



White Paper Series

Process Orchestration: Transforming Process Efficiency into Business Profits

Date: 15 October 2007
Rev 0.3

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Executive Summary

As process optimization moves to the forefront of business, many approaches will be presented to the marketplace. They all have one thing in common – transforming business processes into profits.

Companies like Dell and Wal-Mart have proven that when attention is paid to process efficiency, the benefits show up directly in their bottom line. Downsizing and outsourcing can only go so far, businesses must focus on improving processes in order to increase profits.

Within a single company there are many processes. A few processes come from the top and may involve one or more of the many disciplines within that company. Within a given discipline (sales, marketing, engineering, finance, human resources, etc.) there are many processes. In sales, there is a sales process that starts with leads and prospecting and expects to finish with a purchase order. Most of customer relationship management software packages attempt to address this process. A greater return on investment may be uncovered by automating the process that goes from purchase order to sales order to manufacture to shipping to billing. This extremely important process is actually a collection of processes: there is an accounting process around the sales order and billing; there is a process that manufacturing follows to manufacture and ship product; there is a customer support process; etc.

Coordinating these processes is typically manual. Companies have people who orchestrate these processes to status action items and expedite issues while insuring that all sub-processes are being completed on time. Because of the complexities of modern business this is a monumental task performed by multiple individuals.

Globalization, outsourcing, and sub-contracting can make process coordination even more difficult. To compensate, many companies limit their outsourcing and sub-contracting options simply to be able to effectively manage them. Although outsourcing may provide significant operational savings, these limits on outsourcing and sub-contracting options may erode the actual profits.

Ingenuus has developed a Process Orchestration approach that allows companies to create processes that can be used to orchestrate both automated and manual tasks. The Ingenuus solution transforms processes, tasks and projects into web-based applications for companies whose employees are frustrated by lack of control, lack of visibility and the inability to easily get at the knowledge they need. This Process Orchestration approach is a unique solution for automating all of your business processes and orchestrating them to function together. Customers are using Ingenuus to manage many processes including but not limited to; Product Lifecycle Management (PLM); IT Trouble Tickets; Return Materials Authorizations (RMA); Quality Testing; New Product Introduction (NPI); Job Management; and Compliance Management (like Sarbanes-Oxley).

This white paper will describe how Process Orchestration can transform business process efficiency into profits.

The Opportunity

History has shown us that when business is good, companies can overlook inefficiencies. When business is not good companies recognize their need to be more efficient. The notion of orchestrating tasks and processes is nothing new. Every project management approach or solution is based on this premise. But as every project manager knows, being able to automate that approach is not easy.

While many projects are 'managed' using Microsoft Project, more companies These can tell you what the project steps are, what actions should be taking place and who should be taking those actions at each particular step. They don't tell you which action items make up a process. More important, these tools cannot tell you if something is going to be late.

Because of the lack of effective process management tools, inordinate amounts of time are spent simply obtaining status on action items. Managers need visibility into their processes, and the existing tools cannot provide that. Statistics tell us that more than 75% of a project manager's time is spent obtaining status of action items.

Delays in various business processes are a hidden corporate cost. Aberdeen claims that 80% of all projects experience delays. Production delays can cost manufacturing companies millions each year. Unfortunately, these delays are considered a part of doing business as usual. Most managers or executives have no idea what a development, production, purchasing or distribution delay actually costs the company in terms of resolution cost and lost sales.

Often companies hire a person to focus on the project at hand. Inordinate amounts of time are spent simply obtaining status on action items. Managers need visibility into their processes, and the existing tools cannot provide that. According to many project managers, as much as 75% of their time is spent obtaining the status of action items.

Process optimization has moved to the forefront of business. Analysts, writers and consultants are putting forth new terms and approaches to the marketplace. They all have one thing in common – the goal of transforming business processes into profits.

Improving the bottom line by optimizing process is not an idle promise, or just a passing fancy. Companies like Dell and Wal-Mart have proven that when attention is paid to process efficiency the benefit drops directly to the bottom line. Dell has over 40 process patents. Wal-Mart has forever changed the face of retail with its approach to suppliers and its new use of RFID. These companies grasp of process efficiency has made them leaders in their respective industries. It also drives their technology and process innovations.

To take advantage of the benefits promised by process optimization, companies must be willing to adopt a process orchestration mindset supported by adequate technology. Increasing outsourcing and sourcing options will save money on purchasing costs, but detecting and resolving problems before they become delays can get products and services to market faster, and with less expense. Aggregation of tasks, one component of process orchestration, means fewer people can do more with less.

