

The Use of a Project Extranet for any Project Delivery Method

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Executive Summary

The principal variation in the use of a project Extranet for different project delivery methods occurs when the various team members begin using the Extranet. The earliest and most comprehensive Extranet use occurs probably in a Program Management format. A more reduced usage is likely to occur during a design-bid-build approach where many of the parties are introduced into the project later in its life.

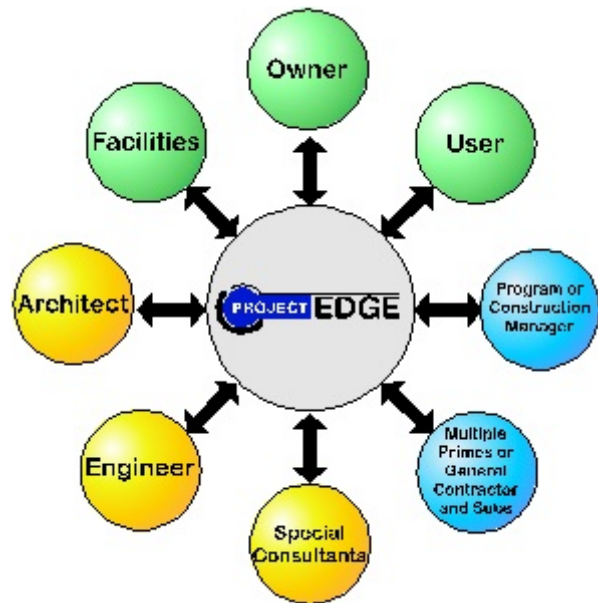
The author will explore how to maximize the benefits to each of the respective delivery methods through the use of a project Extranet.

Background

ProjectEDGE is an Extranet created originally for the real estate development and construction Program Management work of the Edgewater companies who have developed or managed more than 83 projects valued in excess of \$600M consisting of such diverse project types as regional shopping malls, hydroelectric and co-generation power plants, industrial research complexes, commercial office buildings, recreational and educational facilities. In addition to developing for their own account, the creators of ProjectEDGE also produced benchmark projects as Construction Program Managers and/or Design-Builders for clients such as IBM, Xerox, USPS, and Eastman Kodak.

Project Delivery Methods

In the most common project delivery model, design-bid-build, the project is first designed, bid and then constructed. At different times, various individuals or entities are responsible for the success of the project. The weak link in the delivery method is the handoff from phase to phase and the built-in tendency for adversarial relationships to develop. A variation of design-bid-build is a negotiated



bid in which a pre-qualified contractor negotiates with the owner. Such a process is generally less prone to adversarial positions being adopted and there may be involvement of the contractor during the pre-construction phase for constructability reviews and value engineering.

Design Build

The next level of sophistication is design-build where a developer, a contractor or A/E/C firm takes the responsibility for both design and construction. Design-build may be the preferred delivery method in industries such as the process industry where both the design and the construction are highly specialized. Design-build can also be used successfully where performance criteria or previously contracted facilities can be developed to define the project.

Program Management

Another project delivery method, even more sophisticated, is Program Management in which an entity takes on the responsibility of managing the entire delivery process from origination of the project need through programming, design, construction into occupancy. In many respects, an owner organization that has the skills to locate the sites, engage the designers, solicit bids and manage the construction works like a program manager. More often than not, the program manager functions as an owner's agent and provides a complementary service to the owner by filling any roles the owner is not able to or does not want to perform. True Program Management is a seamless integration of the program manager and the owner. The program manager and the owner assemble a core team that the program manager will expand upon as the project develops.

Guarantee Maximum Price

The method of construction procurement can include virtually any of the other delivery methods as submethods. However, more often than not, Program Management transitions into a design-build or negotiated

GMP contract. The exact method of contracting can vary quite a bit depending on the type of project, the nature of the owner and of the program manager as well as the terms and conditions that may be imposed by a lender.

The Use of an Extranet

An Extranet is a sharing of computer information beyond an organization's boundaries. Many Extranets use dial-up access to some sponsoring organization's computer system. A large manufacturing or institutional owner may have sufficient infrastructure with flexible enough security provisions to allow the use of internal data by external persons. More often than not, however, penetrations through the corporate or institutional firewall are so closely controlled as to prohibit the free access of external team members to the computer system.

The Internet and web servers became the communication solution that overcame that hurdle by allowing data to be placed on Web servers external to the client organization where they could be accessed by all parties on a secure basis without risk of compromising corporate or institutional information.

In the evolution of Extranets, Application Service Providers (ASP) began offering hosted services to users on a subscription basis for individual projects or groups of projects. The use of the Internet meant that users only need a browser and ISP connection along with a user name and password to be able to share project information and to collaborate. Some of the ASP solutions are unstructured while others have a great deal of structure and functionality. One of the latter products is ProjectEDGE which was developed by your author. The features of ProjectEDGE will be used to illustrate how

the various delivery methods could use an Extranet product to manage new or renovated facility design and construction.

