Using Workflows in a Content Management System
Table of Contents

Workflow's Relevance Within a CMS ............................................................................................................. 4

The Case for Workflow Management ................................................................................................................ 4

Faster Cycle Time ........................................................................................................................................ 5

Decreased Expenses ..................................................................................................................................... 5

Increased Revenues ....................................................................................................................................... 5

Improved Strategic Position against Competitors .......................................................................................... 5

Workflow in Web Content Management ......................................................................................................... 5

Stages of CMS Workflow ................................................................................................................................. 6

Creation .......................................................................................................................................................... 7

Management .................................................................................................................................................... 7

Publication ....................................................................................................................................................... 7

Content Creation Example ................................................................................................................................. 8

Workflow for Press Release Example ............................................................................................................... 9

Creation Stage ................................................................................................................................................ 9

Management Stage ......................................................................................................................................... 10

Publishing Stage ............................................................................................................................................ 10

Types of Workflow ......................................................................................................................................... 10

Linear Workflow ............................................................................................................................................. 10

Parallel Workflow .......................................................................................................................................... 10

Rules-based Workflow .................................................................................................................................. 11

Ad-Hoc Workflow .......................................................................................................................................... 12

Other Attributes of Successful Workflow ..................................................................................................... 12

Check-Out, Check-In ...................................................................................................................................... 12
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work list</td>
<td>12</td>
</tr>
<tr>
<td>Work list Handler</td>
<td>12</td>
</tr>
<tr>
<td>Modules</td>
<td>12</td>
</tr>
<tr>
<td>Work Groups:</td>
<td>12</td>
</tr>
<tr>
<td>Results of using CMS with Workflow Automation</td>
<td>13</td>
</tr>
<tr>
<td>About Hannon Hill</td>
<td>13</td>
</tr>
</tbody>
</table>
Workflow's Relevance Within a CMS

A planned workflow is the underpinning of every efficient business process. Whether a business is processing leads, updating a web page, evaluating a capital purchase, or approving new hires, certain actions must take place in order for the function to be completed. Within these functions, multiple users perform a variety of steps to execute the business process. It is in between these steps in the process where workflow automation becomes important. Tasks must be efficiently transferred to the appropriate workers for the entire process to stay on track.

Workflow involves the passing of content between people in a chain that abide by a predefined set of rules. However, workflow automation in a content management system (CMS) is not only about using software to facilitate or automate the transfer of content from person to person, but it is also about tracking and recording the progress of an activity, delivering the work to any of the appropriate and available users, archiving work when necessary, and providing a framework for what actions are to take place in predefined scenarios.

The Case for Workflow Management

Typically when businesses grow, the business processes that guide work patterns are pieced together in an ad-hoc manner. Without taking the time to establish an efficient workflow, significant lag time results, leaving companies lethargic and inefficient. In the 1990’s, workflow received much attention as many companies attacked this lag time in production. Today, enterprises using workflow automation cut out much of the undesirable lag time.

By now, most enterprises have some form of workflow in place. However, most of these companies manage workflow without the aid of automation incorporated into a CMS. Managers of these companies tend to direct workflow by assigning tasks to individuals, checking up on the progress of these tasks, and attempting to keep the created content moving onto the next stage of development. Because the time frame of a task varies depending on the type of task and the efficiency of a particular worker, managers are often at a loss to explain why certain completed tasks have not already been forwarded to the next person in the development cycle. As a result of this inefficiency, a process that should only take a few hours to complete can take many days before making its way through all the lag time and to its completion. To speed this process up, managers spend more time monitoring the delegation and status of work and are therefore unable to focus on the more important business issues of the company.

These inefficiencies are precisely why Forrester Research, a leading independent research firm based in Cambridge, Massachusetts, put automated workflow as the number one reason to implement a CMS. By allowing some automation of your workflow, inefficiencies that once created bottlenecks in your business are reduced. In addition, frustrated managers are no longer forced to micro-manage and continually supervise employees. This is a direct result from the use of audit trails and workflow automation.
Faster Cycle Time
The audit trail records both the tasks and user activities. Not only can a manager ensure that a particular employee is doing what they are supposed to, but he can also use the metadata that the audit trail collects about the time the work was checked out, edited, corrected, and checked back in to determine where bottlenecks in the workflow process occur and address them. Task completion speeds up, resulting in a faster cycle time.

