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KNOWLEDGE MANAGEMENT SERVICES MARKETPLACE AND INFRASTRUCTURE

Request for Information

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1.0 Introduction

This OMG Request For Information (RFI) solicits information from the Knowledge Management industry on which work priorities within the knowledge management services infrastructure area should be agreed and set. The idea with these questions is to identify which among them need to be answered for the industry to effectively move forward. In addition, initial answers to the questions seen as key by the respondents are sought.

This input will be used to create a road map necessary to affect the technical direction of the Knowledge Management Working Group of the Object Management Group as well as other OMG subgroups where appropriate and to guide future Request for Proposal (RFP) documents. The Object Management Group will use this information to begin the technology adoption process for OMG-compliant interfaces for knowledge management systems.

The OMG encourages all stakeholders in knowledge management to become involved in this process by responding to this RFI. In particular, we strongly encourage potential users of CORBA-based technologies in the knowledge management service infrastructure to respond to this RFI, indicating the priorities of questions that need to be answered, and where possible providing initial responses to the questions outlined.

The OMG members and non-members may submit responses. Current compliance with the OMG specifications is not a prerequisite for response to this RFI. The RFI response can consist of pre-existing documentation, but should preferably be organised and presented in accordance with this RFI. The OMG will use responses to this RFI to define one or more RFPs, soliciting OMG Interface Definition Language (IDL) interfaces and corresponding semantic descriptions and sequencing constraints.

This RFI is structured as follows. The scope, objectives and requirements of this RFI are defined in Section 4. Section 5 describes the particular questions that are the subject of the RFI

Sections 2 and 3 provide background information about OMG and RFI/RFP process. Sections 6, and 7 provide information on how to respond to this RFI. The current *Object Management Architecture Guide* (OMAG) is available at http://www.omg.org.

2.0 About The OMG

The Object Management Group (OMG) is the world's largest software consortium with a membership of over 800 vendors, developers, and end users. Established in 1989, its mission is to promote the theory and practice of Object Technology (OT) for the development of distributed computing systems.

A key goal of OMG is to create a standardised object-oriented architectural framework for distributed applications based on specifications that enable and support distributed objects. Objectives include the *reusability*, *portability*, *syntactic interoperability, and semantic interoperability* of object-oriented software components in heterogeneous environments. To this end, the OMG adopts interface and protocol specifications, based on commercially available object technology that together define Object Management Architecture (OMA).

3.0 Process

OMG adopts specifications for interfaces and protocols 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 considerations. The OMG Technical Committees (Platform Technology Committee - PTC, Domain Technology Committee - DTC) provides technical guidance to the OMG in making decisions about specifications. The TCs are composed of representatives of all OMG member companies. A Vice President of Technology, working full-time for the OMG operates the TCs 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 is adopted by OMG, it is made available for use by both OMG members and non-members.

There is also an OMG fast track process. This process allows faster adoption of technology in the case where an existing OMG compliant specification exists and there is likely to be no competition. Should the RFI responses indicate that this is the case, use of the fast track process will be considered.

4.0 RFI Scope, Objectives and Requirements

The initial objective of this RFI is to solicit opinions from industry and academic institutions on specific issues that relate to knowledge service architectures and the market that they are intended to support. The responses will be used to formulate a standardisation work program. These efforts are intended to result in a set of interrelated OMG standards that together describe a flexible infrastructure that will support and further the development of the Knowledge Services Marketplace. The idea with these questions is to identify which among them need to be answered for the industry to effectively move forward. In addition, initial answers to the questions seen as key by the respondents are sought.

The Knowledge Management Working Group of the OMG has formulated the lists of questions included in this RFI. It is understood that a specifications program to cover the scope of this domain would potentially be very large and possibly impact on the work areas of many groups within the OMG. These groups could include other Domain Task Forces and the Task Forces working on the CORBA core architecture and services. The responses to this RFI will be available to all these groups and standardisation initiatives will be co-ordinated between groups seen as appropriate.

4.1 Scope of the RFI

To scope this RFI the rest of this section discusses some key terms in this document.

What is Knowledge Management?

Knowledge Management is an integrated, systematic approach to identifying, managing, and sharing all of an enterprise's information assets, including databases, documents, policies, and procedures, as well as previously unarticulated expertise and experience held by individual workers.

This disciplined process makes accessible the collective information and experience of an enterprise available to the individual, who is responsible for using it wisely and for replenishing the stock. The individual may in turn work with others who have in common: objectives or work activities; problems or challenges; beliefs or practices; methods or tools, and may be separated by distance, time, or work for different organizations

This ongoing cycle encourages a Generative learning organization, stimulates collaboration, and empowers people to continually do the right thing instead of doing things right.

What is Knowledge?

"Knowledge is information that changes something or somebody -- either by becoming grounds for actions, or by making an individual (or an institution) capable of different or more effective action." -- Peter F. Drucker in *The New Realities*

What is our interest?

