Leverage Existing Assets
Technique Paper

Version 1.4
August 2008
SOMA Core Team

Document History

Document Location

Revision History

Date of this revision:	Date of next revision *(date)*

Revision Number	Revision Date	Summary of Changes	Comments
1	3/14/08	Developed the first draft	Sella Ganapathy; Ali Arsanjani
2	06/19/08	Revised draft after review by SOMA Team Members	Sella Ganapathy
3	07/24/08	Minor Refinements	Sella Ganapathy
4	07/25/08	Incorporated feedback from final review	Sella Ganapathy
5	07/26/08		Ali Arsanjani
6	10/16/2008	Updated the asset flow diagram	Shuvanker Ghosh

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1 Introduction

This technique paper provides guidance to field practitioners about using the Leverage Existing Assets (LEA) technique. LEA is one of the core techniques in SOMA and often used in different phases of a SOMA project.

This technique paper explains what the different types of assets are and how to use them in SOMA.

2 Purpose

The purpose of the Leverage Existing Assets (LEA) capability pattern is to ensure leveraging or reuse of existing assets in the creation of a service-oriented architecture as well as defining a process by which a fit-gap analysis can be systematically conducted to bridge the gap. As the industry and IBM moves into more of an asset-based focus; it is important to call out how to leverage assets in the construction of solutions. As we proceed to craft a solution at each point within the SOMA method, where we need to obtain different input work products or create different output work products, (examples: processes, goals, services, components) applying the LEA technique will save time and efforts.

3 Description

This capability pattern is a recurring pattern throughout the SOMA lifecycle. It is used whenever a new asset type is encountered. For example, when we want to perform process decomposition or process modeling within domain decomposition technique in SOMA during service identification, we will not start with the premise that no process model exists. We will endeavor to leverage the existing process models or attempt to look up process models that we have brought in as assets from our industry models.

In general we look for the assets in a repository, seek to incorporate industry models or existing legacy applications or other assets available within the organization before attempting to create them. It is considered a competitive advantage to bring in a set of potentially reusable assets that can be utilized in the context of the project at hand rather than building those assets from scratch. This asset based model of software development is a key competitive advantage that can be leveraged through the use of the SOMA method for building service oriented architectures.

A combination of manual and automated mechanisms will be used to determine the existence of a relevant asset corresponding to instances of an asset type that is being considered in that step of the method. For example, a business service repository may be accessed in order to determine the availability of services for a given industry solution.

Other industry models and standards which are out-side the organization, may also be consulted for this purpose.

The industry is experiencing an increasing upsurge of governing the creation and maintenance of assets. Outside agencies can provide these assets for a fee. Thus, accessing the service repositories that are external to the organization may become common in the near future.

4 Usage

4.1 Definition of an asset

In using the technique called Leverage Existing Asset, an asset is defined based on "the context" in which we are performing this technique. This technique is used in SOMA method in many different phases or sub phases. This technique is commonly used inside another capability pattern. For example in SOMA method, while doing Goal Service Model, we use the LEA technique; in the context of goal service model, an asset is defined as existing goals, business directions, business cases etc., that can be looked into, studied and necessary goals can be extracted from these goals. If the LEA technique is not used, then the only other option is to meet with business owners and ask them to define the goals.

Similarly while executing the Process Modeling and Decomposition capability pattern, where LEA is recommended as one of the activities to be done, the term 'assets' in this context are defined as existing process charts or any documentation on processes.

4.2 Examples of existing assets

The following table provides heuristics on how to look for relevant assets in different contexts within the SOMA method. This is not an exhaustive list; but focuses rather on assets that are most commonly encountered.

	SOMA Capability Pattern	Examples of Assets	Will Feed to/Used in	Target Asset Type
1.	Method Adoption Workshop	• SOMA Reference Delivery Processes (e.g. SOMA for Application Development) • SOMA Solution Templates • Customer specific methods • Customer specific work products	• Tailoring method	• Delivery Process • Capability Pattern

