining these sub-processes into the same organization we can again minimize hand-offs. The key is to limit the span of information passing.

- **Minimize Reconciliations:** There are many processes that are characterized by external dependencies. Typically, these dependencies are only reviewed at milestone points. If these dependencies are not in tune, then there must be a reconciliation and determination of what and who needs to change. By building checkpoints into the process, rather than waiting for formal reviews, we can mistake proof our processes with regard to these external dependencies. This may be combined with the team approach.

- **Process Visibility:** Based on performing numerous process improvement tasks, spanning 25 years, this issue is the grand-daddy of them all. Process visibility, knowing your status, where you are in terms of the process, what is your current position, these questions and resulting issues are almost always present. Experience has demonstrated numerous instances where the process is functioning as it should, but the Users are not aware of it due to lack of visibility. The ability to provide self-service process status is critical to establishing process confidence. Included here are the user’s timing issues, when will the order arrive, has it been shipped, what reviews have taken place and what reviews still need to occur. These are all process events that users are very interested in. Methods used to provide process visibility have included providing electronic dashboards down to handwritten placards; the common feature is providing insights into the process or process visibility.

- **Listen:** Here again experience has made this point abundantly clear; simply listening to our customers or users is pure gold. Unfortunately, this skill is underutilized and too often process improvement practitioners will only listen long enough to formulate a conclusion relative to a known solution. In most cases, the proposed solution will not be accepted by the customer, even if the solution is correct, due to the lack of the customer’s trust in a quick turn solution.

The technique known as “active listening” should be applied (see Figure 4). What is active listening [10]? It is paying close attention to what the customer is saying and providing both verbal and visual feedback indicating that you are hearing what is being said, that you are in fact hanging on every word. The customer, as with most people, wants to be heard. This simple ability to listen has very positive and significant outcomes including: truly understanding the problem, demonstrating your sincerity to help, and most significant (again from experience) hearing the solution. Meeting and listening to your customer will help identify their points of pain, where does it hurt, what is not working well and what is working well. In my experience, I have found that the people who can solve the problem are the people executing the process, they are the closest to the process and typically know what is wrong and how to fix it, but you have to listen.

**Active Listening Characteristics:**
- Look at the person, and suspend other things you are doing.
- (Physically moving your chair helps)
- Listen not merely to the words, but the feeling content.
- Be sincerely interested in what the other person is talking about.
- Restate what the person said.
- Ask clarification questions.
- Be aware of your own feelings and strong opinions.
- If you have to state your views, state them only after you have listened.

**Figure 4 Active Listening Approaches**

8. Declaring Success: Measures and Metrics
Following the strategy of Dr. W. Edwards Deming, “We cannot improve what we cannot measure” [11], we need to evaluate and quantify business process improvements by identifying the appropriate metrics and measurements.

Performance measurements and metrics provide the means to evaluate process execution. We typically identify three types of metrics across an organization: strategic, performance, and operational.

- **Strategic metrics** provide a direct link to the strategy and goals of an organization, are aimed at executive management or shareholders and usually include financial measures.
- **Performance metrics** decompose the strategic metrics to a lower level aimed at measuring a process’ business contribution including customer satisfaction and productivity.
- **Operational metrics** measure the day-to-day business operations providing insight on how the business is actually running, include process cycle times, availability, reliability, and overall QoS.

A balance of these metrics provides the most complete and accurate picture of the health of the organization. Metrics are indicators of business capabilities and measures are a means to derive or calculate and expose the metrics. As an example, for Major League Baseball the hitting ability metric is the batting average and is measured using at bats and hits. The measures in business are defined as KPIs that align to specific business processes and activities in order to determine overall process health. Once these KPIs are identified, driving metrics can be designed into an executive business dashboard, providing quick insights into a process’ strategic performance and operational health. Business processes need to be measured in terms of the enterprise and aligned with the organizational goals and objectives.

9. Summary
This article starts with the premise that the full benefits and return on the investments of moving to new technologies cannot be realized until the underlying business processes are updated and modified to leverage and exploit the new technologies. BPM is the means to accomplish these process improvements and our
document, align, and optimize approach provides a practical and simple method. The document step focuses on identifying and graphically describing the as-is process using standard BPMN to develop the as-is model enabling process analysis and refinement. Once documented, the process can be aligned. The alignment step focuses on the uniform application of technology insuring consistent implementation producing reliable outcomes. The tools and technologies supporting the process are identified along with the required underlying hardware and infrastructure. Some processes are documented, aligned and done; others will require and warrant full optimization. These decisions will be driven based on the outcomes and findings from the document and align steps. Once the process is documented and aligned it can be optimized if warranted. The optimize step takes a variety of approaches from simple technology upgrades to full invasive process modification and improvements. The depth of the optimize step is dependent on the needs of the business, driven by the projected savings from developing the improved to-be process. To these three steps an initial step was added, motivation, used to provide management the benefits and projected savings of performing this BPM project.

A final note; realize that moving into someone else’s business or house and performing BPM is like cooking Thanksgiving dinner while remodeling the kitchen—the business cannot shut down. Common wisdom is to empathize with your customers and users and make every attempt to make this experience as painless as possible. Good luck.

ABOUT THE AUTHOR

D. B. Robi is a Lockheed Martin Qualified IS&GS Information System Architect in the area of Business Process Transformation and is a Certified Lean Six Sigma Black Belt. His career, spanning 27 years, has afforded him opportunities to work in both the commercial and DoD/Federal sectors. He has performed as Solution Architect, Chief Engineer, and Enterprise Architect on numerous modernization projects including projects involving large commercial corporations as well as serving as the Business Architect on efforts in Business Process Modernization, Reengineering, and Optimization. Mr. Robi is a steering committee member for the IS&GS Business Process Transformation Community of Practice and also consults on many internal LM projects. Mr. Robi was a major contributor to the development and enhancement of Lockheed Martin’s, internally developed, ARQuest® Blueprint and OMEGA® BPM, approaches to developing enterprise architectures, business transformation and transition plans. He has developed, published and presented many papers on technical topics including: BPM, SOA, Requirements, Use Cases, Enterprise Architecture, Value Analysis, and Architectural Modeling. He developed and published the “Motivational Views”, extensions to DoDAF, and incorporated and implemented this concept in Lockheed’s ARQuest product.

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ADDITIONAL READINGS