

Service-Dominant Business Design for a Logistics Service Platform

USER MANUAL AND TOOL MANUAL

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General			
Description	This document establishes the Business Service Catalog and communication processes and procedures.		
Purpose	This document provides the necessary steps and details for the Service Catalog Manager and Business Service Designer to manage the creation and maintenance of the Service Catalog. It also outlines the standard process by which communications with the Business Strategist and Service Owner are managed.		
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1. Introduction

The main goal of this document is to provide guidance to the users of the Business Service Catalog. The current User Manual includes the list of operations which can be performed using the Service Catalog, the parties that are involved in these operations and the information exchange between these parties.

The purpose of the Service Catalog is to provide a single source of consistent information about all live business services and to ensure that it is widely available to those who are allowed to access it. Thus, the Service Catalog is a detailed list of live services. It is an inventory of the business services of the organization. The Service Catalog should also provide the model for business-level reporting, as well as a framework for IT department to build its transition and support processes and documentation.

The goal of the User Manual for the Service Catalog is to ensure that a Service Catalog is produced, maintained and contain accurate information on all operational business services.

The current User Manual provides a hierarchy of processes and procedures for managing the Service Catalog itself and for functionalities of the Service Catalog. The processes and procedures for communicating the information related to the Service Catalog to other stakeholders are also included. Communication is a vital component of any process improvement effort and has hence been integrated in the current User Manual.

1.1. Stakeholders of the Service Catalog

This section presents the stakeholders of the Service Catalog. Figure 1-1 presents the service catalog stakeholders and their profiles. A more extensive description of the services catalog stakeholders can be found in the Appendix of this document.

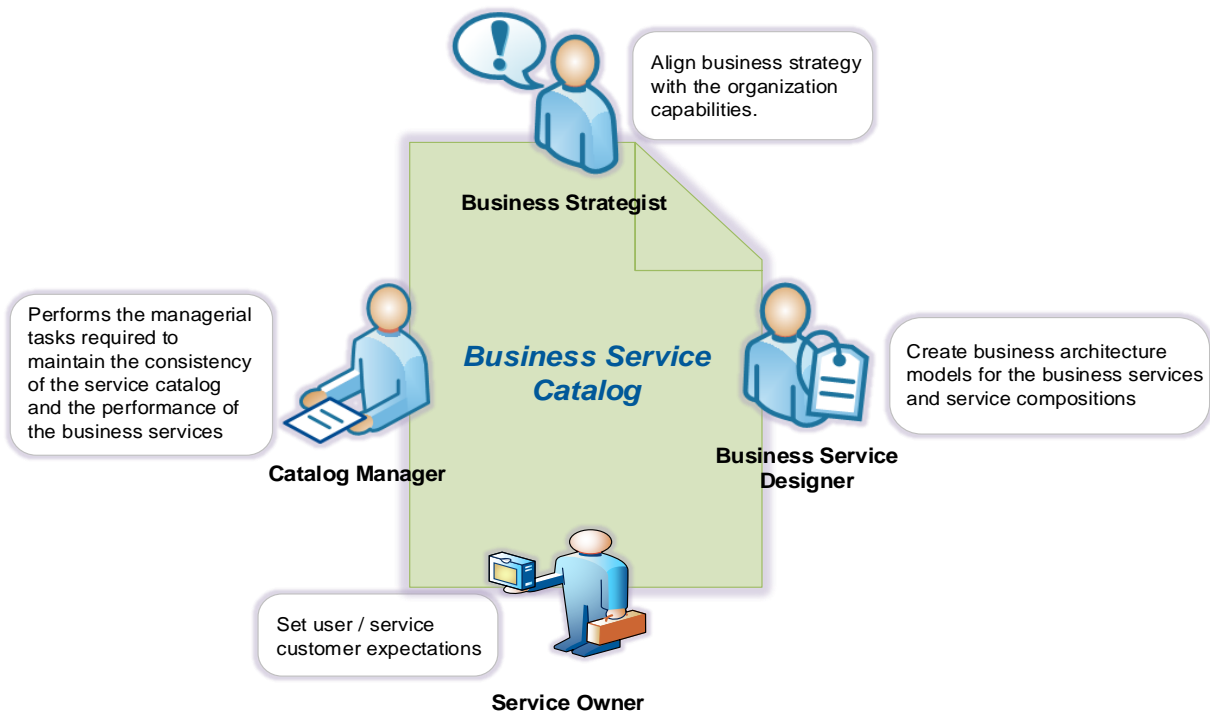


Figure 1-1 Stakeholders of Service Catalog

The main users of the Service Catalog are the Service Catalog Manager and Business Service Designer, who perform a range of operations using the catalog. They should also communicate with the other two stakeholders of the catalog, Business Strategist and Service Owner, in order to provide them the necessary information to perform their roles. However, the Service Owner and Business Strategist may browse through the catalog and access the information if necessary; they may not bring any changes to the catalog itself.

Figure 1-2 shows the interactions between the main important stakeholders of the service catalog.

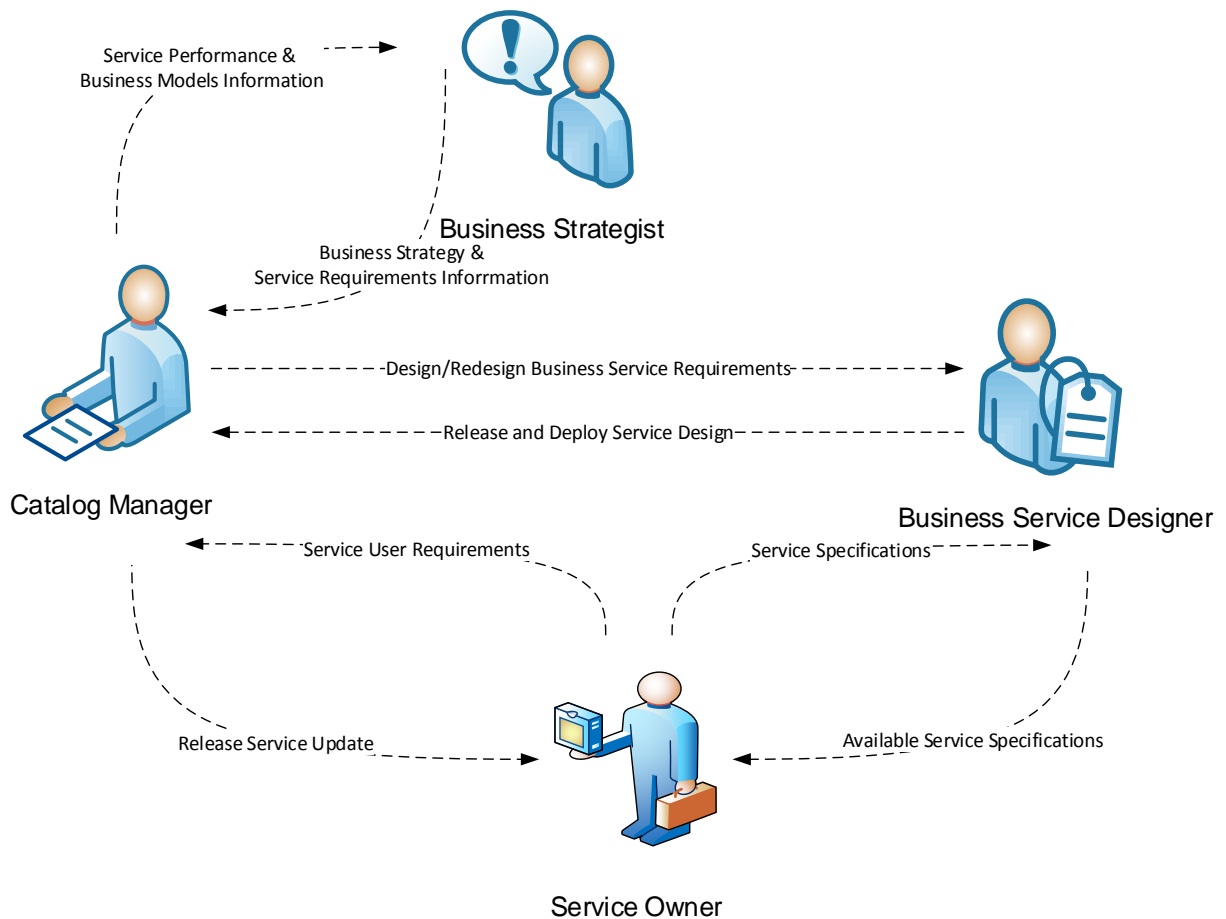


Figure 1-2 stakeholders of the Business Service Catalog and the interactions between them

1.2. The users of the Service Catalog User Manual

Figure 1-3 presents the Service Catalog UML use-case diagram. Several actors use the Service Catalog for performing different operations. The use case diagram depicts the functional split among these actors involved into these operations. The extended use-case diagrams for operations performed by Service Catalog Manager and Business Service Designer are described in Section 3 and Section 4, respectively.

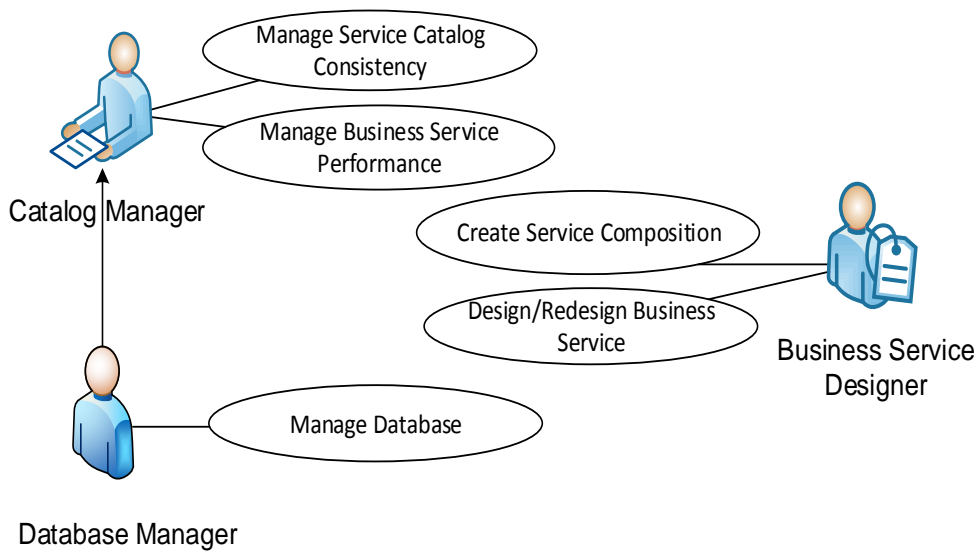


Figure 1-3 Service Catalog Use-Case Diagram

As described in the previous section, the main users of the Service Catalog User Manual are the Service Catalog Manager and the Business Service Designer. It is assumed that the users of this manual are already familiar with the service-dominant business design concepts and processes.

