

## **Object Management Group**

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# **Manufacturing Domain Task Force Enterprise Resource Planning RFI-2**

**OMG Document mfg/96-09-02**

**September 20, 1996**

**SUBMISSIONS DUE: February 14, 1997**

# 1. Introduction

The Manufacturing Domain Task Force intends to issue one or more Requests for Proposal (RFPs) on OMG IDL interfaces for Enterprise Resource Planning (ERP) systems. This Request for Information (RFI) solicits input from ERP users and vendors on recommendations for the number of, and subject areas to be covered by, RFPs on ERP systems to be issued by the Manufacturing Domain Task Force.

ERP includes systems referred to as Materials Requirements Planning (MRP) and Manufacturing Resource Planning II (MRP-II). As described in the MfgDTF White Paper [OMG MFG], ERP's major relationship is to the *Production Planning* business processes. These processes consolidate and conform demand, orders, forecasts and resource constraints to production plans, developing detailed schedules. These plans or schedules are then made available to the participating and appropriate functional areas. Some of these functional areas may include Finance, Marketing, Engineering and Plant Operations.

Some of the processes include:

- *Master Production Planning* consolidates information from customer order forecasts, distribution centers and multiple plants, in order to anticipate and satisfy demand for the enterprise's products.
- *Material Planning* and *Resource Planning* keep planning up to date with product demands.
- *Procurement* selects suppliers and handles purchase requisitions and purchase orders for parts and materials.
- The *Plan Release* function produces schedules, recipes to optimize the use of capacity, specifications and process routings. It can prepare electronic (paperless) shop documents.

OMG encourages users and vendors of ERP systems to become involved with this process by responding to this RFI. OMG members and non-members may respond. Current compliance with OMG specifications is not a prerequisite for response to this RFI. The RFI response can include pre-existing product documentation, but should be organized and presented in accordance with this RFI.

The Manufacturing Domain Task Force (Mfg DTF) will use responses to this RFI to define guide the future direction of the task force more detailed RFIs and/or RFPs will be issued based on this information.

# 2. Context and Scope of the RFI

OMG's central mission is to establish an architecture and set of specifications to enable distributed integrated applications. Primary goals are the reusability, portability and interoperability of object-oriented software components in distributed heterogeneous computing environments. Much of OMG's effort to date has been focused on establishing an enabling infrastructure based on open and standard interface definitions. This RFI seeks information to scope one or more RFPs on Enterprise Resource Planning so that the resulting RFPs and RFP responses constitute meaningful, usable, components, yet are still manageable units of work for both the Manufacturing Domain Task Force members and the Enterprise Resource Planning system vendors and users.

### **3. Objectives of the RFI**

The objectives of this RFI are to solicit from Enterprise Resource Planning users and vendors the following:

#### **(1) Submitters Background Information.**

Responses here provide pertinent background information. Responses in this area may include, but are not limited to information on the following points:

1. Is your organization currently a member of the OMG?
2. If your organization is not already an OMG member, would you consider joining in order to participate in this effort?
3. Would someone from your organization be willing to come to an OMG meeting, provide a verbal presentation of your response, and be available to answer questions about your response?

#### **(2) Opinions on Enterprise Resource Planning RFP(s).**

Responses here provide input to the Manufacturing Domain Task Force on possibly partitioning of the Enterprise Resource Planning subject area into one or more RFPs. Responses in this area may include, but are not limited to information on the following points:

1. Do you believe that Enterprise Resource Planning systems would require enough different OMG IDL interfaces that it would be beneficial for the Manufacturing Domain Task Force to issue more than one RFP on this subject area?
2. If you believe that Enterprise Resource Planning systems do require enough different OMG IDL interfaces that it would be beneficial to issue more than one RFP, what smaller units would you suggest issuing multiple RFPs on? Please be as specific as possible on the scope of each of your suggested smaller units. Also, please be as specific as possible on any important relationships between each of your suggested smaller units.
3. Keeping in mind possible dependencies between, and the potential consumer demand for, these smaller units of ERP functionality, in what order would you suggest that multiple RFPs be issued?
4. What other systems should Enterprise Resource Planning be integrated with?

