Interface
Management

Effective information exchange
through improved communication

ABB Value Paper Series

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Effective information exchange through improved communication

by Josh Caglar, P.E. and Mike Connolly, ABB Inc., Houston

Introduction

In today's flat world, many major oil and gas projects involve multiple project participants from different geographic locations including one or more Engineering, Procurement and Construction (EPC) companies performing process and facilities design, a variety of third party suppliers providing products and services and a broad range of external and internal customers needing to exchange information between themselves and other project stakeholders. Critical elements in the successful operation of major oil & gas facilities are the automation, control and electrical power systems and for these systems to have a common "look & feel" throughout the facility owner/operators are increasingly adopting the concept of Main Automation Contractor (MAC) and Main Electrical Contractor (MEC) where major vendor/equipment suppliers take on an expanded role in the design, manufacture, installation, commissioning and initial operation of the facilities. An important aspect of the MAC/MEC role is promoting effective and timely communication and exchange of information between participants since this is a prerequisite to the ultimate success of a project.

MAC/MEC brings value to the end user by providing advanced technology solutions and integrated products. In order for the solutions and integration to be implemented successfully it is essential that a common framework of communications is established which permits the timely exchange of relevant and accurate data between the involved parties. To achieve this ABB employs Interface Management, a key process within our project execution model and an essential element in delivering flawless project execution.

Requirements

A major factor impacting the exchange of information is the contracting structure employed on the project. There are a variety of different contracting models that can be used ranging from direct contracts with the owner to various prime contractor/subcontractor/supplier relationships between the owners, engineers etc.

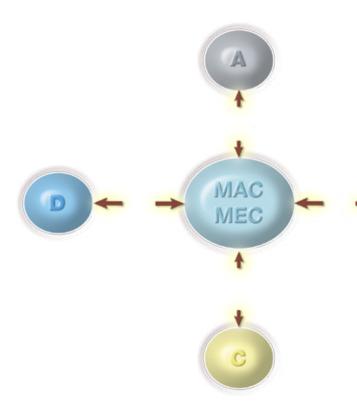Irrespective of the contracting model used, these large projects will involve multiple participants most

likely in different geographical locations, resulting in cultural and language differences and the necessity to collaborate and work together over multiple time zones. In situations such as this it is essential for the MAC/MEC to have the ability to interface and coordinate information to minimize the risks associated with ongoing design development, project changes and late and erroneous data. This requires the establishment of a process to coordinate activities directly with other project participants to ensure an effective exchange of critical information.

The process must be robust and it must be managed. This requires a management structure with the ability to cross the relevant participant boundaries without impacting the overriding contractual relationships. The nomination of an interface representative position within each entity's project organization achieves this. The Project Interface Manager has overall responsibility for implementation and maintenance of the interface management process throughout the project life cycle by developing and implementing project specific Interface Management work processes, capturing the necessary interface agreements, monitoring progress, ensuring that schedule requirements are maintained and identifying/ initiating any change requests that may arise out of the interface requirements. Depending on the size of the project the MAC/MEC Project Interface manager may also have a team, of project interface contacts (technical liaisons) embedded in the location of other external entities to be the interface liaison with the owner and EPC's Interface Representative or other persons and departments required by the owner.

Definition

The objective of the Interface management process is to facilitate agreements with other stakeholders regarding roles & responsibilities, timing for providing interface information and identification of critical interfaces early in the project through a structured process. The overall goal is the early identification of issues with potential for impact to cost or schedule, to minimize or remove their impact and promote clear, accurate, timely, and consistent communication with other organizations for exchanging interface

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with its scheduled project tasks. This can include but not limited to the engineering drawings, specifications, design reports and calculations, equipment details and project schedule information.