2. Trigger Map of Service Catalog Operations

Figure 2-1 shows the mapping of the triggers for operations performed using the Service Catalog to the BASE/X pyramid and the correlation with the responsible for each pyramid layer.

Whenever there is identified a gap between the layers of the pyramid (Business Strategy, Business Models, Service Compositions and Business Services), the Service Catalog is used in the necessary operations that enable the alignment across these layers.

For each trigger in the figure below there is specified the section of this document where the changing processes are explained in detailed:

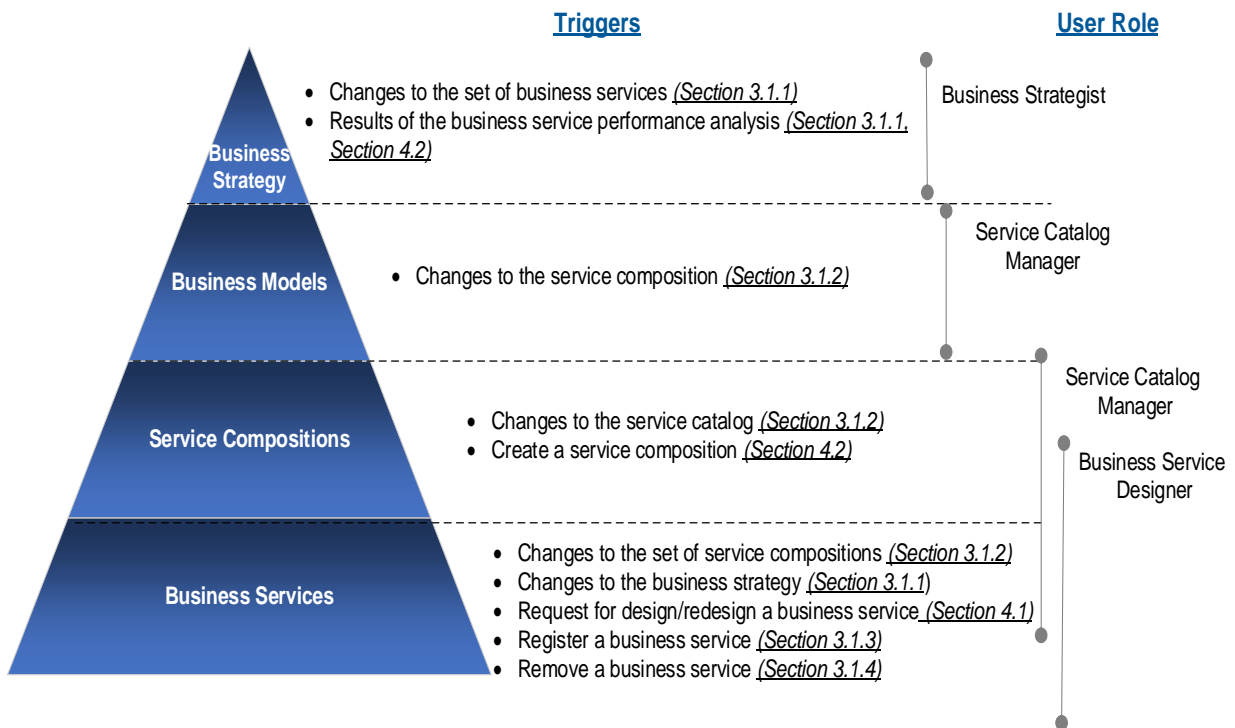


Figure 2-1 Mapping of the triggers for service catalog operations to the BASE/X Pyramid

3. User Manual for the Service Catalog Manager

The Service Catalog Manager performs two main operations using the Service Catalog:

- Management of Service Catalog Consistency; and
- Management of Business Service Performance.

Figure 3-1 presents the use-case diagram for Management of Service Catalog Consistency and the use-case diagram for Management of Business Service Performance is shown in Figure 3-2.

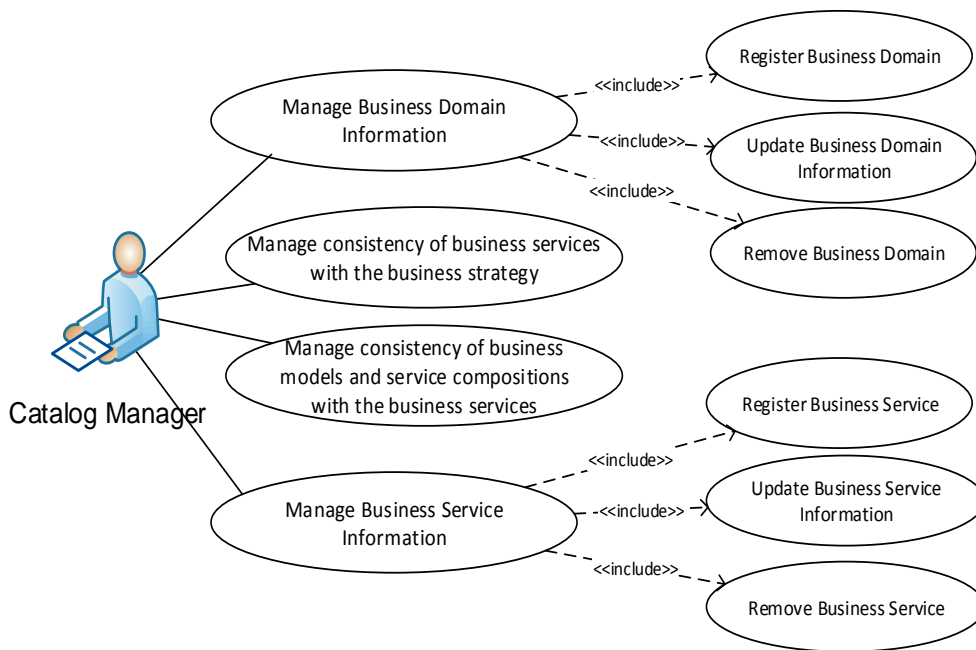


Figure 3-1 Use-case diagram for management of service catalog consistency

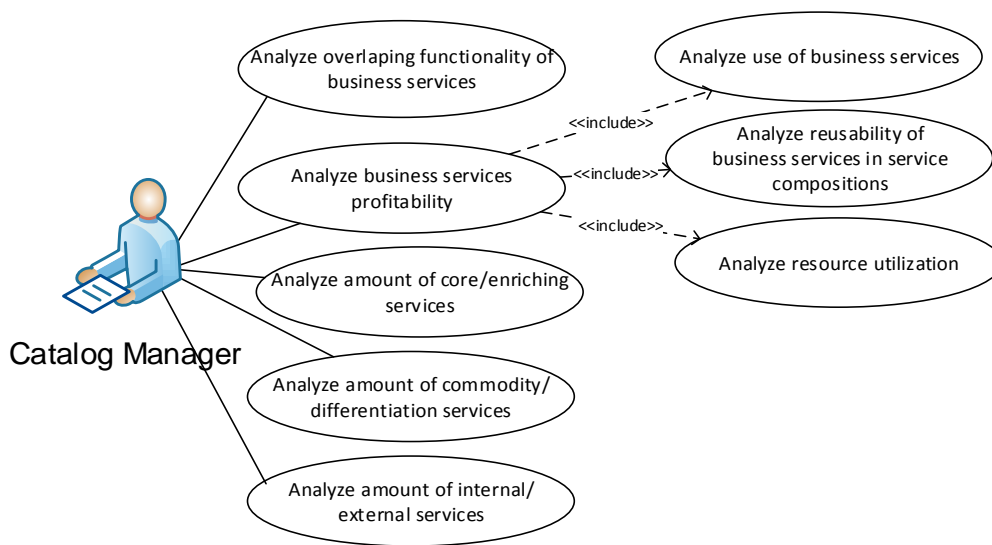


Figure 3-2 Use-case diagram for management of business service performance

3.1. Manage Service Catalog Consistency

The Service Catalog Manager performs managerial tasks for maintaining the consistency of the service catalog across the business services, business strategy, business models and service compositions. This section discusses the processes performed by the Service Catalog Manager for managing the consistency of the service catalog.

3.1.1. Consistency with the Business Strategy Process

The Service Catalog Manager and the Business Strategist should meet periodically to align the identity of the organization (defined in the business strategy) with its capabilities (defined in its business services). However, the Business Strategist is not a user of the Service Catalog. The Service Catalog Manager should provide the Business Strategist all the information from the service catalog related to the business strategy.

For the triggers presented in Table 3-1, the Business Strategist and the Service Catalog Manager should perform the alignment of the identity of the organization with its capabilities.

Table 3-1 Alignment of business strategy with the service catalog

Trigger	Alignment of business services with business strategy
Business Strategy Review	
Changes to the set of business services	The set of business services is primarily determined by the business strategy. But if this set of business services is changed for other reasons (for example, introduction or termination of external services), it may require reconsideration of the strategy.
Results of the business service performance analysis	The results of the business service performance analysis can be used to set the strategic directions of the organization.
Business Services Review	
Changes to the business strategy	Changes to elements of the business strategy may lead to reconsideration of the business services. Each internal service in a service catalog must be traceable to the business strategy. This means that it must be related to an abstract service specified as a core service or an enriching service in the business strategy canvas. If this is not the case, either the business service is not within the scope of the organization, or the business strategy needs to evolve.

3.1.2. Consistency with Business Models and Service Compositions Process

The Service Catalog Manager performs the alignment of required business services with the available business services. Whenever there is a trigger presented in Table 3-2, the Service Catalog Manager should perform the alignment of the required and available business services in the service catalog.

Table 3-2 Alignment of required and available business services

Trigger	Alignment of required and available business services
<i>Business Model Review</i>	
Changes to the service composition	Changes to a service composition (for example the elimination of a business service by a collaborating party), the design of a business model may need to be reconsidered.
<i>Service Composition Review</i>	
Changes to the service catalog	Changes to a Service Catalog (for example deletion of a business service) may influence service composition design.
<i>Business Services Review</i>	
Changes to the set of service compositions	Introduction or deletion of a service composition changes usage patterns of business services and may trigger changes to the Service Catalog.

3.1.3. Register a Business Service Process

The registration of a business service should be made according to the service catalog structure. Figure 3-3 presents the process of business service registration into the service catalog.