### **4. Dependencies and Relationships with Other OMG Specifications**

The RFI responses may optionally include a discussion of the relationship of their Enterprise Resource Planning systems to any of the OMA components. Information on proposed extensions to existing OMA components or proposals of new OMA components should also be provided if available.

### **5. Instructions for Responding to this RFI**

#### **5.1. General**

Organizations responding to this RFI shall designate a single contact within that organization for receipt of all subsequent information regarding this RFI, RFI responses and the forthcoming series of RFPs. The name of this contact will be made available to all OMG members.

Responses to this RFI must be received at OMG no later than 5:00 PM EST (22:00 GMT) February 14, 1997. Documentation submitted in response to this RFI will be distributed to all of the members of the Manufacturing Domain Task Force Mfg DTF).

## **5.2. Specific Requirements for this RFI**

This Request for Information (RFI) solicits input from ERP users and vendors on recommendations for the number of, and subject areas to be covered by, one or more ERP RFPs to be issued by the Manufacturing Domain Task Force.

There are two specific topics that the Manufacturing DTF would like respondents to cover:

- Part 1. Submitters Background Information.
- Part 2. Opinions on Enterprise Resource Planning RFP(s).

## **5.3. Format of RFI Responses**

The following outline is offered to assist in the development of your response. You should include:

1. A cover letter -- the cover letter must include a brief summary of your response.
2. Your response to any or all of the RFI objectives and requirements listed in Section 5.2.
3. If necessary, please include a glossary which maps your terminology to OMG standard terminology. (See the Appendices to the OMA Guide and the CORBA Specification for OMG's standard terminology.)

Although the OMG does not limit the size of responses, you are asked to consider that the OMG will rely upon volunteer resources with limited availability to review these responses. In order to assure that your response receives the attention it deserves, you are asked to consider limiting the size of your response (not counting any supporting documentation) to approximately 25 pages.

If you consider supporting documentation to be necessary, please provide one copy to the Manufacturing DTF Desk at OMG. Please indicate which portions of this supporting documentation are relevant to this RFI.

NOTE: According to the Policies and Procedures of the OMG Technical Committee, proprietary and confidential material may not be included in any response to the OMG. Responses become public documents of the OMG. If copyrighted, a statement waiving that copyright for use by the OMG is required and a limited waiver of copyright that allows OMG members to make up to at least twenty-five copies for review purposes is required.

## **5.4. How to Submit**

OMG requests that 50 copies of the response plus a copy in IBM PC machine-readable format (typically ASCII, Word or WordPerfect format) be sent to the Manufacturing DTF Desk at OMG. If you are submitting supporting documentation, one copy of the supporting documentation must be sent to the Desk at OMG.

Responses to this RFI (and other communication regarding this RFI) should be addressed to:

Manufacturing Domain Task Force Desk  
Object Management Group Inc.  
Framingham Corporate Center  
492 Old Connecticut Path  
Framingham, MA 01701-4568  
USA

Phone: +1-508-820 4300  
Fax: +1-508-820 4303  
Email: mfg@omg.org

Responses to this RFI must be received at OMG no later than 5:00 PM EST (22:00 GMT) February 14, 1997. The outside of packages/envelopes containing submissions or any other communication regarding this RFI should be clearly marked "MANUFACTURING DTF RFI RESPONSE".

NOTE: Your organization should be prepared to handle requests for additional copies of your response and should be prepared to handle requests for additional copies of supporting documentation.

### **5.5. Reimbursements**

The OMG will not reimburse submitters for any costs in conjunction with their responses to this RFI.