A Single Process

Managing a process can be extremely frustrating. If you are the person responsible for the process to be done on time, you will spend a lot of time checking on the status of the different tasks. In a manual environment, you can end up managing by exception - in an Email, you may find out that someone has been sick and can't possibly have their task done on time. You only find out there is a problem when the process is already broken [late]. A natural outgrowth of managing a process will be to come up with ideas to improve it. Automation is a great idea, but hard to incorporate in a manual environment.

In the paper world the process is a literal orchestration of activities with the intent of achieving a common goal. Many analysts have tried to identify this as collaboration. Collaboration is a part of orchestration and happens because activities need to be coordinated and orchestrated and people need to talk (collaborate) to make things happen.

Control

The manager of a process needs to be sure that no tasks or steps have been skipped. They must make sure that the process is completed on time and, hopefully, within budget. One way to make the process more efficient would be to get the right information to the right person at the right time. Over time, it would be to your advantage if you could automate some steps and/or shorten (improve) the process.

Access to information needs to be based on the process, not some security matrix designed for access to documents. Process based access control is automatically dynamic based on the process itself, not the documents used, created, or referenced by the process.

Visibility

The manager of a process needs to know the current state of the process. At any moment in time, they may need to know: where it is in the process; who has it now; and who has approved it. Managers might want to see the history of a given process (project). And, if we really want to improve a process, we need some metrics on what's happening currently. A true benefit of a truly automated process automation solution is the access to any and all of the knowledge created or carried along in the process.

Multiple Processes

A company is literally a compilation of many different processes. At the CEO level, the focus is on several disparate processes that make up the business often referred to as "end-to-end business processes". The Sarbanes-Oxley (SOX) initiative at any given company is a prime example of an end-to-end business process. Major milestones that could easily be translated into an end-to-end business process [compliance] define the top-level goal. This top-level process attempts to consolidate several processes and outputs into one result - compliance.

Some of the processes that contribute to SOX compliance include:

- The actual sales process (prospecting, demo, quote, PO, etc.)
- Product definition (customer requirements, PRD, engineering requirements doc)
- Marketing (datasheets, presentations, ROI, etc.)
- Sales order process (rep provides PO, delivery date, etc.)
- Product delivery (manufacturing, inventory, shipping, training, etc.)
- Billing (bill of lading, enter into ERP, etc.)
- Accounting (within ERP)

If the CEO wants to drill down to know what is happening in their compliance process, they will have to look at particular processes or action items. Since these processes and action items are not automated, they would have to ask each process and action item owner to provide them with a status. This serves as a case in point - the end-to-end process of compliance depends on participant updates to correctly reflect progress. Thus, status meetings are usually held weekly (or more often) to insure that status is communicated. But as every project manager knows the 80-20 rule applies – 80% of the work is done during the last 20% of the project. This can't be very efficient.

Being able to orchestrate the disparate processes and action items means better control over the 'whole' process and more timely and accurate information to executives and managers so that they can improve performance, decision-making, and response time.

Control from One Process to Another

Continuing with the Sarbanes-Oxley example, how does the president of a company make sure that all of the SOX tasks are done? How does the president make sure that all of the tasks are completed on time?

At the presidential level, they understand that business begins with an order and ends with revenue recognition. So, do all of those 7 departmental processes happen in parallel or serially? How does one enforce dependencies from one process to another? How does manufacturing see demand so that they know how many widgets they need to produce?

Within each of the disciplines, we believe that the process and action item owners know best how to optimize their activities. Companies must provide them with the ability to own and manage their own processes.

In the real world, process consultants find that unfinished tasks linger until the end of a process or project. Many of the tasks designated "non-value added" in these latter process stages are these left over action items needing to be completed before the process can end. This slows down the process as it nears completion. Participants must be held responsible to complete their action items and tasks when they are due.

In general, process automation software strives to make life better for each participant involved in a particular process by automating and improving a process. Like the process re-engineering consultant, it does this by eliminating non-value added tasks. But it also needs to insure that action items are completed when they should be, or escalated for resolution if they are late. Many of the process automation tools available today can provide some visibility for low-level management. But in order to truly achieve sustainable process efficiency there must be an ability to link a process to other processes and thus provide an orchestration of effort.

Lack of Visibility from One Process to Another

Aggregating tasks, action items and steps from several processes is not an easy task.

Continuing with the Sarbanes-Oxley example, the operations manager may want to see the status of any of the processes run by the 7 departments. Today, they ask the managers of each department for a status. The managers, in turn, ask their people and some time later the operations manager will get the information.

Today, globalization, outsourcing, and sub-contracting makes process management almost impossible. End-to-end processes are larger and can span several sub-contractors, divisions or workgroups. By definition, processes owned by the sub-contractor or outsourcer are not entirely visible to managers needing to coordinate activity between them. Once considered the solution, integrating the data does not solve the problem.

