



## Content Management Software: What functionality should I expect?



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### Setting the Scene

The term 'Content Management System (CMS)' has a number of definitions in the current marketplace. Some refer to Web applications, others refer to portals to name but two. Before we embark on the functions it is worth spending some time breaking down this term.

When we refer to the term 'Content', what do we actually mean? Well, we firmly believe the term 'Content' is defined as unstructured information e.g. text, emails, image, video and audio information as oppose to structured information (also known as codified or factual information or data that can be analysed using arithmetic or logical deduction) that is typically held in computer databases. Typically organisations only hold about 10% of their information in a structured way with the rest of it, 90% being scattered around the organisation and held in a plethora of formats. Content Management Software is about managing around 90% of an organisation's content.

Content, just like any other asset should be managed throughout it's lifecycle from creation or capture through to destruction (no longer required) or long-term archive (a near-line or off-line repository of content and structured information that are no longer in active use, but need to be retained for some future reference). It is this *space* between these two extremes that defines the management functions that need to be applied to your content as part of your business processes. Your organisation can only define what this is and thus a true definition of CMS is what you make it. We've listed around 40 different functions that could become part of your requirements. See *Table 1. CMS Functions*.

Finally, to tie up the term, a 'System' is needed to join up the functions.

To summarise then, our definition of content management system would be:

"An electronic way an organisation manages the complete lifecycle of its unstructured information or content e.g. text, emails, image, video and documents from capture and creation to eventual destruction or long term archive. The functions and steps in between being decided by the organisations' business process requirements."

Many schools of thought when talking about content management systems often refer to web content management (WCM) systems. In our opinion, content destined for web use should not be treated any differently to any other content within the organisation. We strongly believe that the fundamental role of content within a business is to base business solutions on the complete lifecycle that encompasses content in all its forms. Content, therefore, is fundamental to almost every business process, as an input, an output, or more often as both.

For example, a call centre sales order process might include a customer order (a telephone call where the operator fills in an internal on-line form, a subsequent written document requiring a signature or an e-mail), an order acknowledgement, and a thank you note require generating and storing. Equally, creating a marketing brochure process might comprise some images, and a design template, and may be output in multiple formats, to print and to a Web site.

In time to come, we will be able to break content down into its individual component parts, and handle it at a component level as discrete bundles of information. This would yield numerous benefits including avoiding duplication in business processes, and allow content to be repurposed or repositioned for publishing purposes to different channels e.g. Web, Mobile and T.V. At present, this does not reflect the way that we actually use our content, the majority of which involves bundling up components into one large component, that we would term a document.

### High Level Benefits

There are a number of tangible and intangible benefits to be realised by introducing a CMS.

At a high level these are to reduce operational costs, improve staff productivity, assist compliance with regulations e.g. UK Government Freedom of Information Act 2000, improvement in customer relationship management and service and improve Enterprise Resource Planning.

### Market Dynamics

We are now seeing a convergence, not only of Document Management (DM) and Content Management (CM), but also of other information-centric technologies such as Records Management (RM), Knowledge Management (KM), Digital Assets Management (DAM), Software Configuration Management (SCM), enterprise portals, forms recognition and collaboration tools. Traditional DM vendors are moving into the CM space by acquiring vendors, CM vendors are adding collaboration tools. This convergence reflects the overlap that exists between these technology sectors, and the need to take a coherent approach to the management of information within the organisation. In our opinion the confusion caused by terminology and the market shake up is only confusing organisations in their quest to find solutions to their information management solutions. RM is becoming one of the biggest drivers for both private and public sector organisations. Recent accounting disasters such as WorldCom and Enron in the private sector have fuelled interest and the UK Government Freedom of Information Act legislation comes into force during 2005.

## Core Functions

The core functionality of some of these areas<sup>1</sup> is highlighted below:

### **Enterprise Content Management (ECM)**

ECM is a relatively new term that is used to differentiate content management applications that adopt a broad definition of content. In addition to handling Web content, these products also address content such as e-mails, office documents, document images, and rich media.