## **6. Response Review Process and Schedule**

As noted in Section 2, responses to this RFI are to be reviewed by the Manufacturing Domain Task Force for the following express intention: providing OMG with technical information and guidance in writing one or more RFPs in the area of object-oriented Enterprise Resource Planning systems.

### **6.1. Process**

The OMG membership, specifically the Manufacturing DTF will review responses. Based on those responses, the Manufacturing DTF will prepare one or more RFPs. These RFP(s) will be presented to the entire OMG DTC for acceptance. The accepted RFP(s) will be issued to the public.

As a forewarning to organizations who intend to respond to the initial RFP(s) when they are issued, please note that responding to an RFP requires:

- A Letter of Intent signed by an officer of your organization signifying your intent to respond to the RFP and a statement of your organization's willingness to comply with the OMG's requirements (e.g., your willingness to license the proposed technology openly).
- The technology submission described in accordance to the RFP. Any technology adopted by the OMG must be commercially available from a Corporate Member. A statement describing how the submission meets this commercial availability requirement is required with the submission.

Section 6.3 provides a timetable listing the tentative dates when these documents will be due for the first RFP(s). Please consult the OMA Guide for a complete description of the OMG's requirements, policies and procedures for technology submissions.

### **6.2. Clarification of Responses**

To fully comprehend the information contained within a response to this RFI, the Manufacturing DTF may seek further clarification on that response. This clarification may come in the form of verbal communication over the telephone; written communication; electronic; or a request to make a presentation of the response to the Manufacturing Domain Task Force.

### 6.3. Schedule

The schedule for responding to this RFI is as follows. Please note that early responses are encouraged.

TF recommends issuing the RFI	September 19, 1996
RFI issued	September 20, 1996
RFI responses due	February 14, 1997

The tentative schedule for the RFI evaluation process is:

Review of RFI responses	March 10, 1997
Issuance of (first) RFP on Enterprise Resource Planning	June, 1997

Note that this schedule is subject to change based on the number of RFI responses received.

### 6.4. Questions and Further Information

Questions concerning the Manufacturing DTF RFI should be directed to:

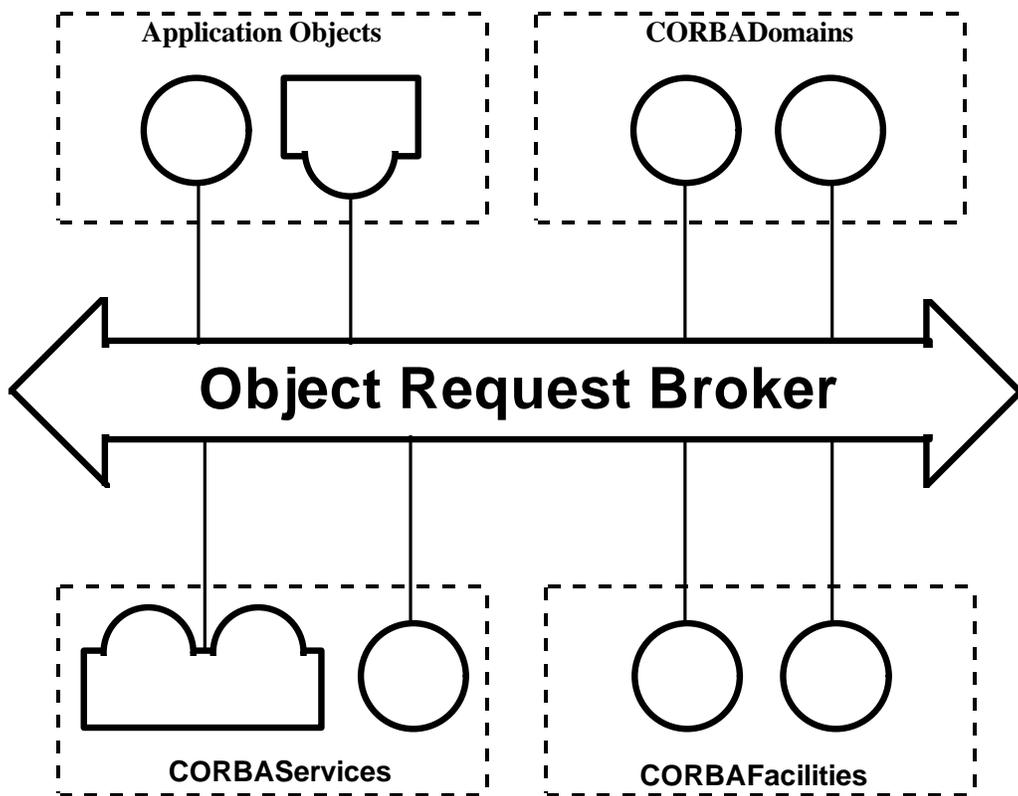
Manufacturing Domain Task Force Desk  
Object Management Group Inc.  
Telephone: +1-508-820 4300  
Facsimile: +1-508-820 4303  
Internet: mfg@omg.org