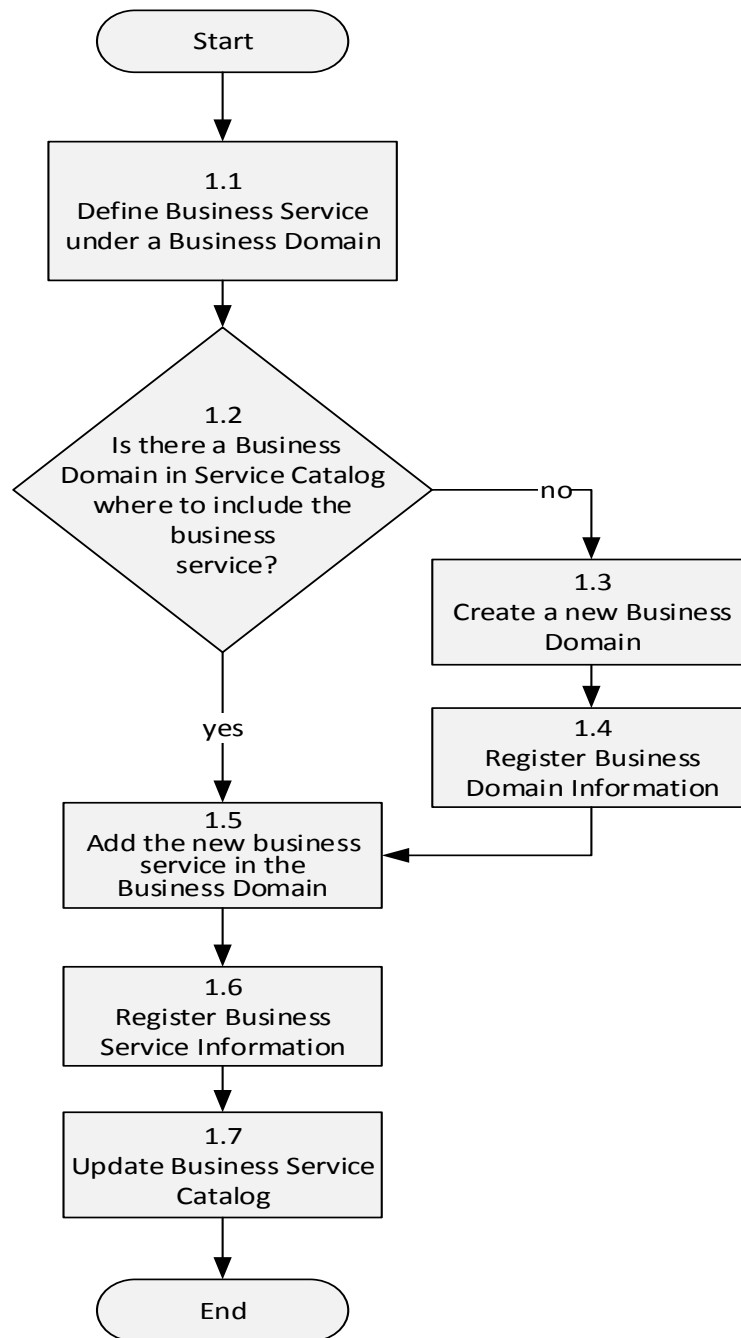


Figure 3-3 Register Business Service Process Flow

Table 3-3 explains the steps to be taken in the registration of a business service process.

Table 3-3 Description of the business service registration process

Step	Action
1.1	Define the business service under a Business Domain
1.2	Is there a Business Domain in the Business Service Catalog where the Business Service can be included? <ul style="list-style-type: none"> • If yes, proceed to 1.5 • If no, proceed to 1.3
1.3	Create a new Business Domain in the Service Catalog
1.4	Register the specification details of the Business Domain
1.5	Add the Business Service to Business Domain
1.6	Register the specification details of the Business Service
1.7	<ul style="list-style-type: none"> • Update the Service Catalog • Ensure that all stakeholders are aware of the changes to the Service Catalog.

3.1.4. Remove a Business Service Process

It is necessary to review the service catalog periodically to determine whether any services should be deleted or added. Services targeted for deletion may include those that are no longer needed by the business, those that have been replaced by other services, and those that are no longer cost-effective. The purpose of this procedure is to ensure that a business service removal from the Service Catalog does not affect any service composition. Figure 3-4 shows the process of business service removal from the service catalog.

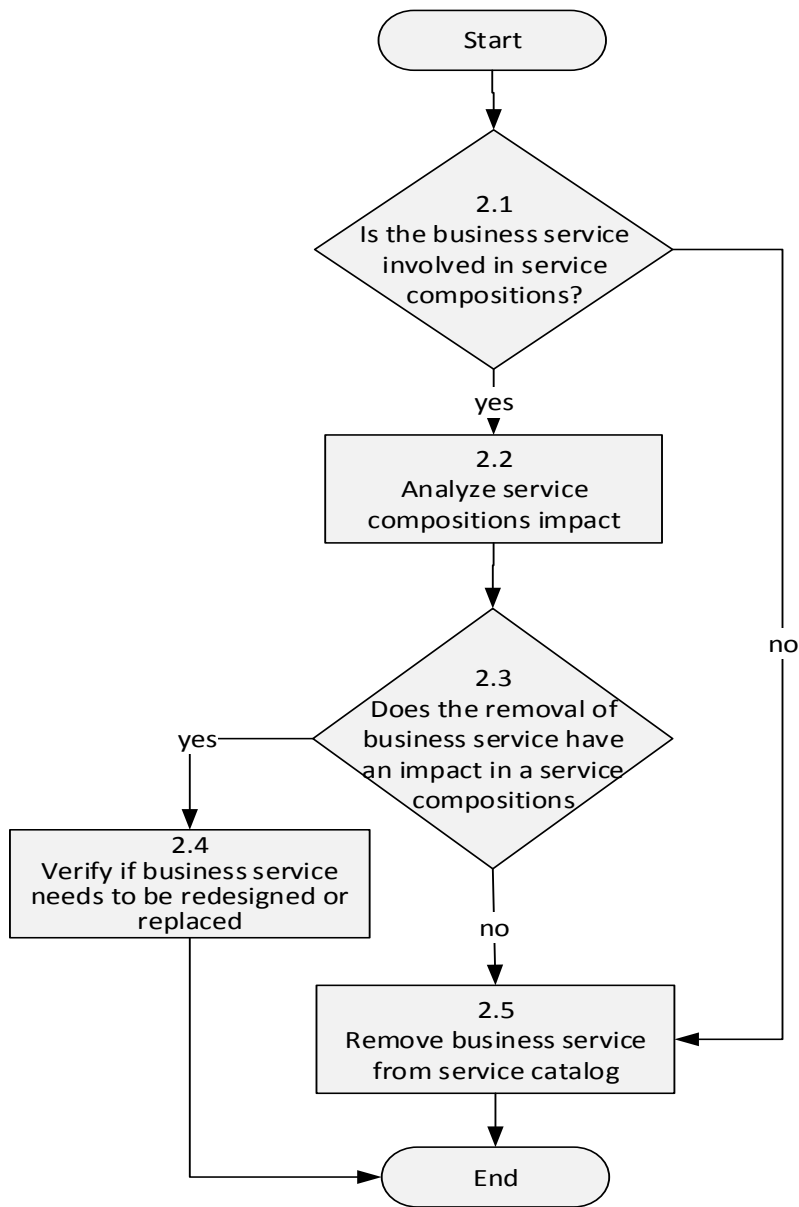


Figure 3-4 Remove Business Service Process

Table 3-4 explains the steps to be taken in the removal of a business service process.

Table 3-4 Remove a Business Service Process Description

Step	Action
2.1	Is the business service involved in service compositions? <ul style="list-style-type: none"> • If yes, proceed to 2.2 • If no, proceed to 2.5
2.2	<ul style="list-style-type: none"> • Perform the service composition impact analysis • Document the results of the service composition impact analysis
2.3	Does the removal of the business service have an impact in any service composition? <ul style="list-style-type: none"> • If yes, proceed to 2.4 • If no, proceed to 2.5
2.4	Verify if the business service needs to be redesigned or replaced
2.5	<ul style="list-style-type: none"> • Remove the Business Service from the Service Catalog • Ensure that all stakeholders are aware of the changes to the Service Catalog.

3.2. Manage Business Service Performance

The management of the business services’ performance in an organization can be performed using the Service Catalog. The Service Catalog provides information on the quality and performance of the business services and can be used to identify areas for improvement.

Many type of analyses can be performed using the service catalog. Table 3-5 presents a range of analyses that can be performed using the service catalog and the type of information resulting from such analyses. However, using a structured service catalog with automated support would enable performing this analysis faster and with fewer errors.

This analysis is performed mainly by the Service Catalog Manager and the results should also be communicated to the Business Strategist. The Business Strategist can use the results of this analysis type shown in Table 3-5 in setting the strategic directions of the organization and of the future services offered by the company.

Table 3-5 Business Service Performance Analysis

Analysis Type	Information
Analyze use of the resources	<ul style="list-style-type: none"> • Resources that are not used • Business services that use the same resources • Resources that are not captured in the catalog and should be included
Analyze overlapping functionality of business services	<ul style="list-style-type: none"> • Business services with the same functionality (duplicated functionality)
Analyze use of business services	<ul style="list-style-type: none"> • Business services that are included in many service compositions • Business services that are not used in service compositions
Analyze reusability level of business services in service compositions	<ul style="list-style-type: none"> • Reusability number of business services in service compositions
Analyze the level of differentiation of services	<ul style="list-style-type: none"> • Number of common business services • Number of unique business services • Difference between the number of common and unique business services
Analyze the level of core/enriching services	<ul style="list-style-type: none"> • Number of core business services • Number of enriching business services • Difference between the number of core and enriching business services
Analyze the level of internal/external services	<ul style="list-style-type: none"> • Number of internal services. • Number of external business services • Difference between the number of internal and external services
Calculate Service Level Agreement (SLA)	<ul style="list-style-type: none"> • SLA of the business services
Analyze profitability of business services	<ul style="list-style-type: none"> • Fees paid by the customers for service compositions • Difference between fees paid by customers and the resource costs of a business service

4. User Manual for the Business Service Designer

The Business Service Designer performs two main operations using the Service Catalog:

- Design or Redesign a Business Service; and
- Create a Service Composition.

Figure 4-1 presents the use-case diagram for the design/redesign of a business service. The use-case diagram for the creation of a service composition is shown in Figure 4-2.

