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Research Paper on Content Management Systems (CMS): Problems in the Traditional Model and Advantages of CMS in Managing Corporate Websites

Elanchezhian Ramalingam
Harrisburg University of Science and Technology

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Research paper on Content Management Systems(CMS): Problems in the Traditional Model and advantages of CMS in managing corporate websites.

Elanchezhian Ramalingam

I Abstract or Executive Summary

This research paper is on the problem companies faces with the existing traditional model of website management and the advantages or improvement that Content Management System brings to them. Web content management is the discipline of collecting, organizing, categorizing, and structuring information that is to be delivered on a website. CMSs support a distributed content model by separating the content from the presentation and giving the content provider an easy to use interface for adding content.

The purpose of this study is twofold. First, it is aimed to observe how business users manages the contents directly without depending on technical personnel. Secondly, what are their perceptions of using the system? Many industry people have voluntarily participated in this qualitative study. The data was gathered through server statistics, personal interviews, and an open-ended questionnaire. The analyses included descriptive statistics for quantitative and content analysis for the qualitative data. The findings indicate that participants embraced the notion of leveraging the potential of content management.

II Introduction

Contents are produced in huge amount at an increasing rate every year. Information overload and content chaos are the terms describe the inefficient situation currently exists in many organizations. Information workers, look for documents, pictures, records and data in different repositories through the entire company. Various documents are stored in various locations and systems, in different versions, languages and formats. Collaboration on contents, documents and co-authoring is complicated; with important documents being shared via email and shared directories. The management of variety of content on a company wide scale poses a huge challenge to companies. Still worse, 80% of the content is unstructured. However, information quality of unstructured data is crucial because it contains important, confidential, innovative and company decision-relevant information that is increasingly becoming a key resource of business. In order to solve these content chaos, enterprise content management (ECM) or web content management (WCM) evolved as an integrated approach to information management. ECM or WCM enables content to be managed on an enterprise-wide scale and has received a lot of attention and interest across industry.

The market for ECM is booming and growing exponentially as more and more companies adopt it. The commercial ECM solutions has become more sophisticated and executable year after year. However,

ECM systems (ECMS) are not completely out-of-the-box; they are one of the most complex release in any organization. In contrast to the significant interest from enterprises and practitioners, ECM only received only meagre consideration from the scholars. As an emerging field in information systems (IS) research, only a limited research has been conducted so far in this field. A single, fully descriptive definition of what exactly ECM is and what it stands for does not exist anywhere.

Consider another example in which your site complexity has exploded. In traditional websites, dynamic content of all kinds is assembled on the fly from back-end databases and middle-tier application servers, coded in multiple scripts and languages like java, JavaScript, html, css and served through application servers distributed across the country and around the world. The number of hits has increased exponentially, and the content has changed too. Now, your traditional Web site is a place of business--not just a showcase or information repository. Any broken link or bad code isn't just embarrassing; it has an impact on the bottom line impacting the businesses. Your site content must be up to date time to time and constantly updated, and the site must be up all the time--with zero tolerance for errors and bad information, from any source. Perhaps a product manager, someone in corporate communications or both must approve changes before they're posted to the site. It's likely that you're handling purchases and other transactional content online. As your sites become more critical and complex, you need tools to automate management. And hence CMS comes into picture.

The purpose of this study was to examine CMS usage within the corporate website market and to provide companies quantitative and qualitative knowledge to help make decisions when considering switching to CMS.

III Literature Review

The first purpose of this literature review is to examine previous research, emphasize leading research studies, identify trends and establish a theoretical framework.

Previous research papers focuses on the problems in Today's Content Management Systems, where the collection of digital information is constantly growing and ever increasing demands are being placed on how this information is managed and delivered. The world is making the knowledge of mankind accessible easily. However, the World Wide Web and other information repositories still face the challenges of the explosive growth of information. In many cases, these demands are being met by tools called content management systems (CMSs).