	SOMA Capability Pattern	Examples of Assets	Will Feed to/Used in	Target Asset Type
2.	Goal Service Model	• Vision Statement • Corporate Goals • Business Cases • Business Directions • Business Drivers • Performance Measurement System • Conceptual Data Model • Service Repository	• Identification of goals, KPIs	• Goals • Services • Entities • KPI • Events
3.	Process Decomposition	• Business Process Charts • Use Cases • User Manuals • Requirement Definitions • New Feature Requests • Exception Procedures • Industry Models (e.g. IBM Insurance Application Architecture)	• Create to-be process • Decompose processes • Identify variations	• Process Definitions • Rules and Policies • Variations • Services
4.	Functional Area Analysis	• Current Organization Description and/or Charts • Future Organization Description and/or Charts • Roles and Responsibilities of Senior Executives • Performance Measurement Criteria for Senior Executives • Component Business Model deliverables • Industry Models	• Identify Functional Areas and Functions	• Functional Areas • Business Functions
5.	Information Analysis and Modeling	• Conceptual Data Model • Logical Data Model • Physical Data Model • Data Stores • Data Warehouse • Entity-Relationship	• Identify information related services • Create conceptual data model	• Services • Conceptual Data Model • Message Models

	SOMA Capability Pattern	Examples of Assets	Will Feed to/Used in	Target Asset Type
		Diagrams • Business Glossary • Management Reports • Periodic Performance Reports for Senior Management • Information obtained from business partners/vendors • Existing Message Models (custom developed or industry standard) • Common Information Model (CIM) or Enterprise Data Model • Industry Models (e.g. ACORD, IFW) • Reports on data quality • Industry Content Pack (WebSphere Business Fabric)		
6.	Rules and Policy Analysis	• Policy Manuals • Rules Catalog • Exception Handling procedures (manual or automated) • Decision points in processes • Alternate Flows in Use Cases	• Identify policy policies, rules and rule types	• Rules • Rule Types • Policies
7.	Existing Asset Analysis	• System Context Diagram • Application Architecture • List of APIs for applications • System Interface definitions • Application functional descriptions • System manuals	• Analyze existing operational assets	• Application Portfolio • Application Functions • System interface requirements (message and protocol) • Services

	SOMA Capability Pattern	Examples of Assets	Will Feed to/Used in	Target Asset Type
		• User manuals • Program Listing		
8.	Service Specification	• Business Event List • Class Diagrams • Sequence Diagrams • State Machine Diagrams • WSDLs • XSDs	• Specify services	• Service Compositions • Service Flows • Service Interfaces • Service Messages • Service Operations • State Management specifications
9.	Subsystem Analysis	• Component Model	• Identify Subsystems and dependencies	• Subsystems • Functional and Technical Components
10.	Component Specification	• Component Model • Software components	• Specify components	• Components

Table 4-1 Examples of Existing Assets

4.3 Steps for executing the LEA Technique

The following figure 4-1 depicts how to execute this technique.

First, search for the existing assets. If it is useable as it is then we do not have to do any thing further. For example, the goals may be documented and readily available when we are dong Goal Service Modeling. We can record these goals in the Goal-Service Model work product. Or we can study and document relevant to services that are in the scope of the work we are doing and already listed in an existing Service Registry on to the Service Model work product. If the existing asset is not readily usable then find out what gap exists and fill the gaps so that the asset can be used in our analysis and ultimately used in producing necessary SOMA work products.

