SMART-ENV Interview Guide

Version 1.0

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SMART-ENV Interview Guide

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The SMART-ENV Interview Guide (SMIG) is an instrument that guides the discussions with stakeholders in the initial activities of the SMART-ENV process:

* Establish Context
* Understand Service Invocation Capabilities
* Understand Routing Capabilities
* Understand Mediation Capabilities
* Understand Process Orchestration Capabilities
* Understand Event Processing Capabilities
* Understand Quality of Service Capabilities
* Understand Management Capabilities
* Understand Development and Operational Support
* Understand Community Support

Answers to these questions will help determine the gaps between the SOA environment capabilities and those required by the organization. The use of this instrument assures broad coverage of the SOA environment and its potential impact on the organization.

Information gathered during the interviews is captured in artifacts used throughout the process:

* Stakeholder information is captured in the **Stakeholder List**
* The initial understanding of the SOA infrastructure and its elements is captured in the **Notional SOA Infrastructure Architecture**
* SOA environment capabilities are captured in the **Summary of SOA Environment Capabilities**

SMART-ENV is the member of the SMART Family that requires the greatest amount of preparation for the SMART team. In advance, the SMART Team Lead needs to ask the organization about the SOA environment’s technology base and any SOA environment documentation, especially if it is a non-commercial SOA infrastructure. The SMART Team needs to develop at least a minimum understanding of the characteristics of the SOA environment regarding service Invocation capabilities, routing capabilities, mediation capabilities, process orchestration capabilities, event processing capabilities, quality of service capabilities, management capabilities, development and operational support, and community support. This information will be mainly used in the slide set that guides the second portion of the workshop.

The following subsections contain details about the process steps, the artifacts affected and questions to guide the information gathering activities. It is important to note that because an organization may be playing only one role with respect to the SOA environment, some questions may not be applicable. In addition, because of the highly technical content, it may be the case that the engagement transforms into a tutorial rather an engagement if the organization is new to SOA. The SMIG is simply meant to be a guide and not a strict questionnaire.

# Establish Migration Context

This activity develops an understanding of the organization and its role with respect to the SOA environment, the expected business and technical value provided by the SOA environment and the main elements of the SOA environment.

The organization will be asked to present:

* General characteristics of the organization such as domain, objectives, size, structure, IT infrastructure (if applicable), existing software systems (if applicable)
* Organization’s role with respect to the SOA environment, e.g., service provider, SOA infrastructure host, service consumer, etc.
* Business and technical drivers for the project
* Organization’s current understanding of the SOA environment, e.g. technology base, custom and commercial infrastructure components, communities, etc.
* Organization’s current understanding of service providers that are or will be using the SOA infrastructure
* Organization’s current understanding of current and future service consumer

The list of artifacts created in this step is:

* Stakeholder information is captured in the **Stakeholder List**
* A **Notional SOA Environment Architecture** is created based on the organization’s and the SMART Team’s current understanding of the SOA Environment, Service Providers and Service Consumers