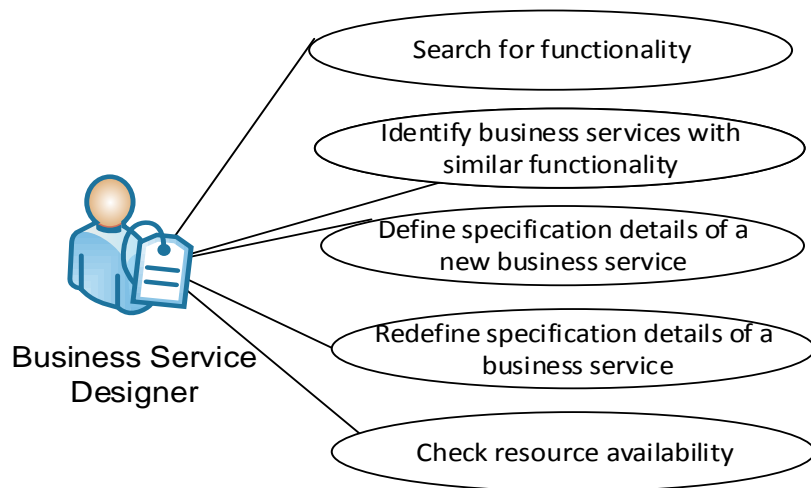


Figure 4-1 Use-case diagram for design/redesign of a business service

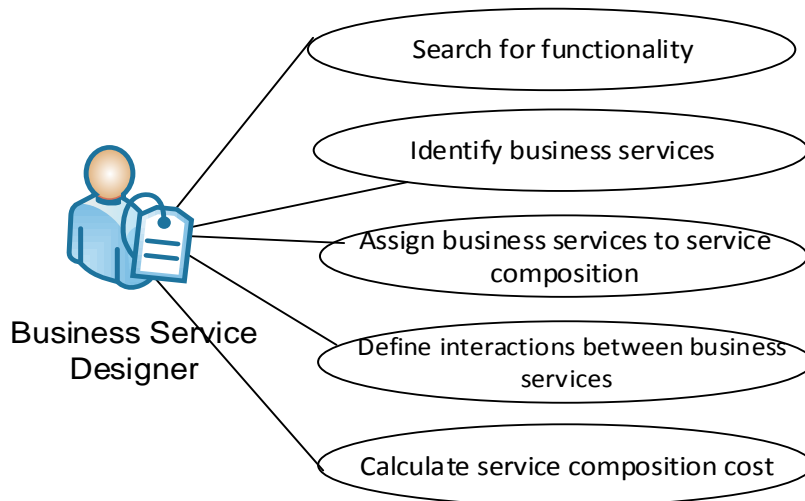


Figure 4-2 Use-case diagram for creating a service composition

4.1. Design/Redesign a Business Service Process

The purpose of the design/redesign a business service process is to ensure that a business service is designed or redesigned according the service catalog business design rules.

Figure 4-3 presents the process of designing or redesigning a business service.

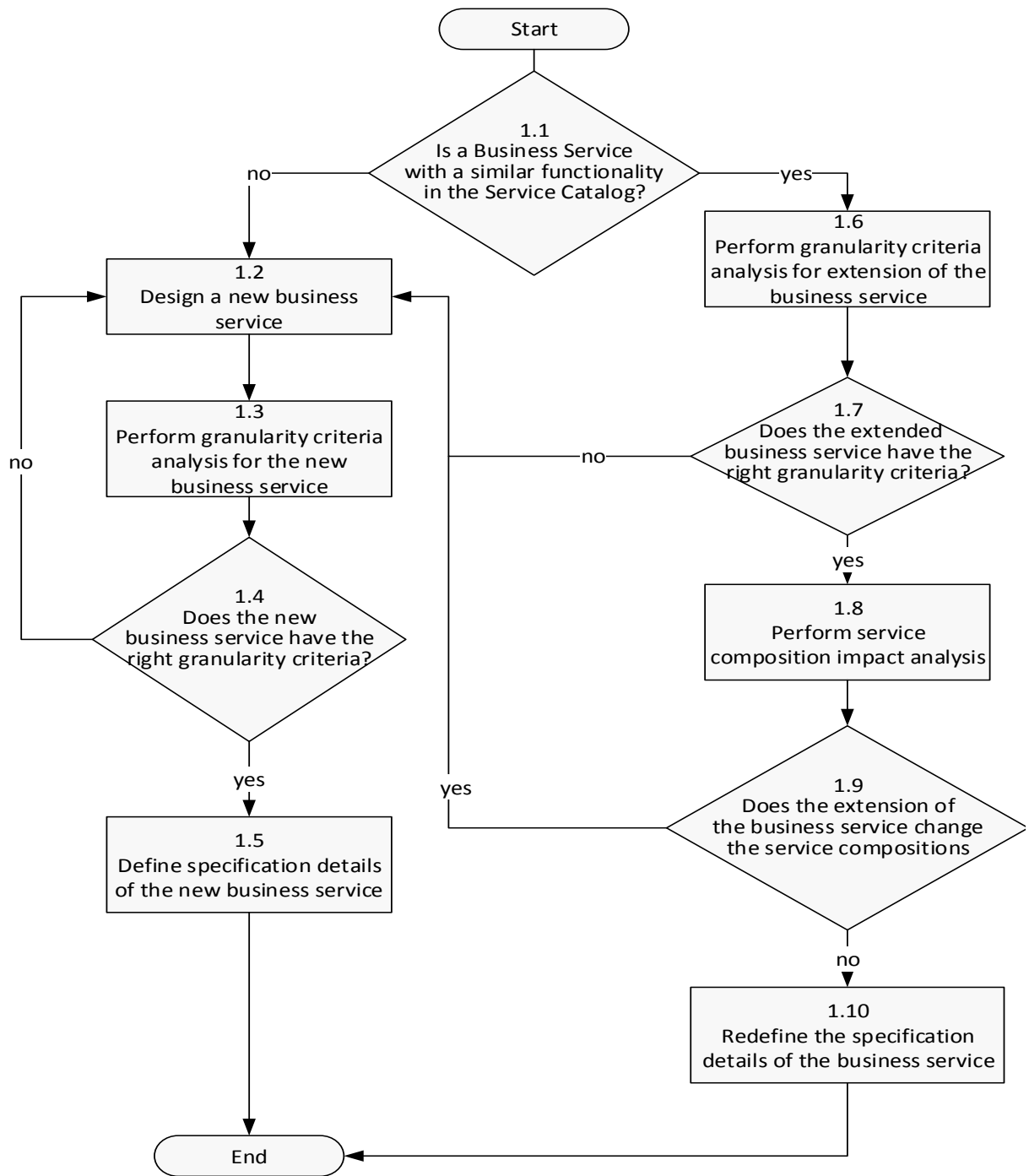


Figure 4-3 Design/redesign a business service process flow

Table 4-1 explains the steps to be taken in designing or redesigning a business service process.

Table 4-1 Design/Redesign a Business Service Process Description

Step	Action
1.1	<p>Is there a business service in the business service catalog that contains similar functionality as the requested new business service</p> <ul style="list-style-type: none"> • If yes, proceed to 1.6 • If no, proceed to 1.2
1.2	<ul style="list-style-type: none"> • Perform the design of a new business service
1.3	<ul style="list-style-type: none"> • Perform the analysis required to determine the granularity criteria of the required business service • Document any issues associated with fulfilling the granularity criteria of the requested service.
1.4	<p>Does the required business service have the right granularity criteria to be included in the Business Service Catalog?</p> <ul style="list-style-type: none"> • If yes, proceed to 1.5 • If no, proceed to 1.2
1.5	<ul style="list-style-type: none"> • Define the specifications of the new business service • Document all the details specifications of the new business service
1.6	<ul style="list-style-type: none"> • Perform the analysis required to determine if the extension of business service meets the granularity criteria • Document any issues associated with fulfilling the granularity criteria of the business service extension.
1.7	<p>Does the extended business service have the right granularity criteria to be included in the Business Service Catalog?</p> <ul style="list-style-type: none"> • If yes, proceed to 1.8 • If no, proceed to 1.2
1.8	<ul style="list-style-type: none"> • Perform an analysis to determine the impact of the extended business service on the service compositions • Document the possible changes of the service compositions
1.9	<p>Does the extension of the business service change the service compositions?</p> <ul style="list-style-type: none"> • If yes, proceed to 1.2 • If no, proceed to 1.10
1.10	<ul style="list-style-type: none"> • Redefine the detail specifications of the extended business service • Document all the details specifications of the extended business service

4.2. Create a Service Composition Process

The purpose of the creation of a service composition process is to ensure that a business model is realized according to the collaborating parties' requirements.

To create a service composition, two inputs are required:

- the business model that needs to be realized in the service composition; and
- the service catalog from which the business services are selected that are to be composed.

In the business model, the actor co-production activities are the relevant elements, as these specify the abstract activities required for realizing the actor value propositions and hence the value-in-use of the business model.

The selection of business services from the service catalog and thus the design of the service composition can be performed in two alternative ways:

- starting from co-production functionality; or
- starting from customer experience.

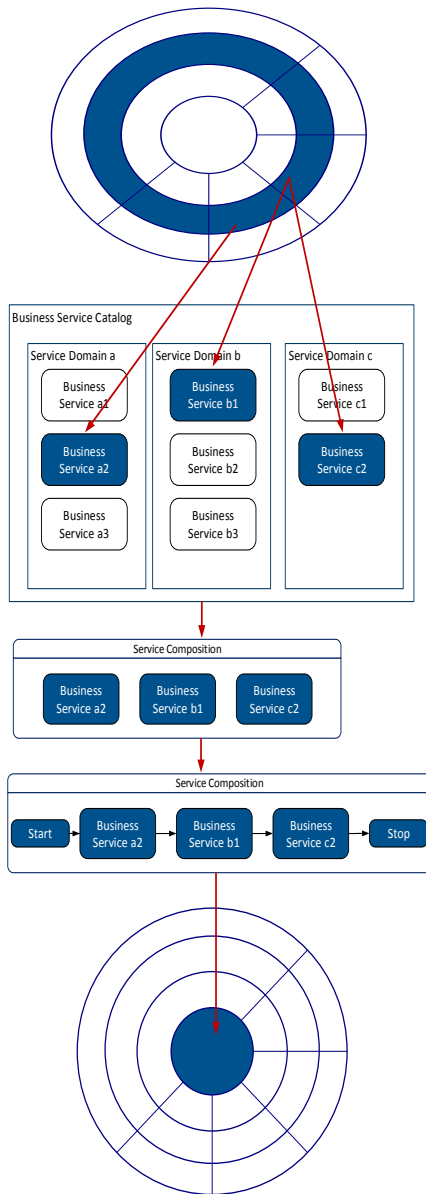
Both approaches are shown schematically in the Section 4.2.1 and Section 4.2.2, respectively.