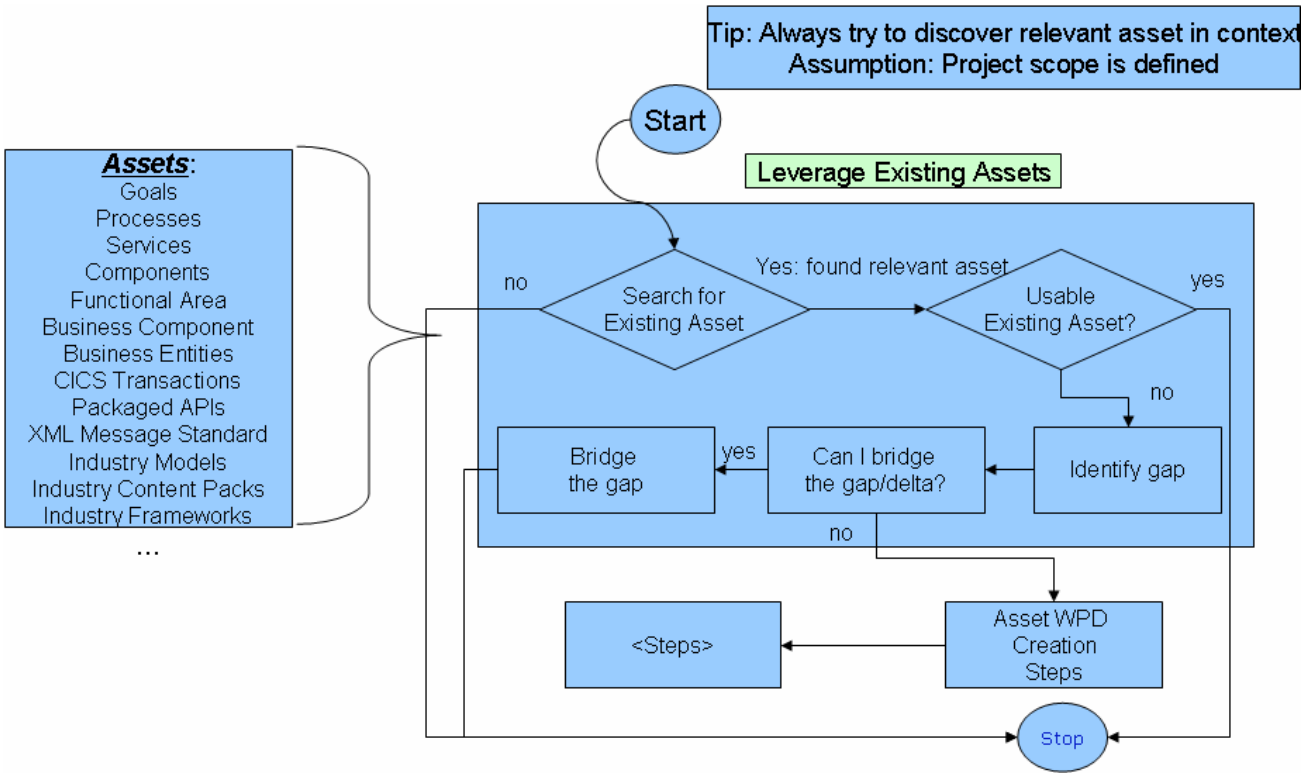

Figure 4-1 Leverage Existing Asset Flow

4.4 Details steps in LEA

The following section provides a step by step approach of executing this technique.

