

---

---

## Content Management : A new Role for 21<sup>st</sup> Century LIS Professionals

R S R Vara lakshmi

### **Abstract**

*The web and intranet environments permanently altered the way the library and information centers handle information activities. Content management is a set of rules, roles, and processes that manages the content or document life cycle and delivers accurate information. The article presents an overview of the content management, its need and advantages. The focus of the paper is on the application of content management techniques to libraries influenced by network environment.*

**Keywords :** Content Management, Content Creation, Digital Content

### **0. Introduction**

The growth of Internet, the increased sophistication of web based tools, the intranet and campus networks within the organizations have changed the role of libraries. Huge volumes of data are available in this networked environment for academic sharing. The concern is how to integrate and handle this information and how quickly and seemingly access can be provided. The content of electronic document is the key to the performance of Library and Information Centres (LICs). As a result, there is the shift in emphasis from the library as a place towards information to which it can provide access and from author to end-user. The success of the library depends on how effectively and efficiently they capture, create, manage and deliver the information contained in internal and external databases and websites. However in reality, the libraries are growing organically over time but the content of databases, though useful, is far from perfect, as some of them are out-dated, need updating and hence lost track of the required information. Most libraries do not have an effective way of making relevant, valuable digital content available to users. In this context, librarians can apply content management techniques that are designed to manage the content of websites and other databases. The article presents an overview of the shifting perspectives and changing roles of library professionals of 21<sup>st</sup> century as content managers.

### **1. What is Content Management**

Content Management (CM) increases document management efficiencies to capture, manage, store, preserve and deliver content. Gartner Group explains, "Content management is an ambitious phrase with meanings that vary depending on what a user may need or vendor may offer" (1). According to the business world, CM is a software package specifically designed to manage a website. Installed by web designers, via web-based interface that works much like word, it intends to be used by managers of web. It provides a simple non-technical way of updating the content. According to James Robertson, "A Content Management System supports the creation, management, publishing, and discovery of corporate information. It covers the complete life cycle of pages on your site, from providing simple tools to create the content, through to publishing and finally to archiving. It also provides the structure of the site, the appearance of the published page, and the navigation provided to the users."(2).

Vignette and its alliances (3) classifies the CM in to three categories:

- ✍ Content Development Management – involves the creation of digital content from concepts, content authoring, digital asset management, and document process management.

- ✍ Application Content Management – involves content aggregation, content description (metadata management) and delivery content specification.
- ✍ Content Delivery / Acceleration Management – involves the delivery of content in a controlled and optimized environment.

Thus despite variance, CMS are concerned with the administration and enabling of content storage, personalization, authoring / editing, approval, publication and delivery with in an established work flow. The CMS are basically developed keeping in view the corporate sector as target customers. A number of vendors like Vignette, Step two etc are making large business out of it. However, this article does not deal with those details rather confines to the application of content management in library and information environment.

Libraries are primarily concerned with the second category of content management as defined above. Electronic communication facilities provide opportunities for libraries to acquire and or access more information, both internal and external. As a result, a very large body of content is being piled up, which requires a strategy for information building and access. The LICs have to analyze, classify and capture the key knowledge and support the goals of the parent organization. They can achieve this with the help of content management techniques.

### Related terminology

Content management has gone by many names such as Knowledge Management, Document Management, Software Configuration Management, Web Content Management, Digital Access Management, Digital Rights Management, with subtle difference but aiming at the similar target information i.e. content objects, files, associated material or relational data. As Trippe puts it, “the names may change but in many ways the story is the same. Over past several years we have seen a quick and accelerating shift from one term to another that attempts to name the technology responsible for creating, updating, managing and distributing material in many forms ...Call it a ‘document’, ‘knowledge’, or ‘content’, the problem set that was identified years ago is, at its core, the same. There is simply more of everything – more core material, more forms of it, and more ways to distribute” (4). Owing to technological developments there is volumes of information in databases, on net and with humans as creators and carriers of knowledge. Hence the organizations want to manage the content for re-use, share, and preserve to function effectively. Thus they have returned to information in the new term ‘content management’, that encompasses a broad field since every one needs to manage their content for effective functioning of the organization.