PROBLEMS BEEN ADDRESSED WITH TRADITIONAL WEB TECHNOLOGIES:

Lots of time and money are spent managing static content: especially with sites that have hundreds or thousands of pages Sites are growing and increasingly have lots of content. Successful sites rapidly accumulate large amounts of content. The report found that controlling content chaos is the leading reason enterprises seek ECM solutions. The most chaotic content were tweets, instant messages, and external blog posts.

The design of pages and the 'style' of the site are inextricably linked with the content itself - to updating content you must use people with **HTML experience or risk errors and style problems.**

Significant IT time and financial resources are being used on managing content. Separating the originators of the content from the authors: this costs time and money, and accuracy and currency.

Why does a company need a CMS to manage website?

- a) Database orientation
- b) Particularly if High volume
- c) High number of hits
- d) High peaks
- e) Multiple sites
- f) Changing content
- g) Varying content sources
- h) Brand identity
- i) Multiple authors, contributors, and editors
- j) Personalization
- k) Differential display
- l) Integration of related functions
- m) Openness
- n) Division of labor
- o) Need for flexibility

What is the diversity in Today's CMS Market?

- Content management platform consists of an environment and development tools on which content management solutions can be implemented.
- Content portals manage and administer content and services as web information services.
- Virtual classroom management systems support the publication of content for online learning and collaboration through forums, chat, on-line evaluation, etc.
- Digital Library systems organize content around users, collections, and services. These systems often provide tools and management and collaboration services organized around collections.
- Digital Publication systems are focused on digital publications such as newspapers and magazines.
- Collaboration systems provide tools for working in a group such as the support of groups of users working jointly on projects. These types of systems manage workflow, users, process and workflow control points, content deliverables, and these systems provide collaboration tools for communication and controlling activities. Collaboration systems include the concept of wikis, which enable the "elaboration of documents for interest-sharing communities".
- Weblogs are usually single user and simple workflow publication systems, which enable non-technical users to publish documents on the World Wide Web.
- Web content management is "the creation, publishing and management of company information and documents on the web"
- Document management software manages document lifecycles. This includes authoring, collaborative authoring, and archival.
- Integrated document management software scans, indexes, retrieves and archives digital images.

- Digital asset management software manages the lifecycle of digital content such as images.
- Media asset management software handles high complexity digital asset types such as video and sound.
- Records management software maintains documents through the long-term document lifecycle.
- CMSs sometimes keep track of taxonomies and their interrelationships. This structure of information is called an ontology.

ECM has roots in previous systems such as content management, document management, records management, and knowledge management. Enterprise content management is an emerging concept and is undergoing the same defining process as predecessor systems such as decision support systems and enterprise systems.

The Association for Image and Information Management (AIIM)

ECM has become an industry buzzword attracting vendors and customers alike and is developing into a community of interest with professional organizations, such as the Association for Image and Information Management (AIIM, www.aiim.org).

AIIM defines ECM as “the strategies, methods and tools used to capture, manage, store, preserve, and deliver content and documents related to organizational processes.

Previous reports highlight several key findings and concludes that ECM system implementations are driven by improved efficiency, optimal business processes, reduced costs and compliance needs and that managing content chaos is the most important trigger leading enterprises to look for an ECM solution.

AIIM indicates that there are four primary areas of consideration for ECM, or the four Cs:

- compliance,
- collaboration,
- continuity, and
- cost.

Developing compliance into an ECM system can lower those costs. There is an increasing need for collaboration tools within enterprises leading to records management, knowledge management, and compliance needs for collaborative materials. AIIM indicates that the cost of implementing an ECM initiative must be weighed against the cost of inaction and cautions against over emphasis on the return on investment.

The top business drivers for ECM projects are improving efficiency, optimizing business processes, reducing costs, and mitigating risks.

Enterprise wide ECM adoption is at 29% with 19% of enterprises integrating document or records management projects enterprise wide and 22% of enterprises implementing document or records management projects at the department level.

