

# An Engineering Perspective

## BPM Primer

### Dealing with issues tied to?

- ◇ I can't see it
- ◇ I can't find it
- ◇ I can't control it
- ◇ I can't track it

The real driving force for process optimization is efficiency. As an engineering manager, you are always being asked to shorten cycle times, reduce defects, improve quality – in short, to be more efficient. The reason, of course, is that Efficiency will always improve your company's bottom line.

#### **What is BPM [Business Process Management]?**

Let's define a process as a collection of related, structured activities [a chain of events] that produce a service or product. These are the kinds of processes that tend to get management's attention. They are performed daily and their costs are not insignificant. [A product can be a manufactured item, an insurance policy, software, a home mortgage, medicine, etc.]

Let's identify another process - the process to define, measure and improve your processes – we call it a 'process optimization process'. This process should get more attention than it does, because this is where you uncover improvement opportunities.

Business Processes exist on 2 levels – the people and the technology. In casual conversations, you will discover that there are 2 camps in the BPM world. There are those who focus first on the people and there are those who focus first on the technology.

#### On the 'people' level

Some pundits see BPM as a philosophy. Management could be saying to underlings that they want their business processes managed more effectively.

A Business Line Manager could be managing his own business processes. They could define their process, they could measure it [see how long the process takes], they could look for trouble spots and they could make improvements to the process. They could have their own optimization initiative.

Either of these strategies could be manual and they are considered BPM, even if they do not utilize technology. In the manual environment, you have a documented process that people follow and when you make changes to that process, you distribute a new documented process for them to follow.

#### On the 'technology' level

Some pundits see BPM Software as Business Process Management. They skip over the people level and go right to the technology.

Other technologists only see that information must move between enterprise software packages. They think of SOA and BPM as synonyms.

While still others believe that modeling is needed to create that 'perfect' process. Therefore, modeling is BPM.

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You would be mistaken if you chose to leave any of these 'angles' out of the definition of Business Process Management. Business Process Management includes all of the activities required to manage business processes.

Companies that have implemented BPM successfully will start with their 'people', because it is your company's 'people' that define your business processes and your business processes drive your technology choices.

### Engineering Processes & Issues

Manufacturing companies have a wide range of business processes that span from complex [like engineering change requests] to simple [like vacation requests]. For many of them, change requests take too long to turn around and they are expensive to manage. Simple processes, like vacation requests, can get waylaid or the request can be lost all together.

#### Engineering Changes

Many manufacturing companies have paid big time consultants to come into their company to identify their most expensive process. The answer is always the same - the most expensive process for a manufacturer is the engineering change process. This process is the most complex process and the most difficult to automate.

Several studies have been performed to figure out the cost of managing a single change request. If you are managing your change requests manually, you are spending an average of \$2,500 per change request. Companies that have thrown technology at this [software that will manage this process] have seen savings as great as 10x.

Most manufacturers complain that their change process is taking too long. How many of you have figured out 'work arounds' to get a change request approved in a day or two?

If your engineering documentation is mission critical, isn't the process that creates, changes and manages that documentation mission critical?

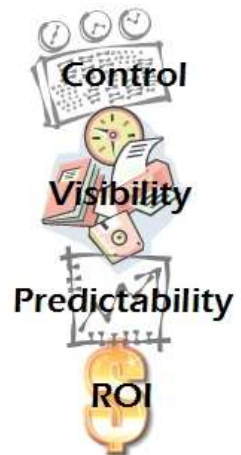
#### Design Documentation

Engineering documentation is your company's intellectual property [mission critical]. People in your company have an expectation that when they check out engineering documentation, that it is the latest released version. Most engineers have a horror story about someone using the wrong documentation. A shared drive does not solve the problem - it cannot manage versions, nor does it do a terrific job of managing access.

#### Bills of Materials [BOM]

It is the expectation of all employees in a manufacturing company, that they can go to their ERP software and grab the latest bill of materials. The consequences can be devastating. If a worker on the factory floor ends up with an incorrect BOM, the results could cost hundreds of thousands of dollars. It is imperative to know that you have the latest released bill of materials to work with.

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### Engineering Requirements Documents

Companies tend to not manage engineering documentation until the design phase when critical input to their designs, the engineering requirements document is 'released'. How many companies really manage the creation and changes to their engineering requirements documentation? Do they really know if it has been approved by the responsible parties? Do they know who the responsible parties are? What process did it go through? Does it have all the required signatures for release? Are all of the marketing requirements and customer requirements reflected in the engineering requirements document?

