PLANNING ASSUMPTION

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Best Practices in Workflow

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Giga Position

Implementing best practices for human-centric workflow projects is critically important to the overall success of business process management (BPM) initiatives. Because human-centric workflow involves substantial changes to existing business processes, significant modifications in individuals' work practices and new approaches for application development and integration, the awareness of and adherence to best practices can make the difference between success and failure. Key pitfalls to avoid are failing to staff the project with sufficient business process analysis skills, spending either too much time or not enough time on the "as is" process, failing to plan for exception processing and overlooking key performance factors.

While many factors contribute to a successful project, three key lessons learned from successful workflow implementations are: (1) obtain or develop sufficient skills in analyzing, improving and automating business processes, (2) create cross-functional teams with representation from business and IT at the beginning of the project and (3) implement workflow projects in phases, with short implementation cycles that provide successive improvements to business processes. To succeed with workflow, companies must treat BPM as a strategic business initiative. This can be realized by developing an enterprise architecture for workflow that can be implemented in multiple business units, and by realizing that not all business processes can be automated through a single workflow product — it may require two workflow products to support the entire enterprise. Companies that avoid these common mistakes and follow best practices should achieve successful implementations that provide significant business value.

Proof/Notes

Workflow initiatives can deliver substantial business benefits if implemented properly. These benefits include:

- Reducing cycle time so that products and services can be delivered faster to market
- Increasing productivity in order to lower costs
- Increasing customer service, which leads to greater customer retention and customer acquisition
- Increasing the ability to rapidly modify business processes (i.e., architectural agility), thereby reacting more quickly to competitive or market forces
- Reducing mistakes, which lowers the costs for rework
- Reducing the amount of time spent on administration and overhead, thereby freeing resources to work on revenue-generating activities

But these benefits can only be realized if the workflow implementation goes well and creates value for the organization. All too often, companies encounter mistakes or pitfalls that hinder the achievement of desired benefits. Some of the large pitfalls are:

- Staffing the project with insufficient business process analysis and technical skills
- Automating existing business processes without making significant improvements

- Tackling very large, "big bang" business process reengineering (BPR) projects
- Analyzing the business processes too long
- Automating too many activities
- Underestimating the number of exceptions and failing to plan for exception processing
- Designing poor approaches for work assignments
- Overlooking workflow and infrastructure performance issues

These mistakes in the design and implementation of workflow software are common and costly, and will inhibit the success of using workflow within an organization. Take care to learn from past mistakes and avoid these problems before they occur. Best practices can help avoid problems and raise the probability of a successful project that delivers business benefits. (For more information on potential pitfalls, see IdeaByte, Overcoming the Challenges of Implementing Workflow, Connie Moore.)

Best Practices in Planning Workflow Implementations

Best practices to follow during the planning phase include:

- **Determine if the organization needs human-centric workflow, application-centric workflow or a combination of the two**. The answer to this question will have a significant impact on the vendor/product evaluation process. In many organizations, human activity is essential to the business process and either cannot be eliminated or the organization determines that humans bring an important dimension to the business process. For example, workers are often involved because of the need to touch the customer through human interaction, or the process involves decision-making on the worker's part. In contrast, other organizations find there is very little need for human interaction in their business processes, and their goal is to minimize human involvement to the greatest extent possible. And some organizations find they have a mixture of both environments — some business processes are very human-centric while others involve application-to-application automation. Finding products to match these situations is critically important to the overall project success. For example, some workflow vendors' focus is primarily human-centric (e.g., **Action Technologies**), some companies are primarily human centric while offering application-centric capabilities (e.g., **Staffware**, **FileNET**), some are focused primarily on application integration while offering human-centric capabilities (e.g., **Vitria**, **SeeBeyond**) and others offer a full suite of human-centric and application-centric products (e.g., **IBM**, **TIBCO**).

