

HEMINGWAY WHITE PAPER

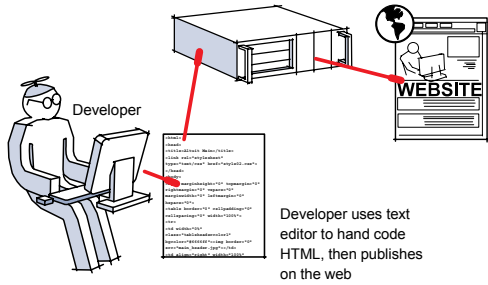
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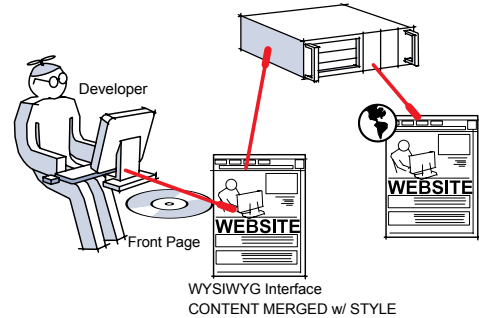


A Brief History of Website Development

In order to better understand the benefits of a next generation web management and Content Management System (CMS) products, it's helpful to take a look at the history of web development tools.

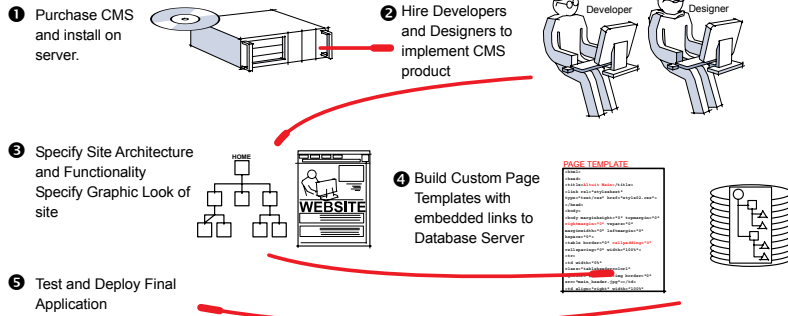
Early on, web developers used text editors to create HTML. So, programmers and technicians were the only ones capable of building websites. Tools were very primitive and relied solely on the programming knowledge and design skills of the individual writing the HTML.

This gave way to a new breed of Client tools such as FrontPage and DreamWeaver. These tools helped developers by incorporating commonly used page formats in reusable templates. These templates acted as a point of departure for the website design and started to make better page designs available to a wider group of HTML programmers. Despite these tools, advanced technical skills were - and still are - needed to operate this type of product because understanding concepts such as hyperlinks, formatting tables and site architecture is a requisite. In fact, using these programs fused content with style, and it became very difficult to change content and modify styles independently without consuming a great deal of time and technical expertise. Eventually, developers came to realize website architecture needs to be thoroughly specified at the start, as later changes are difficult and expensive.

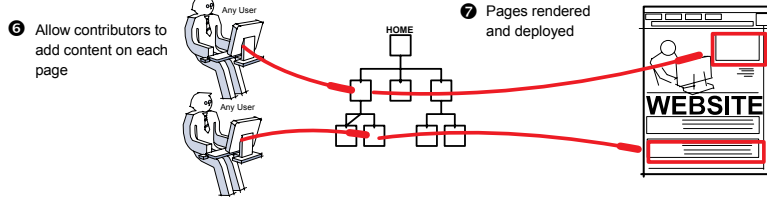


Typical CMS Deployment

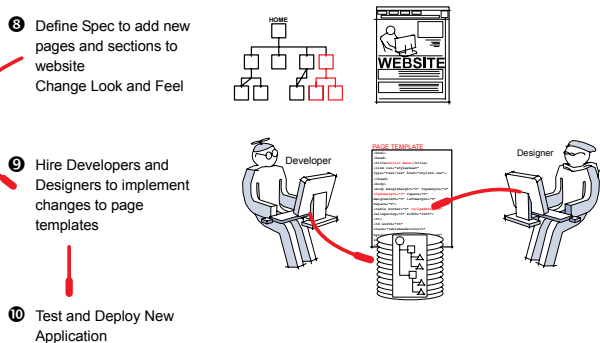
CMS Phase 1 - Application Development



Phase 2 - Add Content



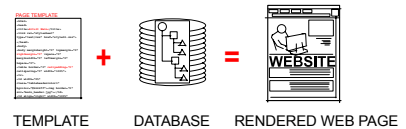
Phase 3 - Revise Design and Structure



Existing CMS: Dynamic Content but Static Architecture

Websites became larger, more complex, and tied to revenue generation through the use of e-commerce applications. Managing style separately from content was no longer optional ... it became business critical. Business use of web technologies also increased the rate of change to both web content and structure. Allowing a wider audience of people to contribute content became a requirement for keeping up with the new accelerated pace of business.