The top deployment strategy for ECM is to selectively update, replace, and migrate existing systems at the department level as needed, followed by migrating and replacing existing systems with a new single-vendor ECM suite. Enterprises hoping for a single ECM solution have decreased, but still hold at 48%.

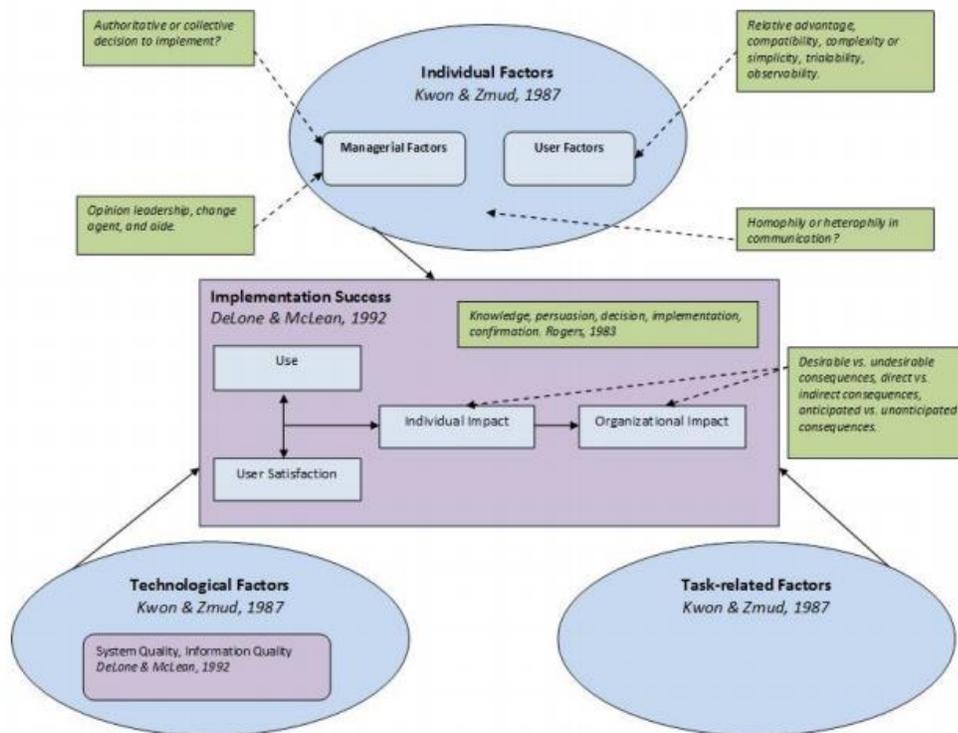
ECM is beginning to draw academic attention and efforts to define the elements of ECM have begun. ECM research is developing topics of who implements an ECM system, why implement, what an ECM system includes, and how ECM systems are implemented.

IV Research objective, stated clearly, preferably in the form of a question.

What are the limitations or problems that the companies face in managing the contents of their website under Traditional model? How much dependency that companies have on technical personnel even for the content updates in website and the problems/additional costs associated with it?

V Research approach or methodology

Theoretical framework: A framework is developed for understanding the success is impacted by factors related to information systems.



Theoretical Framework

There are four areas of ECM that should be considering while adopting for a new system.

- a) Enterprise
- b) Process
- c) Technology
- d) Content

Even though a new project may have a clear plan with well-defined goals and milestones, it might not achieve the intended success if it lacks top management support. If an implementation considers all process, enterprise and content factors but fails to take into account technology, it will not achieve the intended success. The fourth area, content is not included in theoretical framework as there is no tested model for content. The content is included as an extension of framework as derived from Tyrvainen et al.'s (2006) untested model.

Success is achieved by the combination of expected system use and user satisfaction and their direct effect on individual and organizational impacts. This model has been widely tested and is appropriate for defining ECM implementation success. The success of implementation is impacted by independent variables that influence the implementation process positively or negatively.