As this document is coming from a technical forum, we are examining the technology access and utilization for the individuals, groups, organizations and communities who affect the knowledge creation and dissemination processes, and are affected by such processes. Consequently, future offerings in the knowledge management marketplace must address the following areas: First, they need to be based on an integrated understanding of technological design and of how such systems are adopted for use; second, they need to be based on an integrated understanding of the information storage, archival and dissemination processes and of how such information is translated into action by the users.

It is the interplay between the technological and human elements of future knowledge management systems that will facilitate Generative learning processes.

What is Knowledge Management vs. Knowledge Management Services Infrastructure?

We contrast Knowledge Management and Knowledge Management Services in terms of process versus structure.

What is the Knowledge Management Services Marketplace?

For the purpose of this document the Knowledge Management Services Marketplace is defined as a “flexible and open” environment where many suppliers offer potentially many services to potentially many consumers of those services. This definition applies equally as well to an intra-company market and to an inter-company market. The environment is described as “flexible and open” as there should be relatively few barriers technical or otherwise to new participants entering the marketplace. It is envisaged that participants will emerge who play single or numerous different roles in the service market value chain. It is hoped that among other things responses to this RFI will provide more of an insight into potential participants, their roles and their relationships to each other.

What is a Knowledge Management Services Infrastructure?

A Knowledge Management Services Infrastructure is one that provides the common resources and mechanisms that would be used to provide a range of services. It is open in that the providers of such services can be other participants than the provider of the infrastructure. The infrastructure should also allow the subset of such services that are recognisable as traditional Information Management services (e.g., digital asset management) to be supported by the knowledge management infrastructure. It is envisaged that the infrastructure would support the Knowledge Management Services Market place i.e., both the intra-company market and the inter-company market.

What are Knowledge Management Services?

As this document is coming from a technical forum, we assume that there eventually will be an open computing and data communications infrastructure to support this Knowledge Service Marketplace. In this document however it is not necessary to make any assumption about the nature of the services offered by this marketplace (responders naturally may have a specific scope in mind). Later in the document responders will be asked to outline the nature of the services they envision to be on offer, specific attributes and specific requirements that may be associated with such services or categories of services.

What is architecture in this context?

Many of the questions in this document solicit information on architectural components that will support this Knowledge Services Marketplace. The following describes the term architecture in this context.

It is the nature of distributed systems to be large and highly complex. Building a distributed application is very difficult if there are no guidelines to support the whole development process. In practice they could not be built if there were no methods that allowed structuring the overall system into different yet inter-related problem spaces, each being handled separately. Such methods can reduce the complexity of distributed systems by structuring the system into smaller, constituent parts. This is usually accomplished by:

- Defining a terminology for the abstract elements of the system for the purpose of modelling it. The elements sometimes called concepts can be recognised as components in the real-world system under construction.

- Defining a set of rules that define the interrelationship between the systems elements.

The OMG defines architecture as a set of components each with well-defined interfaces where the relationships between these interfaces are also defined.

Architecture specifies the rules. Architecture defines the modelling approach and supports the structuring of a system for analysis and design. Also, it can ensure that certain concepts are present within a system. Identifying such mandatory elements supports syntactic interoperability between systems based upon the same architecture. This holds mainly for distributed systems architectures in which the design incorporates interworking that leads to openness.

This RFI further extends the understanding of interoperability to include semantic interoperability. Where semantic interoperability goes to the issue of a user's ability to access, consistently and coherently, similar (though autonomously defined and managed) classes of digital objects and services distributed across heterogeneous repositories, with federating or mediating software compensating for site-by-site variations.

5.0 The Questions

You can help us by indicating on the list below which are the most important questions to be answered in preparation for work in the next 2-3 years.

Steps to follow:

1. Please give your judgement by inserting a letter on the right side columns. Insert **V** for **very important**, **I** for **important**, **N** for **not important** and "**?"** if you **don't know**. The **Column** marked "**Industry**" asks, "How important to the industry in general is having a consensus answer to this question"? The **Column** marked "**OMG**" asks "How important is it for the OMG to have a consensus answer to this question"? We realise that some of the questions may be obscure to some people.

2. For questions answered with V or I, please share some justification of your opinion and also if possible, provide an initial answer to the key questions you have marked.

Questions for responders:

A. Barriers and enablers relating to an Knowledge Services Marketplace

		Industry	**OMG**
1	Who in your organizations' opinion are likely to be the primary participants and/or roles in a Knowledge Services Marketplace, and what models describe likely business relationships between these participants?		