The notion of allowing non-technical users to directly contribute content paved the way for early Content Management Systems (CMS) such as Vignette and InterWoven. These CMS systems successfully separate content from presentation by storing the content in database servers. Contributors simply add content to the database without worrying about how or when it would appear on the website. Then, either manually, or at predetermined intervals, the websites are updated by rendering the database content using page templates.

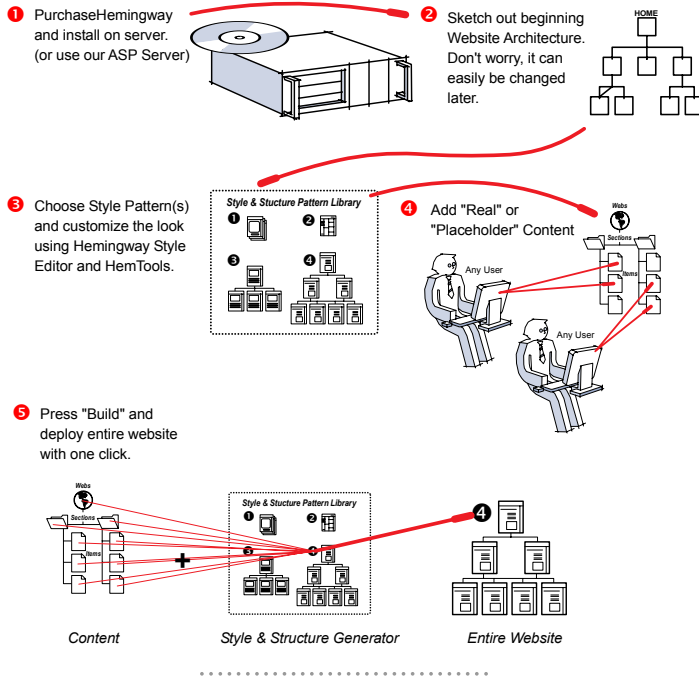


The page templates are constructed by expert developers with the help of talented designers. Unfortunately, the ability to support a dynamic site architecture is not addressed, so changes to website structure are still costly and time consuming as only expert designers and trained developers can implement them.

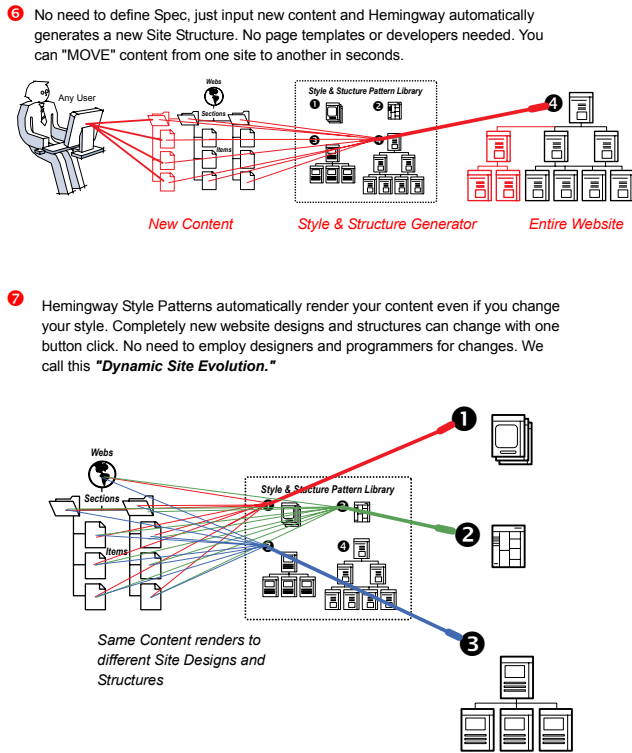
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Hemingway Phase 1 - Basic Website Layout and Content Creation