### Work instruction packages

A lot of engineering time is spent creating the work instructions so that something can be manufactured properly. This documentation goes through a life of creation, change and management just like engineering design documentation. How do you know that the factory floor is using the latest released work instructions? How do you know if a work instruction is released? What signatures are required?

### Tooling Design

Tooling designs go through a life of creation, change and management as well. How does anyone know that they have the latest released documentation? What signatures are required?

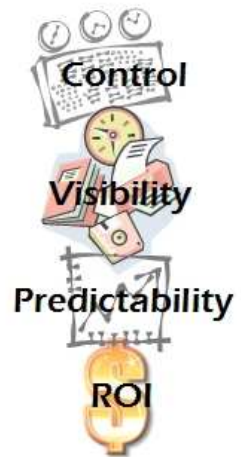
### Product Test Plans

Where do you go to find a product test plan? How do you know it is the latest released test plan? These go through a life of creation, change and management just like other engineering documentation. What signatures are required?

### Other Engineering Documentation

There are a number of other engineering documentation categories. All of this documentation goes through a life of creation, change and management. How do you know where anything is in its creation cycle? How do you know if changes are pending? How does anyone know that they have the latest released document? Whose signatures are required?

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### Ingenuus Manages Engineering Processes

#### The Business Line Manager

Our objective is to put the power of Business Process Management into the hands of the Business Line Manager – the process owner. They are responsible for their processes and they are the ones that will be rewarded for their process improvement successes.

Ingenuus is designed to be configured [by Business Line Managers] not coded [by IT professionals]. At the same time that the Business Line Manager is configuring the software to follow their process, they will be configuring the user interface to show only those fields that are needed in the process.

Ingenuus allows the Business Line Manager to dictate who will perform an activity, what activity they will perform, how long that activity should take, what information is to be created, who will perform the next activity based on simple [if, then, else] logic, etc. And, it provides the Business Line Manager with visibility into the process to make sure that it is on schedule. They will always know who has performed what activity and who is working on it now.

#### Engineering Change Management

In this case, the Business Line Manager could be the Document Control Manager. They know all of the activities required to approve a change request. They know what is necessary to have this change show up in the released BOM in their ERP.

Moving from manual methods of managing engineering changes to electronic methods usually result in: the elimination of document vaults, end users print the documents they need on their own, no more change control board [CCB] meetings, change requests can be approved within hours, documentation is found quickly with a computer search, no more frustrations from waiting to receive information, etc.

#### Ingenuus Software

The Ingenuus Process Orchestration Software can easily manage very complex processes like engineering change control as well as simple processes like purchase requests. It provides the Business Line Manager with the ability to Orchestrate their business processes by linking processes together where they actually intersect.

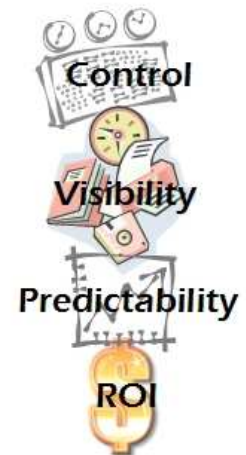
Ingenuus works with our customers to create a process optimization process utilizing our process optimization pyramid framework. This includes the necessary metrics [reports] needed to see if improvements are actually being made.

Ingenuus provides the tools necessary to automate steps locally [within our software] and to automate steps globally [integrations to other enterprise software].

Ingenuus combines Forms management, document management, task management and project management into one piece of software that provides visibility and control of your company's business processes.

All this Efficiency at a relatively low cost of entry.

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## BPM Primer

### Benefits

What's in it for Engineering?

The engineering manager is responsible for their processes. They are the ones that will be rewarded for improving the performance of their processes.

Visibility into your processes means you will be able to see [in advance] if an activity will not be completed on time.

Visibility into your process means you will always know who is working on what activity at that moment in time.

The ability to assign time spans to an activity means you should be able to shorten process cycle times.

Shorter cycle times means more activities are completed in a shorter amount of time. Automating some of these activities means even shorter cycle times.

You will no longer need CCB meetings.

What's in it for your Company?

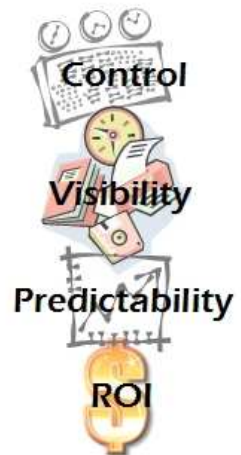
Efficiency...

And, Efficiency will always improve your company's bottom line.

Efficiency, more often than not, results in improved quality.

And, a Remarkable Return on Investment.

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