Decreased Expenses
The audit trail and workflow automation functions cut the cost of labor by reducing the number of hours employees need to complete a task. Also, the need for specialized labor, which prolongs the time needed to translate unformatted content, is eliminated.

Overall, operational expense is reduced because resources are used more efficiently.

Increased Revenues
Enabling companies to deliver their service faster allows the enterprise to charge higher prices to the segment of customers who value their time enough to pay more.

Higher prices can be charged for the improved brand equity established by the streamlined business process. A better business model with faster service produces happier customers resulting in more loyal and active customers.

Improved Strategic Position against Competitors
Improved workflow creates a competitive advantage over those companies still struggling to get their work through bottlenecks and dead time. The company with the most efficient workflow is able to respond to its customers and suppliers more quickly. Improving the delivery cycle time helps to lock-in current customers who experience increased satisfaction and loyalty. An improved workflow enables companies to more effectively compete as an efficient provider of a product or service. Companies using an automated workflow accomplish functions in shorter periods of time and use fewer resources to achieve the desired goal.

Workflow in Web Content Management
The amount of content produced for display in a web browser has grown exponentially in the past few years. Dynamic and accessible almost anywhere and anytime, the web stores an abundance of information. How can companies control and communicate all this information efficiently? An automated workflow helps companies achieve this goal.

The workflow of content that is published has many stages and steps en route to publication. Typically, participants pass content between the authors, developers, reviewers, editors, translators, approvers, and publishers of the content. If a workflow protocol has been present in a Web content management business process, it likely has not been incorporated with software that automates the process. A CMS streamlines workflow by using the following framework of creating, managing, and publishing content.
Stages of CMS Workflow

The stages of a CMS's workflow are listed below.

**Creation**
- Authoring
- Developing

**Management**
- Editing
- Assembling
- Translating/Localizing
- Reviewing/Approving

**Publication**
- Arranging
- Publishing
- Archiving
Creation
In this stage the initial content is input into the CMS. A manager may assign all the particulars of the task, e.g. permissible authors, outputs, time frame, workflow, etc. Or, the assigned task may be picked up by an author already cleared and associated with this type of task. The content is constructed and sent to the management stage to be reviewed. The authored and developed content is typically created as XML data that can be re-purposed throughout the enterprise.

Users:
- **Managers** decide the business rules and answers to workflow scenarios for the tasks and projects being released.
- **Administrators** have complete control over the workflow process and create the business rules that are being followed and adjust the workflow as needed.
- **Authors** create information based on the protocols laid out for the task at hand. They generate the content in an environment that is most appropriate for the task. Authors may be selected specifically at the time of task creation or may be selected according to the association of the task with their user profile.

Management
This stage consists of editing, assembling, translating, and finally reviewing content before it is published to various audiences. Content in this stage is sent through an approval, rejection, and revisal workflow that quickly advances the content to the appropriate and available editors, reviewers, and approvers.

Users:
- **Managers** can manipulate the workflow and change the attributes of the task and user profiles.
- **Editors** may be trained to go through a checklist that checks for use of correct terminology, consistency of expression, spelling, and minimalism before sending it to the approval stage.
- **Approvers** have the authority to send the content onto the translator or publication stage. There may be certain tasks that need multiple approvers or only one approval. Certain approvers may have specified attributes in their user profiles that allow them to change the task attributes and expedite the task by sending the content to quality assurance or onto publication.
- **Translators** take content and translate it into multiple languages appropriate for localized delivery.

Publication
This final stage begins upon the approval of material in the management stage. The content is displayed in an existing template, which eliminates the time needed to format content to fit the design of the page. If any rearrangement of content is necessary, the content may be moved to the appropriate position and upon a final approval the finished content is sent to staging. In staging, the content is seen as if it were delivered in its...
chosen forms. The content is then deployed to all the formats selected. The regular HTML, Lite HTML (fewer images), PDF, and handheld content is delivered without having to go through the arduous process of reformatting and reconfiguring it for each platform. The publication stage can also improve the workflow by adding features such as automatic expiration and archiving of information.

**Users:**

- **Arrangers** can move content around for optimal display purposes. They may also work on template formats and assist unifying materials for a consistent branding of content across all outputs.

- **Quality Assurance** ensures everything is ready to go by staging the content in the appropriate output environment. If the staged output meets their satisfaction, the content is deployed to the selected audience types.