## Appendix A: Background on the Object Management Group and its Manufacturing Domain Task Force

OMG is dedicated to producing a framework and specifications for commercially available object-oriented environments. The Object Management Architecture (OMA) Guide, published in 1990 (revised September, 1992), provides an architecture with terms and definitions upon which all supporting interface specifications are to be based. Part of this architecture is the Reference Model which identifies and characterizes the components, interfaces, and protocols that compose the OMA.

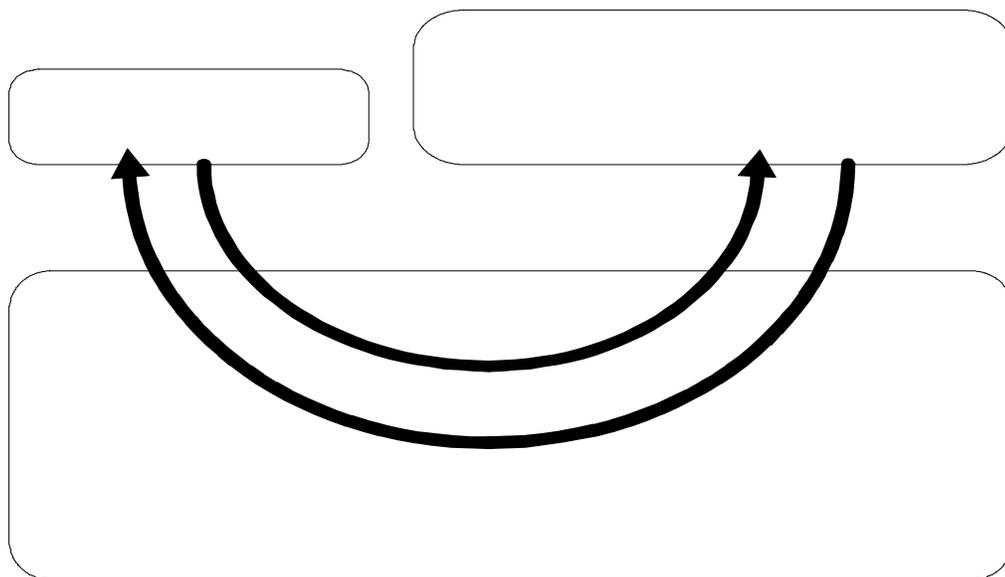
Figure 1 shows the five major elements of the OMA Reference Model. Each is summarized below. Readers unfamiliar with the Reference Model are encouraged to refer to [OMG RM].

- The *Object Request Broker (ORB)* enables objects to make and receive requests and responses.
- *CORBA services* is a collection of services with object interfaces that provide basic functions for realizing and maintaining objects.
- *CORBA facilities* is a collection of interfaces and objects that provide general purpose capabilities useful in many applications.
- *Application Objects* are specific to particular end-user applications, such as a manufacturing scheduling system.
- *CORBA Domain* embrace objects that are specific to vertical markets, such as the notion of "machine".