If you were the operations manager of a company today and you were responsible for SOX compliance, you would want to feel confident that you could pass a SOX audit.

Business Process Orchestration

To address the growing need for process optimization and coordination, and to fill the gap left by traditional process automation solutions, Ingenuus has developed Process Orchestration. Enabled by powerful software, Process Orchestration is a unique approach to process automation and management. Just like a musical orchestra, composed of highly skilled musicians who under the leadership of the conductor form a musical delight that could not be accomplished by any one individual no matter how talented, Process Orchestration combines optimized processes whose net result is greater than the sum of its parts.

To make Process Orchestration possible, four disparate technologies had to be combined – process automation, task management, document management and integration middleware. At the heart of Process Orchestration is our patent pending process linking capability, totally unique to process automation. Our technology is powerful enough to create cutting edge processes with all the bells and whistles of alerts, escalations, audit trails and ad-hoc routing. Linking these processes together creates a unique situation that makes Process Orchestration possible. By loosely linking processes, managers can assemble just the right processes to get a particular project accomplished.

The result is an almost “organic” process or set of processes that remain flexible while providing control, visibility, and access to knowledge. These processes can then be linked to create simple one-on-one process orchestration, or complex end-to-end business processes that span the entire Value Chain.

It is easy to see how this works on a large scale, but the benefits are just as poignant if the orchestration is occurring in a single process.

Single Process Orchestration

Orchestration in a single process means coordinating the action items related to the steps in the process. Late action items are noted and email messages sent to pre-designated people, and escalation of the action can move up to 9 levels of management. Individuals can assign themselves ad-hoc action items that are recorded in the audit trail. Action items are managed in a user’s Inbox to improve communication and provide a single point of activity on tasks.

Business rules control process flow and are built utilizing standard data fields and custom data fields insuring the proper flow of data and reducing the cost of customization.

Flexibility is not sacrificed on the altar of Control. In addition to the ad-hoc features already noted, process owners can make process modifications on the fly to “un-jam” stalled processes. These modifications are noted in the extensive audit trail.

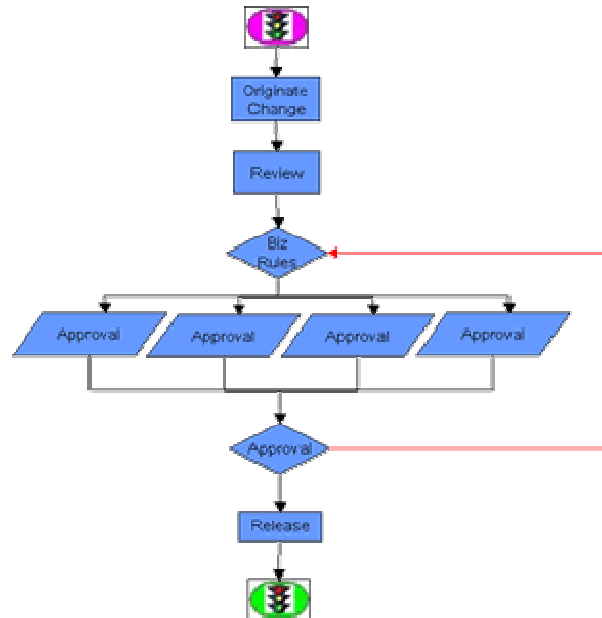
The assumption is that process owners, like orchestra members, are experts at what they do. They don’t need to be told how to do their jobs, but their activity needs to be orchestrated so that the whole benefits from the expertise of the individuals. When each member of the orchestra is playing his or her best, following the direction of the Conductor, exceptional music can be experienced. So it is with Process Orchestration. An orchestrated process experiences fewer delays reducing costs related to problem resolution.

Process Orchestration not only provides the ability to coordinate process tasks, but also provides visibility into each process. Links between process means you can start at the top and drill down or start at the bottom and climb up.