There is no limitation on the source of interface agreements. They can arise from several sources including members of the project team, contract requirements, responsibility matrices, customer requirements, third party vendors/suppliers and other project contractors and project stakeholders.
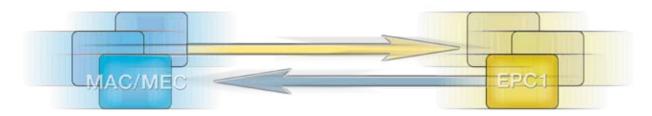
Whatever the source, information requests on an Interface Agreement have two basic rules:
1. They should be specific and primitive in nature and should not be capable of further breakdown in to more items.
2. They should have a specific requirement date.

To simplify the process and make the tracking and monitoring efficient all Interface Agreements should to be unidirectional from the first party (receiver) to the second party (supplier). If the second party requires the return of data then this should be the subject of a separate interface agreement from the second party to the first party.

The Receiver is the party that initiates the request for information and the supplier is the party that is responsible for providing the requested information. During project execution all participants may adopt the role of receivers and suppliers at some point.

information. Interface Information is a requirement that associates two distinct entities, either internal or external, that is necessary for an entity to generate its own deliverables.

Interface Agreements result in exchange of any project information generated by one party that is needed by another party in order that the other party can continue

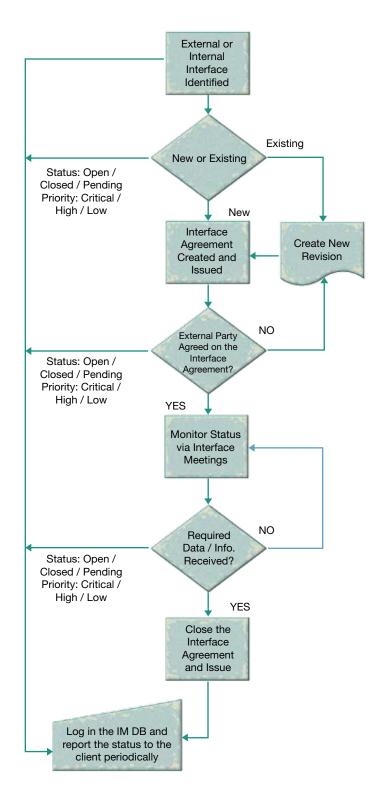## Interface Agreement is unidirectional

Process

The interface management process is designed to provide a method to formally document and track the exchange of information between project participants and to monitor the performance of all participants in making available the required information. The process involves
- Identification and recording an interface
- Creating an interface agreement
- Agreeing / Resolving Conflict
- Monitoring the status
- Reporting the status
- Closing the interface agreement

Information required is identified by the receiving party and advised to the interface manager, whom in turn will develop an electronic register of all identified interfaces, usually in a database format, with each interface agreement having its own identification code such that the receiver and supplier are easily identified. For example, in the case of an external party, MAC/MEC-EPC1-001 depicts an interface agreement that MAC/MEC is requesting from an EPC1.

A formal interface Agreement document is generated from the Interface Management database by the interface manager and signed by the receiver and issued to the supplier via formal document management process with the necessary data elements such as Interface Agreement Identification Number, Priority (whether it is highly critical or information only), Date Raised, Supplier Organization and Interface Contact, Date information needed by the receiver and date agreed by the supplier and the status of the Interface Agreement as either being OPEN or CLOSED.

Once the created Interface Agreement is issued by the "Receiver" the "Supplier" will either accept it or will ask for a discussion for clarification. The Interface Agreement is then discussed with the "supplier" and either accepted, modified, or deleted. If there is a dispute over the legitimacy of an identified interface, the interfacing parties will make every effort to resolve the issues. The client may intervene to provide final arbitration of any unsettled issues. The supplier will sign the Interface Agreement by a formal signature on the form and issue it back to

External or Internal Interface Identified

New or Existing

Existing

Status: Open / Closed / Pending
Priority: Critical / High / Low

New

Interface Agreement Created and Issued

Create New Revision

External Party Agreed on the Interface Agreement?