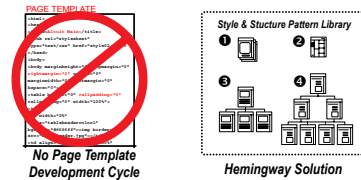


Phase 2 - Revise Structure and Design

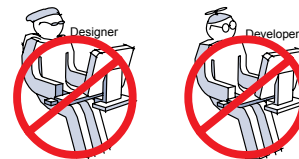


Hemingway CMS

Altuit's **Hemingway** is the next generation of Content Management Systems (CMS). It uses "Dynamic Site Evolution" to streamline the ongoing development process. Instead of page templates, Hemingway uses web style and structure patterns, each with it's own **website DNA** which describes how websites will grow and evolve. These macro-templates render websites based on embedded structure rules and style guides, *automatically generating new pages and site architecture based upon the content.*



By changing the macro-template employed, complete and new websites can be deployed in seconds based on existing content. So, there is no need for the costly and time-consuming repetitive development and application of page templates. Many companies expend huge amounts of money and manpower in a futile attempt to predict the specification of the final site architecture. A less costly and lower risk approach for companies is to provide immediate out-of-the-box structure and style to create a robust website infrastructure. This encourages dynamic and organic site evolution.



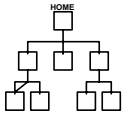
Hemingway removes the dependency of contracting and funneling work through developers, designers, and product experts by incorporating the skills and best practices of expert resources. As a result, Hemingway empowers all users, in a controlled and managed fashion, to take ownership of individual portions of a more complex website. By shifting the ability to grow and evolve to the user community with practical (not technical) expertise, companies can realize maximum benefit from their website deployment. With Hemingway, companies can focus on the business process and producing high value content - not developing, managing, and tuning their web toolset. It should be noted that Hemingway also provides these capabilities for a fraction of the cost of other current CMS or web management solutions.

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Four Key Dimensions:

Architecture



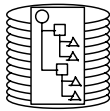
Structure



Style



Content



Dynamic Site Evolution

How Hemingway stores data

Web technologies have matured to the point where they are integrated into the very fabric of business operations. Companies of all sizes are dependent upon the Internet for their public presence and e-commerce activities, an Intranet for employee communication and collaboration, and an Extranet for forming lasting bonds with their business partners and key customers. The following sections discuss successful web deployments and recommend site evolution processes that will help organizations implement best practices on their own web efforts.

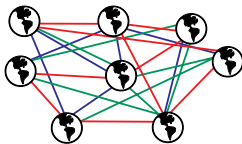
There are four key dimensions to be considered when implementing a website infrastructure: **architecture, structure, style, and content**. Web architecture is the overall logical organization of a website. Web structure is the physical implementation of the architecture including the number of pages, their contents, and the navigation linkages between different areas of the website. Website style is the visual attributes of a website which focuses primarily on how it looks - including color choices, font styles, and page layout. Lastly, content is the atomic level that conveys information. Content can exist in many forms such as videos, forms, HTML, images, text, URL links, and audio to name a few.

Traditionally the first and most important step in creating a website is defining the architecture and style. It is also the most expensive and time-consuming step in building a website. Page design products (eg. Frontpage™, DreamWeaver™) or content management systems (eg. Vignette™, Interwoven™) require a precise definition of architecture and style before website implementation can start. Using these tools, the architecture and style are specified at the onset through an elaborate process of requirements gathering through discussion with HTML programmers, users, and graphic designers. Unfortunately, it is rare that these specifications anticipate future needs. Any changes after deployment are very difficult and expensive to make, as architecture and style are usually hard coded parts of websites developed by individuals with expertise in HTML programming and who are intimately familiar with whatever web product being used.

There is an alternative... *Altuit, Inc.* has developed a product called *Hemingway™* which allows a much more natural way to implement and evolve a website. This process is called *Dynamic Site Evolution™*. Unlike ordinary content management systems, which only allow for dynamic content, Hemingway allows authors to manage site architecture, site content, and site style throughout a website's lifecycle including development, deployment and use. *This organic growth process closely follows the way people work and the way websites evolve.*

World Wide Web

Evolution, not Specification

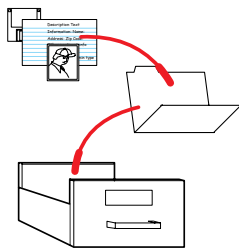


You only have to examine successful organizational systems in the real world to see how natural this process is. One example is the **World Wide Web** itself. There is no grand architect or master specification. In fact, one of the most successful attributes of the World Wide Web is the ad hoc nature of its structure. It grows through evolution - not specification. Successful corporate intranets operate in the same way. *They evolve not by specification, but rather by need and usage patterns.*