The combination of these framework models allows implementation factors to be divided into appropriate issues areas and further determine their impact on implementation success.

Research Design:

This basically describes the procedure used in this thesis. It explains the research method, method of collecting data, analysis and result of collected data, and the selected organization used for this research. It also shed light on peoples' experience on this thesis topic. Research methodology is a process used for making observation, gathering evidence and data, and obtaining information through a research work or study in one's area of practice

This research work was chosen due to the widespread usage of content management systems and open source software's both in big and small organization. Another reason for chosen this thesis topic was because application developers think CMS soft wares wouldn't contribute to one's knowledge in the area of web application, rather it is a complete work of someone.

The research model is based on the theoretical framework that identifies success factors for the three of the four issue areas. The theoretical framework included the issue areas of enterprise, process and technology. The framework was extended in the research model to include Tyrvainen et al.'s (2006) untested issue area of content. The model includes a collection of factors derived from the literature and have been divided into the individual (enterprise), task-related (processes), and technological (technology) categories defined in the theoretical framework.

This next section discusses each area along with their corresponding factors.

- a) Managerial Factors: These are the sub-category of Kwon and Zmud's factors and are represented as a category because of their strong relationship with other enterprise factors. According to Al-Mashari et al., 2003, "Leadership and top management commitment are the

most critical factors in organizations. It is also important to note that top management support does not end with system selection, but needs to extend throughout the entire project to make quick decisions during crisis management, to encourage organization wide acceptance, and to constantly provide direction. Managerial factors are practices and strategies that top management and the project teams can employ to improve the success of implementations. The leadership from management can have an enormous effect on other factors such as change management, crisis management, resolving disputes, communication between stakeholders, and others.

- b) User Factors: User factors are the second element of Kwon and Zmud's individual factor and are equally as important as managerial factors (Li et al., 2003). Users need to be consulted and communicated to about the project and the expected impacts to the individual and organization. The human side of an organization can often be a hidden cost of. Training and job redesign are critical factors that impact system use.
- c) Task-Related Factors: Task-related factors are numerous and it is difficult to narrow this category to determine the most important. These factors are interdependent with other categories, such as managerial, user, and technological factors. They are mostly oriented toward project planning, development and evaluation.
- d) Content Factors: This category is unique to ECM and little is known about how content factors impact implementation success. A variety of issues surround content, such as determining content candidates, developing metadata and taxonomies and planning for implementing automatic indexing, but research in this category is largely absent.

Sampling:

A sample is a sub-set of the population that is usually chosen because to access all members of the population is prohibitive in time, money and other resources. A group of people are chosen under each role they play in their organization.

In addition to notes made during the interview, each transcript was reviewed many times and themes, patterns and insights were documented. when this process was completed, similar ideas and themes were grouped and given a conceptual label.

Two group discussions were conducted in order to find preliminary findings and the researchers perceptions to the participants. The groups were based on the companies who adopted content management systems and who are still following traditional model.

One group consists of 10 professionals who are using CMS and other group using traditional model. People who were unable to attend cited illness and unanticipated events as their reasons and efforts were made to content them for their feedback.

Group discussions which were held in meeting room of their office lasted approximately 2 hours. The discussions began with the introduction of the rationale and methodology of the study. The choices that are made in the selection of any research focus and methodology result in necessary restrictions. This study was qualitative and provided in-depth, rich data regarding the people experiences in their work.

Repeated interviews that are longitudinal in nature are often preferable and necessary for gathering information about deeply felt experiences (Kirby & McKenna 1989). It was not feasible to conduct repeated interviews due to time and financial constraints.

The key strengths of the study are the understandings and insights that are emerged with respect to people's pre-implementation, implementation and post-implementation experiences of CMS. Several factors contribute to these outcomes, first of which is related to the experience of the researcher.

The researcher has worked both in Traditional and CMS environments many years. The information about researcher was shared to participants.

