TM Forum Frameworx Mappings

Business Process, Information, Application, and Integration Frameworks

GB942MAP

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This guidebook was developed using the following documents as input:

GB945 Frameworx Release 8.1

GB922, Information Framework (SID) Suite, Release 8.1

GB921, Business Process Framework Suite, Release 8.1 and L4 work in progress.

GB942CP, Integration Framework Concepts and Principles, Release 2.0

GB929, Applications Framework (TAM) Map, Release 3.2

Executive Summary

This guidebook presents mappings between/among the TM Forum Frameworx – the Business Process Framework (eTOM), the Information Framework (SID), Application Framework (TAM), and the Integration Framework (Architecture). The mappings were developed by TM Forum members that spanned the teams responsible for the Frameworx.

As part of the mapping that took place between the eTOM and the Information Framework, Level 4 (L4) Business Process Framework processes were discovered. The results of this work are also presented in this document. Note that all work, with the exception of the Business Process Framework L2 and Information Framework L1 mapping is currently maturity level 2 or lower and subject to change during team review.

The mappings have a number of uses that are explained in each chapter that contains the mappings. Uses include defining the scope (boundaries) of projects, identifying a project's expanding scope, also known as scope creep, and assisting in the development of service-oriented applications.

1. Information Framework/Business Process Framework Mappings – L1 ABE / L2 Process

The Information Framework/Business Process Framework mappings were the first inter-framework mappings developed. This chapter was initially, and is still, included in the Information Framework Concepts and Principles guide book (GB922).

Mappings between Information Framework entities and Level 3 processes are included in the next chapter. These mappings also resulted in the development of Level 4 processes and associated mappings to the Information Framework.

1.1. The Mappings

1.1.1. Principles for Mapping

The following principles and delimitations are used for coupling Information Framework ABEs to Business Process Framework business processes.

- When possible, an ABE is coupled to only one level 2 Business Process Framework process. This specific process is denoted as "primary".
- Primary level 2 Business Process Framework processes manage the complete life cycle of an ABE, by creating, reading, updating, and deleting (CRUD) entity instances contained within the ABE.
- Information is considered to flow both in the process layer as well as the systems (read ABE) layer
- If a one-to-one pairing is not attainable, an ABE is mapped to at most two level 2 Business Process Framework processes. If an ABE is mapped to two level 2 Business Process Framework processes, both level 2 processes are considered as primary.
- Processes requiring information feeds from ABEs or read an ABE's entities to function properly are termed as "secondary".

1.1.2. Regarding ABEs Supporting Two Level 2 Business Process Framework Processes

Some ABEs are coupled to two or more level 2 Business Process Framework processes. This occurs because of as the result of:

- *Duality phenomenon:* implies that an arbitrary ABE supports two primary level 2 Business Process Framework processes, whereas the two primary processes belong to separate process areas. Thus, three combinations are available, [1] Operations & SIP, [2] Operations & EM or [3] SIP & EM. The duality phenomenon takes place because

the ABE in question is regarded as unclear in terms of "core functionality", since it does not explicitly support only one primary level 2 Business Process Framework process.

- *Ambiguity phenomenon:* is similar to the duality phenomenon, however, here an arbitrary ABE supports two primary level 2 Business Process Framework processes which both belong to only one of the three available process areas.

These phenomena may have any number of causes, such as

- The ABE may be separated into two ABEs, each supporting a single level 2 Business Process Framework process.

- There may be a missing ABE that supports one of the level 2 Business Process Framework processes.

- There may be a missing Business Process Framework level 2 process that aggregates the two processes.

- A mistake could have been made in the mapping.

The phenomena will be investigated and, if possible, resolved in subsequent phases of the Information Framework project via the continued collaboration between the Information Framework Model team and the Business Process Framework team.

1.1.3. Market/Sales Domain

The **Market/Sales** Domain includes data and contract operations that support the sales and marketing activities needed to gain business from customers and potential customers. On the Sales side, this includes sales contacts/leads/prospects through to the sales-force and sales statistics. Market includes market strategy and plans, market segments, competitors and their products, through to campaign formulation.