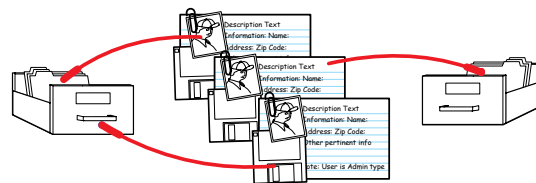
An **office filing cabinet** is another organizational system, which grows by evolution and not specification. Information is added as individual files, which are organized by folders, which are put into file drawers. Re-organization is a simple matter of moving the files around and changing which specific folders or file drawers contain them.

Filing Cabinet

Evolution, not Specification



Contrast this evolutionary approach to highly structured approaches. Highly structured approaches map well to static "brochure websites" where content is carefully organized and presented, then never changed. Visitors to these rigid and static sites may get some value on the first visit, but usefulness and relevance quickly declines upon subsequent visits. *This is where many implementations of websites including Internet, Intranet and Extranet fail.*



Filing Cabinet

Content Management System works the way people do

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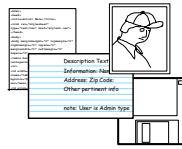
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1 Content

Images, Text, HTML, files

Metaphor:

File Cabinet = **Index Card**
Hemingway = **Item**

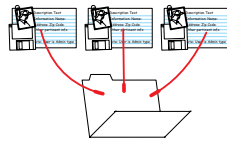


2 Organization: 1

Multiple Index Cards in a Folder
Multiple Items in a Section

Metaphor:

File Cabinet = **Folder**
Hemingway = **Section**

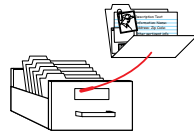


3 Organization: 2

Multiple Folders in a File Cabinet Drawer
Multiple Sections in a Website

Metaphor:

File Cabinet = **File Cabinet Drawer**
Hemingway = **Website**

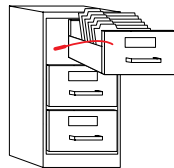


4 Organization: 3

Multiple Drawers in a Cabinet
Multiple Websites in a Domain

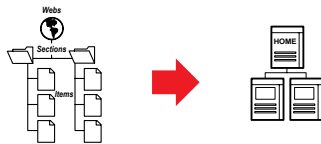
Metaphor:

File Cabinet = **Cabinet**
Hemingway = **Domain**



Render Translation Example 1:

This website uses a 2-level DNA template. There are 6 Items divided into 2 Sections. Hemingway renders a website home page, and 2 Section pages. Each section page has 3 Items on it.



Dynamic Site Evolution (cont)

How Hemingway stores data

Most successful websites, especially Intranets and Extranets, are more evolutionary than specified. Content is constantly added to them, the architecture constantly changes. *The problem is that soon the websites, while full of content, are impossible to navigate - much like a file cabinet with no obvious filing system.* It is at this stage when a corporate Information Systems group must decide how to re-architect and redesign their website. Most traditional web tools don't make this problem any easier. Page design tools embedded content in the style and the rendered pages so harvesting it for reorganization becomes almost impossible. Content management systems (CMS) have a different problem, content and style are separate but the rigid definition of site structure and the linkages to the content sources creates a complex reprogramming effort for even the simplest restructuring.

In summary, on one hand is *specified* structure: rigid, hard to change, expensive to implement. On the other hand is *evolved* structure: content rich but with serious design and architectural navigation problems. **Hemingway** avoids both of these problems by using a unique technology called **Website DNA** which like human DNA provides all the information necessary to build and manage complex and evolving architecture and structure. Hemingway allows loose specified architecture at the outset, which can be easily modified and changed at any time. This creates a dynamically evolving, user-controlled website structure and style. Hemingway automatically applies its **Website DNA** rules to new web content as content is added, then automatically creates and formats pages, links and navigation. Hemingway authors find it easy to manipulate content and redefine structure at any time. **In fact, Hemingway works the way people think.**

With Hemingway, think of web content as a bunch of index cards. Each card can have text, images, html, links, forms etc on it. Spread the cards out on a table or pin them to a wall. This is your web content. In Hemingway, the analogy to index cards is **Items**.

Now, ask someone to find something on one of the cards. It quickly becomes apparent that some sort of organization is necessary in order to locate the proper card. This is the same problem many websites have after continual evolution. The website is actually a collection of content without apparent structure.