- **Use evaluation criteria to determine which processes to automate first**. Developing an evaluation matrix is helpful in determining which business processes to automate first. The evaluation matrix could assess and rank each business process being considered by factors such as: complexity of the business process, number of integration points required to fully automate the process, the "pain points" involved with the business process, the amount of risk involved in automating the business process and the amount of risk if the process is left untouched for a period of time.

- **Look for quick hits and incremental improvements**. Typically, workflow projects take six to eight months, or longer. Two factors determine how long the project will take: (1) how much analysis and modeling is involved and (2) how much integration is required. In order to provide business benefits quickly and keep the momentum going, a best practice is to choose a business process that is important, yet not too complicated, for the first implementation. Once this project is successful and provides accelerated benefits, the business process can be modified, improved over time and integrated with other applications, and the successful project can be used as a springboard for tackling additional business processes. This approach provides a good method for on-the-job learning, creates incremental successes, allows rapid deployment of the improved process and lays

the foundation for continuous improvement.

- **Plan for continuous improvement**. Business processes continually change as the organization's business strategy, marketplace, competitors, customer base, and products and services evolve. Organizations should not think of workflow automation as a one-shot deal, in which business processes are automated and are then left alone until the next major enhancement. Instead, organizations should plan and budget ongoing funding to maintain the relevancy of the workflows over time. Also, exceptions to the standard process should be routinely monitored to determine if some of the exceptions should be coded into the standard process definition. By planning for continuous improvement, the resources and approaches for modifying workflow over time will be in place, making the workflow implementation more agile and useful to the business.

- **Take culture into account**. There are different philosophies and approaches for doing work within an organization; the approach chosen can determine which workflow product is selected and how that product is implemented. For example, some business cultures focus on strong command and control capabilities for management, which is usually typified in a workflow tool that is implemented in an "assembly line approach," often with little focus on making or accommodating exceptions. Another work style is to empower the workers, making them accountable for all activities related to a specific customer. A more empowered work style often points the organization toward more flexible workflow products that are designed with case management, modifications and exceptions in mind. When implementing workflow, it is important to understand the type of work environment envisioned, the type of workers to be supported by workflow (e.g., clerical or knowledge worker) and the type of product best suited for the style of work envisioned.

- **Stay focused on the Total Economic Impact™ (TEI) of the project**. The project team must understand the business objectives and be able to articulate the success and value of the project when justification is needed to go forward. Often this may involve making educated assumptions about the cost of doing the status quo and the likely benefit of the "to be" environment. One important step is to avoid, if at all possible, burdening the first workflow project with all the infrastructure costs (security, administration) that are needed for subsequent workflow projects. Another best practice is to tie the workflow implementation to improvements in business processes rather than trying to fund it as an infrastructure project.

- **Agree on terminology**. Although the Workflow Management Coalition (WfMC) has published definitions for terminology used in workflow products, the terms and definitions still change from vendor to vendor (such as the precise meaning for process, activity, step and task). Everyone on the project team must use the same terminology when talking about different aspects of a workflow product and automating a business process, so that the team can communicate effectively and accurately. In reality, the definitions will be dictated by the workflow vendor and tool selected.

- **Staff the project with sufficient business analysis skills**. Bringing the correct mix of skills to any IT project is an important step for success, but it is critically important for workflow because these projects require an in-depth analysis of business processes, from both an "as is" perspective and a "to be" environment. Individuals with little experience in business process analysis may, for example, have a hard time differentiating a business process from a subprocess, can easily spend too much time analyzing the as-is process or can become engrossed in the business process modeling tool itself, forgetting the end goal. There is a chronic shortage of individuals with strong skills in business process analysis and often these capabilities can only be obtained by combining the skills of two to three people and by utilizing the expertise of professional services firms. (For more information, see IdeaByte, Business Process Analysis Skills Needed for Workflow Software Projects, Connie Moore.)

- **Staff the project with sufficient workflow skills**. Another required skillset is in-depth technical knowledge of the workflow engine being implemented. For example, everyone working on the

project should understand how work is distributed and how the workflow engine works. While technical staff can learn about workflow engines over time, the needed skills are often not in place for the first workflow implementation (assuming there will be multiple instances of workflow within the organization over time). Often the best approach for acquiring workflow technology skills is to engage a systems integrator with *prior engagement experience in the workflow product being implemented*, and use knowledge transfer techniques to build in-house skills over time.