## 2. Need for Content Management

The content management is a necessity for any organization, be it educational, medical, transportation, legal, Government, business etc. though much propagation is given to the business world. According to Doyle (5) there is crisis for content management because:

- ✍ “The unstructured content is growing at 92% CAGR (Enterprise Storage Group)
- ✍ Typical office worker spends 40% of time looking for information
- ✍ Professional spend over 500 hrs annually reviewing and routing files
- ✍ Another 150 looking for an correctly filed documents
- ✍ US ws \$25-35 annually for filing, storing and retrieving paper (IDC)
- ✍ By 2004, organizations will maintain 30 times more data than in 1999 (Gartner)”.

Therefore CM offers an answer by accurate data recognition without loss of time. Ahuja stated that content management system is needed when:

- 
- 
- ✍ "There is too much information to process by hand.
  - ✍ Information is changing too quickly to process by hand.
  - ✍ More than one publication needs to be created from a single base of content.
  - ✍ The design of a publication needs to be separated from the content so that as design changes search page of the publication need not be modified by hand." (6)

Thus, content management is an inevitable tool for libraries and information centres to improve the accuracy and up datedness of information, reduce duplication of information, streamline knowledge, improve its sharing, support growth of databases and websites, and improved customer service.

### 3. Benefits of Content Management

CM is a critical success factor for implementing any organizational data that is content and process centric. Processing of the content is necessary to approve the documents and positioning them. Libraries being the information process centric can apply CM and achieve more benefits. The benefits of CM are:

- ✍ Streamline the incorporation of changes and updating of data on web pages;
- ✍ Allows greater consistency and increased flexibility;
- ✍ Reduces duplication of information;
- ✍ Greater capacity for growth with increased security;
- ✍ Ensures consistency in design and supports navigation by different user groups;
- ✍ Interaction and sharing of electronic information that is deeper in character.

### 4. Application of Content Management in Libraries

The contemporary information environment is witnessing shift in the perceptions and strategies caused by digital world. Content management is one among several shifting perspectives. Six important factors need to be considered to understand the application of content management in digital library environment.

- ✍ Collection development of digital content
- ✍ Processing and Organizing the content
- ✍ Management of the content.
- ✍ Work flow
- ✍ Publishing and Presentation
- ✍ Strategic information services

#### 4.1 Collection development of digital content

Content exists in numerous formats – paper, graphics, electronics, e-mails, audio and video, web content etc. The document management efficiencies require capturing, managing, preserving and delivering content protecting content longevity and data recognition accuracy. The focus of the collection is on the content, what ever it be and wherever it comes from. In a typical library environment the collections are hybrid in nature and provide access to plethora of information in multiplicity of formats. However, the proliferation of digital resources does have an impact on collections of libraries and include the following:

**Internal content:** Capturing of knowledge is the primary step in content management. The librarians can identify content owners in the organizations, viz. scientists in research organizations, decision makers in government, executives in business, academics/researchers in educational institutions, technocrats in industries et al., can collect and record their expertise, opinions and technical knowledge. Thus knowledge mapping can be done with internal content and capture, digitize and integrate it for cohesiveness. Moreover, the intranets form an integral part of library collection that are managed by LIS professionals.

---

**External collections:** Digital content is being delivered in libraries that derive from different sources. Some of the digital data acquired by libraries include purchased data bases on CD ROM, Online data sets that are subscribed, electronic publications with paper equivalent like indexes and abstracts, electronic journals, electronic reference works with or without paper equivalents, e-books etc.

**Network access to other library collections:** Digital holdings of other libraries and non-profit organizations that are for sharing in a networked environment form a good chunk of content. In fact the present day libraries are functioning as distributed digital libraries for the purpose of digital data sharing through LAN or WAN.