The solution is to use folders to organize the index cards, file drawers to organize the folders, and cabinets to organize the drawers.

Using this metaphor, Hemingway's organization model can be described as follows:

- Items** (index cards) are organized into **Sections** (folders),
- Sections** are organized into **Webs** (file drawers), and
- Webs** are organized into **Websites** (cabinets).

So, reorganizing your website is as simple as filing a index card, moving a folder, moving index cards from one folder to the next or even copying a whole file drawer. In fact, if you add an **Item**, Hemingway automatically files it for you!

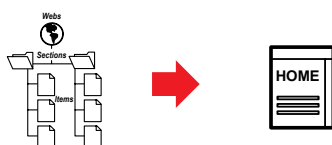
Render Translation Example 2: (same content)

This website uses a 3-level DNA template. Hemingway renders a website home page, and 2 Section pages. Each Section page is linked to 3 Item pages - one page per Item. This template is good for Palm or PDA based website renderings.



Render Translation Example 3: (same content)

This website uses a 1-level DNA template. Hemingway renders a single home page with first Section in the left column and the second Section in the right column. Each Item is rendered in its respective Section. This template is good for Portal or deep-linked website homepages.



In summary, using **Hemingway** means:

- you don't need to focus on structure and architecture from the beginning;
- you can modify and evolve a website structure as changes and content are added;
- you spend less time focused on architecture and structure and more time focused on adding content to your websites; and
- depending on the template you use, the total web architecture and website design can change with a click of a button. Five seconds later a new website (file drawer) is reorganized, re-linked, redesigned, and published!

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Hemingway Product Snapshot

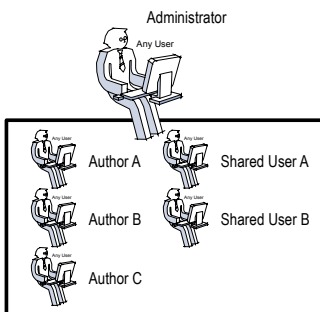
The **Hemingway** web application is an industry unique approach to website content management. Hemingway renders and publishes entire websites in seconds and encourages Dynamic Website Evolution through an interactive, browser based interface. Hemingway is designed for novice users, so any employee can easily make contributions to a corporate website (assuming they have the appropriate permissions).

Product Specifications

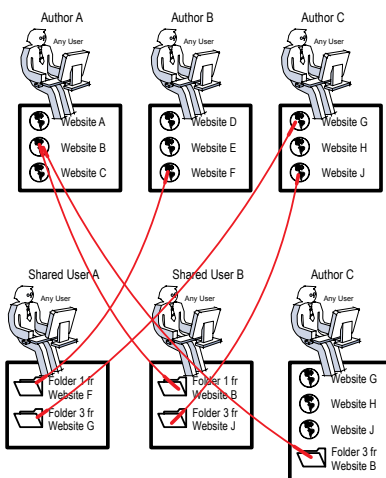
The Hemingway web application runs on Microsoft Internet Information Server (IIS) using Altuit's proprietary ASP, COM, and custom components to communicate with Microsoft SQL Server. The application can be configured to run on one server, or load-balanced across any number of servers.

The primary user interface is forms based and accessed through a browser and is intended for non-technical users. Hemingway's browser interface has been tested and found to work on many operating systems including: Windows, Macintosh and Linux.

The Hemingway application renders HTML websites from user content and structure information stored on the SQL server and in Author directories. Typically, full websites are rendered in only a couple of seconds. The rendered websites have no dependencies on Hemingway and therefore can easily be transported to another webserver or web development tool.



Administrators manage Authors and Shared Users



Authors control which Shared Users can access which parts of the Authors websites. An Author can also be a Shared User of another Author's website.

Hemingway Users

A key principle of Hemingway is the ease of use which users can submit and change content on a website. One way this is enabled is through the setting of user permissions.

There are five different types of Hemingway Users.

Administrator

The Administrator can create and delete users, assign permissions, and manage authors and domains. Typically a single Administrator can do all of this. No technical experience is required.

Authors

Authors can build and deploy any number of websites. In reality, an Author can also be thought of as a Domain. While an Author does not need to have a specified domain (myDomain.com), only 1 domain per Author is allowed.

Assume an Author's domain is myDomain.com and there are 2 webs created there: "Friends" and "Family".