- **Plan to use a systems integrator**. An often-cited reason for failure is the lack of a systems integrator on the project. Most companies lack the requisite skills in process analysis and workflow design; these skills are important for a project to succeed. At the same time, make sure the systems integrator has substantial experience in the product to be implemented and has a strong partnership with the vendor. Do not become the systems integrator's training ground. A knowledgeable systems integrator should be able to exploit the workflow product's strengths and avoid the product's weak areas. Most workflow implementations involve systems integrators; for example, integrators do 90 percent of IBM's MQSeries Workflow implementations.

- **Consider developing a competency center**. Workflow is often implemented as a tactical solution or on a limited basis for a departmental business process, and the project teams are essentially formed within the organization. But many organizations are beginning to use workflow as a strategic tool across the enterprise. In these cases, it could be worthwhile to form a competency center with expertise in business process analysis and reengineering methodologies, business process modeling tools and workflow software products. Such a competency center can provide technical expertise and business process analysis advice to multiple project teams throughout the organization.

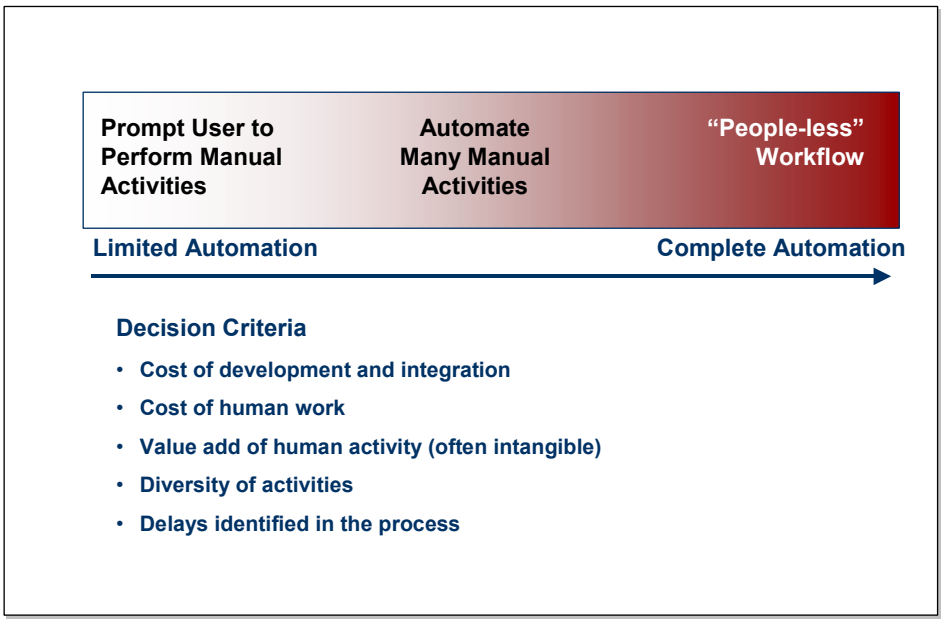
Best Practices in Analysis and Design of Workflow

Best practices to follow during the analysis and design phase include:

- **Avoid analyzing the business processes too long**. Many project teams spend an inordinate amount of time analyzing the "as is" environment — sometimes spending several months or even years without ever focusing on the "to be" business processes. This major pitfall, known as "analysis paralysis," must be avoided. To counteract this tendency, some organizations skip the analysis of the "as is" processes altogether, which is also a problem. The best practice is to undertake a focused, time-constrained analysis of the "as is" environment (say four to eight weeks), and then move on to the "to be" analysis. The guiding principle should be that analyzing the existing processes is important and should not be skipped, but the end goal is not to document existing processes. Instead, the end goal should be to achieve business advantages by improving, modifying or significantly altering the old, ineffective business processes.