**Figure 1: OMA Reference Model**

Through a series of RFPs, OMG is populating the OMA Reference Model with detailed specifications for each of its components and interfaces. The OMA's Object Model describes what an object is and what constructs are generally available for defining OMG objects. The Common Object Request Broker Architecture (CORBA) specification [OMG ORB] defines the OMG ORB - a mechanism which allows clients to issue requests to, and receive responses from conforming objects (Figure 2).



## Figure 2: Common ORB Architecture

Using the ORB, requests for an object's services are made without regard to the location or implementation of the object providing the service, i.e., without regard for the mechanisms used to represent, store, manage, invoke or communicate with the object. Objects made available through the ORB publish their interfaces using the Interface Definition Language (IDL) as defined in Chapter 4 of the CORBA specification. The IDL provides a language-independent way of specifying an object's operations and attributes.

To construct inter-working, portable clients and object implementations, there must exist a set of basic CORBA services which provide functions for realizing and maintaining objects. CORBA services provide the basic operations for logical modeling, naming, lifecycle, managing and physically storing objects. For example, CORBA services define the operations used to create, find, move and delete objects, as well as the operations used to define an object and its implementations.

Figure 3 and 4 offer brief summaries of the OMG CORBA services and ORB facilities and their status.

Service	Definition	Status
Naming	Manages the naming of objects within defined naming contexts.	Adopted in CORBA services
Event	Manages channeling of events between event producers and consumers.	Adopted in CORBA services
Persistence	Enables objects to persist beyond the completion of the process that creates them.	Adopted in CORBA services
Life Cycle	Manages the creation and destruction of objects.	Adopted in CORBA services
Externalization	Supports export and import of object state information.	Adopted in CORBA services
Relationships	Manages bi-directional associations between objects.	Adopted in CORBA services
Transaction	Manages atomic units of work involving operation invocations.	Adopted in CORBA services
Concurrency	Manages concurrent access to shared objects.	Adopted in CORBA services
Security	Defines interfaces for authentication and authorization of operations on objects.	Adopted in CORBA services
Licensing	Manages licensing agreements between objects.	Adopted in CORBA services
Properties	Manages dynamic named attributes associated with objects.	Adopted in CORBA services
Query	Provides SQL-like access to sets of objects.	Adopted in CORBA services
Time	Provides a standard representation to time and the services for manipulating time. Also supports time-related events.	Adopted in CORBA services
Collections	Supports groupings of objects.	RFP 5 issued; revised submissions due May 1996
Trader	Enables clients and servers to match services with needs.	RFP 5 issued; revised submissions due May 1996
Startup Service	Supports sequences of requests issued on ORB startup and shutdown to establish predictable server configurations on startup and restart.	RFP 5 issued; revised submissions due May 1996
Change Management	Provides versioning and composition of objects that change over time.	RFP 6 issued

## Figure 3: CORBA services

Facility Definition	Status
Compound Interchange and Presentation	Provides for document presentation and interchange services. Adopted in CORBA facilities
Time Operations	Supports time synchronization in a global distributed system RFP2 - Issued March 1995
Internationalization	Provides support for character sets and language differences of international applications. RFP2 - Issued March 1995
Data Interchange	Supports exchange of information between dissimilar objects RFP3 - Planned for September 1995
Automation	Enables actions triggered by events. RFP3 - Planned for September 1995
Scripting	Provides management of scripted series of actions. RFP? - Planned for September 1995
Rule Management	Supports constraints and event-action rule services. RFP? - Planned for September 1995
Mobile Agent	Manages autonomous agents. RFP? - Planned for September 1995
Repositories	Manages extensible metadata and management of objects and schemas RFI - Issued June 1995

**Figure 4: CORBA facilities**

### **The Manufacturing Domain Task Force**

The OMG Manufacturing Domain Task Force was chartered as a forum for ensuring the consideration of manufacturing vertical market (industry specific) requirements in the evolution of OMG technologies.

