Object Management Group

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CORBAmed RFI 3

Clinical Decision Support

Submissions Due: September 1, 1997

OMG Document # corbamed/97-06-05~~xx-xx-xx~~

27 June 1997

1. Introduction

This Request for Information (RFI) solicits information about requirements that will provide guidance to the CORBAmed Domain Task Force (DTF) of the Object Management Group (OMG) in developing specifications for healthcare information systems dealing with clinical Decision Support Systems (DSS). The overall goal will be to adopt vendor-neutral common interfaces that may improve the quality of care and reduce costs by utilizing CORBA technologies for interoperability between systems, applications, and instruments that detect, transmit, store, and display medical information used in clinical DSS. The CORBAmed DTF will utilize the OMG's open technology adoption process to standardize interfaces for these healthcare objects.

The OMG encourages users, standards developers, consultants, systems integrators, and developers of healthcare related devices, instruments, applications, and systems to become involved with this process by responding to this RFI. OMG members and non-members may submit responses. Current compliance with OMG specifications is not a prerequisite for responses to this RFI. A RFI response can consist of pre-existing product documentation.

CORBAmed will use responses to this RFI to:

- develop the requirements for Request For Proposals (RFPs)
- help determine which RFPs to consider as the appropriate Request For Proposals (RFPs) to issue

and to develop the requirements for those RFPs. The se CORBAmed RFPs will solicit OMG IDL interfaces, and corresponding semantic descriptions and sequencing constraints.

1.1 Context and Scope

OMG's central mission is to establish an architecture and a 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 has been focused on establishing an enabling infrastructure based on open and standard interface definitions. The OMG is now standardizing common interfaces in vertical application domains such as healthcare.

The CORBAmed DTF issued its first RFI in January 1996 (OMG document number: corbamed/96-01-01) that had a wide scope (applicable to clinical, pharmacy, insurance, etc.), asking for general guidance in the process of developing standard specifications for healthcare objects. From the responses to that RFI and other considerations by the task force, the top few priorities were determined that included Patient Identification (including Master Patient Index) issues, security/confidentiality issues, lexicon/vocabulary issues, and Computer-based Patient Record (CPR) issues.

CORBAmed has issued a Patient Identification Service (PIDS) RFP (corbamed/96-11-08) to address some of the key interfaces needed by MPIs as well as patient identification by ancillary systems. A Lexicon Query Service (LQS) RFP (corbamed/97-01-04) was issued to standardize a common interface to vocabularies and lexicons without standardizing the lexicon content. CORBAmed has a Security Work Group (WG) addressing the security and confidentiality issues for healthcare in various ways.

The CPR issues have been dealt with by a Clinical Data WG within the CORBAmed DTF. A white paper was developed (corbamed/97-01-01) that describes some perspectives on the integration of clinical data for the patient record. CORBAmed issued its second RFI on May 9, 1997 (corbamed/97-05-02) to get a wider perspective of the requirements on clinical information specific to observations of the patient medical state anticipating that future RFPs may be issued related to Clinical Observations. This third RFI on DSS is the third RFI and is being issued in order to determine if any additional requirements particular to clinical DSS may also warrant RFPs dealing specifically with DSS related object interfaces.

1.2 Terminology

Decision Support Systems This terminology serves as a general rubric in healthcare for a number of different types of systems. In general it refers to systems which receive medical data as input and produce timely information relevant to medical practice as output. These systems use various techniques to represent medical domain knowledge and associate that knowledge with medical data in order to alert medical practitioners about important patterns in the data. These systems range in size and complexity from simple systems operating on hand held devices to large networks with integrated applications. Decision support systems:

This termminology serves as a general rubric in healthcare for a number of different types of systems. In general, it refers to systems which receive or use financial, administrative or clinical data as input, and useing various analysis techniques to, provide information relevant to and supportive of healthcare practice or management as output. These systems use various techniques to represent the domain knowledge, and associate that knowledge with financial, administrative, or clinical data, in order to support the decision making processes. These systems range in size complexity from simple systems operating on hand held devices to large networks with integrated applications and databases.

Decision support systems can be generally categorized into three areas:

- Real time decision support- also known historically as 'event based' decision support, where rules or other decision support processes are driven by real time events. This could be done for individual patients (persons) or on an aggregate basis.

- Retrospective decision support- also known as 'executive information systems' historically, and more recently associated with data warehousing and data mining, where aggregated data is analyzed for a variety of reasons. This is typically done for aggregate data

  PRrospective decision support- more recently made viable by new mining techniques, this involvesd using (usually aggregate) data to support analysis of data to anticipate future events/actions/responses based on historical data.

- Retrospective decision support- also known historically as 'executive information systems,' and more recently associated with data warehousing and data mining, where aggregated data is analyzed for a variety of reasons.

One of the goals of the "object paradigm" has to do with increasing the reusability of developed technology. As a result, different types of DSS systems could conceivably share some common object interfaces. Therefore, this RFI calls for responses from the full range of DSS interests in healthcare. Furthermore, because DSS technology has applications in a wide range of industries, CORBAmed also welcomes responses to this RFI from any interested organizations outside of the healthcare domain who would like to contribute to the specification of clinical DSS object interface requirements. CORBAmed will regard such responses as especially relevant, if they address broader industry concerns as they relate to clinical information systems.

