July 2009

Management of Organizational Information Through Web Portal

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Abstract - Today knowledge has become a crucial asset. Knowledge Management is a tool that nurtures and helps such assets to grow. It helps in effective utilisation of intellectual capital and enhancement of the organization's performance. It involves blending the company's internal & external information and transforms it into actionable knowledge. Organizations are turning to knowledge management initiatives and technologies to leverage their knowledge resources. It is important that everyone focuses on ownership of intellectual capital and utilize them efficiently for development as well as competitive edge with the help of appropriate tool. A Knowledge Management System (KMS) based on the state-of-the-art Information Technology (IT) makes that possible. Many experts believe that in future the main source of competitive advantage will be organization's ability to leverage corporate knowledge, its distribution and to learn faster than others.

Knowledge Management is an integrated systematic approach to identify, manage and share organization's information assets available in databases, documents, policies, and procedures, as well as unarticulated expertise and experience held by individual workers. The idea behind KM is to capture not only explicit factual information but also the tacit information and knowledge that exist in an organization. The objective is to achieve the mission of the organization by sharing all types of knowledge among the employees of the organization. There are also lots of challenges as experts retire or leave organizations. Importance of knowledge database to capture expertise available for future reference and competitive edge has been felt by all.

The paper is based on work of design and development of software **"Information Portal at RDCIS"**, developed for RDCIS – Research and Development centre of for Iron and Steel, SAIL. Today, knowledge is the strategic key resource. This paper is based on the challenges faced in the implementation of Knowledge Management system at RDCIS, SAIL. This paper focuses on the different forms of knowledge's available in R&D Units, features, access mechanism, security mechanism, its implementation in different departments, and the platform used for implementing KMS.

Keywords - KMS – Knowledge Management System, KP – Knowledge Piece, IT – Information Technology, LAN – Local Area Network, SSAD – Structured System Analysis and Design, SRD – Software Requirement Document, HRIS – Human Resource Information System, IFA – Integrated Financial Accounting System, SAIL – Steel Authority of India Limited, RDCIS – Research & Development Centre for Iron & Steel

I. INTRODUCTION

The various groups of R&D Centre for Iron & Steel (RDCIS) carry out projects and provide technological services in their respective domains. The various outputs of the technical groups include Projects, Papers, Publications, Copyrights, Patents, Technology Awareness Programs etc. This information is mostly maintained in document forms and not available on-line for ready access by all concerned. Intranet based web application called "RDCIS Information Portal" is a gateway to access these information and knowledge base available at RDCIS. The portal is supplemented by on-line applications enabling access to information and knowledge through a single window. It has also provision to capture and share explicit as well as tacit knowledge. Portal has additional facilities like Technical Forums, News, Software Downloads, Formats, Manuals, Circulars, Office Orders, Telephone Directory etc. promoting transparency and improved on-line communication among the employees. Individuals can also access their personal information like PF, Salary etc. through the portal on-line. The system is totally modular in nature and all the modules developed under this project are available on the home page.

In on-line software, the design of database is the most critical aspect for the success of the project. RDCIS team studied all documents maintained in the section with standard SSAD approach and prepared a document titled "Software Requirement Document" based on System Study and Analysis before designing the database. For the purpose of designing the database, state of the art tools like Oracle Designer R2.1 manuals

have been referred. LAMP (Linux, Apache, MySQL and PHP) technology has been used to develop the application with Oracle and MySQL databases on Linux operating system.

Home Page of RDCIS Information Portal

Relevant manuals on LAMP and oracle database have been referred for this purpose. Further, technical journals published in Oracle web site (http://www.oracle.com) have been referred. The literatures that were referred by the project team are mentioned in the *References* section.

II. MODULES

IPR (Intellectual Property Rights) related Information: IPR of RDCIS viz., Copyright, Patents, Papers and Presentations.

Knowledge Bank: Explicit and tacit knowledge pieces with approval procedure.

Forum: A platform for discussion on any technical topic.

Projects: Detailed information about completed RDCIS projects can be uploaded by concerned groups for ready access and reference.

Operating Committee: Presentations made in Operating Committee meetings.

Lab Facilities: Laboratory facilities available in different groups.

Documents: Annual reports, Technotrends published by different groups.

Programs: Details on Technology Aware-ness Programs, Trainings, Seminars etc.