- **Determine how much of the process should be automated**. One of the critical steps in workflow is to determine the level of automation initially and ultimately desired for the business process. As the figure below shows, there are many levels of automation for a process, ranging from prompting users to take manual steps all the way through completely eliminating people and totally automating the process. For example, a simple level of automation could be to deliver work items to an electronic in-basket and direct users toward the actions they should take (e.g., change the address, make a call, mail a letter). This level of automation requires less change to existing processes and typically involves no integration with other applications. At the other end of the spectrum, the business process could be changed significantly so that workflow delivers the work items, provides data with the activity, launches programs, automatically passes data and eliminates people altogether. Most companies choose a level of automation somewhere in the middle of this spectrum, and elect to move toward more automation over time.

Levels of Automation



Source: Giga Information Group

- **Avoid automating too many activities**. It is very tempting to decompose business processes to very small steps, particularly if the business analysts are using a business-oriented, user-friendly business process modeling tool. For example, business analysts may overlook that a single person (or person related to a role) can perform an activity in one step, and instead may model multiple steps to complete an activity. This can present problems when the decomposed process is converted into the workflow run-time environment, because there may be too many unnecessary decision points and too many work items, which lead to worklist thrash. A guiding principle should be that if a single person at a single location can perform a step, then do not model two distinct steps that create additional work items on a worklist.

- **Determine what makes up an instance of work**. There are different ways to define what constitutes an instance of work, and this can make a significant difference in the best use of workflow technology. Sometimes it is better from a performance perspective to treat multiple instances as a single transaction, rather than treating each transaction as a work item. For example, a credit card operation could treat each credit card transaction as an instance of work, which would lead to a huge number of instances. But in this situation, the processing of each transaction is better handled by an application rather than workflow. In contrast to the first scenario, workflow could manage a batch of transactions, submit them to a TP monitor or program, and then monitor the state of the batch and the exceptions. This is a better use of workflow as an automation tool and leads to better performance. Although high-volume, short-running transactions can be handled by workflow, it actually elongates the transaction processing time and minimizes the utility of workflow features, such as generating metrics and managing the overall process.

- **Plan for exceptions within the business process**. A very common pitfall is building processes that are incapable of handling exception items that deviate from the way most instances are processed. There are two ways to attack this problem — either by choosing a flexible, adaptable workflow engine that can handle exceptions and ad hoc processes (e.g., TIBCO, Handysoft), or by analyzing the business process in enough detail so that all exceptions are anticipated and designed into the

system. The majority of workflow products are not built to handle a large number of exceptions, so care must be given during product selection if the business process to be automated is ad hoc in nature or is prone to a high number of exceptions. Because most organizations buy workflow engines that are not oriented toward exception handling, the project team must anticipate all the exceptions that could occur. The best way to get information about exceptions is to spend sufficient time identifying exceptions by talking with the actual workers who are most familiar with the details of how exceptions to the business process are handled. Organizations that interview managers or look at procedure manuals instead of talking to line workers often find they miss important details of how work and exceptions are handled on the job.

- **Anticipate performance issues when allocating work assignments**. Examine the approach the workflow engine uses for implementing push and pull models for work assignments (i.e., the way in which work is pushed to work queues and the way users pull work from work queues). The most common approach for assigning work is to send work items to a shared work queue in which all the workers see all the work to be done. However, it is a mistake to send a high number of work items to a shared work queue that a high number of workers access. (For example, if 500 workers share the same role, then 500 workers will see all the work in a shared work queue for that role.) Without selective step assignment, this can significantly degrade performance so that it may take two to four minutes for a user to receive work. The way to avoid this mistake is to use more roles to create multiple work queues, such as assigning work by region, customer type, product type, etc. When examining work queues and assigning roles, think about whom the work should be directed to — an individual, a workgroup, a department or across departments. This type of analysis will reduce the number of workers accessing the same queue and will reduce the amount of work assigned to each queue, thereby improving performance. (For more information, see IdeaByte, Workflow Issues: Areas to Examine for Better Performance, Connie Moore.)