Although CORBAmed has already received responses for the Lexicon Query Services RFP, that does deal with interface specifications for services highly related to DSS, this RFI seeks additional information explicitly for defining any additional requirements related specifically to DSS. Given the complex nature and wide variety of DSS components and interfaces, requesting information specifically about DSS seems prudent. The further along we get in the CORBA technology adoption process, the more our ideas about the interfaces we adopt early and implement into products will turn rigid. The longer we wait, the more difficult we will find the task of integrating DSS interfaces together with other interfaces for healthcare architecture.

As described earlier CORBAmed has already produced several RFPs and RFIs which address issues related to observations, MPIs, Lexicons, etc.. Respondents to this RFI are encouraged to review those RFIs and RFPs and provide additional input which may be applicable to this RFI..

CORBAmed has already produced an RFP for Lexicon Query Services, which addresses issues related to querying of a lexicon which may exist in the healthcare environment. Responders to this RFI are encouraged review the Lexicon RFP, and provide additional input in response to this RFI, which identifies any additional requirements on Lexicon that may be necessary in order to support DSS.

This RFI is seeking information described in the sectioncategories 1.3-1.6described below. Respondents are asked only to address those areas for which they have expertise and/or interest. Please consider the purpose of this RFI when responding so your time is spent on issues that will be helpful to reviewers. Respondents may consider areas not explicitly asked for, if they feel the information provides useful guidance for CORBAmed in issuing and evaluating RFPs for DSS.

1.3 Object Interface Requirements for DSS Interoperability

We are specifically asking developers of healthcare information systems, instruments, devices, and programs to respond as to their requirements for DSS interoperability. We are specifically looking for areas in which their there is a strong or projected need for interoperability either today or that will reach commercial markets within the next two years. In addition, wWe solicit recommendations regarding whether to considerregard each specified requirement as optional or mandatory.

WIn addition we also solicit user requirements information regarding any trends of DSS usage that CORBAmed should be aware of as we go through the technology adoption process. This informationese user requirements is are very important in determining the urgency of technology adoption in the DSS area.

Special attention should be put on:

- Identification of the points of contact between the various systems,, applications and instruments. These will likely be the interfaces where open object-based specifications are useful. . These could include interfaces between: data repositories and electronic medical records instruments that take raw observations directly from patients, or tissue samples such as imaging, laboratory or vital signs instruments; systems that process the data; and applications that display the information to health professionals such as patient care management applications. Please include diagrams to that indicate the points of contact which may help the reader understand the complexity of interactions between the various systems.

- Various point of contact coordination components dealing with priority actions, triggers, alerts, etc.

- Descriptions of the services or roles at these points of contact. For example the modes of interaction could be query based, store and forward based, publish and subscribe based, batch processed, transactional, etc. This information can be important as it may be used as requirements in future RFPs issued by CORBAmed.

- Differences between the common characteristics and anythose special requirements or and assumptions on the structure, performance, etc. at these points of contact between systems. For example if there are real time requirements these

should be explicitly described. If the interface is data intensive, the parameters of this needs to be specified. These special requirements will help CORBAmed determine where different specifications may be needed for different purposes even though the data content may be the same.

1.4 Healthcare Standards for DSS

Respondents should please mention standards that apply to this RFI. These standards may be directly referenced in future CORBAmed RFPs. Please include reference information, so respondentsrs toof future RFPs will know how to access the standard. It is important that the parts dealing with DSS issues are fully referenced so it will be easy for responders of the future RFPs to find and consider this information in their responses to an RFP.

Please provide data interchange standards information specifically containing concepts relating to DSS. If only some parts of the standard relate to DSS, please indicate as clearly as possible which parts. This information may be referenced in future RFPs or possibly specified as mandatory or options requirements.

1.5 Potential DSS Focus Areas

In preliminary discussions CORBAmed has attempted to create broad categoriens for DSS in which future RFPs might be organized.considered focusing a RFP for DSS on some specific DSS application domain or some specific category of DSS rather than issuing a broad general scope RFP for clinical DSS. The table below categorizes DSS applications according to two dimensions and provides **examples** of some specific types of DSS applications. Please provide suggestions for alternative ways for categorizing DSS applications and please indicate focus areas of interest tofor your organization. Also, please provide actual or potential scenarios of use in clinical environments.

	Real-time	**Prospective**	**Retrospective**
Single Person	Care plan management Diagnostic assistance Drug management Eligibility Immunizations	Care plan management Diagnostic assistance Drug management	Historical data retrieval
Aggregate Population		Data warehousing Data mining for prediction Financial plan development Insurance plan development Executive information systems	Data warehousing Data mining in general Immunizations Infectious disease management Contract management Executive information systems

We request indications concerning your organization's level of interest in responding to a RFP that would focus on any specific DSS application area. Please indicate if your organization would ***possibly*** respond to an RFP to any specific focus area. If your organization would ***possibly*** respond to a RFP focused on a specific DSS application domain not listed, please specify the domain of interest. Also, please indicate if your organization would prefer to respond to a more general RFP rather than an RFP that that does not focuses on a specific application domain.