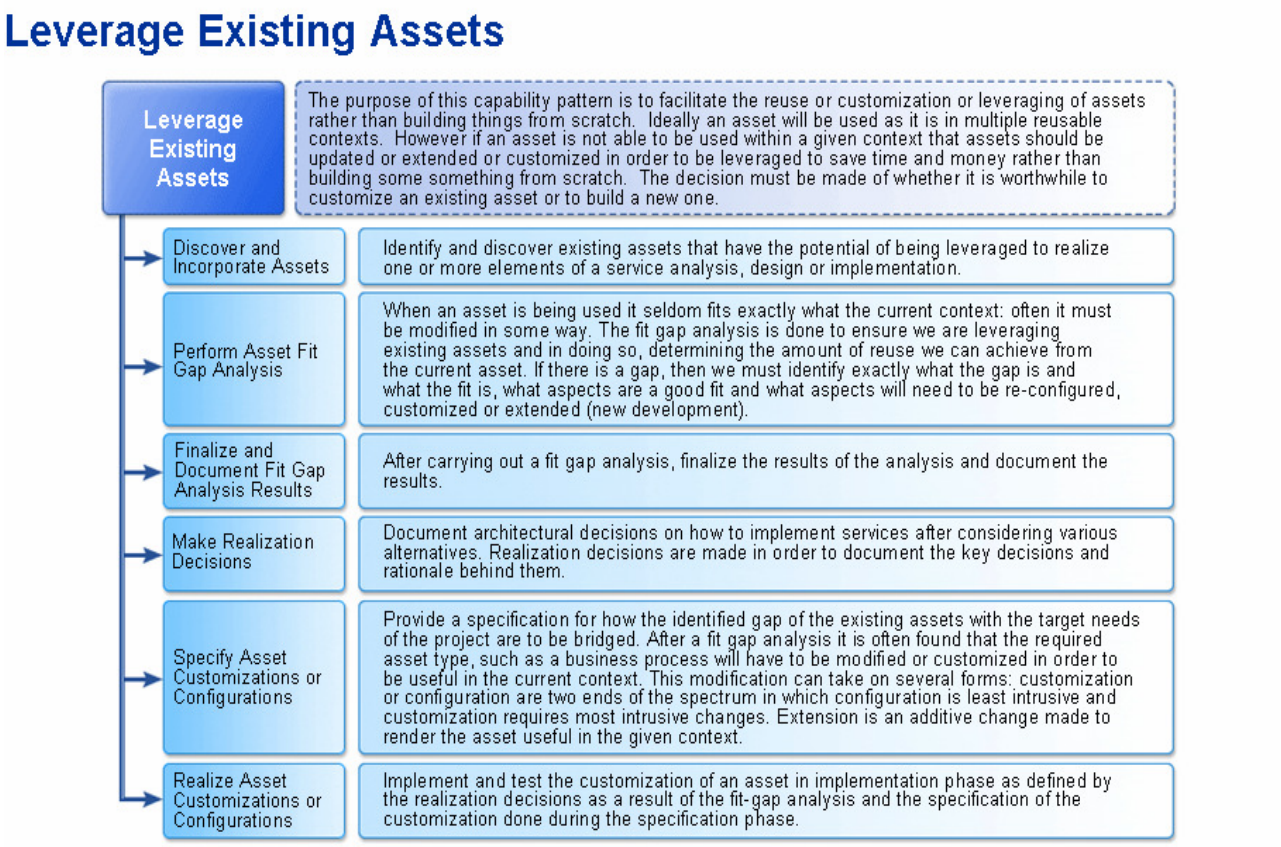

Figure 4-2 LEA Steps

4.5 Discover and Incorporate Assets

Searching for asset can start from within the department/division where the SOA solution is being developed and extend to other divisions, geographies and can go all the way to the entire eco system. The following are the steps to be followed.

4.5.1 Search Ecosystem

If you have access to eco-system resources (e.g., outside the enterprise) then access those resources and search for a corresponding asset type. For Example: ACORD message standards in the insurance industry.

4.5.2 Auto-discover Asset type using Agents

This is part of the automated discovery of asset types if the capability exists. Services that are automatically discovered will be registered in an enterprise wide Services Registry.

There is no need to attempt discovering services unless you know of particular services that may be of interest and are not registered for some reason.

4.5.3 Search/Query repository for Industry Asset type

For every SOMA activity, task or step, inquire as to whether an asset already exists of that type that can be assessed with a fit/gap analysis for use in the current context. It should be pointed out that the Industry Assets/Models support the identification, analysis and design of requirements' based solutions, irrespective of the target environment. The technology-based challenges of enterprise integration vary with the selected infrastructure. These aspects should be covered as part of Realization decisions.
Example: IBM SOA Business Catalog.

4.5.4 Query Repository for specific Assets within the selected Industry

Industry specific Business Process Models are an abstraction from the specifics of any one organization, in any one problem domain. The models provide the blueprints and standards upon which the specific process and underlying services may be constructed. It is prudent to select the Process Models that appear to be relevant to the current scope.
Example: IBM SOA Business Catalog

4.5.5 Industry Asset, functional Area Analysis, Business Process Definitions

This is to ensure that the terms and definitions used by a client are similar to those used in IBM assets. If they are different then the variations should be identified and documented. If they are the same then it is important to map these two terms with similar definitions.

4.5.6 Review of Industry Asset Use Cases

In order to leverage the business process model effectively, it is important that use cases that constitute or represent the activities of these processes be examined in detail. This is to find what the similarities, differences are and what is missing with respect to actions and data elements (as well as the types) and rules. Similar use cases can serve as a basis to build project specific use cases if they do not exist. If the project use cases are quite similar to Industry Asset use cases we can now leverage underlying BOM (Business Object Model).

4.5.7 Consider Issues Pertaining to Specific Asset Types

The following are the issues to be considered pertaining to assets and each one of them should be addressed.

- Licensing
- Support
- SLA

- Performance
- Uptime
- Time to repair
- Functionality
- Globalization
- Localization
- Costs
- System of record used
- Information update cycle
- Security

4.6 Perform Asset Fit Gap Analysis

When an asset is being used it seldom fits exactly with the current context. Often it must be modified in some way. The fit gap analysis is done to ensure we are leveraging existing assets and in doing so, determining the amount of reuse we can achieve from the current asset. If there is a gap, then we must identify exactly what the gap is and what the fit is, what aspects are a good fit and what aspects will need to be re-configured, customized or extended (new development).

4.7 Finalize and Document Fit Gap Analysis Results

After carrying out a fit gap analysis, finalize the results of the analysis and document the results.

4.8 Make Realization Decisions

After the gap is finalized and documented while attempting to use an asset, we need to plan to fill these gaps so that the asset under consideration can be used in a SOMA task. Note that the use of the asset is a design decision: and to decide to use it even if there is a gap to fill is also an important design decision. It may not always be economically or technically feasible to bridge the gap using the existing asset.

For example, we have some processes defined in an ISV software manual provided by a vendor but some changes have been made that are not documented. We now have some assets, namely business process flows that we can use but they are not readily usable as they do not accurately reflect what processes are being followed in practice. This is a gap.

We need to fill this gap by making a decision on how we can realize the existing documented process flows. A possible decision could be to engage a business analyst and using the documentation already available to produce a new documentation that will exactly reflect what is currently followed. Or, instead of documenting what is being currently followed, we may decide to document what is needed for the future (‘to-be’ processes). Each one here is a realization decision concerning the asset in hand (processes that are documented now).