- **Focus on reusable components**. Some organizations have been successful in developing reusable workflow components. (An example of a reusable subprocess component is "transfer funds" or "open new account.") For example, one retail bank has developed approximately 80 reuseable workflow process components that allow it to implement new banking processes within three to four months. The key factor in determining reuseable components is that the subprocesses need to be standard, rather than varying widely from subprocess to subprocess.

- **Be selective in what to monitor**. One of the great strengths of workflow is the ability to monitor business processes by examining bottlenecks within the automated process. However, monitoring has overhead costs associated with it. For example, everything that is monitored has to be recorded in a database and this creates a messaging load. Also, there are practical limits to what should be monitored. For this reason, determine what needs to be monitored from a business perspective, and do not simply monitor everything that can be measured just for the sake of doing it.

- **Engage the workflow vendor**. The workflow vendor often has staff skilled in specific aspects of implementing its product, and it is often prudent to involve them in the implementation. For example, it is beneficial to engage the workflow vendor for system assurance services before implementing the workflow system. In these situations, the vendor can evaluate the planned system for capacity sizing, such as server capacity. The vendor may have other types of services that can provide significant check points during design and implementation.

- **Examine performance issues for the underlying infrastructure**. Some workflow implementations encounter poor performance because of poor workflow process design, such as the mistake described above. But quite often, performance suffers instead because the underlying infrastructure is insufficient for the workflow system. After the workflow system has been implemented, many organizations have started troubleshooting problems by thinking that they have a workflow problem, only to realize that the capacity of the servers, workstations, databases and network is not sufficient.

For this reason, the supporting infrastructure must be examined during the analysis and design phase to determine if it is capable of handling the workflow volumes. Overlooking the underlying performance issues is a very common pitfall that should be avoided.

Alternative View

Some organizations may not have the resources or skillsets to effectively implement many of the best practices described in this Planning Assumption. If this is the case, the best option for the organization would be to involve consulting, systems integration and/or outsourcing firms in the project. If this path is chosen, it is critically important to select professional services firms that have proven track records in these types of projects. The keys to success in these situations will be in defining the responsibilities of the external parties clearly in a concise statement of work, making sure the user community has final oversight and approval of any changes, developing adequate change control processes to ensure quality and — most importantly — making sure the vendor has had many successful engagements and significant experience with best practices in workflow projects. In addition, large companies should endeavor to only sign contracts with name-brand suppliers that have the depth, breadth and scale to manage a large-scale workflow project.

Findings

Business process management includes business process modeling, human-centric workflow, application-centric workflow and business process integration. Although human-centric workflow is the most mature of the workflow markets, there is still a strong need and vital interest in human-centric workflow.

The business benefits of implementing workflow include:

- Reducing cycle time so that products and services can be delivered faster to market
- Increasing productivity in order to lower costs
- Increasing customer service, which leads to greater customer retention and customer acquisition
- Increasing the ability to rapidly modify business processes, thereby reacting more quickly to competitive or market forces
- Reducing mistakes, which lowers the costs for rework
- Reducing the amount of time spent on administration and overhead, thereby freeing resources to work on revenue-generating activities

Implementing best practices for human-centric workflow projects is critically important to the overall success of BPM initiatives. Adherence to best practices can make the difference between success and failure because human-centric workflow involves (1) substantial changes to existing business processes, (2) significant modifications in individuals' work practices and (3) new approaches for application development and integration.

Common mistakes in workflow implementations are:

- Staffing the project with insufficient business process analysis and technical skills
- Automating existing business processes without making significant improvements
- Tackling very large, "big bang" business process reengineering (BPR) projects
- Analyzing the business processes too long
- Automating too many activities

- Underestimating the number of exceptions and failing to plan for exception processing
- Designing poor approaches for work assignments
- Overlooking workflow and infrastructure performance issues

Not all business processes can be automated through a single workflow product — it may require two workflow products to support the entire enterprise.