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| **Discussion Topic** | | **Questions** |
| Role of the Organization with Respect to the SOA Environment | | * What role will the organization be playing with respect to the SOA environment, e.g. service provider, SOA infrastructure host, service consumer, or all of the above? * Is the SOA environment based on a commercial or open source product, or a closed/proprietary solution? * What is the status of the SOA environment, e.g. under development, beta, single customer, multiple customers? How many users (or market share) does the SOA environment have? * What is the relationship with the vendor, community, partner or provider of the SOA environment? * Is there in-house expertise related to the SOA environment? If there is none, is there a plan to acquire or hire expertise? * If role includes service provider   + Have services been identified?   + Have service consumers been identified?   + Will provided services be legacy system capabilities or new capabilities?   + What legacy systems will be exposed via the SOA infrastructure? What are their high-level characteristics such as platform, language, size, age, etc.? * If role includes SOA infrastructure host   + Has the SOA infrastructure been acquired?   + What is the license agreement?   + What knowledge do you have about services that will be provided via the infrastructure?   + Will these be internal services, external services, or both?   + What knowledge do you have about service consumers that will access services via the infrastructure?   + Will these be internal consumers, external consumers, or both? * If role includes service consumer   + What platforms will service consumers run on?   + What types of applications and systems will be service consumers? |
| Business and Technical Value of the SOA Environment | * What is the expected business value that the SOA environment will bring to the organization? * Have any studies been conducted to verify the expected business value? * What is the expected technical value that the SOA environment will bring to the organization? * Have any studies been conducted to verify the expected technical value? * What are perceived disadvantages of migrating to, acquiring, or using the SOA environment? | |
| Project Budget and Schedule | * What is the scope of the project/program related to the SOA environment? * Who is the sponsor for the project? * What is the budget for the project? * What is the timeframe for the project? * What are the available resources for the project? * Are there any other SOA-related projects active or planned? * What is the timeframe for these? | |
| Main Elements of the SOA Environment | * What are the technology components of the SOA environment, e.g. bus, registry, orchestration engine, security provider? * What is the development and operational support structure? * What community support is available? | |

# Next Steps: Understand SOA Environment Capabilities

The goal of the following activities is to gather detailed information about the SOA environment, as well as any requirements and implications. Each activity will have an introduction that is included in the workshop presentation (SMART-ENV Workshop 1). This introduction contains a description of the specific capability area plus a summary of the understanding of the capabilities offered by the SOA environment in that area.

# Understand Service Invocation Capabilities

The goal of this activity is to understand the service invocation capabilities offered by the SOA environment, usually grouped into synchronous and asynchronous mechanisms. The organization is questioned on requirements for specific service invocation capabilities as well as the implications of the specific service invocation capabilities offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Service Invocation capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Transport Protocols | * What synchronous transport protocols are supported by the SOA environment? * What asynchronous protocols are supported by the SOA environment? |
| Asynchronous Messaging | * What is the life cycle of a message? * How are message queues handled? * How are requests correlated to responses? |
| Requirements | * Will services be a part of long-running business processes such that asynchronous invocation mechanisms would be required? * Are there requirements for reliable messaging such that asynchronous invocation mechanisms would be required? |
| Implications | * If asynchronous invocation is required, what are the requirements on service consumers, especially in the case of callback mechanisms? |

# Understand Routing Capabilities

The goal of this activity is to understand the routing capabilities offered by the SOA environment, usually based on context, business rules, address or quality of service (QoS). The organization is questioned on requirements for specific routing capabilities as well as the implications of the specific routing capabilities offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Service Invocation capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Content-Based Routing | * Does the SOA environment have support for content-based routing? * Is there a requirement to support different versions of a service based on message content, such as the value of input parameter or language? * Is there a requirement to invoke different error handlers based on message content? |
| Address-Based Routing | * Does the SOA environment have support for address-based routing? * Is there a requirement to support different versions of a service based on the IP address of a service consumer? * Is there a requirement to redirect a message to a different server based on the IP address of a service consumer? |
| QoS-Based Routing | * Does the SOA environment have support for QoS-based routing? * Will there be different service levels, possibly defined in SLAs, determined by service consumer characteristics and/or agreements? * Is there a concern related to system load that would require the use of a load balancer to balance requests between multiple instances of the same service? * Will services handle sensitive data of which only certain subsets should be exposed to certain service consumers? |
| Business-Rule-Based Routing | * Does the SOA environment have support for business-rule based routing? * Is there a requirement to determine service invocation based on rules fired by a business rule engine? * What business rule engine is used in the SOA environment? * What business rule language is used in the SOA environment? |
| Implications | * Routing mechanisms increase service response times. Is this a concern? * In the case of load balancing, services have to be designed to be stateless. Will all services be stateless? |