Communication: Publication and archival of news, notices/circulars, office orders and awards details.

Photo Gallery: Album on different functions like seminars, conferences etc.

My Space: Individual's data on finance, training etc.

Misc. Information: Widely used Formats, Manuals, links to sites on SAIL Net etc.

III. FEATURES

- Decentralized and dynamic content creation by users.

- Content Management by Departmental Coordinators.

- User-friendly search mechanism for retrieval of different information.

- Data access from heterogeneous distributed database systems.

- Provision for Data, Image and Video files upload and download.

- Role based system access security.

IV. KM ATTRIBUTES

The KM system supports full knowledge management life cycle. It has the following attributes:

- Knowledge Topic

- Technical Domain

- Source

- Contributor Details

- Content

- Annexure (Text and Video)

- Links to Additional Information

- Rating by visitors with comments

- Approval or Rejection (by Departmental Coordinators)

- Reason if rejected by

V. KM OPERATION

There are different technological domains like Iron, Steel, Coal, HR, Information Technology, Energy, Refractory, Communication, Rolling etc in RDCIS. For each technological domain, there is an expert or approver who is responsible for approving the knowledge piece (KP). Any privileged user from RDCIS to access the application can submit knowledge pieces against a particular technological domain. Once a knowledge piece is submitted, it will be available to the

corresponding expert for getting the approval. The expert will go through the content and he will see the knowledge piece submitted is correct to his knowledge. If it is okay then he approves the KP. If the expert feels the KP requires minor correction, then he has the privilege to correct the KP and do the final approval. If the knowledge piece requires major corrections, then he can return back the KP electronically to the concerned person by giving the reason for rejection. The rejected knowledge piece will go back to the concerned person with the status "Rejection". The concerned person will go through the KP for the reason it has been rejected and can do the necessary corrections and can resubmit the same KP. Till the KP is not approved by the expert, it shows the status "Pending", once approved it will show the status "Approved" and if it is rejected it shows the status "Rejected". Once KP is approved it will be available for the public for reading.

VI. KM RATING

The Knowledge Pieces submitted can be rated, reviewed by the public. There is a five scale rating Poor, Average, Good, Very good, Excellent. Users can review and give their comments against each KP. There is a hit count set for each KP. The highest hit KP among the all technological domain will be shown at the top of the display as highlight of the Knowledge Piece.

VII. KM BENEFITS

- Elimination of redundant tasks
- Retention of organization's intellectual capital
- Increased employee productivity
- Collaborative work
- Self Service
- Better communication & decision making

VIII. ACCESS MECHANISM

The site is accessible from any node on LAN. The system is user-id and password protected. The password must be changed immediately after first login. For security purpose, the software has three application roles defined like Normal User, Departmental Coordinator and Administrator. Each user-id is assigned with one of the following three roles. The roles are assigned by the system administrator.
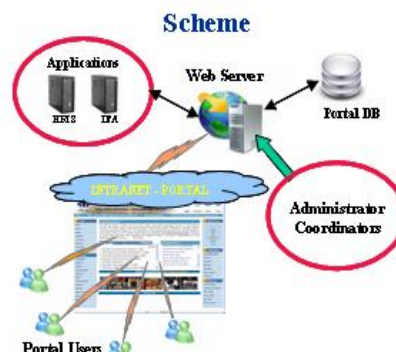
Normal User: Entitled to access all the information available on the portal. A normal user can contribute knowledge piece in any domain and the same will be available on the site for others to study when the same knowledge piece is approved by the coordinator of the concerned knowledge domain. Forum is another important feature in the portal where anybody can participate in any technical discussion under different technical domains. A normal user may also provide his/her Contact Information under My Space module.