Market/Sales ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Market Segment Supports market segments, market statistics, and forecasts.	M&OM – SC	Market Strategy & Policy	Sales Development
			Product & Offer Portfolio Planning
			Product & Offer Development & Retirement
			Supply Chain Strategy & Planning
Market Strategy and Plan Supports the business plans and strategies on how to address the market with appropriate products and	M&OM – SC	Market Strategy & Policy	Resource Strategy & Planning

The **Market/Sales** Domain includes data and contract operations that support the sales and marketing activities needed to gain business from customers and potential customers. On the Sales side, this includes sales contacts/leads/prospects through to the sales-force and sales statistics. Market includes market strategy and plans, market segments, competitors and their products, through to campaign formulation.

Market/Sales ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
channels.			Supply Chain Strategy & Planning
			Product & Offer Portfolio Planning
Competitor Identifies other providers who compete in the same market segments, accumulates intelligence about the competitors, including products (price, Key Performance Indicators and so forth).	M&OM – SC	Market Strategy & Policy	Product & Offer Portfolio Planning
			Enterprise Performance Assessment
Marketing Campaign Supports marketing new or existing product offerings to identified target markets. For example, the launch of a pre-paid product with multiple promotions across distribution channels, market segments and so forth; a new campaign for an existing product; a re-launch of a campaign for an existing product.	M&OM – PLM	Product Marketing Communications & Promotion	CRM Support & Readiness
			Marketing Fulfillment Response
			Marketing Capability Delivery
Sales Statistics Maintains sales forecasts, new service requirements, customer needs, and customer education, as well as calcuating key performance indicators about Sales & Marketing revenue and sales channel performance.	CRM – OSR	CRM Support & Readiness	Market Strategy & Policy
			Product & Offer Portfolio Planning
			Sales Development
Sales Channel Keeps track of distribution channels and sales activities, sales quotas, sales contests, commission/bonus plans, commissions/bonuses, and maintains groups of individuals that make up the sales force.	M&OM – PLM	Sales Development	S/P Performance Management
			S/P Settlements & Billing Management
			Marketing Capability Delivery
			CRM Support & Readiness

The **Market/Sales** Domain includes data and contract operations that support the sales and marketing activities needed to gain business from customers and potential customers. On the Sales side, this includes sales contacts/leads/prospects through to the sales-force and sales statistics. Market includes market strategy and plans, market segments, competitors and their products, through to campaign formulation.

Market/Sales ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Contact/Lead/Prospect Provides the ability to track sales leads through their life cycle up until the time the leads become customers, including lead and contact information, sales prospects, proposals made to potential customers, and the amount of potential revenue the leads represent in the form of a sales pipeline.	CRM – F	Marketing Fulfillment Response^ Selling^	
Notes: ^ Due to ABE ambiguity			

Table 1 – Market/Sales Domain Information/Business Process Framework Mappings

1.1.4. Product Domain

The **Product** Domain is concerned with the lifecycle of products and information and contract operations related to products' lifecycle. The Domain contains Aggregate Business Entities that deal with the strategic portfolio plans, products offered, product performance, product usage statistics, as well as the product instances delivered to a customer.

Product ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Strategic Product Portfolio Plan Is concerned with the plans of the product port-folio, which product offerings to make available to each market segment and the plans to deve-lopment and deploy product offerings, as well as retirement of products.	M&OM – SC	Product & Offer Portfolio Planning	Market Strategy & Policy Product & Offer Development & Retirement
Product Specification Defines the functionality and characteristics of product offerings made available to the market.	M&OM – PLM	Product & Offer Development & Retirement	Product & Offer Capability Delivery Service Configuration & Activation SM&O Support & Readiness

The **Product** Domain is concerned with the lifecycle of products and information and contract operations related to products' lifecycle. The Domain contains Aggregate Business Entities that deal with the strategic portfolio plans, products offered, product performance, product usage statistics, as well as the product instances delivered to a customer.