# Understand Mediation Capabilities

The goal of this activity is to understand the mediation capabilities offered by the SOA environment, such as adapters, protocol translation, and data transformation and translation. The organization is questioned on requirements for specific mediation capabilities as well as the implications of the specific mediation capabilities offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Mediation capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Protocol Translation | * Does the SOA environment have support for protocol translation? * Will services employ a variety of transport protocols such as HTTP, JMS, and others? * Will service consumers employ a variety of transport protocols such as HTTP, JMS and others? * Is there any protocol mandated by the SOA environment that might be different from the protocol used by services? |
| Data Transformation and Translation | * Does the SOA environment have support for data transformation and translation? * Does the SOA environment impose a shared data model or is a standard data model used in the domain such as HL7 or CML? * Will services employ a variety of data formats such as XML, CSV, and others? * Will service consumers employ a variety of data formats such as XML, CSV and others? * Will there be access to external services that may suggest the need for data model translation or message enrichment? |
| Message Validation | * Does the SOA environment have support for message validation? * Does the SOA environment have support for schema validation? * Do services make any assumptions about validations made by the SOA environment such as well-formed XML or conformance with policies? |
| Error Handling | * Does the SOA environment have support for centralized error handling? |
| Implications | * Mediation increases service response times. Is this a concern? |

# Understand Process Orchestration Capabilities

The goal of this activity is to understand the process orchestration support offered by the SOA environment, such as business process modeling, business process execution, and code generation based on business process specifications. The organization is questioned on requirements for process orchestration as well as the implications of the process orchestration support offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Process orchestration capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Business Process Modeling Notations and Tools | * Does the SOA environment contain or integrate with any business modeling tools? * What business modeling notation is used? * Is it a standard notation such as BPMN or a proprietary notation? * If proprietary, can models be exported into other formats or notations? * Will the business process modeling tools generate specifications in BPEL or other language? * Do the modeling tools integrate with the service registry to find available services? |
| Business Process Engines | * Does the SOA environment contain or integrate with any business process engines? * Is BPEL the specification language or is it another proprietary language? * What formats does the business process engine accept as business process specification input? |
| Code Generation | * Does the SOA environment contain or integrate with any tools that generate code from business process specifications? * What type of code do these tools generate, e.g. service descriptions, service stubs, integration code? |
| Requirements | * Has service identification been done based on business process analysis such that in many cases services map to business process steps? * Will services be used in process orchestrations? * Will any long-running business processes execute in the SOA environment? |

# Understand Event Processing Capabilities

Event processing in general refers to production, transformation, detection, and consumption of events. The goal of this activity is to understand the event processing support offered by the SOA environment, such as publish/subscribe mechanisms and complex event processing (CEP). The organization is questioned on requirements for event processing as well as the implications of the event processing support offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Event processing capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| General Event Processing Capabilities | * Does the SOA environment support event processing? * What mechanisms are available for creation of events? * What mechanisms are available for consumption of events? * What mechanisms are available for event transformation? * Are standards such as WS-Notification supported? * What APIs are provided? Are these standard or proprietary APIs? |
| Publish/Subscribe | * What system elements can publish events? * What mechanisms are available for publication of events? * What system elements can subscribe to events? * What mechanisms are available for subscription to events? * What requirements or constraints are placed on publishers of and subscribers to events? * Are there mechanisms to control who can subscribe to events? * Are event publishers and subscribers internal, external or both? |
| Complex Event Processing | * What CEP mechanisms are available in the SOA environment? * What types of complex events can it handle? * What types of patterns can be detected? |
| Requirements | * Will the systems that use the SOA infrastructure be monitoring rapidly changing data or situations that suggest the need for event processing capabilities? * Will the systems that use the SOA infrastructure be decision support systems that suggest the need for CEP capabilities? * Are events expected to respond in real time? If so, what is the definition of real time? |
| Implications | * If service consumers are subscribers of events, they will have to be set up to receive notifications. Is this a concern from a security or resource perspective? |