The mission of the Manufacturing SIG is four-fold:

- Identify and promote extensions to OMG CORBA facilities and CORBA services that are specific to the manufacturing vertical market.
- Continue to promote manufacturing requirements in the evolution of the Common Object Request Broker Architecture (CORBA).
- Cooperate with other OMG groups in promoting common requirements for all OMG technologies.
- Increase the industry's awareness of the benefits of object technology.

### **For More Information:**

More information on the Object Management Group can be obtained via the Internet at:

WWW Homepage      <http://www.omg.org/>

OMG provides a document server. Send e-mail to [server@omg.org](mailto:server@omg.org) with a message body:

```
help
get docs/doclist.txt
```

## Appendix B: References

- [OMG RM] Object Management Architecture Guide, Revision 3.0, June 1995Wiley Computer Publishing.
- [OMG ORB] The Common Object Request Broker: Architecture and Specification, Revision 2.0, July, 1995.
- [OMG COSS] The Common Object Services Specification (COSS), Volume I, October 29, 1993. OMG Document Nos. 93.7.1, 93.5.2, 93.7.3, 93.7.4
- [OMG OM] The OMG Object Model. Chapter 4 of the Object Management Architecture Guide.
- [OMG MFG] Manufacturing Enterprise Systems A White Paper. Document No. MFG/96-01-02

## Appendix C: OMG Process

OMG adopts specifications for interfaces, based on existing technology, by explicit vote on a technology-by-technology basis. The specifications selected each fill in a portion of the OMA Reference Model. OMG bases its decisions on both business and technical merit.

The OMG Platform Technical Committee (PTC) and Domain Technical Committee (DTC) provide technical guidance to the OMG in making decisions about specifications. The PTC's efforts are focused on the development of the "plumbing" - horizontal enabling technology specifications for wide interoperability between components, applications and objects. The DTC efforts focus on leveraging platform technology to support vertical application domains (e.g., manufacturing). Each committee is composed of representatives from OMG member companies and is managed by a full-time OMG staff member (as opposed to being an employee of a member company). The Manufacturing Domain Task Force is organized under the DTC. Any OMG member or invited guest may attend any task force meeting. However, a member must at the appropriate Contributing Member level in order to have voting privileges for the relevant Technical Committee. Influencing and Government Members may vote at the task force level.

A new organization, the Architecture Board (AB), is responsible for ensuring architectural integrity of all OMG specifications, Request for Proposals, and other relevant OMG documents. In essence, the AB is the "keeper of the flame" for the Object Management Architecture. Currently, the AB is composed of elected representatives from OMG member companies and is managed by a full-time OMG staff member.

Both committees operate primarily in a Request for Proposal mode, requesting technology to fill open portions of the OMA Reference Model from international industry. The responses to such a proposal, taken within the specific RFP response period, are evaluated by the issuing task force. The full committee then votes on a recommendation to the Architecture Board. After review, the AB forwards the recommendation to the OMG Board of Directors (BoD) for final approval. If a recommendation passes at all levels, it becomes a specific addition to the set of OMA specifications. Once a specification (a technology, not source or product) has been adopted by the BoD, it is promulgated to the industry through a variety of distribution channels.

Another process, the Request for Comment (RFC), is the OMG's "fast track" that allows for more expedient adoption of technology in the case where an existing OMG compliant specification exists and there is likely to be no competition.

The Request for Information (RFI) is the OMG process for procuring information prior to issuing RFPs. Responses to this RFI will be reviewed by the Manufacturing Domain Task Force (Mfg DTF). Our intent is to survey the industry to obtain information about object oriented software components for manufacturing which will be used in the preparation of forthcoming RFPs.