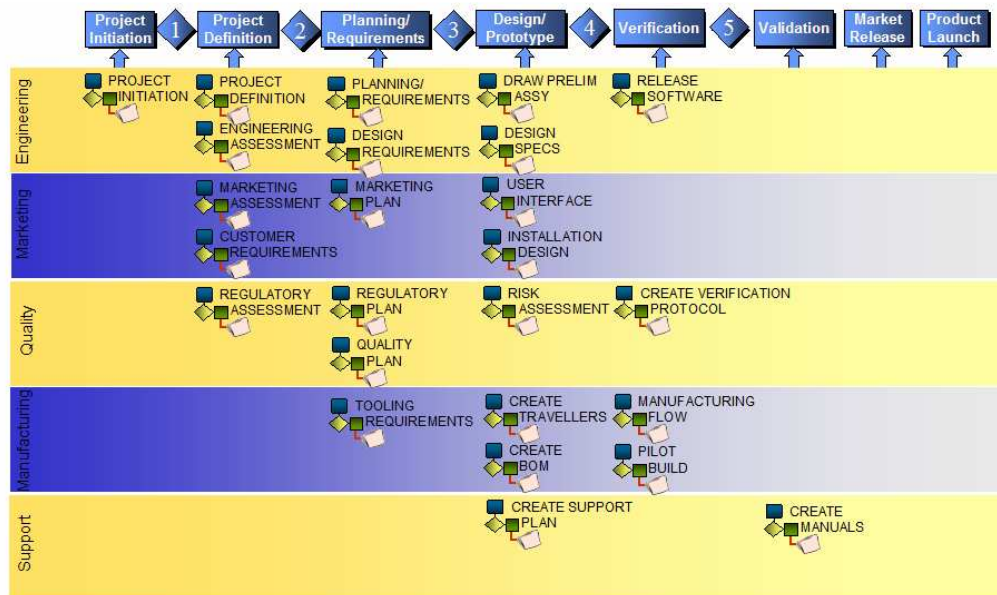
Graphical tools show the status of a process. Web based reports eliminate the need for external report writers and makes data immediately available.

Process Orchestration provides access to knowledge by creating process “packets” where links to all the data required for process tasks is located. Documents, drawings, emails, faxes, images, sound files, any electronic file can be placed in the process packet improving access to knowledge when process participants need it the most. Access to data at the proper time in the process dramatically increases productivity by reducing the time it takes to located need information.

A complete audit trail of each process is maintained and can be used by ISO auditors. CFR 21 Part 11 compliant electronic signatures assure that access is not compromised on sensitive data or sign-offs.



Orchestrate Multiple Processes For Profitability



Top

Level Process with loosely linked sub-processes

In the graphic above, we show a product lifecycle process, a classic example of Process Orchestration. The steps of the product lifecycle are the same for all products. But the sub processes, participants, and tasks may all be very different. By providing the ability to link processes, managers can literally assemble processes and tasks to coordinate effort without invading process the territory of other departments, divisions, or even sub-contractors. Although process visibility and control are increased at the top level, process ownership and optimization is pushed lower in the organization to the people who really own and manage those processes.

When each process owner is allowed to optimize the process they are responsible for, then the managers (process orchestrators) can link those processes together to create vibrant, dynamic, flexible and controllable end-to-end business processes.

The ability to create links between process means you can start at the top and drill down or start at the bottom and climb up to find anything you want. Graphical tools show the status of a single process or several processes. The need to even seek updates is virtually eliminated because the system pushes problems and action items to participants rather than them having to go look for them.

Documents, drawings, emails, faxes, images, sound files, any electronic file are placed in process packets improving access to knowledge across processes. Access to data at the proper time in each process even when the information is in another process packet increases productivity by reducing the time it takes to find information.

Since access to processes, data and documents is process based this means that participants in other processes can only see the data they need when the other process is ready to let them see it. Tight security to information can be maintained easily for partners

outside the company allowing them to participate in the process without compromising security.

Information outside of the system can also be referred to using URLs providing links to online catalogs. Process packets can be linked to other process packets, parts, vendors and product information.

Conclusion

Business Process Orchestration saves our customers time and money.

Our largest customer just completed a return on investment analysis and discovered that they are saving about \$1 million per year by just automating engineering change control. They have begun automating other processes so that they can extend their savings. Ingenuus has shortened cycle times significantly and provided some much needed efficiency.

Another customer is so happy with the results of managing engineering changes that they have extended the use of Ingenuus to a dozen other processes. Some of the most interesting processes that they automated include: Trouble tickets; Return materials authorizations; and they are just beginning to use Ingenuus to manage a quality testing process.

Contact Ingenuus to find out how a process orchestration solution can save you time and money.

The Ingenuus solution transforms processes, tasks and projects into web-based applications for companies whose employees are frustrated by lack of control, lack of visibility and the inability to easily get at the knowledge they need. This Process Orchestration approach is a unique solution for automating all of your business processes and orchestrating them to function together. Customers are using Ingenuus to orchestrate processes including Product Lifecycle Management (PLM), IT Trouble Tickets, Return Materials Authorizations (RMA), Quality Testing, New Product Introduction (NPI), Job Management, and Compliance Management (like Sarbanes-Oxley) realizing 50% or more process efficiency.

Ingenuus transforms your business processes into profits.

Revision History

Date	Version	Author	Comment
April 12, 2005	0.1	Christopher Williams	Draft for initial review
April 29, 2005	0.2	Scott Cleveland	Initial review complete
June 8, 2005	0.3	Scott Cleveland	Second Edit