For creating a feasible service composition the following requirements should be satisfied:

1. Each service composition is related to exactly one business model. If multiple similar service compositions exist at the same time, they belong to different business models in the same business model family.
2. Each actor co-production activity in a business model must be mapped to at least one business service in the related service composition.
3. Each business service in a business process must be related to an actor co-production activity in the related business model.
4. Each service composition must have a clear event (trigger) that starts the execution of an instance of the service composition. This event is associated with the *start* of the business process representation.
5. An abstract business process of a service composition has exactly one starting point (associated with the starting event mentioned above) and exactly one ending point.

4.2.1. Co-production Functionality Approach

In the co-production functionality approach, the actor co-production activities of the business model are dealt with one by one.



Step 1

For each actor co-production activity in the business model identify the business services in the service catalog(s) required to realize the co-production activity. Note that one co-production activity can require multiple business services for its realization. Each co-production activity requires at least one business service.

Step 2

Collect all selected business services from Step 1 into a new service composition without control flow. This service composition now contains the functionality required to realize the value-in-use of the business model.

Step 3

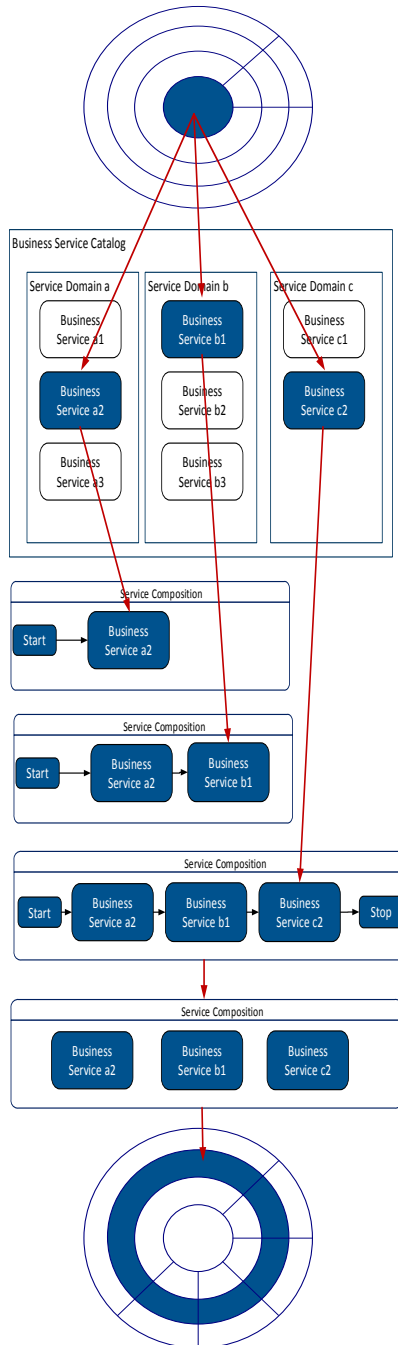
Add the control flow to the service composition to create an abstract business process that realizes the customer experience of the business model.

Step 4

Check whether the constructed abstract business process indeed realizes the value-in-use of the business model.

4.2.2. Customer Experience Approach

In the customer experience approach, the starting point is the overall value-in-use of the business model and the associated customer journey.



Step 1

From a description (for example a storyboard) of a customer experience of the value-in-use of the business model, identify the required business services one by one, stepping through the customer experience.

Step 2

Add each identified business service to a business process specifying the customer experience. This is performed in an incremental way such that the process develops from start to end.

Step 3

Once the business process has been finished, it represents a realization of the customer journey. The set of used business services forms the service composition.

Step 4

Check whether the set of business service corresponds with the functionality required by the actor co-production activities of the business model: each business service must relate to an actor co-production activity; each actor co-production activity must be related to at least one business service.

Figure 4-4 presents the process flow of creation of a service composition following the *co-production functionality approach* described in Section 4.2.1.

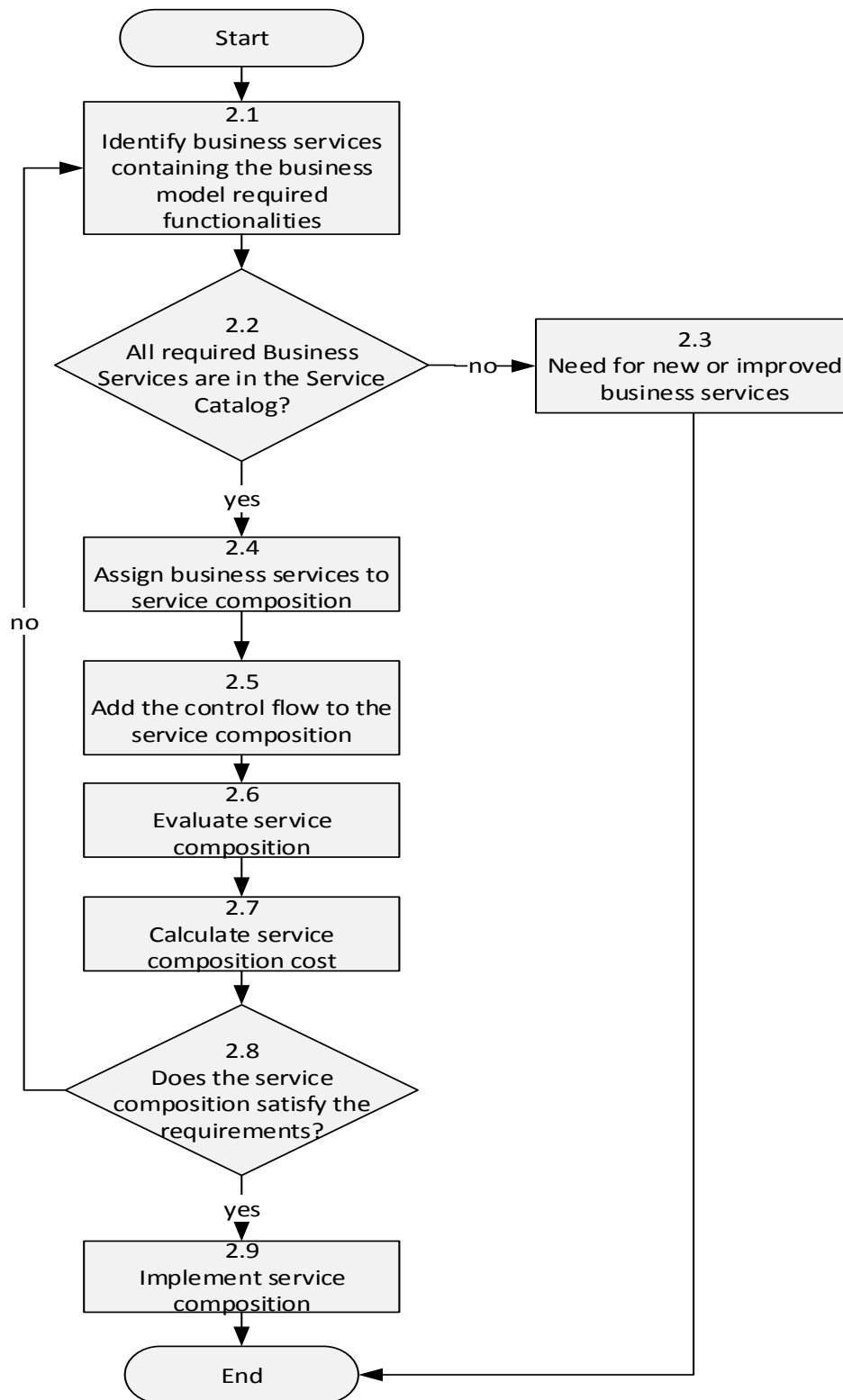


Figure 4-4 Process Flow for Service Composition

Table 4-2 explains the steps to be taken in the creation of a business service process.

Table 4-2 Create a Service Composition Process Description

Step	Action
2.1	<ul style="list-style-type: none"> • Analyze the requirements for the service composition. • Identify the Business Services within the Business Service Catalog that contain the business model required functionalities
2.2	<p>All required Business Services are in the Business Service Catalog?</p> <ul style="list-style-type: none"> • If yes, proceed to 2.4 • If no, proceed to 2.3
2.3	<ul style="list-style-type: none"> • Perform an analysis to determine if new business services are required in order to realize the business model or if some existing business services can be improved and used in service composition realization • Document the information about the required new business services or the extension of current business services
2.4	Assign the identified business services to service composition
2.5	<ul style="list-style-type: none"> • Add the control flow to the service composition. This means defining the interactions between business services assigned to the service composition • Document all the interaction details between the business services within the service composition
2.6	<ul style="list-style-type: none"> • Analyze if the service composition meets the business model requirements • Document any issues associated with fulfilling the business model requirements
2.7	Calculate the cost of the service composition
2.8	<p>Does the service composition satisfy the business model requirements?</p> <ul style="list-style-type: none"> • If yes, proceed to 2.9 • If no, proceed to 2.1
2.9	Implement service composition

5. Business Service Catalog Tool Manual

This chapter describes the usage principles of the automated tool for the business service catalog. The tool manages the business services of the organization, performs a range of analyses, generates reports and retrieves all the information necessary for an organization to manage the information on business services. The tool was initially designed for an important information service provider in the Port of Rotterdam, Portbase. However, this document presents only the generic design of the tool without the details of Portbase.

5.1. Background

A business service catalog provides numerous benefits to a service provider organization, including reduced costs, improved delivery times and enhanced service quality. From a broader perspective, a well-implemented service catalog can radically alter the role and perception of an organization within the market.

The database tool for the business service catalog can be used by a service provider company that would like to flexibly design and redesign new services. For example, a company has a catalog of business services but it does not have a proper structure for supporting dynamic design of complete customer-oriented services. For this reason, it is important to have a tool with automated support that structures the business services and possible the business partners services in modular pieces of customer-facing functionality in a way that can be easily discovered and used in designing new integral services. Moreover, the service catalog database tool documents the necessary information on business services to capture the state in the evolution of the business services and perform a range of analyses.

The connections between business services are not included in this tool. The composition and connection between the services can be maintained at the service composition level. When using the service catalog, it is helpful to know which services are available and which services need to be developed or improved for creating required service compositions.