Business processes can be automated on a spectrum ranging from little automation to fully automated. Some organizations are interested in people-centric workflow, some are interested in application-centric workflow, but most organizations are interested in a combination of the two. Similarly, some workflow vendors' focus is primarily human-centric (e.g., Action Technologies), some vendors are primarily human-centric with some application-centric capabilities (Staffware, FileNET), some are focused primarily on application integration while also providing human-centric capabilities (e.g., Vitria, SeeBeyond) and others offer a full suite of human-centric and application-centric products (e.g., IBM, TIBCO).

Typically, workflow projects take six to eight months or longer. Two factors determine how long the project will take: (1) how much analysis and modeling is involved and (2) how much integration is required.

There are different philosophies and approaches for doing work within an organization; the approach chosen can determine which workflow product is selected and how that product is implemented.

Recommendations

Use the following best practices when planning a workflow implementation:

- Determine if the organization needs human-centric workflow, application-centric workflow or a combination of the two.
- Use evaluation criteria to determine which business processes to automate first.
- Look for quick hits and incremental improvements.
- Plan for continuous improvement.
- Take business and national culture into account.
- Stay focused on the TEI of the project.
- Agree on workflow terminology.
- Staff the project with sufficient business analysis skills.
- Staff the project with sufficient workflow skills.
- Plan to use a systems integrator for the initial implementation.
- Consider developing a competency center.

Follow these best practices when analyzing and designing a workflow system:

- Avoid analyzing the "as is" and "to be" processes too long.
- Determine how much of the process should be automated.
- Avoid automating too many activities.
- Determine what makes up an instance of work.

- Plan for exceptions to the standard business process.
- Anticipate performance issues when allocating work assignments.
- Focus on reusable components.
- Be selective in what to monitor.
- Engage the workflow vendor.
- Examine the underlying infrastructure for potential performance problems.

Choose a business process that is important, yet not too complicated, for the first implementation and then take an incremental approach by delivering the project in phases.

If at all possible, avoid burdening the first workflow project with all the infrastructure costs (e.g., security, administration) that are needed for subsequent workflow projects.

Link the workflow implementation to improvements to business processes rather than trying to fund it as an infrastructure project.

Engage a systems integrator with prior engagement experience in the workflow product being implemented, and use knowledge transfer techniques to build in-house skills over time.

Avoid spending an inordinate amount of time analyzing the "as is" environment, but do not skip the step altogether.

Avoid decomposing business processes into very small steps, particularly when using a business-oriented business process modeling tool.

Plan for an unforeseeable number of exceptions to the standard business process. Tackle this problem in one of two ways: Either choose a flexible, adaptable workflow engine that can handle exceptions and ad hoc processes, or analyze the business process in enough detail so that all exceptions are anticipated and designed into the system. Over time, monitor the frequency of exceptions and if exceptions are frequent and predictable, then develop new workflows for exception processing.

Plan for ongoing maintenance of the workflows as circumstances change over time, such as when the market changes, when products and services offered change, and when customer expectations increase.

Do not send a high number of work items to a shared work queue that a high number of workers with the same role access. This can lead to significant performance issues.

References

Related Giga Research

Planning Assumptions

Workflow Goes Mainstream, Connie Moore

Integration Software Alternatives, Ken Vollmer

IdeaBytes

Overcoming the Challenges of Implementing Workflow, Connie Moore

Workflow Issues: Areas to Examine for Better Performance, Connie Moore

Business Process Analysis Skills Needed for Workflow Software Projects, Connie Moore

The Business-Process Automation Layer: When It's Not as Relevant, Mike Gilpin

Guidelines for When to Use Workflow, Connie Moore

Factors Influencing Workflow Implementation Times, Connie Moore

How to Accelerate Workflow Implementations, Connie Moore

Overcoming the Challenges of Implementing Workflow, Connie Moore

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ROI Data From Document Management and Workflow Case Studies, Connie Moore

The Different and Evolving Meanings of 'BPM', Ken Vollmer