**Content Creation Example**

Consider the following template for creating a press release at the Great Designs firm.

It is decided that a press release about a recent accolade should be created for publication on both the Great Designs website and a syndicated news portal for the design industry. The press release author inputs information in the following template:

**Press Release**

<table>
<thead>
<tr>
<th>Author</th>
<th>Nancy Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date &amp; Time*</td>
<td>March 15, 2007</td>
</tr>
<tr>
<td>Title</td>
<td>“Great Designs Receives Accolades for Product Design”</td>
</tr>
<tr>
<td>Brief</td>
<td>The Great Designs firm received multiple awards for the design of their new product...</td>
</tr>
<tr>
<td>Body</td>
<td>The Great Designs firm received multiple awards for the design of their new product..... The most coveted award Great Designs received was a newly created award for designer of the decade.</td>
</tr>
<tr>
<td>Company Information</td>
<td>Great Designs is an international design firm with expertise in...</td>
</tr>
<tr>
<td>Footnote</td>
<td>Great Designs © 2007</td>
</tr>
</tbody>
</table>

*Automatically generated upon publication*
Workflow for Press Release Example

Creation Stage

The creation of a press release is put into the work list and routed to the public relations department. A manager may request or begin the press release task.

The press release has many predetermined attributes that are embedded into the new task profile. Some of these attributes include:

Assignment of the Task

Who? Which user(s) are assigned to or can write, edit, review, approve, reject, assure the quality of, and do any number of the aforementioned functions for this press release?

Automatic Generation

Parts of the press release such as the Footer, Date & Time, Company Information, Copyright, and Header can be automatically filled in or selected on a case-by-case basis.

Time Frame

When? A time frame for the completion of each stage of the task, and the complete task: When is the press release to be published? User may input this data and include an escalating task warning that notifies workers of the time frame for completing the task.

Review, Edit, Approve, Reject Cycle

Does this document only need minimal review, a one step process or does it need multiple reviewers to ensure its accuracy? The number of necessary reviews and approvals can be set during the creation of the task or modified during the task by users with modifying profiles.

When an approver denies the changes made to the content, who makes the corrections? Upon rejection of material, the CMS redirects it to the creators, reviewers, or authorized workers. Additionally, the final approver can make the necessary changes on the spot and approve the material for publication.

Audience Type

The task creator may select an intended audience for the press release. This can include what format these audiences are to receive the published information and which type of style sheet is most appropriate.

Submitting Task Request

Once the attributes of the task are created and the task posted to the work list, it associates itself with the available, qualified, public relations press release author that has clearance to write the Body and Title of the Article into the template.
It is important to note that the CMS incorporates predefined business rules in its workflow automation, but it is also flexible enough to adjust the workflow at any time during the task. This means if a manager needs to update content by a deadline that is unattainable through the conventional workflow, he may adjust the workflow whenever necessary.

**Management Stage**

Upon completion of the creation stage, the press release is managed by numerous contributors. It is routed to the most appropriate reviewers/editors until the content meets their approval. Editors run through a checklist of points and edit the content if necessary, and correct mistakes in grammar, point of view, and spelling. If a document is reviewed to the dissatisfaction of an approver, the document may be amended and sent to quality assurance, or sent back to an editor with a tag indicating the amendments needed for approval. Once final approval is submitted, the CMS sends the content through a Quality Assurance worker and the finalized content is staged and ready to publish.

**Publishing Stage**

In the publishing stage the content is transformed into the output dictated by the style sheets. It may appear as an HTML, PDF, or formatted to be sent to a syndication portal. Since the content is in XML format, no reconfiguration specialists are needed to transform the content into each individual format. The content may be tagged to automatically expire and/or be archived. This streamlines the workflow even further by eliminating the added steps of removing and storing content in a repository.

**Types of Workflow**

Different companies have different needs when it comes to managing their content. Enterprises that routinely modify their content need a parallel workflow to support multiple users. For other companies and tasks, a linear workflow for updating content is more appropriate.

**Linear Workflow**

A linear workflow consists of a specific order of actionable steps that guide the completion of a project. Once a user checks out a piece to complete, no one else can modify the content he or she has checked out. The straight-line approach is appropriate when the next steps in a business process are dependent on the completion of the previous steps. Still in general, linear workflow increases the likelihood of bottlenecks, especially when contributors are unable to complete a task. Since only one person can work on the content at any time, the utilization rate of the workforce is vastly diminished. Parallel workflow enables multiple authors to work on a project at one time helping to solve this problem.