Then <http://www.mydomain.com/friends> would point to the friends web, <http://www.mydomain.com/family> would point to the family web and so on.

Authors can create content, change style templates and design, view web statistics, build websites, apply restricted access permissions, and allow websites or portions of websites to be shared with other users.

Shared Users

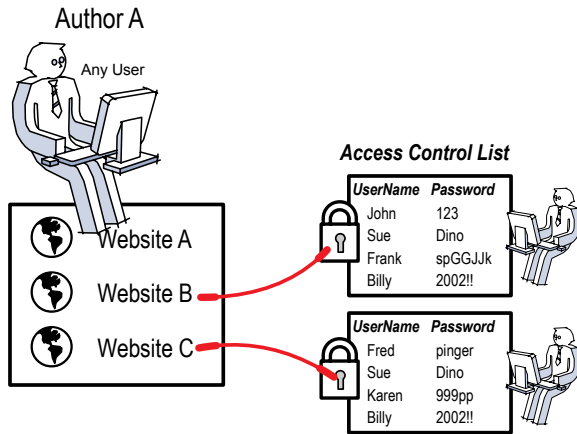
Shared Users are registered users of Hemingway assigned with share privileges by the Administrator. Shared Users may be in themselves Authors as well. In this way an Author may "share" part of his (or her) website with another Author and/or Shared Users.

Suppose an Author has created a "Human Resources" web with 2 sections: "Jobs" and "Employee Manual", then he (or she) can allow a Shared User to edit both sections or any single section. Different Shared Users can be assigned the responsibility of managing different parts of a website. Shared Users can be given permission to build websites, or just add content so the Author can review the changes and build the website. Shared Users cannot manage the style, or any settings for the website.

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Restricted Access Users



Author A can set viewing privileges for Website visitors using an Access Control List with any number of username, password pairs. Once set, all visitors will be redirected to a secure password page before entering the website.

Hemingway Users (cont)

Restricted Access Users

A property of a website which can be set by an Author is the Restricted Access Control List. This list is comprised of username-password pairs, one for each intended visitor to the website. If this list is turned on, anyone attempting to view a page in the specified web will be first prompted for a username and password.

ItemWizard Submitters

Authors can easily create small custom client applications, called "ItemWizards" which can be deployed to any users (ItemWizard Submitter) they wish. ItemWizards are very simple step-by-step wizard applications which prompt users to add or change content to a specific part of a website. This is the simplest form of content submission and absolutely no previous training or experience is needed for ANYONE to use an ItemWizard! ItemWizards are easy to build as well. Typically they are authored in only a couple of minutes using the ItemWizard author mode application.

ItemWizard Submitters are assigned usernames and passwords using a web's Restricted Access Control List.

Examples:

An Author of a website called "Programming Resources" might create an ItemWizard for an employee to update the "Tip of the Day" on the main page each day.

A Project Manager Author may email a client an ItemWizard to archive and post documents and images to a restricted access website.

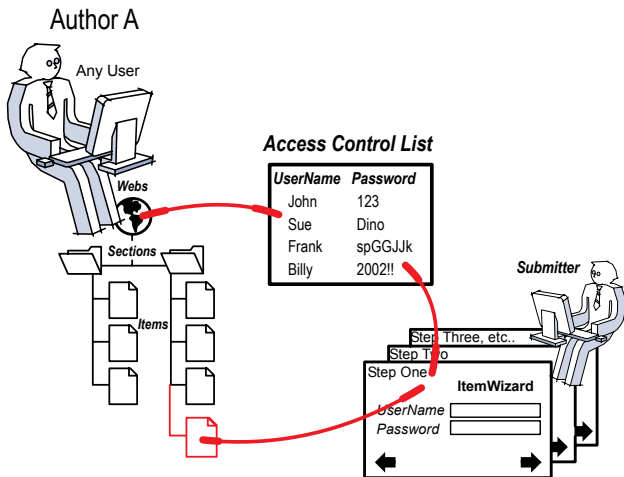
A soccer coach could give an ItemWizard application on floppy disk to players for updating personal data on a team soccer website.

An Author may give an ItemWizard application to a restaurant owner to update a recipe of the month.

Project Team members may be given ItemWizards to easily and quickly update a project intranet website.

A Marketing person may use an ItemWizard to post new Press Releases. (see example below)

ItemWizard Submitter



ItemWizard Example

This is the step-by-step process whereby a Submitter can upload a new Press Release to an existing website.