Opening View

The opening view in an Extranet can be a project directory or an individual project web site depending upon how the service is procured. An owner with many projects may have one directory portal page through which access to all the project databases is controlled. For a single project, the access will be controlled at a project Web page or beneath it. For example, the project web site could have a public side on which general information about the project can be viewed by anyone. On the private side of the site, only users with user name, password and defined roles will be granted access.

Action Items

Once in the web site, there is one view where all time sensitive issues could be reviewed and acted upon. We call this view the Action Item view because action items generated from meeting minutes, safety notices, correspondence follow-up, RFIs, submittals, insurance certificate expiration or any other issue with a time deadline are listed.

The persons and companies who need to be doing something by a particular date are all listed by due date, responsible person or by company which provides a useful way to find your own tasks and those that you assigned to specific persons or companies.

An example of the use of the company view is the ability to select that view while on the telephone with a responsible person in the company with whom you can review all of the outstanding issues owed by every individual within that company. Having such a source of information available at both ends of the

phone call, will virtually eliminate the use of the phrase “I will have to get back to you” because the information will be right in front of the individual to whom you are speaking if they are also using the Extranet. Each participant should be able to “drill” down for more detail while on the phone call.

Action items can be used throughout the life of the project regardless of delivery method. The extent of use will depend more upon who is promoting the use of the Extranet than the contracting method. When an owner, owner’s agent, program manager or design-builder is the sponsor, the use will be much sooner and more comprehensive than if a general contractor is the sponsor.

Contracts

The contract section manages multiple prime contracts, single general contracts and professional service agreements. Using a boiler plate contract form, the contract profile can be used to create the actual contract and display it within the Extranet to authorized persons. Change orders, purchase orders, backcharges, work orders and contract closeout documents can all be prepared and managed in the Extranet. Using a workflow process and a proprietary spreadsheet similar to the AIA G702/703 format, contractor invoices can be processed using a workflow involving the contract administrator, the contractor, the construction manager, architect or engineer or any other party who is part of the user-defined workflow.

The extent to which the contract section is used depends on the delivery method and who is sponsoring the use of the Extranet. An owner of a design-bid-build project might have only the general construction contract in the section. A design-builder is likely to have professional contracts as well as multiple prime contracts in the section.

A workflow process is also used to track contracts and change orders through to their execution. The amounts of all contracts and change orders, whether approved or pending, are tabulated in the details of any contracts and all related documents can only be seen by the parties to those contracts.

Regardless of the type of delivery method, the Extranet allows the contract parties to create and read only their own contract documents and submit and process their own invoices over the Internet.

A separate section not yet released will fully automate the management of issues. Once created, an issue will remain open until all of its solutions and remedies have been initiated. The creator of an issue will have the ability to initiate documents such as requests for quotations, requests for information, action items, change orders, purchase orders, backcharges and other similar solution documents needed to bring closure to the issue. Currently, issue and solution documents are treated as threaded documents so the user can track all the solutions of the issue through to their conclusion.

Communications

The communications section can be used by any project participant throughout the project and is totally independent of the contracting method. The extent to which the communication section is used by any party will be influenced by when they become part of the database and the level of intensity of their involvement.

Using the Extranet, all authorized users will be able to generate letters, form letters, memos, faxes, conversation records and transmittals to anyone else in the database. All communications can be sent with an e-mail notification that eliminates the need for

printing, faxing and mailing as one would typically do with conventional paper documents. What would have been done before by paper memos, faxes, verbal direction or uncoordinated e-mail can all be done in one structured searchable database.

The information is generated and made available for all the referenced parties. If separately created e-mails are received, they can be imported into the Extranet. Where necessary, action item(s) can be used for follow-up to any of the communication documents.

Discussion

Discussions can be used by any of the delivery methods, since the uses of discussion range from capturing and verifying architectural and engineering programming, evaluating value engineering, developing process improvements to building a knowledge base including best practice. Except for private discussions, the information in the threaded discussions will be available for all the authorized participants at the time they join the database.

When used for value engineering, threaded discussions can be a tool for a thorough discussion of a proposal, its benefits as well as its impacts. The proposer of a value engineering concept would supply a description of the proposed improvement including the benefits and would attach or reference any files, drawings, sketches or other material needed to evaluate the value engineering proposal. Each participant in the value engineering analysis would respond with their own comments and analysis including attachments. The process would continue until final resolution.

Drawings

Regardless of the delivery method, all the participants including potential bidders can benefit from access to the drawings and specifications. Whether the use is for viewing, bidding, marking up for value engineering, or generating an RFI, access to the drawings is useful throughout the entire process from site selection through and including facility operation. If the use of the drawing module is expanded by attaching geotechnical reports, zoning maps and other similar information, the project team can use that information to begin developing the conceptual drawings.