5.2. Design Criteria

The design criteria of the service catalog database are as follows:

- **Flexibility:** to make the database user friendly and easy to direct from the main form to the other forms.
- **Usability:** the database should have a simple interface and logical design, and ease of adding or removing data.
- **Operability:** the company does not need to bear the cost of buying an extra database platform.
- **Portability:** the ability to use the tool from any computer without additional software connection.

5.3. Functional Requirements

The service catalog database tool should support decision-making for strategical and tactical design.

1. Support for decision-making in strategical design:

- Provide a clear overview of the company market offerings.
- Support the maintenance of the consistency between business strategy, business models and business services.

2. Support for decision-making in tactical design:

- Enable dynamic operationalization of the business models through flexible service reusability, service discoverability and service composability.
- Support the evaluation of the completeness of the business services against the customer requirements.
- Support dynamic changing of the live services and the design of new business services.
- Support evaluation of the services and the searching for areas of improvement.
- Enable the evaluation of the requests for new services or for enhancements of the current services.

5.4. Technology

This tool uses two types of technology:

- Microsoft Office Access

Within this program, Visual Basic for Applications (VBA) and SQL have been used

- Microsoft Excel

5.5. System Design

For a structured business service catalog tool that satisfies all design and functional requirements, a relational database management system (RDBMS) is developed. Figure 5-1 shows the connections between the entities of the business service catalog.

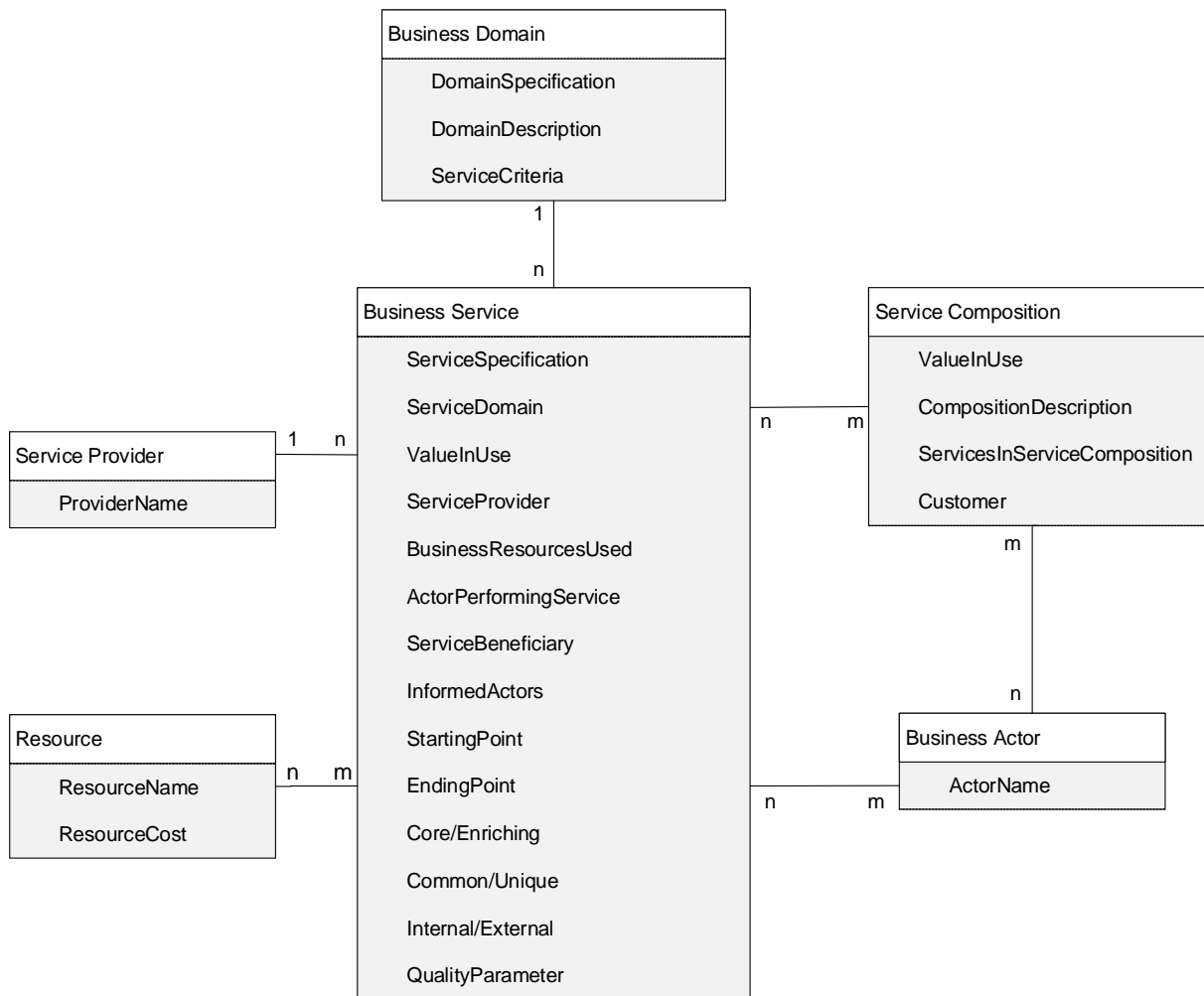


Figure 5-1 Class diagram for database tool

The **business service domain** is a group of business services with related functionality used to improve the structure of the service catalog. Having the business services grouped in business service domains makes the capabilities of an organization that is encapsulated by the business services more visible. Thus, it can be checked very easily if a service domain is well-aligned with the business strategy of the company. Also, in typical practical scenarios, business service catalogs contain hundreds of business services. Therefore, grouping services in service domain makes the browsing through the service catalog more efficient.

The **business service** is a modular piece of customer-facing business functionality. It may belong to only one business domain. Different business services can use multiple resources and the same resources can be used by different business services. The same relation refers to the service composition. Each service composition may contain several business services and every business service can be a part of multiple service compositions. A range of analyses can be performed using this tool as it is described in Section 3.2.

Resources used in business services come in two important types: material resources such as assets and capital and human resources such as knowledge and employee. It is important to

specify the resources for each business service as service invocations make use of resources encapsulated by the invoked services (which have fixed costs). As such, an analysis can be made of the percentage that a service invocation makes use of these resources and consequently of the percentage that the fixed costs of a resource are covered by a specific service composition and hence a specific business model.

Service Provider is a class of providers that can contain only one specific organization, but preferably contains multiple organizations to enable agility and reduce dependency. It is important to make explicit the service provider of a business service for a good relationship and contracting management. However, for including in the business service catalog a service provided by a business partner, it should meet the granularity criteria imposed by the service catalog of the focal organization.

Service Composition is the set of business services selected for operationalization of a business model. A service composition uses multiple business services and a business service can be used in multiple compositions. Hence, compositions and services have a m:n relationship. The end customer of a service composition is a business actors for who the business model that is implemented by the service composition was designed. This tool helps a service designer to dynamically create a new service composition by selecting the necessary business services from the catalog required by a business model. Moreover, using the information from the service composition, the user can perform a range of analysis such as calculating the cost of a service composition by computing the cost of each business service or an estimate of the number of composition invocations in a period of time, i.e., the number of customer orders per period in a business model.

Business Actor is the class of actors that can participate in a business service or in a service composition. A business actor can undertake three roles: actor who performs a business service, beneficiary of a business service and customer for a service composition.

5.6. Relationships between database tables

The user interfaces with the database by means of a set of interconnected application forms that help the user to input the data into the underlying tables. The interconnection between database tables according to Microsoft Access 2013 notation is depicted on the Figure 5-2 shows the relationships.

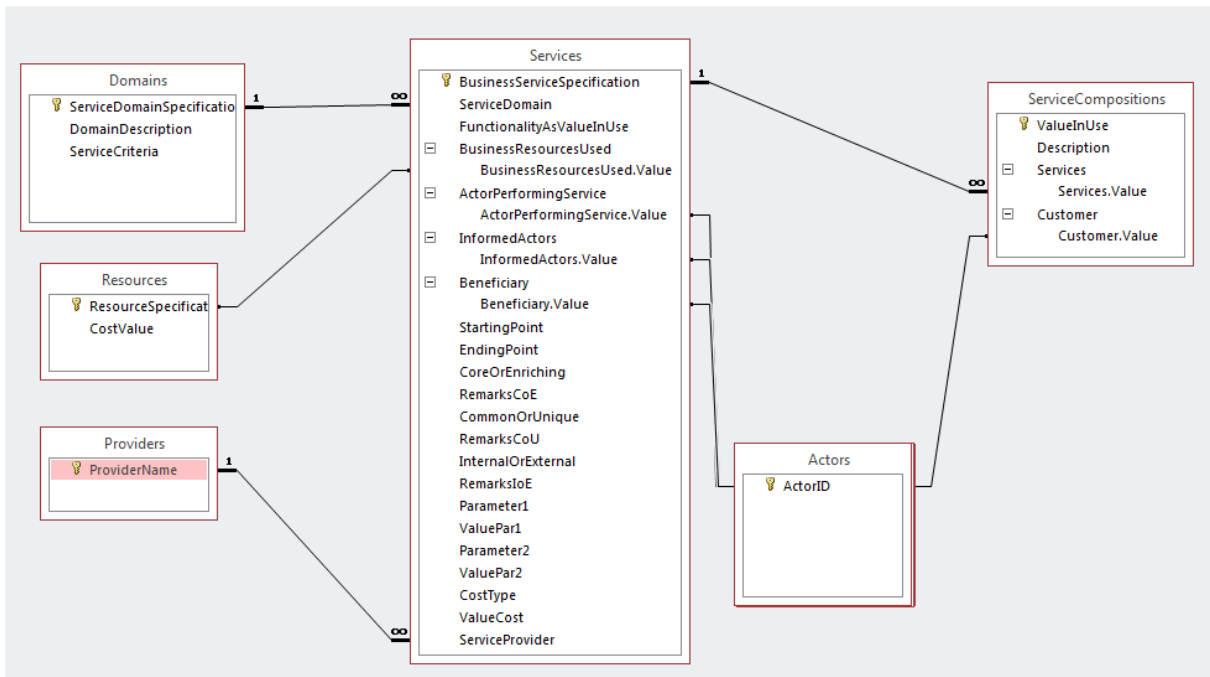


Figure 5-2 Connections between tables in Microsoft Access 2013

- Services Table

This table records all the data on the existing business services.

- Domain Table

This table contains the data on the existing business domains.

- Resource Table

This table contains the data on the business resources of Company.

