Picture Archiving and Communication Systems Project Management Using Web-Based Tools

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As the technology of picture archiving and communications systems (PACS) improves and implementation becomes more widespread, the project management of deploying substantially large, multiple-facility systems becomes an integral part of success. A successful deployment requires project support from the initial planning and surveying to the final acceptance, even encompassing support during active use of the PACS. The sharing of information between project stakeholders of a PACS implementation can be daunting at times, but with the flexibility of the worldwide web, this aspect can be eased. This report speaks to the tools and usability of the worldwide web to disseminate project management information for planning, implementation, and support of any PACS implementation—anywhere. This sharing of knowledge prepares the end user for what will be available for them when the complete systems is in place, allowing for a smoother migration to PACS.

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WHAT IS OFTEN NOT evident to many is the magnitude of work required by several independent entities to implement and manage picture archiving and communication system (PACS) projects, especially when the facilities are geographically separated by hundreds to thousands of miles. With such a large amount of dollars and resources going into PACS implementations, the industry cannot effectively rely on old methods of management to successfully implement multifacility projects. The web is the one media that allows the sharing of information instantaneously, whether a person is in the middle of the United States or on the coast in Japan.

“When the increase in velocity of business is great enough, the very nature of business changes.”¹ One now has an option to save documents, spreadsheets, presentations, etc as hypertext mark-up language (HTML) files and present them on the web.² Active

server pages (ASP) available on servers allow users at a PC to add, delete, or modify data within a database with the click of a mouse.³ Images and drawings can now be saved as JPG or GIF images, and viewed with remarkable clarity and detail. Intranets, along with real-time discussion boards, can be developed for secure zones of collaboration that are required for sensitive material reviews and discussions. These and other applications of the web bring knowledge to users’ fingertips to improve business operations specifically dealing with project management of PACS.

GENERAL WEB-BASED PROJECT MANAGEMENT TOOLS

Webs and Sub-Webs

With a 10-facility project, the amount of information to be gathered and organized in one web site would be overwhelming. Therefore, sub-webs were developed to give the user a specific view that is tailored to display just the material necessary according to the individual’s need to know. At the same time, the site can allow the user the ability to browse to other site sub-webs to view historical or pertinent information to facilitate their decision-making process during the PACS implementation.

Dynamic Point of Contact Lists

In the Virtual Radiology Environment (VRE) Project, a need that became evident was a point of contact list for individuals at all sites. The difficulty with tracking and updating the contact information is that it requires constant awareness and site management of staff changes, relocation, and contact information changes (eg, E-mail addresses, phone numbers, etc). These interactive pages allow for an interface to a database and a set of routines where the user can dynamically interact with the data in the tables and have the ability to view, add, modify, or delete contact information. This allows for a real-time, up-to-date source of contact information.

Project Schedules

Classic project scheduling tools such as Microsoft Project (Microsoft, Redmond, WA) are easily

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employed in this scenario in a dynamic/interactive manner. These tools allow the display of site-specific schedules, PERT (program, evaluation, and review techniques) charts, and milestones that have or will have occurred in the project. Because VRE is a multifacility implementation, many of the sites need to prepare for upcoming tasks and plan for other projects within the facility that may influence the PACS project (eg, life safety, facility renovations, network upgrades, etc). The web allows for information sharing in a universal environment without boundaries of time or distance.

Exporting to the Web

In the past, word processing and data manipulation applications have been designed to supply the user with very useful tools to create professional informative content. Until recently, the user had to count on the other reviewers and project members at different locations using the same application, down to the software version. Products have started to incorporate the ability to export or save data as HTML files, allowing for the universal ability to send information to anyone with an HTML application. This export ability started with word-processing products and spreadsheet applications, but has now spread across most major applications, including; computer-aided design software, all project management, digital image display, database, and PowerPoint-type applications.

Interactive Video

Current technologies allow video casts of interviews, voice recordings over the Internet. Web sites like CNBC, Real.com, MSNBC, ESPN, etc use the tools for news bulletins and interactive imaging. Audio and video clips can be saved as WAV and AVI files that can be inserted in to a web page within any HTML editor. To view and listen to the video/audio clips that maybe used for project management, the user is required to download applications that are free shareware available from the Internet.

Intranets

Large global businesses are turning their internal production and management efforts to the web using a large Intranet (eg, General Motors [GM], Microsoft).¹ The best way to characterize an Intranet is to refer to it as a "restricted" Internet that only

select individuals have access to. Intranets can require passwords or utilize other security methods to impede the access to the casual browser. At a minimum, access is controlled through the mandatory use of a user log-in. A user must use his appropriate user ID and password when asked to log-in, resulting in access ranging from full viewing and editing of all pages, to "guest" privileges for viewing only. Web administrators control configuration of these privileges with tools available on the web server. Other potential configurations of the Intranet web server allow for enhanced security through restriction of specific domain addresses. Another method of blocking access is through the use of different port settings administered by the web administrator.

Web-Based Discussion Boards

To some the term "web-based discussion board" may be foreign, to others it maybe their best friend. A web-based discussion board allows one to present information/ideas in a collaborative, open forum for all project stakeholders to join, irrespective of time or distance. Discussion boards are available on the Internet covering all topics, from hobbies to stocks. There are several ways a discussion board can function and the configuration of that board can also determine who is able to enter into the groups based upon project needs. The result of such a tool is the ability to manage group discussions in either an open or closed forum.

CONCLUSION

The Internet is the universal media to share information in a global environment without the barrier of time or distance. The ability of the Internet to increase the velocity of information allows a PACS implementation to be responsive to issues before they occur and not rely heavily on a reactive management. Internet tools empower the support staff for the PACS implementations to make better choices for project specific details, ultimately creating a better system for the end user and minimize the problems related to change management. The availability of information to make intelligent decisions is an essential aspect of project management that has yet to be fully integrated into Internet applications. The tools described in this paper allow for significant added benefits for PACS implementations to respond to

everyday burdens that face the typical project manager and support personnel. The Internet enables resources to be accessed that may be out of reach or overwhelming when not arranged and managed by methods that allow for logical processes to be effectively used.

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