In one of our real estate development projects, we used these techniques to take a project through Wetland and Planning Commission reviews where the number of apartment units was increased from 250 to 339. Throughout the entire process, no drawing was marked up using conventional methods. All were marked up electronically using web browsers while we were in various cities. Some were also marked up in web based conferencing sessions.

Meeting Minutes

Regardless of the delivery method, the participants can begin using meeting minutes as soon as they start holding meetings. The types of meetings vary depending upon the phase of the project and the participants. For example, the initial meetings could be Programming or Core Team meetings.

Both pre-bid and pre-construction meetings can be entered. During construction, Core Team, Weekly or Monthly progress meetings, Closeout and Commissioning meetings can be entered as well.

Having the ability to record and access the

meetings on-line means that no one has to print and publish the minutes. It also means that comments and action items can be processed for each of the meeting topics.

Phonebook

The phonebook section is used for all delivery methods throughout the project, since it is a place where all contact information is recorded and the place in which look ups are done for virtually all the documents.

Photos and Video

Photos are used for all delivery methods from the beginning of the project through and into occupancy. The photos are used as early as the programming phase to document existing conditions. The more normal use will be during construction for progress photos. Responsibility for those photos may vary depending upon the contract terms.

The use of web cam for video is also independent of the type of delivery method, but the web cam is likely to be used only during construction unless it is continued into occupancy for some other purpose such as security.

Punchlist

The punchlist features are used for all delivery methods, but the responsibility for generation of the punchlist will vary depending upon the type of delivery method. The essential difference will be whether the punchlist is developed by the design professionals working for the owner or for a design-builder. The punchlist may also be generated by the construction manager or general contractor depending upon the contract relationships involved.

Regardless of where, when and by whom the punchlist item is created, the person who “sourced” (originated) it will be identified as well as the responsible party and due date.

Request for Information (RFI)

The RFI module can be used for all delivery methods with the principal difference being when RFIs begin to be generated. We recommend starting the use of RFIs in planning and design to request information of the owner or users to clarify programming or design issues.

In the case of a design-bid-build project that does not start to use the Extranet until the start of construction, planning RFIs would not be used. All other delivery methods are likely to find RFIs beneficial from the very beginning of their use of the Extranet. The actual workflow routing used for RFIs and Submittals is likely to vary with the delivery method. For example, in the design-build model, there may be only isolated cases where it is necessary to route an RFI or a submittal through an owner. Additionally, while the routing will still involve the design-build professionals, they will report to the design-builder rather than to the owner.

Safety

The use of the safety module is largely independent of the delivery method except to the extent of how the contracts are being held. Each contractual party probably has to file a safety plan under the terms of the contract. The only difference is likely to be the party to whom they are obligated under the contract. Safety notices, OSHA inspections and accident reports will all vary slightly depending upon between whom the contracts are written.

Submittals

Submittals and shop drawings will vary principally in their workflow routing since the parties who review and/or approve will vary with the delivery method. In most cases, the owner is likely to see submittals only when the owner holds the contracts and their input is necessary such as in the case of a substitution submittal for design-build a larger proportion of submittals may be for record purposes only.

Service Request

In a Program Management or design-build delivery, the Service Request module should be used where responsibility carries into the occupancy phase. Such needs are unlikely for design-bid-build or they may be continuing responsibilities in other delivery methods.

In an owner organization that handles its own move-in coordination or warranty administration, this module could be used.

Management Reports

The management report is currently both management reports and field reports.

Unless the contract requires overall status, schedule or budget reporting, the management reports might not be used. However, Program Management and design-build will probably use these features to keep the owner and other members of the team apprized of overall status of the project including schedule budget, significant issues, photographic progress and other items.

Field reports would be used by all delivery methods. The principal difference is which contract type someone is operating under when they generate the field report. For

example, in design-build, the engineers and architects would prepare their field report under their contract authority with the design-builder. Under other delivery methods, the designers probably have direct contract responsibility to the owner.

Roles

Throughout the various modules described above, some of the rights and responsibilities change according to the delivery method being used. One of the best illustrations of the differences in the roles would be that of the designers in a design-build relationship compared to their roles in the other delivery methods. As part of the design-build team, the access rights of the architects and

engineers would be changed to align them more closely with the design-builder as a member of that team. Similarly, the role of the owner or client would be somewhat diminished in its access rights and the design-builder elevated in its rights to reflect the responsibilities under the contract terms.

The degree to which the access rights are altered for these different types of contract forms will depend in part on the exact terms and working relationship of each project team. While the flexibility exists to make many adjustments in the roles and responsibilities, the exact terms and conditions of the contracts would have to be known to align those roles and the access rights to the contract.

For more information on ProjectEDGE, white papers or demonstrations, visit our web site at www.projectedge.com or contact us at 888-516-EDGE, Fax 315-471-6659 or e-mail at [projectedge@edgewater.net.com](mailto:projectedge@edgewater.net).

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