- Actors Table

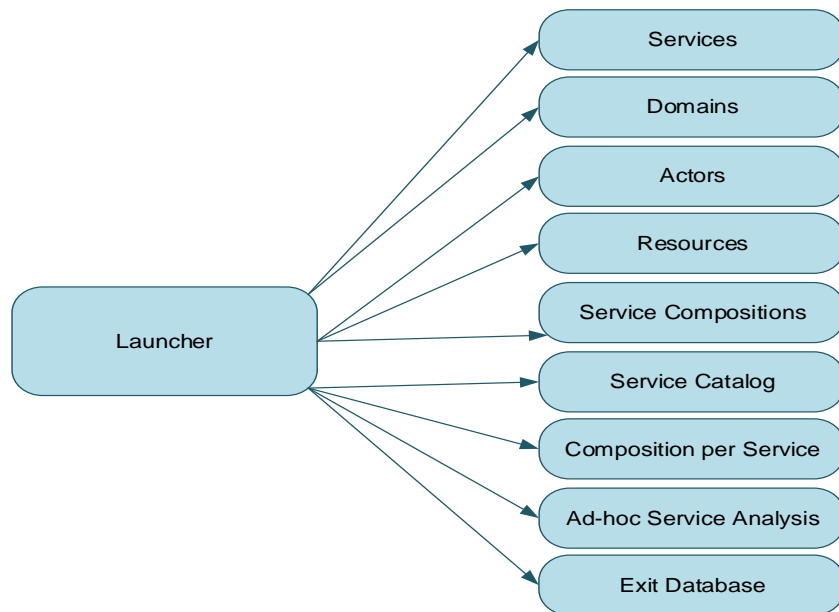
This table contains the information on the current business actors of Company.

- Service Compositions Table

This table contains the information on the current service compositions.

5.7. Technical Specification

This section discusses the details of the database tool.



5.7.1. Launcher – is the main menu of the service catalog database

From the main menu the user can choose the operation that he wants to perform as following:

- Edit the list and individual attributes of business services and extract the data in Excel format;
- Edit the list and individual attributes of business domains and extract the data in Excel format;
- Edit the business actors and extract the data in Excel format;
- Edit the business resources, extract the data in Excel format and generate the report for resources that are not used by any business service;
- Edit the service compositions and extract the data in Excel format;
- Browse through the service catalog and export the service catalog as a report which contains the list of business domains and business services in pdf format;
- Check in which service compositions a business service is included and extract the data in Excel format;
- Perform different service analyses (ad-hoc queries) and extract the data in Excel format
- Exit database.



5.7.2. Business Services

From this form the user can manage the information of the business services. As the Services table is connected to others, such as Service Domain, Resources and Actors, a user editing a service may need new domains/resources/actors to be input. For ease of access, the forms related to these tables can be easily accessed from the Services interface. Afterwards, the information that was input is readily available to the user to continue service editing.

The specification details included in the Business Services form are as follows:

- 'Business Service Specification' is the name of the business service;

- 'Service Domain' is the name of the business service domain within the catalog in which the service is included;
- 'Functionality as Value-in-use' is a brief description of the business functionality of business service;
- 'Business Resources Used' is the list of the business resources used by a service;
- 'Actor Performing Service' is the actor who performs one or more activities for producing the value-in-use;
- 'Beneficiary of Service' is the actor who gets in a better position by using the service;
- 'Informed Actors' are other business actors who are notified about the information exchanged by means of the service;
- 'Starting Point' is the starting point of the execution of a service;
- 'Ending Point' is the ending point of the execution of a service;
- 'Core/Enriching' describes whether a service is a must-have or a nice-to-have, respectively;
- 'Common/Unique' are the services that have functionality which can be provided also by other companies from the market and the services which contain functionality that is a unique selling point in a market, respectively;
- 'Internal/External' are business services offered by the organization and business services required from partner organizations, respectively;
- 'Remarks' are other comments about the type of services in order to keep track of the decisions made in the life cycle of a service;
- 'Quality Parameter' is the non-functional behavior of the business service;
- 'Cost Type' is the type of cost charged per service (either Transactional or Subscription).

Button Functions:

- 'New' create a new business service record;
- 'Previous' view the previous business service record;
- 'Next' view the next business service record;
- 'Last' view the last business service record;
- 'Save' save the information of the business service record;
- 'Delete' remove the business service out of the record;
- 'Cancel' cancel editing of a business service record;
- 'Find' search for the text required by user among all fields of all services;
- 'Export' export the information to an Excel sheet;
- 'Close' close the Business Service window.

5.7.3. Service Domains

From this form the user can manage the service domains.

The specification details included in the Service Domains form are as follows:

- 'Service Domain Specification' is the name of the business service domain;
- 'Domain Description' is a brief description of the service domain;
- 'Service Criteria' is the criteria which a business service should meet in order to be included in the service domain.

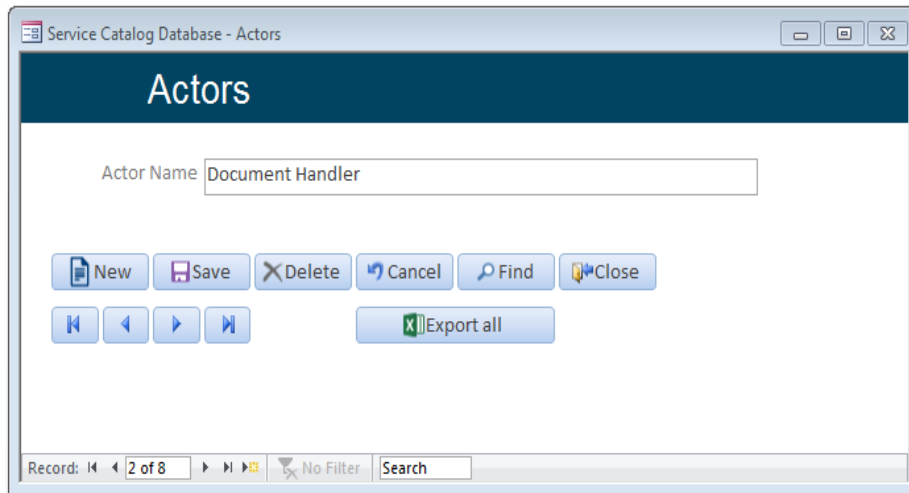
This form (and some of the later documented forms) is split into the interface (upper part) and the previsualization of the data in table format (bottom part), for a quicker inspection of the fields the user may be interested in.

Button Functions:

- 'New' create a new service domain record;
- 'Previous' view the previous service domain record;
- 'Next' view the next service domain record;
- 'Last' view the last service domain record;
- 'Save' save the information of the service domain record;
- 'Delete' remove the service domain out of the record;
- 'Cancel' cancel the editing of a service domain record;
- 'Find' search for the text required by user among all fields of all domains;
- 'Export' export the information to an Excel sheet;
- 'Close' close the Service Domains window.

5.7.4. Actors

From this form the user can manage the business actors.



Button Functions:

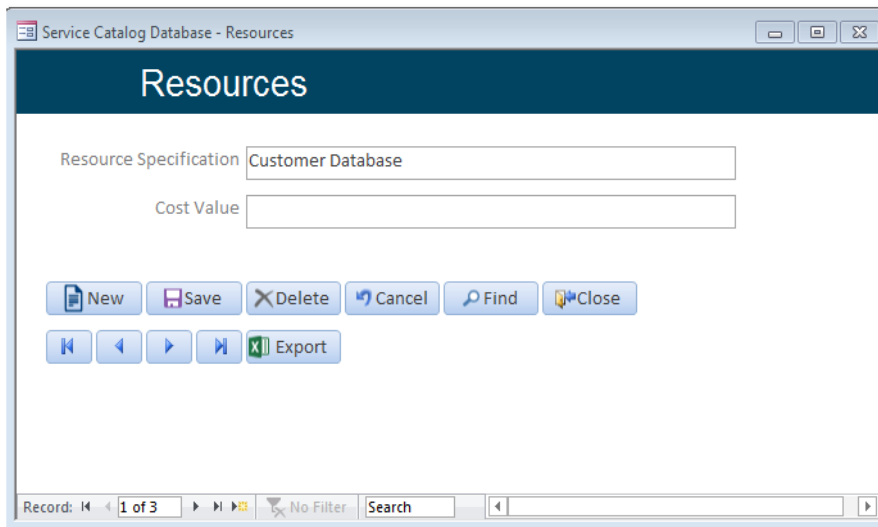
- 'New' create a new actor record;
- 'Previous' view the previous actor record;
- 'Next' view the next actor record;
- 'Last' view the last actor record;
- 'Save' save the information of the actor record;
- 'Delete' remove the actor out of the record;
- 'Cancel' cancel the editing of an actor record;
- 'Find' search for the text required by user among all fields of all domains;
- 'Export' export the information to an Excel sheet;
- 'Close' close the Actor window.

5.7.5. Resources

From this form the user can manage the business resources.

The specification details included in the Service Domains form are as follows:

- 'Resource Specification' is the name of the business resource;
- 'Cost Value' is the cost of the business resource.

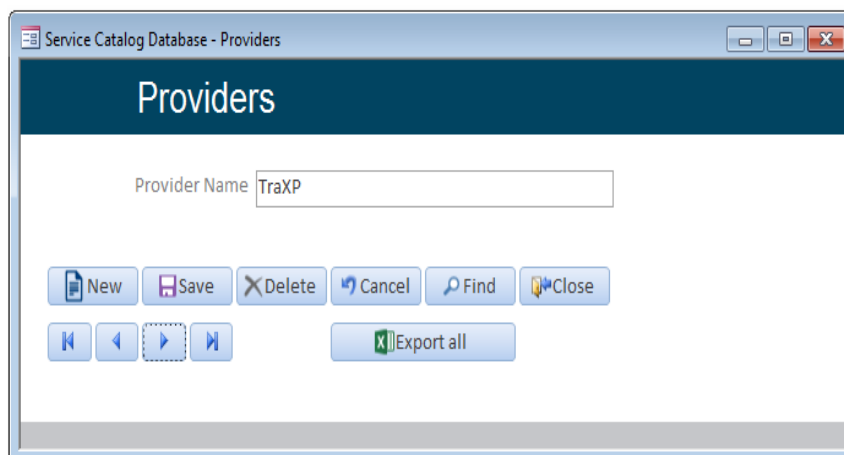


Button Functions:

- 'New' create a new resource record;
- 'Previous' view the previous resource record;
- 'Next' view the next resource record;
- 'Last' view the last resource record;
- 'Save' save the information of the resource record;
- 'Delete' remove the resource out of the record;
- 'Cancel' cancel the editing of a resource record;
- 'Find' search for the text required by user among all fields of all domains;
- 'Export' export the information to an Excel sheet;
- 'Close' close the Resources window.