**Parallel Workflow**

A parallel workflow separates each step of content production into multiple units. Each module can be checked out by anyone cleared to access or contribute to it. By breaking the content into those specialized modules, bottlenecks are reduced and the task’s cycle time is faster.
In the real estate management workspace, content is frequently updated, maintained, and added to the portfolio. Both the linear and parallel workflow of creating, managing, and publishing content for a real estate management portfolio are represented below.

**Linear Workflow vs. Parallel Workflow**

**Rules-based Workflow**

A set of rules defines how each task flows through the enterprise. Some content may only need surface approval and the rules guiding their workflow expedite the process by requiring simple review and approval stages. Other types and formats of content require more extensive multi-tiered review, re-edit, and approval workflow. A CMS adapts to either workflow to ensure the quality of the content generated. Content in a CMS can be defined to pass onto other available contributors if a certain time limit has passed, it can be run through an application needed for completion, and it can be expedited with an escalating task manager notification.
**Ad-Hoc Workflow**

Having the ability to adjust the workflow of a task at any point in time is a requirement of a CMS. Situations may arise where employees assigned to complete tasks are unable to work. Perhaps a content approver is sick or on vacation and content needs to be re-assigned. Ad-Hoc changes to workflow prevent bottlenecks and enables managers to change the workflow of tasks at any point during the content production life cycle.

**Other Attributes of Successful Workflow**

**Check-Out, Check-In**

In order to prevent overlapping work on content and capture data for an audit trail, when users access a task, check-out, and complete or close a task, check-in, they transparently check-out and check-in the task.

**Work list**

The work list is a list of all the tasks requested, worked on, available, and recently completed. A work list needs to be flexible enough to add and remove tasks and contributors in an ad-hoc manner. Work lists also need to display:

- **User Profiles:** Who’s logged on, available, approved for a particular step in a task. Roles are assigned to each user profile type.

- **Task Profiles:** What are the components of the tasks, how important is it, in what order is it to be completed, and how soon it should be completed.

- **State of Tasks:** In what stage is the content in? Has it been “Edited,” “Sent for Approval,” “Published.”

**Work list Handler**

A work list handler is a software component that matches the step in the workflow with the corresponding task completer. When each task in a work list is completed, an available task completer of the next step will receive notification along with the content needed to be worked on. Business rules and scenario modules dictate how the work list handler directs the workflow of a task.

**Modules**

Modules contain pieces of stored XML information. Multiple modules enable parallel workflow. Consider a company that sells three different versions of a base product. One module could store all of the base product information, and three other modules could store all the variations of the product. Modules save companies the time and expense of having to add or update each individual product page.

**Work Groups:**

Tasks and all the associated users should have a portal or work group messaging system to post notes and follow the progress of an individual task.
Results of using CMS with Workflow Automation

- The designated people and machines complete the tasks requested.
- Decreased labor costs.
- As specific workers are assigned tasks reducing their procrastination and the automation of labor-intensive steps within the business function eliminate inefficiencies.
- Potential profits are increased with the higher level of brand equity derived from higher quality content.
- Managers are freed up from continually monitoring the transfer and progress of content. This enables them to dedicate more time to higher-level business strategy issues.
- Management can clarify what actually occurs in a business function.
- Procedures and actions are documented ensuring that work is getting done in the manner management intended.
- Created content and task information is readily accessible, eliminating lost time spent searching for content in an unknown location.

About Hannon Hill

Hannon Hill Corporation makes Web content management solutions that give people the freedom to manage their Internet, Intranet, Extranet and Portal content with ease. Our solution, Cascade Server, is ideal for midsize organizations including education, healthcare, technology and publishing. Designed for any network environment, Cascade Server is as easy as e-mail and gives IT departments much needed deployment flexibility, a zero footprint client and a fast implementation. Since 2001, Hannon Hill solutions have been trusted by organizations including Duke University, Carnegie Mellon University, MCG Health Systems, PGP Corporation, Reed College and SCOREGolf Magazine. For more information about our award-winning Cascade Server, go to www.hannonhill.com or contact us directly at 800-407-3540.