# QoS Support Capabilities

QoS support refers to the mechanisms provided by the SOA environment to help achieve system quality attributes of interest such as security, reliable messaging, transaction management and scalability. The goal of this activity is to understand the QoS support offered by the SOA environment. The organization is questioned on QoS requirements as well as the implications of the QoS support offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* QoS support capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Security | * What are the organization’s security concerns? * Will consumers from outside the organization have access to services? Are they all trusted consumers? Are the servers that run the services inside or outside the firewall? * Will the SOA infrastructure provide access to external services? If so, is single sign-on required? * Will services handle sensitive data? * What security mechanisms are provided by the SOA infrastructure for authentication and authorization such as encryption, digital signatures, PKI, security policies, etc.? * What auditing and logging capabilities are available for security? * What standards are implemented by the security components in the SOA environment? WS-Security? * Does the SOA environment implement role-based access control (RBAC) or attribute-based access control (ABAC)? * What is the organization’s existing security infrastructure and policies? Is it compatible with the SOA environment’s security infrastructure and policies? * What requirements or constraints do the security mechanisms place on services and service consumers such as use of specific components, standards or protocols? |
| Reliable Messaging | * What are the organization’s concerns regarding reliable messaging? * Are there anticipated situations where guaranteed delivery is a hard requirement? * What reliable messaging mechanisms are provided by the SOA infrastructure? * What standards are used for reliable messaging? WS-Reliability or WS-Reliable Messaging? * What requirements or constraints do the reliable messaging mechanisms place on services and service consumers such as use of specific components, standards or protocols? |
| Transaction Management | * What are the organization’s concerns regarding transaction management? * Will the SOA environment implement composite services that correspond to transactional business processes? * What transaction management mechanisms are provided by the SOA infrastructure? * What standards are used for transaction management? WS-Transaction? * What requirements or constraints do the transaction management mechanisms place on services and service consumers such as use of specific components, standards or protocols? |
| Scalability | * What are the organization’s concerns regarding scalability? * What is the estimated service usage in the near term? In the long term? * Is there a potential for peak loads that may exceed normal system capabilities? * What load balancing capabilities are provided by the SOA environment? How does it measure load? * Does the SOA infrastructure enable on-demand service instantiation to deal with peak loads? * What requirements or constraints do the transaction management mechanisms place on services and service consumers such as use of specific components, standards or protocols? * Load balancing requires stateless services. Is this a problem or concern? |
| Testability | * What are the organization’s concerns regarding testability? * Does the SOA environment provide or integrate with testing tools for SOA environments? * Does the SOA environment provide support for test instances of services? * What requirements or constraints do testing mechanisms and tools place on services and service consumers such as use of specific components, standards or protocols? |
| Other Quality Attributes | * What are other quality attributes of importance to the organization? * What mechanisms does the SOA environment provide to help satisfy these quality attributes? * What requirements or constraints do these mechanisms place on services and service consumers? |
| Service-Level Agreements | * Will it be necessary to have service-level agreements between service consumers and service providers? Between service consumers and SOA infrastructure providers? Between SOA infrastructure providers and service providers? * Have service-level parameters been identified? * Will there be multiple levels of service depending on priority, consumer type or other? * What measures can the SOA infrastructure collect in support of service-level parameters? * What mechanisms are available for the SOA infrastructure to inform of measures that are approaching their thresholds? * What are the consequences of not meeting service-level agreements? * What logging capabilities are offered by the SOA environment? |

# Management Capabilities

Management refers to any mechanism or tool that can be used to visualize and assess the state of the SOA environment. The goal of this activity is to understand the management capabilities offered by the SOA environment. The organization is questioned on management requirements as well as the implications of the management capabilities offered by the SOA environment.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Management capabilities and related requirements and implications are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Monitoring | * According to the organization’s context, what are aspects of the SOA environment that should be monitored? * Does the SOA environment support the definition of system values to monitor? * Does the organization require support for proactive forms of monitoring such as Business Activity Monitoring (BAM)? * What requirements or constraints do these monitoring mechanisms place on services and service consumers? |
| Logging | * According to the organization’s context, what are logging requirements related to the SOA environment? * Does the SOA environment provide pre-defined logs? Does it support the definition of user-defined logs? * Will any of these logs be used for auditing purposes? If so, do the logging structures match the audit requirements? * Does the SOA environment support archival of log data? * What requirements or constraints do these logging mechanisms place on services and service consumers? |
| Administration Console | * Does the SOA environment provide or integrate with an administration console? * What functionality is provided by the administration console? * Does the administration console allow the creation of dashboards to visually monitor critical system values? If not, is this a problem or concern? * Does the administration console allow the activation and deactivation of services? If not, is this a problem or concern? * Do any administration console features place requirements or constraints on service consumers and services? |

