As facility managers increasingly embrace and endorse the internet age, online, web-enabled systems for design, construction and facility management are emerging as one of the most exciting and productive uses of web technology. These systems have been called variously “e-PM”, “projectwebs”, “web-PM”, “project extranets”, “collaborative PM web sites”, or “construction project networks.” Whatever name finally sticks, this new technology has the potential to transform current workflow and relationships and become a significant force in productivity improvement for the industry.

Start-up web companies with products such as ActiveProject (http://www.frametech.com), In-Site (http://www.bidcom.com), ProjectNet (http://www.bluelineonline.com), and AdvantageNet (http://www.emergingsolutions.com), have developed systems with various features and degrees of sophistication. E-PM systems improve project communication and collaboration by enabling access to web-based repositories and clearinghouses of project information and communication to anyone with a web browser.

Increasing the effectiveness of project communication has always been considered the most value-added improvement needed in project delivery. “Requests for information,” meeting agenda and minutes, and submittal logging and tracking are a few of the administratively intensive and time-consuming activities in the design and construction process. Costs related to these functions are increasing dramatically as project teams become more geographically dispersed and projects are executed on a global basis.

These online systems become a single repository for project information, permitting team members to access the data anywhere over the Internet. More sophisticated systems will actually send an email, page or fax notification to a project distribution list when documents or data are posted. “Hot synchronization” of data to palm pilots and other Personal Digital Assistants (PDAs) makes the project data even more accessible.

Collaboration, especially during the planning and design stages of a project, can be greatly facilitated by these systems. All design documentation, including drawings, sketches, specifications and design calculations can be placed in a single information repository. More sophisticated systems will permit versioning as well as “red-lining” and mark-up of drawings.

Inspectors’ daily reports and “punch lists” are often sources of conflict during the project execution phase. Effective communication links between team members can go a long way toward improved “partnering” on a project site. Some systems permit data entry of inspectors’ daily reports and “punch lists” directly into PDAs on the construction site. Inspectors “hot sync” their data to the online system by using a cradle attached to computers back in the construction trailer.

Increasing use of wireless communication will permit them to send the data directly from the field. Field personnel can send sketches that have been downloaded to their PDAs directly to printers in the construction site by way of infrared and “print on demand” technologies.
Although actual CPM scheduling systems are not yet part of these e-PM solutions, most systems permit portions of schedule data and bar charts to be displayed. Having a two-week “look ahead” schedule published on the web for all subcontractors and vendors to view can be a boon in achieving “just-in-time” delivery of materials, labor and equipment to a project site.

Facility construction is an industry where delay and inefficiency claims are often the result of poor communication and non-added value workflow processes. Some e-PM vendors suggest that 5-10% of project costs can be saved by using these online systems. For a $660 billion per year industry, even a modest 1-% productivity gain could be of tremendous economic benefit to all parties involved.

**Vendors, Costs and Functionality**

As can be imagined, e-PM vendors come in many flavors. Some host the application on the vendor’s web site and ‘rent’ you access to the site while other sell publishing tool sets for building your own site. Some are pure software companies while others provide service as well as software. All major vendors run on NT and/or Windows. Some are based on Lotus Domino to take advantage of Lotus’ excellent workflow functionality. E-PM costs are in the range of $25 to $50 / month / active user (although pricing structures and policies vary widely) for those vendors that rent sites on the vendors server. Costs for e-PM hosting software typically will range from about $2500 to publish data to $15,000 for collaborative software. Most pricing structures are based on the number of collaborators that use the software. Still, if used effectively by the entire project team, the return on investment could be substantial.

Facility managers and owner’s operating staffs may well be the ultimate beneficiaries of these online information systems. As-built design documentation and specifications, O&M manuals, and final performance reports have previously been submitted in 3-ring binders filled with paper-based catalogues and product literature. These manuals can now be output from e-PM systems onto an interactive, searchable CD-ROM, with little if any additional cost.

Issues that remain to be resolved for this emerging industry include the following:

- Data versus document-centric systems (most access to information is through documents that are ‘threaded’ together rather than the data itself);
- Pricing models that encourage all team members to utilize the system (the software is still fairly expensive);
- Security and Encryption;
- Technology adoption by all members of the project team, from owner down to subcontractors and even vendors;
- Reliability;
- Bandwidth (the internet is still slow when using a modem);
- Vendor-accepted standards so that data can be shared by different systems.

E-PM and project web sites offer significant advantages over traditional PM. Several of the vendors (e.g., [http://www.costructures.com](http://www.costructures.com) and [http://www.frametech.com](http://www.frametech.com)) have excellent white papers on e-PM.

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1 For further reading on the subject, and excellent references (which include feature comparison matrices covering the entire industry), browse the following reference links:

  Report on Web-Based Project Management
  http://www.projectcontrols.com

  December 1998 Cyberplaces
  http://www.cyberplaces.com/columns/archive/dec98.htm

  Digital Revolution in Design and Construction
  http://www.fmdata.com/fmdm/issues/9809/

  A Comparison Matrix of Project Extranets
  http://www.integrated-aec.com/