**The Internet and its myriad of Web content:** The web is the means through which most libraries are accessed. Indeed the emergence of WWW is primarily to provide information. Although the www is seen for commercial uses, the factual sites are made available by libraries that are proved to make web more useful. The provision of e-books, reference books and e-journals through websites has the great impact on libraries. All these sources offer full text of books, journal articles and encyclopaedic articles and also add value in terms of services.

#### 4.2 Processing and organizing the content

The processing of content management is complex as the content is highly varied and can reside in any number of applications on different platforms. "Once a content domain has been established and there is a clear idea of all types of content, the content can then be broken up into its component pieces. Components divide information into convenient and manageable chunks. They are a set of discrete objects whose creation, maintenance and distribution can be automated. They typically share some common attributes, such as format or length and they should be able to 'stand on their own.'" (7). The process is similar to the traditional facet analysis of classification and indexing but here the whole information component, whether an article or web page, is considered, instead the title. These components are stored in relational or object databases that use XML hierarchies.

Organization of the content involves provision of orderly structure that links relevant information of the content available and / or accessible. The manipulation of the captured content can be done by using metadata formats that provides a range of powerful solutions. The metadata can be used for capturing relationships and links between different pieces of information or related web pages. This of course is what exactly information professionals are trained to do. This step creates the architecture for the content presentation, categorizing and managing the content. In other words the metadata can be used

- ✍ to track the content,
- ✍ capturing relationships and links between content packets,
- ✍ mapping knowledge terms,
- ✍ capturing keywords and
- ✍ presenting the content in an easy to use pattern.

Thus metadata forms the key in content management; hence extensible metadata schema is in use for management and updating of existing data, cataloguing and indexing of content. Further a wide range of automated navigation aids can be used to achieve consistent browsing, back of the book indexing, cross references between pages, define the content unit by its location, searches for content using full text, thesaurus search, creation of request media list by mark in and mark out (8).

#### 4.3 Management of the content

The management function starts once the repository that holds all of the content and the metadata, is ready for access. This involves the document life cycle, one of the important aspects of content

management. The primary aim is personalization of the content and delivery of the same. Different segments of content and their paths for access will be defined for efficient management. The segments generally include:

**Internal content management:** The process integrates all internal information, in any format and type, into digitized data so that users can access relevant information about a specific topic.

**Website content management:** The creation, organization, delivery and maintenance of website oriented content that suits the objectives of the library.

**Transactional content management:** The content that emerges out of transaction with the user and other libraries from time to time that may be re-used in future.

**Shared content management:** The process that allows shared information to be managed and accessed jointly, either within the organization under intranet or with other libraries at local or national level.

#### 4.4 Work flow

Work flow can be defined as “automation of business process where documents, information or tasks are passed from one participant to another for action according to set of professional rules.” (9). The content approval and review can be made as per the workflow rules. The rules help to identify the knowledge flows within the organization. The rules are based on some level of awareness on the part of the users and use application logic to match the user with content specific to their needs. Workflow is the functional flow that guides long-term transaction and extended over the entire process. It represents the cyclic process from content management to user access and the front line components are - content with distributed and local files, content managers, tools and their function (notifications, displays), user access etc.

The underlying principle in workflow is that the sum of the total is greater than all the parts. Both staff and users are trained to find, acquire, use and manage information to make effective use of content.

#### 4.5 Publishing and Presentation

Once the final content is in the repository it can then be published in to either the intranet or website. A number of navigational features can be added to enhance the quality and effectiveness of presentation. With the aid of powerful publishing engines like publishing templates, programming languages, read and resolve abilities etc., appearance and page layout can be done automatically. These publishing capabilities ensure that the pages are consistent across the entire site, and enable a very high standard of appearance.

#### 4.6 Strategic information services

The content management by identifying and structuring internal sources, sourcing and acquiring external sources and integrating internal and external sources paves for the delivery of information through strategic information services. Abell and Oxbrow explain “Information services package, develop and deliver value-added services to the business – critical areas of the organization. Their role is increasingly to:

- ✍ facilitate effective handling of the 80% of enquiries that can be predicted through help systems and call centres
- ✍ educate and train users to find, acquire, use and manage information – to make effective use of content

- 
- 
- ✍ manage the internal information flows that do not fall within the jurisdiction of content management
  - ✍ provide the 20% of value-added information that requires a mix of research analysis and consultancy skills” (10).