### **Web Content Management (WCM)**

As the name suggests, WCM focuses primarily on Web-based content, although will not be limited solely to XML and HTML content. Whilst these formats are the most common storage and presentation formats for Web pages, the overall site will also include many other formats, including images, audio, video, PDF files, and other specialised formats, including program code. WCM ranges from basic applications that are capable of handling a company intranet, up to full-blown systems that specialise in supporting the largest scale e-commerce initiatives, and the management of multiple Web properties with multiple language support and often on a global scale.

### **Document Management (DM)**

DM grew up from the 1980s when electronic office based systems were generating files and needed to be stored more efficiently and at that time were no more than electronic filing cabinets. DM systems therefore include document capture, document storage, indexing, and retrieval, strong workflow capabilities, document versioning, document check-in/check-out, document collaboration and distribution. These applications have a good understanding of the relationship between documents and business processes, and are capable of managing the entire document lifecycle.

### **Records Management (RM)**

RM is about managing records as a corporate information resource throughout their life cycle, from the point of their creation to their ultimate preservation or destruction<sup>2</sup>.

### **Digital Asset Management (DAM) & Digital Rights Management (DRM)**

Whilst having much in common with WCM and DM, DAM systems focus on content that generates revenue, or has a clear value. Most often, these digital assets are rich media files, such as images, video, or audio, and the DAM application helps to capture, catalogue, and secure these assets, and then to maximise value through assembly and publishing services.

### **Knowledge Management (KM) & Collaboration**

KM tools cover a broad spectrum, but are designed to help an organisation maximise value from its intellectual or knowledge-based assets. Some applications in this category provide a platform for capturing, organising, and distributing organisational knowledge, whilst others focus on more specific areas such as searching, indexing, e-learning, data mining, and particularly collaboration.

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<sup>1</sup> Source: Butler Group

<sup>2</sup> Source: Public Records Office

### **Implementing CM Everywhere, Change, Configuration & Content Management**

Collaboration is part of the KM space, because facilitating collaboration between employees, and externally with partners, is essential both to information capture, and to exploiting that knowledge base. Collaboration technologies include instant messaging, interactive discussions, online meetings, peer-to-peer knowledge exchange, and project-based team working.

### **Software Configuration Management (SCM)**

SCM applications are used to manage program code during the software development lifecycle. They include version control, check-in and check-out facilities, code repository and auditing capabilities, and support the participation of geographically distributed teams in large-scale software projects. The entry of SCM vendors into the content management space has been prompted by two factors: firstly, many of the management facilities already described are also applicable to the wider definition of content, and secondly, as Web site development becomes more complex, it includes a mixture of program code and content.

Looking at the above definitions and their descriptions it becomes more apparent that a content management strategy will require a combination of several applications or technologies.

### **Core Technologies**

The technologies for a CMS can cover **five** main technology areas:

1. **Capturing** content using imaging, scanning and hybrid systems, colour scanning, forms processing, hand written recognition, ICR/OCR/Voice recognition technologies.
2. **Management** of content including business process management and outsourcing, workflow, portals, search engines, XML, content categorisation, DM, DAM.
3. **Storing** content including email security and archiving, data warehousing, storage systems (SAN, WORM, RAID, MO, DVD, CD-ROM), and compression.
4. **Preserving** the content using RM and archiving, film-based imaging, digital preservation, DR and planning.
5. **Delivering** the content using digital printing and publishing, print systems and utilities, authenticity, digital signatures, electronic bill presentment, wireless/WAP/Bluetooth and of course WCM.

Current vendors have addressed this requirement in one of two ways, either by building a suite of products that provides a broad range of functionality, or by partnering with other vendors to ensure that their products are capable of close integration. Integration is a key issue for organisations to consider as they evaluate content management solutions.

To conclude this paper I want to provide a comprehensive checklist of some 40 functions that can be used to decide requirements, see Table 1. CMS Functions. Note that not all apply to every organisation and it is worth noting those requirements that are mandatory or desirable for your needs.