# Understand Development and Operational Support

Development and operational support refers to SOA environment elements and associated tools and artifacts that will help the organization make use of the SOA environment during development and operations. The organization is questioned on available development and operational support as well as requirements.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Available development and operational support and related requirements are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Service Registry and Repository | * Does the SOA environment contain a service registry and repository? * What is the process for registering services? * Is it possible to set up service validation scripts to be executed during service registration? * What is the process for discovering services? * Is the service registry accessed only at design time? Is there support for runtime access to the service registry for dynamic discovery? Is this a requirement? * What service metadata is available (or needs to be provided when registering a service)? * Will service consumers need to register for use of services deployed in the SOA environment? If so, does the SOA environment support service consumer registration? |
| Documentation | * What documentation is available for the SOA environment? * Are code samples available for making use of the SOA environment? If so, for what language (s)? * Are there examples of reference architecture for services or consumers? * Are there demos and tutorials related to the SOA environment? |
| Development Tools | * Does the SOA environment provide any IDEs or libraries for developers of services and/or service consumers? * What tools are available for users of the SOA environment for activities such as schema validation, testing, etc.? |
| Governance | * Is governance defined for the SOA environment? * What policies apply to the development and operation of services and service consumers? * Are there any perceived policy conflicts? * In the case where the organization is the SOA infrastructure provider, has the development of governance been considered in any effort esti |
| User Support (for Service Consumer and Service Providers) | * If service consumers or services require specific configuration files or libraries to use the SOA environment, how will these be made available? * What is the problem management process? How are problems reported and tracked? * How will service consumers be informed of potential changes in service interfaces and down time due to upgrades or problems? * How will service providers and consumers be informed of down time due to upgrades or problems in the SOA environment? |

# Understand Community Support

Community support refers to any formal and informal groups set up for discussions, problem solving, or feedback. The organization is questioned on community support as well as requirements.

The list of artifacts created and updated in this step is:

* **Stakeholder List** and **Notional SOA Environment Architecture** are updated as needed.
* Available community support and related requirements are captured in the **Summary of SOA Environment Capabilities**.

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| **Discussion Topic** | **Questions** |
| Communities of Interest | * Is there a Community of Interest (COI) for the SOA environment? * Is there a COI for the use of the SOA environment within the organization’s domain, e.g. military, health, manufacturing, etc.? * Are communities of interest internal or external to the organization? |
| Online Forums | * Are there online forums for users of the SOA environment? * Does the SOA environment provider participate in these forums? * What type of information is available? Discussion threads? |
| User Groups | * Are there user groups for the SOA environment? * What are membership requirements and benefits? |
| User Conferences | * Are there user conferences for the SOA environment or the provider/vendor of the SOA environment? * How often does the conference take place? * What is the usual attendance? |
| User Support (for SOA Environment Providers/Hosts) | * What type of user support does the SOA environment offer, e.g. help desk, online support, etc.? * Is there an associated cost? * In the case of an open source SOA environment, how large is the open source community? How active is the community? |

# Next Steps

At this point, the information gathering activities are done. Make sure the Stakeholder List is finalized in case any stakeholder needs to be contacted during the next steps.

It is up to the SMART Team Lead to decide if any of the artifacts are to be shared with participants at this point, e.g.

* Notional SOA Environment Architecture
* Summary of SOA Environment Capabilities

The SMART Team will conduct the next three activities over the next 1-2 weeks.