Departmental Coordinator: Entitled to enter information like IPR related information, News, Circulars, Projects, Photo Gallery, Annual Reports, Lab Information etc. Forum moderators of different technical domains belong to the concerned departments. The departmental coordinators/moderators for different departments/groups are created by the system administrator. The knowledge piece entered by a normal user is approved by the departmental coordinator for the concerned knowledge domain.
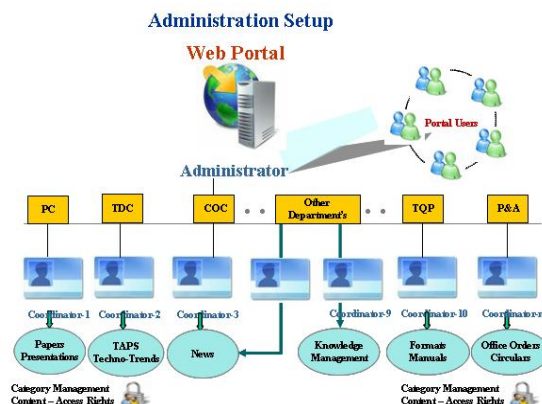
Project Spokesperson: The Concerned spokespersons will enter knowledge pieces/learning points/any detail for the projects. The project spokesperson list for authentication in this area will be created for all the projects by super-coordinator of projects. The departmental coordinator for projects, if assigned can also enter the project related information for the concerned groups.

IX. IMPLEMENTATION

After development of the software, its implementation comes. Software implementation is the final and most involved stage for any Information System. The key success to implement KM in an Organization is to form a collective executive steering group to best identify and disseminate KM policies, procedures and best practices. So in RDCIS, SAIL for implementing Knowledge Management system different committees and teams were formed. They are apex committee, core committee, Administrative team, Creative team, technical team, Coordinators/ Facilitators/Moderators. Apex Committee is referred to the members from top management. The functions of the apex committee are to provide advice & guidance, resolve conflicts, and provide resources, appoint administrator, form core committee. Core Committee is referred to a senior team of 4-5 persons from different disciplines. The functions of the core committee is to provide guidance to creative team, discuss & decide on new proposals, appoint Coordinators/Moderators, resolve issues raised by creative team & coordinators, approach apex committee on policy matters. The role of creative team is to provide new ides for improvement of site content, user friendliness, physical design & layout, to devise ways of attracting users to the site. The development team is referred to 2-3 technical experts on LAMP technology & one aesthetic expert.

The function of the development team is to implement approved ideas given by creative team, to implement administration related issues as decided by administrator. The Coordinators are referred to the one who is responsible for content posting of a particular category of knowledge. They could be a member of other teams. The function of the coordinator is to create sub categories when required and allowed, Can appoint internal Coordinators, Organize/ Moderate the content, Initialize action against users if required, Decision to close sub-category or threads. Administrator is the one who is responsible for the whole system. The function of administrator is create categories under root, appoint Coordinator/Moderator, look after resource needs, modify or block categories, change default setup of categories, change Coordinators Create, modify & block users, assign privileges to users, handle user

requests, suggestions etc., approach apex committee on policy matters.

Another important aspect to be considered during implementation is the security of information of the organization. The system is protected with userid/password for accessing the home page of the information system.

There is provision to set the privileges for each category of information at organization level, department level, group level and as well individual level. There is guest user privilege available for users other than RDICS users.

X. SYSTEM PLATFORM

The KMS is developed using LAMP technology. LAMP, Linux, Apache, MySQL and PHP is quite famous for developing web applications. It is a light tool and third party applications using Java script, jQuery can be easily integrated with this LAMP application. It is well supported with all thin client tools like Microsoft IE, Google Chrome but most suitable with Firefox, because there are Add-ons which help to see the source code of each line of the web pages. Apart from this we have integrated with other on-line applications like HRIS (Human Resource Information System) for accessing employee leave details and other HR data, and with IFA (Integrated Financial Accounting System) for accessing pay related information which are having Oracle Database as backend.

XI. CONCLUSION

Implementing Knowledge Management system in any organization is complex and dynamic even if it is well planned and developed. Successful implementation of KMS depends on the personal and group interest of the users. We have tried to develop a KM system that integrates our organization structure, systems, processes, and people within a culture that encourages and supports creating, sharing and providing open access to knowledge.

Awareness and training about the KMS has been developed inspiring the appropriate values of the KMS to the employees and the potential to enterprise and client success. For implementing KMS, support from top management is required.

Incentive and reward system for creating and sharing knowledge should be practiced. The management should give Knowledge-specific training to the employees. Ultimately the value of KM system depends on the organization performance which is related to customer satisfaction and benefit.

XII. FUTURE SCOPE

KMS software has been successfully implemented in RDCIS, SAIL. Similar type of system is under implementation in other integrated steel plants of SAIL. This software package can be implemented with minor modifications in other R & D Units depending on their procedures, Intellectual Property, operational practices with minor customizations and proper security inbuilt into the system. This software is flexible to link with other applications of the organization.

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