Data Analysis:

Data analysis means to organize, provide structure and elicit meaning. Analysis of qualitative data is an active and interactive process (Polit et al 2001:383). Data analysis commenced after conducting the first interview.

Group Discussion:

Content Analysis method was adopted to analyze the data where I started with some ideas about hypotheses or themes that emerges, and look for them in the data that I have collected.

Process of Analysis:

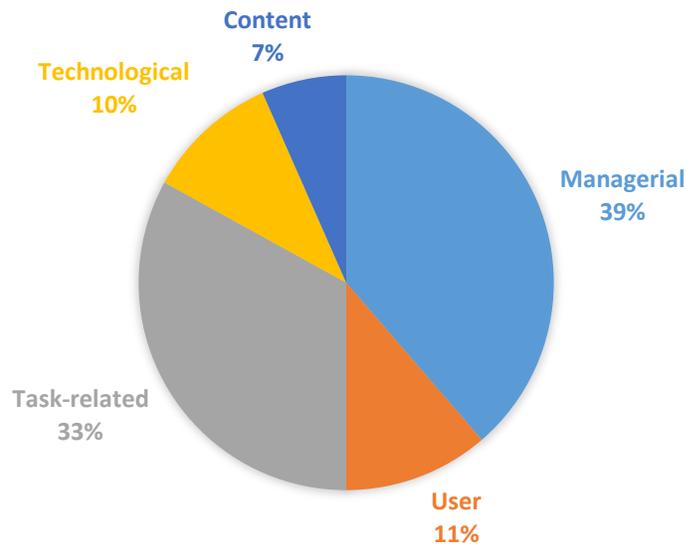
- Initial codes
- Added comments/reflections = memos
- Looked for patterns, themes, relationships, sequences, differences
- Explored patterns
- Elaborated, small generalizations
- Linked generalizations to body of knowledge to construct theory

The Decision to switch to CMS within the company is dependent on the various factors. Let's see below the survey to determine what each factor contribute in deciding to change from traditional model to CMS model.

Analysis began by reviewing the data as a whole, according to the five categories, and the category frequency of occurrences are as follows: Managerial is 41%, User is 12%, Task-related is 27%, Technological is 11%, and Content is 7%.

The above ratio clearly says that Managers has a major decision making authority.

SHARE OF EACH FACTOR TO DECIDE ON SWITCHING TO CMS



Questionnaire analysis:

- Do you want the business owners have control over content update to website?
Many participants answered saying that they definitely want their content owners control over content updating to website.
- Do you want the content management be independent of technical team?
99% has answered yes.
- Do you want the content to go through a process before getting published?
92% answered that the content requires to go through workflow and review process.
- Does your project fund is spent more to content management?

88% answered that, their fund is mostly used for website maintenance after the implementation phase. The survey was made available online and distributed via e-mail to the 50 recipients on Jan 30 2016. Reminders were sent on October 10 and October 18, and the survey was closed on Feb 15, 2016. Out of 50 recipients, 47 responses were received. Some of those responses

Survey on the features that CMS provides compared to Traditional Website Management:

- Do you want the contents to be reviewed by set of users before published to website?
95% of respondents said yes to this as the contents are subject to error and needs continuous reviewing before publishing.
- Do you want easy user interface with template forms rather than updating in the server machine?
75% said they want this feature as it is easy to manage content compared to traditional website management.
- Do you want to manage user through browsers instead of UNIX script?

89% responded positively for this question.