NO

Status: Open / Closed / Pending
Priority: Critical / High / Low

YES

Monitor Status via Interface Meetings

Required Data / Info. Received?

NO

Status: Open / Closed / Pending
Priority: Critical / High / Low

YES

Close the Interface Agreement and Issue

Log in the IM DB and report the status to the client periodically

"receiver" The database is modified as required. In order to simplify the process an Interface Agreement may be revised only once.

Each Project Interface manager monitors the status of the interface agreements on a regular basis by having periodic Interface Meetings or teleconferences between the parties to review the progress on the Interface Registers that are derived form the Interface Database. The Interface Agreements with "Critical" Status are prioritized and the respective Project Managers will develop contingency plans for the "critical" data that is deemed to be "late to minimize the impact of the critical late data.

The interface manager is responsible for producing regular reports from the electronic log indicating the interface progress. The frequency of reports will depend on the project reporting requirements however, as a minimum a status report will be generated monthly and included in the monthly project progress report. Reports can be either in a tabular format as an Interface Register or in a statistical format as a high level report.

When the "Receiver" receives the requested information by the required date and considers it acceptable then the "Receiver" can sign the Interface Agreement as "Closed" and issue it back to the "Supplier". In turn, the "Supplier" signs the interface agreement form as "Closed" and the document is recorded as such in both the "Supplier's" and the "Receiver's" interface databases. The "Closed" interfaces are omitted from future Interface Agreement reporting.

Advantages

Using a formal Interface Management process has many advantages, particularly when there are numerous participants and stakeholders involved in a project. Having a structured process for the exchange of information means that performance in satisfying the requirements can be monitored in detail and any shortcomings highlighted and addressed immediately they become apparent. A secondary benefit of implementing the process is that it encourages meaningful communication between the supplier and receiver participants. The requirement to provide specific, detailed requests

that are not capable of further decomposition means that the party making the request must give careful thought to the detail of the information requested and to the timing of the delivery of the information. The requirement for both parties to sign the formal agreement means that a dialogue regarding the information and its delivery must take place between the parties in order that agreement can be reached. If the receiving party asks for too much, too soon in the data generation cycle, agreement with the supplier party is unlikely to be reached. The supplier party will require further decomposition of the data into more defined parts resulting in detailed discussions/negotiations between the parties regarding the information required. The formal interface agreements are the product of this communication process.

Fostering this communication between project participants early in the design cycle is an important factor in achieving execution excellence. Very often the information a participant requires is either ill defined resulting in confusion and lack of focus, or it is all encompassing resulting in the delivery being unable to be achieved. This leads to conflict within the team and gives rise to unproductive finger pointing or laying blame for something not happening rather than cooperation to ensure that the work progresses to meet the schedule objectives. Examples of this are the MAC requesting delivery of the AFC P & ID's from the process designer by a certain date. This is an ideal situation but in today's fast track projects the process designer is very often unable to deliver all P & ID's at the same time. By focusing on the actual data needed, the MAC and the process designer can reach an accommodation that will provide the necessary data in an acceptable timeframe. The use of the interface process captures the details of these agreements, makes them visible to all participants and tracks them to a successful conclusion.

Conclusion

Effective exchange of information is crucial to the successful execution of any project and the larger the project and the more participants there are, the more difficult it is to achieve this. Use of the Interface Management Process allows early identification of critical interfaces through a structured process leading to early definition of issues with potential for impact to cost or schedule. Once identified, action can be taken

to minimize any impact and with constant monitoring areas of criticality that deviate from the plan can be quickly addressed and brought under control.

Interface Management also encourages communication between the participants providing each with an understanding of the constraints inherent in their respective data generation cycles. Identifying specific data requirements and understanding the importance of the requirement leads to more effective cooperation and thus an improvement in execution performance.

The Interface Management process can only be effective if all project participants embrace the concept and incorporate it into their work processes making it a formal project communication method that benefits all involved in achieving flawless execution.