

ENGINEERING, FURNISHING AND INSTALLATION (EFI) PROJECT DELIVERY METHOD

An EFI is a person or company that provides engineering, furnishes necessary equipment, installs all equipment and commissions the system. Depending on where you are in the nation, some companies use the term “design-build” instead of EFI. Compared to the design-bid-build method, where the owner usually only has input in the design phase of the project, the EFI method combines the engineer, equipment furnisher, and installer into one entity and shifts the involvement of the owner to the entire life of the SCADA implementation project. Most major decisions about the system are made up-front, so that a project budget price can be established; however, many more decisions are made as the project proceeds, so that the final project is able to perform as well as it can.

While the utility may have more control over their project in an EFI project delivery method, they will need to devote more time to the project during the building/implementation processes and have more opportunity to become very involved with the project. Many of the minor decisions will be made later in the implementation process and only when they are needed. The biggest advantage with the EFI project delivery process is the overall simplicity (Figure 2.6.2-A) and flexibility to change a certain aspect of a project, which helps when you are entering a project with little certainty of your expectations. In this form of project execution, the utility and the contractor work together to reach a desired end result and projects are usually paid by a cost-plus method, where the owner pays for the cost of the project with the addition of profit and overhead to the contractor. Other arrangements such as fixed-cost are also common, but in an EFI method, contractors will try to avoid that arrangement because too much risk is assigned to the contractor.

Engage a qualified EFI to complete project

Figure 2.6.2-A – EFI Project Delivery

Figure 2.6.2-A portrays the EFI method as a simple, one-step process. This is may or may not necessarily be the case, but compared to the previous examples, the EFI method is indeed more simplistic. There are certain cautions that the owner should be aware of, the first being that the EFI method may not be allowed by certain state or federal agencies, if their funding is involved in the project. This is simply because granting or loaning agencies may require competitive bids as a requirement of the use of their funds. Although an EFI project delivery method can be set up to be competed on by multiple EFIs in a competitive manner, it is very difficult to arrange this because unlike the design-bid-build delivery method, the final scope of work and product is not exactly known before the bid process occurs.

There are distinct advantages to each delivery process and you should take time to educate yourself on the pros and cons of each before you select your method of choice.

Considerations for Potential Equipment Suppliers, Engineers and Contractors

Very often, the utility will have an existing relationship with an engineering or design consultant. This person/company may actually have the in-house talent necessary to design the entire SCADA system to meet needs. If they do not have the necessary talent in-house, then they probably have a relationship with a fellow consultant/company that has the necessary skill sets and capacity.

Designing a practical and reliable SCADA system requires a great deal of expertise and time. There is physical installation, power supplies, communications network, network connections, and then the even more difficult phases of configuration and data basing. It can be a daunting task, especially for most engineers that do not necessarily specialize in these projects. It is very important that the design professional you select has the depth of expertise necessary for the job.

Below are several items that should be considered in selecting a specific engineer or design professional:

- **Quality Standard Certifications:** Many engineers, design professionals, and equipment manufacturers adhere to procedures certified by industry standards organizations, such as ISO 9000 or the telecommunications-specific TL 9000 standard.
- **Experience and Client Testimonials:** As with any business-to-business professional service, you should check carefully for your engineer's or design professional's reputation. Find out how long they or their company has been in business, see if it can offer testimonials from its clients-and check with their clients to get a real sense of how they rate the company's services.
- **Vendor Partnerships:** Depending on your situation, pre-existing vendor partnerships may or may not be of concern to you. However, be aware of any existing partnerships so you can be aware that you may be "driven" to a certain platform or product line. Just because you are outsourcing the project design, you should still retain control. Check what vendors the engineer prefers or works with. You should be still able to specify the vendor and equipment you want.
- **Compare Prices, But Don't Be Cheap:** The costs of using an engineer or design professional is usually justified by the quality of the plans and specifications. The quality of the plans and specs is measured by the number of change orders and if the final SCADA system performs as intended. Look for the best value, but always keep quality high on your list.

If you elect to pursue the SCADA project using the EFI delivery method, many of these same criteria can be used, but keep in mind that although EFIs will have a broad knowledge base, they will very likely maintain only a few vendor partnerships and those partnership will be where much of their expertise is focused. Below are some additional values that an EFI will bring to the SCADA project.

- **Product Knowledge:** You may already know quite a bit about the equipment you use, but you have not had the time to research everything about it. And when you are adding new types of equipment to your system, you can never be quite sure how your old and

new equipment will work together. You can turn to old equipment vendors for assistance, but while they can tell you a lot about their own equipment, they likely will not know how their older equipment may interact with equipment from other manufacturers. EFIs usually have broad knowledge of different types of equipment used throughout the industry, and they have deep experience of integrating different equipment during installation. That experience and expertise is difficult to reproduce or obtain elsewhere.

- **Outsourcing Time and Trouble:** You may have been given the responsibility for a system deployment, but that does not mean you have the time, the resources, or the staff to oversee every detail of the project—especially if managing the deployment is an extra job that has been added to your everyday duties. If this is your situation, you may have a classic business case where outsourcing the work will get the job done faster, more efficiently, and even less expensively than trying to do the work entirely in-house or with a traditional design-bid-build method.
- **Project Management:** Deployments often take longer than planned, especially if you are working with new equipment. There is a lot to learn to execute a successful implementation, and it is easy to make beginner's mistakes that can extend time and budget. The project management experience of an EFI provider can be of real value here. These are companies with years of experience overseeing telemetry deployments, and they have highly developed systems for ensuring projects are completed on schedule and as planned.

Does this added value justify using an EFI provider for your project? Ask these questions:

1. Does the deployment project require extra training for your installation technicians?
2. Do you have the time to manage the entire project yourself?
3. Do you have the experience to anticipate and prevent problems and delays with your implementation?
4. If an EFI project delivery cannot meet your schedule or quality requirements, cheaper and faster is not necessarily better.
5. Do you have an established data management plan, or does this need to be part of the overall project?
6. Do you have ability to analyze the data acquired by the SCADA system?
7. Do you have a plan or the ability to use the new data in an intelligent manner in order to perform advanced planning and management in your system?

Operator Acceptance

Operator involvement and acceptance is extremely important. Operations staff can be involved from the beginning of the development phase. Operators are more likely to accept technology if they feel the final system is reflective of their suggestions and responsive to their needs.