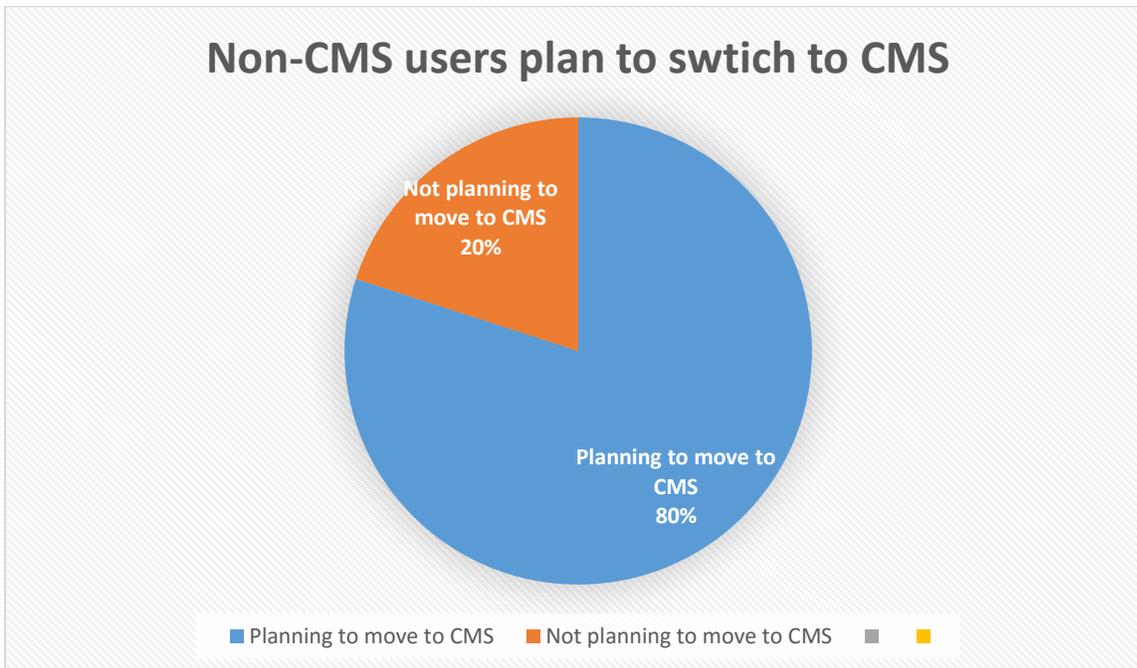
- Do you want the Revision Control feature over the contents?
99% of answers was yes because, of the ease of reverting back to previous version of content in case of any error.

The responses to this survey show website are using a CMS to manage their main content :

	Use a CMS to Manage website		
		Yes	No
User is highly satisfied	Yes	54%	47%
Or not satisfied	No	46%	53%
Total	47	100%	100%

Non-CMS users were asked what system they use to govern their site.

Non-CMS Users Considering a Move to a CMS within the Next Two Years	
No	20%
Yes	80%
Total	100%



Comparing the results of this study to previous studies indicates that CMS usage within companies is rising. The 80 percent CMS adoption rate found in this survey, which used a narrower definition of CMS than some previous studies cited in the literature review, is higher than adoption rates in any of said studies. CMS users are very much satisfied than non-CMS users.

The data analysis resulted in identifying a set of factors in each category that were highly supported based on the content analysis of the interviews and frequencies of sources and occurrences calculations. However, some factors required further analysis by the researcher to determine strength of support

We use CMS because CMS offers different functionalities to organize the whole of your site. It gives you options and easy ways to organize the content than making everything from the scratch. The main important thing is that CMS makes everything works in normal and correct flow in an organized manner.

The adoption of CMSs to manage websites is increasing, but not all CMSs are created equal. When given input into switching website management tools, the staff have many factors to take into consideration. These include, but are not limited to, in-house technical expertise, desirability of open source solutions, satisfaction of peer libraries with considered systems, and library specific needs, such as workflow management and customization requirements.

Other needs from Companies when they use CMS as determined by this research proposal :

Flexibility to Integrate CMS with Third-party software products by category:

1. Sending Bulk emails companywide:

Any company has requirement to send routine emails to employees on annual report, routine maintenance activities, etc.

For such needs the source of contents needs to managed using CMS is the latest trend and hence the integration of CMS products with Email products like news weaver.

2. Video Management in YouTube:

Most organizations have need for storing videos. But videos are little tricky and complex to store and serve at good speed. So, CMS integrated with YouTube is potential solution.