1.6 Existing DSS Applications

This is an opportunity for CORBAmed to discover where DSS technology is currently being applied to solve users problems. A major goal is to identify the maturity of DSS technologies for standardization. This information will be used, along with the user requirements for DSS interoperability, to determine the appropriate road map for DSS standardization efforts. Those areas with the highest benefit that have mature DSS technology will be considered for adoption first.

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2. Instructions for Responding to this RFI

Companies responding to this RFI shall designate a single contact within that company for receipt of all subsequent information regarding this RFI. The name of this contact will be made available to all OMG members.

Documentation submitted in response to this RFI will be available to all OMG members.

2.1 Format of RFI Responses

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 time 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. Much smaller responses are welcome as well.

If you consider supporting documentation to be necessary, please indicate which portions of the 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.

2.2 How to Submit

OMG requests that 50 paper copies of the response, one copy in a common machine-readable format (typically ASCII, RTF, MIF, PDF), and any supporting documentation to be sent to the Technology Desk at OMG. Responses to this RFI (and other communication regarding this RFI or related RFPs in the future) should be addressed to:

CORBAmed Technology Desk
Object Management Group Inc.
Framingham Corporate Center
492 Old Connecticut Path
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USA

Phone: +1-508-820-4300
Fax: +1-508-820-4303
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Responses to this RFI must be received at OMG no later than 5:00 PM US Eastern Time (22:00 GMT) September 1, 1997. The outside of packages/envelopes containing submissions or any other communication regarding this RFI should be clearly marked "CORBAmed RFI 3 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.

2.3 Reimbursements

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

3. Response Review Process and Schedule

Responses to this RFI are to be reviewed for the following express intention: providing OMG with technical information and guidance in writing DSS related RFPs.

SubmittersResponders are asked to attend the RFI response review meeting(s) and to present their response to the CORBAmed DTF.

3.1 Schedule

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

TF recommends issuing the RFI	25 June 1997
RFI issued	27 June 1997
RFI responses due	1 September 1997

The tentative schedule for the RFI evaluation process and subsequent RFPs is:

Review of DS RFI responses	22-26 September 1997
Initial DSS RFP issued	1-5 December 1997

NOTE: This schedule is subject to change based on the number of RFI responses received and the information acquired from the responses.

3.2 RFP Process

The OMG membership, specifically the CORBAmed DTF will review responses to this RFI. Based on those responses, they will prepare one or more RFPs. These RFPs will be presented to the entire OMG Domain Technical Committee for acceptance. The accepted RFPs will be issued to the public.

As a forewarning to organizations who intend to respond to any CORBAmed RFPs that may be issued, please note that responding to an RFP requires:

• A Letter of Intent (LOI) 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 submitting member.

See the Schedule section for a timetable listing the tentative dates for the first RFP. Please consult the OMA Guide for a complete description of the OMG's requirements, policies and procedures for technology submissions.

3.3 Clarification of Responses

To fully comprehend the information contained within a response to this RFI, the reviewing group may seek further clarification on that response. This clarification may come in the form of verbal communication over the telephone; written communication; electronic communication; or a request to make a presentation of the response. CORBAmed requests that submitters attend the meeting following the RFI deadline to present their responses.

Appendix A: Background on the Object Management Group and CORBAmed

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 1995), 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.

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`** with a message body:

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help
get docs/doclist.txt
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References:

Object Management Architecture Guide (OMA Guide), Object Management Group, September 1995.

Common Object Request Broker Architecture and Specification (CORBA), Revision 2, Object Management Group, August 1995.

CORBAservices, Object Management Group, March 31, 1995, OMG TC Document 95-3-31.

CORBAsfacilities, Object Management Group, to appear late 1995. (Interim OMG TC Doc# 95-1-2)

Healthcare Decision Support Requirements for CORBA Interfaces. (corbamed/97-06-02)

Appendix B: 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 and Domain Technical Committees (PTC and DTC) provide technical guidance to the OMG in making decisions about specifications. The TCs are composed of representatives of all OMG member companies. The TCs are operated by a working full-time staff for the OMG itself (as opposed to being an employee of a member company).

The TCs operate in a Request for Proposal mode, requesting technology to fill open portions of the Reference Model from international industry. The responses to such a proposal, taken within the specific RFP response period, are evaluated by a Task Force of a TC with the full TC then voting on a recommendation to the Board for approval of a specific addition to the set of OMA specifications. Once a specification (a technology, not source or product) has been adopted by the OMG Board, it is promulgated to the industry through a variety of distribution channels.

RFIs such as this one are issued with the intent to survey the industry to obtain information that provides guidance which will be used in the preparation of forthcoming RFPs.

The OMG's fast track process allows for faster adoption of technology in the case where an existing OMG compliant specification exists and there is likely to be no competition.