2.	What business level agreements need to be in place between these participants before trading can take place?		
2.	What currently are the major technical barriers to the development of a Knowledge Services Marketplace?		
3	What currently are the major non-technical barriers to the development of a Knowledge Services Marketplace?		
4.	Are there any changes occurring technical or otherwise (currently or on the horizon) that will enhance the development of such a marketplace?		
5.	What changes are required?		
6.	Can you see a role for your organization in the changes that will enhance the development of such a marketplace, and, if yes, what would it be?		
7.	Do you have any general comments on the idea/concept or feasibility of such a marketplace in the short/medium/long terms?		
8.	What is the relationship between the Knowledge Services Marketplace and Infrastructure and, for example, traditional IT services (e.g., Web-based services, emerging Internet-based services) and electronic commerce?		

B. Domains and inter-domain interfaces

1.	What reference models/standards exist in this area, where are these models/standards strengths and weaknesses?		
2.	In what way should these reference models be extended and enhanced?		
3.	What new reference models are required in this area?		
4.	What are the primary interfaces that require standardization between the different roles defined in answer to question B1?		

C. Services and Service Management

1.	What categories of services or specific services are likely to be popular and deployed in this context in the short, medium and/or long term?		
2.	What specific requirements should be placed on components in a service architecture to support e.g. the, provision, access to, management of, charging for **services in general** (extend/reduce, list as necessary)?		
3.	What specific requirements need to be placed on components in a service architecture to support e.g. management, discovery, provision, access to, charging for, (extend/reduce, list as necessary) **specific to particular services or service categories** named in answer to C1?		

D. Technical Mix and OMG.

1.	What technologies/standards are currently most popular today in providing a Knowledge Services Marketplace approaching or equal to the one alluded to in this document?		
2.	What mix of technologies is most appropriate to provide an infrastructure for such a Knowledge Services marketplace? Where should these technologies be applied in the architecture?		
3.	What open interfaces need to be defined urgently? What are the specific requirements on these interfaces?		
4.	Where are open CORBA interfaces seen as having potential to develop this marketplace, and why?		
5.	What new technical developments in a CORBA context (core CORBA or object services) could enhance CORBA applicability in this context, and why?		
6.	What other developments technical or non-technical could enhance use of OMG's results in this context?		

E. General

What other issues/questions about the Knowledge Services Marketplace and Infrastructure need to be addressed?

6.0 Instructions for Responding to this RFI

6.1 General

Companies responding to this RFI shall designate a single contact within that company for receipt of all subsequent information regarding this RFI, and the RFI responses. 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 DST (21:00 GMT) 15 August 2000.

6.2 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 and a checklist of items for which you are providing information.

2. Your response to any or all of the RFI questions listed in Section 5.

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 Knowledge Management Technology 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.

6.3 How to Submit

OMG requires that a copy in IBM PC machine-readable format (typically Word, ASCII, RTF, MIF, and PDF) be sent to the Knowledge Management Technology Desk at OMG. If you are submitting supporting documentation, one copy of the supporting documentation must be sent to the Technology Desk at OMG.

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

Knowledge Management Working Group Desk
Object Management Group Inc.
250 First Avenue, Suite 201
Needham, MA 02494, USA
USA

Responses to this RFI must be received at OMG no later than 5:00 PM EST DST (21:00 GMT) 15 August 2000.

The outside of packages/envelopes containing submissions or any other communication regarding this RFI should be clearly marked "KNOWLEDGE MANAGEMENT SERVICES MARKETPLACE AND INFRASTRUCTURE RFI RESPONSE".

NOTE: Accordingly, your organisation 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.

6.4 Reimbursements

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

7.0 Response Review Process and Schedule

As noted in Section 3, responses to this RFI are to be reviewed for the express intent of surveying the industry and providing OMG with technological information and guidance in writing the forthcoming series of RFPs.

7.1 Process

Copies of your response will be delivered to the KM WG membership for review. Based on the responses to the RFI, the KM WG will construct a road map that outlines the timetable that will be used in issuing RFPs for technology. The road map will identify which RFP or RFPs will be issued first, and which (if any) RFPs will be issued in parallel, as well as which OMG Task Force will issue each RFP.

As a forewarning to organisations who intend to respond the forthcoming Knowledge Management Technologies RFP(s) when they are issued, please note that responding to an RFP requires:

- A Letter of Intent signed by an officer of your organisation 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.

Please consult the OMA Guide for a complete description of the OMG's requirements, policies and procedures for technology submissions.

Section 7.3 provides a timetable listing the dates for the issuance and subsequent review of RFI responses.

7.2 Clarification of Responses

To fully comprehend the information contained within a response to this RFI, the KM WG 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 KM WG.

7.3 Schedule

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

KM WG recommends issuing the RFI:	20 January 2000
TC recommends issuing the RFI:	7 March 2000
RFI issued:	7 March 2000
RFI responses due:	15August 2000

The tentative schedule for the RFI evaluation process is:

RFI presentations:	12 September 2000
Road Map for RFPs issued	12 December 2000

7.4 Questions and Further Information

Questions concerning this RFI should be directed to:

Knowledge Management Working Group Desk
Object Management Group Inc.
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