Collaborative Management Environment: A Web-Based Management Tool

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1 Introduction

In business and industry, as well as in research organizations, all levels of management need accurate, timely project status and financial information to ensure that they remain on schedule and within budget. A prototype financial information system called the Financial Automated Management On-Line User System, or FaMOUS, developed at the U.S. Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL), automatically extracts financial data from legacy systems and generates a hierarchical set of integrated reports that span individual projects and entire organizational units. FaMOUS has been implemented throughout ORNL and currently frees managers and finance officers from the arcane details of database manipulation and reporting, allowing them track budgets and cost details more effectively and assisting them in performing sophisticated financial planning and analysis.

Using experience gained in the development of FaMOUS and other information system pilot projects, DOE information science researchers are now using World Wide Web (WWW)-based technologies to construct the Collaborative Management Environment (CME), a DOE-wide program to develop tools that assist in managing projects across multiple organizations. Decisions about which projects are the most beneficial and relevant, which are on schedule and within budget, which should continue or terminate, and which new projects should be funded are based not only on project and financial information, but also on static and dynamic proposal information. Successful managers need all pertinent program information that they are authorized to access, regardless of where it is stored. The WWW provides the basis for a virtual management environment, but until now, no effective tools have been available to span the information repositories at multiple sites necessary to gather the required data. The CME prototype is being tested at ORNL, at DOE headquarters, and at the DOE Ames Laboratory, and will eventually be extended to all DOE organizations.

2 CME Capabilities

The tasks associated with combining the functionalities of the pilot projects on which CME is based included developing generic web-based interfaces for financial databases, defining models for project databases at DOE sites, implementing flexible security and domain restriction features, developing graphical web-based interfaces that support multiple views of matrixed organizations, designing local intelligent software agents to support autonomous information access and analysis, identifying and incorporating searching and indexing capabilities, and integrating all features into an initial prototype system for the Mathematics, Informatics, and Computer Science Office of DOE headquarters and for two DOE research laboratories. CME provides sophisticated search and cross-cut capabilities within a single site or across multiple sites for both finance and project information, integrating data from heterogeneous databases and documents distributed across the WWW into precise, meaningful formats. It is crucial step in bridging the gap between a browsing tool and a management tool.

When CME is fully implemented, a program manager at DOE headquarters can rapidly respond to requests, for example, for research highlights from the Secretary of Energy for an upcoming speech or for budget information from the U.S. Office of Management and Budget (OMB). In response to the Secretary's request, CME can automatically initiate a search of the appropriate research sites for the latest information. WWW technologies allow researchers in the field to update their progress dynamically with text and corresponding visual information, including graphs and animation. As a result, program managers obtain rapid access to the most recent project information available. When preparing a response for OMB, past financial reports from various sites will be accessed to identify progress, trends, or areas for cost savings.

3 Summary

The intelligent agents and collaborative financial and project tools, coupled with WWW-based interfaces, provide the framework to logically link financial and project information. Through exploiting the power of these innovative technologies, CME creates a virtual management environment that provides managers with seamless access to distributed information in an integrated, complete, and timely manner from a single source. To be useful, information must be both relevant and reliable. CME accomplishes both objectives while simplifying program management and creating savings in time and effort, as well as storage and paper. Its concepts and technologies are directly applicable to both government agencies and business and industrial organizations.