Table 1: CMS Functions

No.	Function	Description
1	Document Capture	A range of techniques for adding existing documents into a repository. Includes document import and transformation, and document imaging. Note that documents in this context is a term used to describe emails, CAD files and other electronic files.
2	Authoring	Creating the content. Facilities for content creation using either office applications, or built-in creation tools. Emphasis on ease of use and simple submission process.
3	Metadata Tagging	Describing the content
4	Editing	Changing and updating the content
5	Indexing	The ability to create indexes of document and content items.
6	Searching	The ability to provide powerful search capabilities both at document and content levels.
7	Viewing	Retrieved content is viewed correctly regardless of viewing device e.g. PC or mobile phone.
8	Collaboration	Tools that allow users to collaborate on the creation, use, and distribution of documents and content.
9	Workflow	Letting the appropriate people take the correct actions, needed in a decentralised solution. Supports the routing of documents and content between individuals and processes. Enables features such as document approval.
10	Database Integration	Content needs to be tightly integrated with structured information i.e. that held in databases
11	Security	Stopping the wrong people from manipulating content
12	Version Control	Enables the tracking of changes to documents and content, providing an audit trail, and the possibility of rollback to previous versions.
13	Scheduling	Deciding when to display content
14	Templating	Allows separation of content from its presentation. A Web designer can create and edit templates, which are applied to content submitted by authors. Displaying in the correct format e.g. use of Stylesheets and Page Templates [non technical users]
15	Syndication	Allowing content to be displayed by others. The ability to provide a content feed to a third party, often as a revenue-generating service.
16	Personalisation	Displaying content differently dependent on the visitor. Allows content to be personalised to the needs of specific individuals or groups of individuals. A wide range of personalisation techniques exist, based on information such as user roles, user preferences, or user activity.
17	One-to-one Marketing	Web site can tailor it's content advertising to a users specific characteristics gathered by the site
18	Standards	Adheres to current/emerging standards e.g. W3C(XML), SOAP, DTD Dublin Core (Meta Data), WebDAV
19	Filtering	Ability to filter out content for publication or filter out specific users content retrieval
20	Categorisation	Break the content of documents into components, categorise them and store the relationships. Allows documents and content to be tagged and categorised within a taxonomy or file classification scheme, either manually, or by tools that offer automatic categorisation.
21	Application Integration	Integration into existing infrastructure, suppliers, customers, partners (B2B) and third party product
22	Sharing	Sharing (B2B) content with other organisations
23	Administration	Content administration and management especially from non technical staff and content creators

**Implementing CM Everywhere, Change, Configuration & Content Management**

No.	Function	Description
24	Separation	Separating content and presentation so that content can be re-used, eliminates duplication, eliminates publishing bottlenecks, and reduces storage requirements
25	Storage	A secure storage facility that is capable of handling a wide variety of content types, and enabling access to authorised users. E.g. storage area networks and jukebox technologies.
26	Centralised Management	Managing content centrally to aid control, distribution and management
27	Records Management	Ability to capture, store and manage all records including physical records. Common functions should include a file classification scheme and a retention and disposal plan. Strict requirements should conform to the Public Records Office requirements.
28	Translation	Content that is delivered in several languages and countries
29	Reporting	Ability to report on the content for users and administrators
30	Audit Logging	Content activities are logged for tractability
31	Usage Statistics	Comprehensive usage statistics need to be captured e.g. popular pages, daily usage and search engine usage
32	Speed	Content should take into account bandwidth, bottleneck and general network consideration so that it is presented to the user or content creator quickly
33	Content Aggregation	Allow different pieces of content to put together and viewed in a single, unified way
34	Content Delivery	Provides facilities for delivering document and content to users in the most efficient manner. Includes techniques such as caching of content, to reduce the load on the infrastructure.
35	Content Aggregation	Enables different elements of content to be collected together and presented to the user in a single, unified view
36	Digital Asset Security	Technologies for ensuring that digital assets are used only as authorised, particularly when they are delivered outside the company firewall.
37	Web Site Development	Tools to allow web site design, creation and publishing. Facilities for the development of content-based Web applications, supporting both code and content elements.
38	Web Publishing	Manages the publishing of content to a Web site, ensuring that the correct content appears on the correct site in the correct format. Also manages issues such as content expiry.
39	Multiple Web Site Management	Tools that address the needs of multiple Web site deployments, simplifying issues such as synchronisation, localisation, branding, and content delivery.
40	Platform Viewing Independence	Enables content to easily be reused or repurposed, and delivered to different channels. Content can be viewed across many different end platforms including Internet, Mobile Devices and TV.



CODO Limited is an impartial and unbiased consultancy company offering unrivalled independent advice and services on all aspects of corporate information and enterprise content management.

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