5.7.6. Service Providers

From this form the user can manage the business service providers.



5.7.7. Service Compositions

From this form the user can manage the service compositions.

The specification details included in the Service Compositions form are as follows:

- 'Value-in-use' is the name of the service composition;
- 'Service Composition Description' is a brief description of the service composition;
- 'Services included in Service Composition' is the list of business services included in the service composition;
- 'Customer' is the end customer of the service composition.

Button Functions:

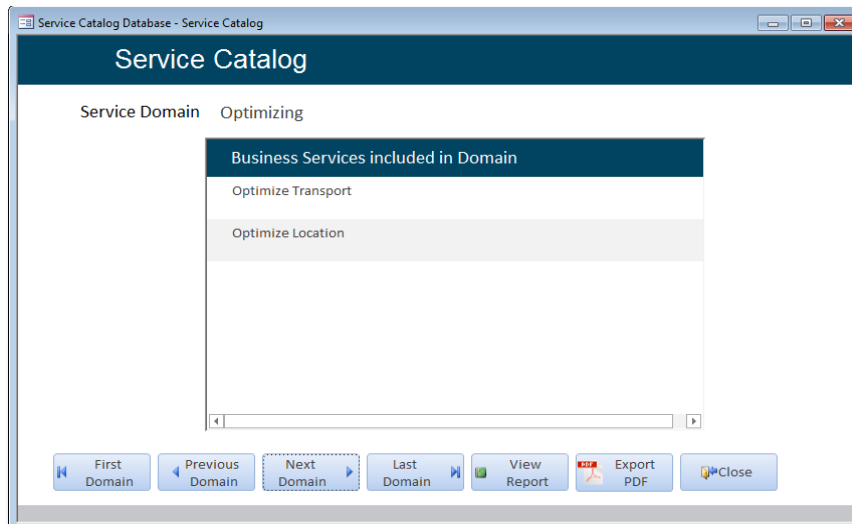
- 'New' create a new service composition record;
- 'Previous' view the previous service composition record;
- 'Next' view the next service composition record;
- 'Last' view the last service composition record;
- 'Save' save the information of the service composition record;
- 'Delete' remove the service composition out of the record;
- 'Cancel' cancel the editing of a service composition record;
- 'Find' search for the text required by user among all fields of all domains;
- 'Export' export the service composition information to an Excel sheet;
- 'Close' close the Service Composition window.

5.7.8. Company Service Catalog

This form allows the user to browse through the service domains and business services therein.

The specification details included in the Company Service Catalog form are as follows:

- 'Service Domain' is each business service domain in the Domains table;
- 'Business Services included in Domain' is the list of business services that are included in the service domain, as defined via the Services table.



Button Functions:

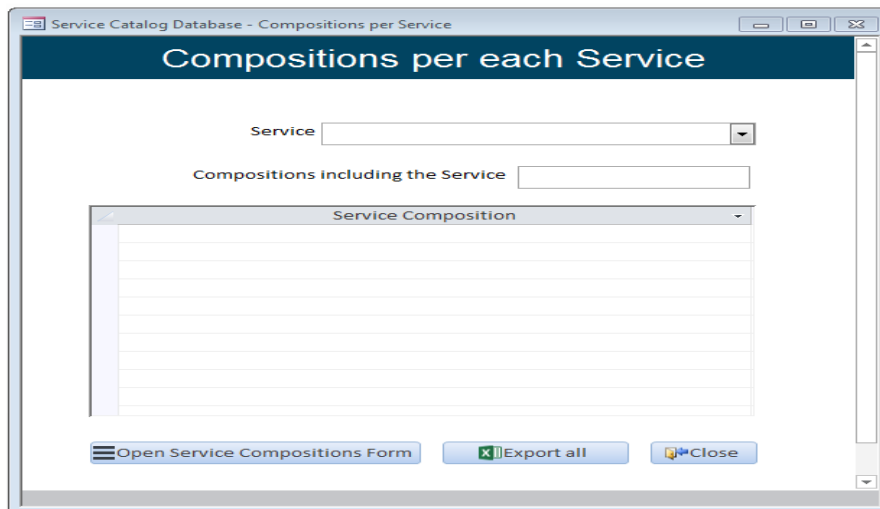
- 'First Domain' view the first service domain of the service catalog;
- 'Previous Domain' view the previous service domain of the service catalog;
- 'Next Domain' view the next service domain of the service catalog;
- 'Last Domain' view the last service domain of the service catalog;
- 'View Report' generates the report of the service domains and business services, i.e. the Service Catalog Report;
- 'Export PDF' export the report of the service domains and business services to a pdf file;
- 'Close' close the Company Service Catalog window.

5.7.9. Compositions per each Service

This form allows the user to browse through the business services and discover which service composition each is a part of.

The fields in the Company Service Catalog form are as follows:

- 'Service' is the business service for which it is checked the inclusion in service compositions. It is the input for this form;
- 'Compositions including the Service' indicates the number of service compositions in which the business service takes part;
- 'Service Composition' is the list of service compositions that include the business service.

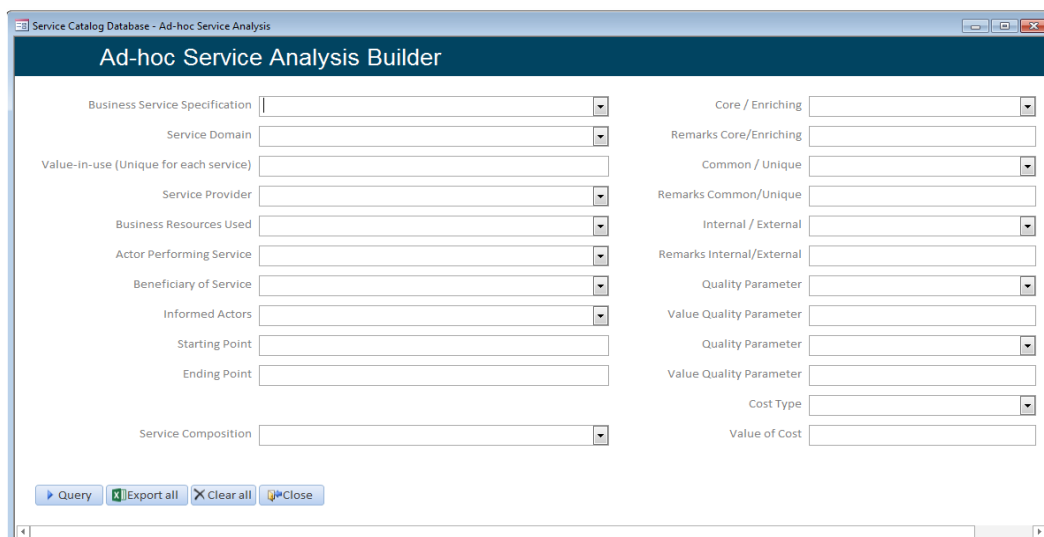


Button Functions:

- 'Open Service Compositions Form' open the Service Compositions form in which the management of service compositions is accomplished;
- 'Export all' export all data to an Excel file;
- 'Close' close the Company Service Catalog window.

5.7.10. Ad-hoc Service Analysis Builder

This form offers the user the possibility of performing multiple analyses of business services depending on the inputs of the user. It is a versatile tool in building a query on-the-fly and immediately displaying or exporting the results, without any need for SQL knowledge on the user's part. For instance, it can search for a value-in-use or to identify all the core and unique services at the same time etc.



Button Functions:

- 'Query' generates the results based on the inputs given by the user;
- 'Export all' exports all data to an Excel file. The query need not be run beforehand;
- 'Clear all' clear all the inputs previously given by the user for performing a new analysis;

- 'Close' close the Ad-hoc Service Analysis Builder window.

5.8. Recommendations for extension of the tool

This section discusses the recommendations for the extension of service catalog database tool.

The tool can be extended for including more analysis that can be performed using this tool for tracking the dynamics of service operations, identifying the most popular services and monitoring customer satisfaction rates. Below there is a list with some examples of analysis that can be included in the database:

- Business services that use the same resources;
- Business services that are the most used in service compositions;
- Business services that are the least used in service compositions;
- Difference between fees paid by customers and the resource costs of a business service; etc.
- Cost of a service composition that can be automatically calculated based on the individual costs of the services selected as part of the composition.

This tool can be extended to include also the automatic orchestration of service compositions. For instance, it can be connected to a business process modelling (BPM) technology to handle the semi-automated construction of the service compositions and orchestration of the business services.

The tool can be also implemented as a web-based application for the external use; for instance, the service consumers might access the service catalog and create service compositions by themselves. In this way, they would have the possibility to evaluate multiple scenarios and select the preferred one. With a web-driven service catalog, the company would considerably increase the visibility of its services in the business market. Also, it would make it easier to order and deliver services in such a way that is far more transparent to customers. Furthermore, using this type of system would help to collect a variety of data, which can be used to identify service-fulfillment bottlenecks, improve delivery processes, reduce costs and personalize customer experiences.

Appendix

Service Catalog Manager Responsibilities

Profile	Performs the managerial tasks required to maintain the consistency of the service catalog and the performance of the business services.
Responsibilities	<ul style="list-style-type: none">● Ensure the consistency of the catalog across the business services, business models and service compositions.● Ensure that the Service Catalog is available, accurate, and meets the customer needs.● Obtain and verify information to be included in the Service Catalog from the Service Owners and other information providers.● Ensure each service has an identified Service Owner and a Provider (if it is an external service).● Provide measurement, recording, analysis and improvement options and recommendations.● Review opportunities for service catalog enhancements and for improving the efficiency and effectiveness of the use of the catalog.

Business Service Designer Responsibilities

Profile	Create business architecture models to describe the business services and service compositions based on the organization business architecture principles, business goals and strategic drivers.
Responsibilities	<ul style="list-style-type: none">● Translate business requirements into a service definition.● Ensure that the solution proposed by a business model is consistent with the architectural direction of the business services and the organization's business architecture principles.● Develop the business architecture of the new service compositions and business services.● Revise the business architecture of the service compositions and business services that are modified.

Service Owner Responsibilities

Profile	Accountable for the availability, performance and quality of one or more services. Set user / service customer expectations.
Responsibilities	<ul style="list-style-type: none"> ● Provide detailed, timely and accurate service information to Service Catalog Manager for inclusion, changing or removal of business services in Service Catalog. ● Central point of contact for customers and users of the service. ● Responsible for the overall quality of the service.

Business Strategist Responsibilities

Profile	Align business strategy with the organization capabilities.
Responsibilities	<ul style="list-style-type: none"> ● Align business strategy with business services. ● Manage future direction of service offerings.