The services that can be offered based on content management strategies are many, some important ones among them are:

**Open Access Initiatives and Interoperability:** The OAI provides access to an archive of international literature as a common pool and common property. Open Access Archiving is the archiving of already published and refereed research papers in interoperable, minimal-cost institutional archives. This facilitates to access freely the world research out put. The Internet and intranet activities resulted in the active and cooperative interacting of parties. In such an environment the traditional client server patterns limit their capability. Hence architectures that support interoperability and scalability have been designed. Content management systems also encompass different organizations and user groups and hence needs interoperability. One of the goals of content management is to become an invaluable tool for members and conduit for exchange of resources that can be achieved through interoperability.

**Institutional repositories:** Institutional repositories are the digital collections capturing and preserving the intellectual out put of an organization for e.g. a single or multi-university community. They provide a valuable complement to published scholarly communication. It (i) Reforms the scholarly communication and (ii) Indicates the scientific and socio-economic relevance of research activities of an organization/university. The management of internal intellectual out put by capturing, analyzing and delivering are the core of content management. Hence content management supports the maintenance of institutional repositories and disseminates scholarly communication.

**Data mining / Text mining:** Data mining is the process of extracting novel, undetected and unstructured knowledge hidden in a large content repository using advanced skills like Artificial Intelligence. It enables the content processor to uncover relationships in a collection and to explore them in order to discover new knowledge. It is particularly relevant to LICs where enormous amount of knowledge resides in documents whether on Internet, Intranet or else where.

## 5. Conclusion

Content management is relatively a new concept in Library and Information Centres (LICs). Now every organization maintains websites either for intranet or Internet. Although the nature of activities is similar to that of traditional knowledge management and content management the latter requires application of advanced technologies for handling web- and intranet based information. Indeed the boundary between web application and content management is blurring. The LICs have the potential to simplify the maintenance of websites. Sofar, the technique of content management emphasizes the corporate sector, but as a core information management activity, it has wider applicability to manage scientific and academic information as well.

---

---

## 6. References

1. The GartnerGroup Framework for Content Management, (January 28, 2000). Quoted In Best Practices in Enterprise Content Management. A White Paper published by KM World and Information Today, Inc. Special Supplement to KM World, May 2001.  
URL: <http://www.kmworld.com/publications/whitepaper/ECM>
2. James Robertson. (2003) What is Content Management? KM Column, June.  
URL: <http://www.steptwo.com.au>
3. URL: <http://www.vignette.com>
4. Trippe, B. (2002) Content Management Technology: a booming market, EContent, 24(1). P22-7.
5. Doyle, Pamela. (2002) Document Imaging (ECM), the case for Information Management. FUJITSU.
6. Ahuja, J.P.S. (2001) Content development and management; The concept and the strategy. INICAE, V20 (2), P207.
7. [www.BROADCASTPAPER.com](http://www.BROADCASTPAPER.com)
8. Ahuja, J.P.S. (2001) Content development and management; The concept and the strategy. INICAE, V20 (2). P208.
9. URL: <http://www.newcastle.research.ec.org>
10. Abell, Angela and Oxbrow. (2002) Competing with knowledge. London, L.A. P.161.

### About Author



**Dr. R.S.R. Vara Lakshmi** holds B.Sc., M.A., M.L.I.Sc and Ph.D. from Andhra University. She has worked as Librarian of Andhra Medical College and College of Nursing, Visakhapatnam before joining the Department of Library and Information Science, Andhra University and at present serves as Head of the Department. She has to her credit one book and about 55 articles that are published in international and national journals and conference / seminar proceedings. Four Ph.Ds and Three M.Phils. have been awarded under her research directorship. As a teacher for the past 18 years, she taught all aspects of LIS discipline, presently engaged in teaching Information Technology and Marketing of Information Services and Products.