3. Metrics:

Any organization needs their metrics about the number of hits, number of sales of products, geographical hit ratio, etc.

So, CMS should be easy enough to be integrated with metrics products like Site improve, Google Analytics, etc.

4. Search:

A website in a bunch of contents spread across pages. Search is inevitable for any website. So organizations seek CMS able to be integrated with search appliances like google, yahoo etc.

Additional CMS features needed by companies:

Each business has its own set of requirements for a CMS solution, which depend on various parameters such as; the size of the business, field of operation, type of managed data and target customers. It is highly unlikely that a single product will have all the required functionality. As a result, this report identified seven potential products by using eight different areas of functionality for the base of their comparison. These eight areas are; applications, data repository, deployment, integration, revision

control, user interface, user management and workflow. The applications category was used because it adds general functionality which compliments the entire CMS solution. The data repository category was added due to the requirements for flexibility in content storage. The deployment category was used based on business requirements for scalability, fault tolerance and replication. The integration category was important due to the metadata analysis and standards compliance. The revision control category was used due to the importance of asset control, modification and roll-back of changes. The user interface category was based on tools that enhance the control of processes. The user management category was based on the access and control of the system, for authentication as well as user data management. The workflow category was used for the development and maintenance of business assets. The weight for each category was based on their importance from a business perspective. Categories which are integral for a small to medium business are divided into two sections, while those of less importance are divided into three or more sections.

VI Importance of the research

This research proposal is very important because, it covers the web aspect of a business, which deals with web-related content as well as representation of that content over the web. From a business perspective content is seen as asset to the business. It also discusses the difference between building a website using a CMS than to building a web application using the existing web technologies like J2ee, dot net, php etc. This research is designed to provide organizations with fact-based data points that reinforce the business case for deploying an ECM solution.

VII Limitation and key assumptions

Limitations:

- 1) Some of the respondents in a team or organization might not have the real picture or better idea of the problems with today's website management. Because they might be a buffer resource or shadow resource in the team.
- 2) The survey or interview was conducted during the period of February-March where normally the business does not plan about adding new budget for new technologies so, the responses might not be 100% relevant to the reality.

Assumptions:

- 1) The Enterprise content management system are currently being used across organizations and cost is not a constraint for the right CMS.
- 2) The sample chosen here are organizations who either are using traditional web technologies or any of the Content Management Systems. So the sample is representative of the entire IT Organizations where website is developed or maintained.

VIII Contribution to knowledge

This proposal makes a great contribution to the industry by being unique about CMS in the following areas:

1. Revision control
2. Deployment
3. Workflow
4. Publishing
5. Marketing.
6. User Management

It also brings to light the following aspects of Content Management System,

- 1) Ability to Support contents in various formats, e.g. multimedia, video, and text.
- 2) Ability to integrate databased information - either for publishing on-the-fly- or in batches
- 3) Ability to run on your existing technical infrastructure
- 4) Ability to generate navigation and links between pages automatically and consistently
- 5) Ability to manage metadata across the database, e.g. update or assign values globally or across a selection
- 6) Ability to archive data, and to output reports in digital and printed form
- 7) Data structure (including the ability to record your required metadata, to hold links to digital assets and to hold text which can be edited and published)
- 8) Scope of system (e.g. metadata recording, process management, online publishing, integration with other systems)

IX Research plan

Chapter	Topic	%	Words	Months
1	Introduction	5	3500	15days
2	Literature Review	30	21,000	25days
3	Research approach or methodology	20	18,000	20days
4	Data Analysis	25	17,500	30days
5	Conclusion and Implications	20	14,000	15days
Total		100	70,000	3 months

X Conclusion

The data analysis reveals that most organizations want to switch to CMS from traditional model because of the variety of needs in today's business scenario. The companies that are already using CMS want to

switch to one providing more additional features that are essential to further enhance the user experience of website and making the website content management procedural.

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