Realization decisions are typically captured as architectural decisions using the work product with the same name. Realization decisions are made in order to document the key decisions and rationale behind them and that can lead to those decisions in the context of the project. These architectural decisions define how the architectural solution is being built. At each juncture there are options to take into account and based on the current context and realities of the project combo choices are based that must be recorded so that future modifications have access to the rationale used in making those initial decisions. The documentation of these decisions will facilitate future enhancements by identifying key variation points and key options that were available but perhaps not quite mature at that time and have possibly matured at the present time.

4.9 Specify Asset Customization or Configuration

After a fit gap analysis it is often found that the required asset type, such as a business process will have to be modified or customized in order to be useful in the current/future context. This modification can take on several forms: customization or configuration is two ends of the spectrum in which configuration is least intrusive and customization require most intrusive changes. Extension is an additive change made to render the asset useful in the given context.

Describe how the asset under consideration will be customized and the perceived gap between the asset and the desired usage of the asset on this particular project will be bridged.

4.10 Realize Asset Customization or Configuration

At the realization phase, you would implement and test the customization of the asset as defined by the realization decisions as a result of the fit-gap analysis and the specification of the customization done during the specification phase. The inputs could be : Architectural Decisions, Candidate Asset List, Component Model, Operational Model, Process Definition, Service Component Model, Service Model, Subsystem Analysis, System Context. The outputs could be: Build Procedures, Component Model, Deployment Unit, Executables, Operational Model, Physical Database Design, Source Code

4.10.1 Steps in Realizing customization or configuration

- Review Realization Decisions
- Review Fit Gap Analysis
- Review Existing Assets and Their Capabilities
- Review the Specification of How to Bridge the Gap to make asset meet current needs
- Implement the Configuration, Customization(s) or Extension(s)

5 Key Consideration

5.1 Difference between Leverage Existing Asset and Existing Asset Analysis

Do not get confused Leveraging Existing Assets with Existing Asset Analysis (EAA) in SOMA. LEA is used for finding assets that can be reused in a given activity, whereas EAA, is one of techniques used for bottom-up service identification. EAA is also used in other phases as well. In the identification phase, EAA looks at existing applications or components and finds out what business services can be identified and defined. As a matter of fact EAA also uses LEA in order to discover existing applications and components that can be used as inputs to EAA.

5.2 Other Considerations

- Asset must be considered in the context in which it is used. In other words, the term 'asset' will mean different things in different activities in SOMA. For while doing the activity of process decomposition, an asset here could be existing process charts. While doing the goal service model activity an asset in this context would pertain to a business goal.
- Ask for actual assets or documentations.
- Take help from client experts in understanding/interpreting assets
- Maintain references to validate accuracy
- Some assets may be in the minds of people – JAD sessions or interviews should be conducted to extract and document.

6 Estimation Consideration

In order to arrive at an estimation of how much time is required to do this technique will vary on two factors:

- Easiness/difficulty in obtaining the assets (e.g. will someone provide these to the project team or the project team needs to go and search for these assets)
- Gaps that exists in converting the available asset into usable one. For example we have use cases that describe processes but time needs to be spent to convert these use cases into process models.

7 Impact of not using this technique

This technique is used very frequently in SOMA method. Use this technique at the start of each major step in the method, like Goal Service Model, Service Specification, Component Modeling etc., in order to leverage what already exists in an organization.

Not using this technique will lead to some amount of duplication of work that has already been done and available to use. As a result cost and time required to complete the project will increase.

8 Related Techniques

Almost all techniques in SOMA are related to this technique. This is true for all phases in SOMA. The basic principle is before we want to do any activity in SOMA make use of work that has already been done in that area and try to leverage in favor of the activity that is being done.

9 Roles, Inputs, Outputs and Work products

9.1 Roles

Will vary by activity/context. For example, in case of process modeling and decomposition Business Analysts will be required; in case of making Realization Decisions, experts in the respective operational systems will be involved.

9.2 Inputs

Will vary based on the context. Please consult table 1 above.

9.3 Outputs

Will vary based on the context. Please consult table 1 above.

10 Resources

These are some of the examples of resources that can be considered.

- IBM Knowledge View portal for any work that has already been done
- www.acrod.org for ACORD message standards in the insurance industry
- IBM Information Framework Service models: http://www-03.ibm.com/industries/financialservices/doc/content/solution/391981103.html
- Enhanced Telecom Operations Map: http://en.wikipedia.org/wiki/ETOM