Product ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Product Offering Represents tangible and intangible goods and services made available for a certain price to the market in the form of product catalogs. This ABE is also responsible for targeting market segments based on the appropriate market strategy.	M&OM – PLM	Product & Offer Development & Retirement	Marketing Fulfillment Response
			Product Marketing Communications & Promotion
			Product & Offer Capability Delivery
			Selling
			Order Handling
Product Represents an instance of a product offering subscribed to by a party, such as a customer, the place where the product is in use, as well as configuration characteristics, such as assigned telephone numbers and internet addresses. The Product ABE also tracks the services and/or resources through which the product is realized.	CRM – F	Order Handling	Selling
			Service Configuration & Activation
			Problem Handling
			Customer QoS/SLA Management
			Billing & Collections Management
			Service Problem Management
			Service Quality Management
			Service & Specific Instance Rating
			SM&O Support & Readiness
Product Usage Statistic Represents usage trends of products associated with various demographics, such as market segment.	CRM – OSR	CRM Support & Readiness	Product & Offer Development & Retirement
			Problem Handling
			Customer QoS/SLA Management

The **Product** Domain is concerned with the lifecycle of products and information and contract operations related to products' lifecycle. The Domain contains Aggregate Business Entities that deal with the strategic portfolio plans, products offered, product performance, product usage statistics, as well as the product instances delivered to a customer.

Product ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
			Enterprise Performance Assessment
Product Performance The Product Performance ABE handles product performance goals, the results of end-to-end product performance assessments, and the comparison of assessments against goals. The results may include the identification of potential capacity issues.	CRM – OSR	CRM Support & Readiness	Product & Offer Development & Retirement
			Customer QoS/SLA Management
			Service Quality Management
			Resource Performance Management
			Enterprise Performance Assessment

Table 2 – Product Domain Information/Business Process Framework Mappings

1.1.5. Customer Domain

The **Customer** Domain includes all data and contract operations associated with individuals or organizations that obtain products from an enterprise, such as a service provider. It represents of all types of contact with the customer, the management of the relationship, and the administration of customer data. The Customer Domain also includes data and contract operations related to the customer bills for products, collection of payment, overdue accounts, and the billing inquiries and adjustments made as a result of inquiries.

Customer ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Customer Is the focus for the Customer domain. Customer data is the enterprise's knowledge of the customer and accounts held by a customer.	CRM – F	Selling	Product Marketing Communications & Promotion
			Order Handling
			Problem Handling
			Customer QoS/SLA Management

The **Customer** Domain includes all data and contract operations associated with individuals or organizations that obtain products from an enterprise, such as a service provider. It represents of all types of contact with the customer, the management of the relationship, and the administration of customer data. The Customer Domain also includes data and contract operations related to the customer bills for products, collection of payment, overdue accounts, and the billing inquiries and adjustments made as a result of inquiries.

Customer ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
			Billing & Collections Management
			Retention & Loyalty
			Customer Interface Management
Customer Interaction Represents communications with customers, and the translation of customer requests and inquiries into appropriate "events" such as the creation of an customer order, the creation of a customer bill inquiry, or the creation of a customer problem.	CRM – FAB	Customer Interface Management	Selling
			Order Handling
			Problem Handling
			Customer QoS/SLA Management
			Billing & Collections Management
			Retention & Loyalty
Customer Statistic Represents the analysis of customer usage patterns, customer profitability statistics and churn and retention statistics.	CRM – FAB	Retention & Loyalty	CRM Support & Readiness
			Selling
			Order Handling
			Problem Handling
			Customer QoS/SLA Management
			Billing & Collections Management
Customer Problem Focuses on technical assistance and problem handling for customers.	CRM – A	Problem Handling	Retention & Loyalty
Customer SLA Is a special case of the Service Level Agreement ABE where an involved party in the agreement is a Customer. See the Agreement ABE in the Common Business Entity Domain for details.	CRM – A	Customer QoS/SLA Management	Selling
			Retention & Loyalty
			Billing & Collections Management

The **Customer** Domain includes all data and contract operations associated with individuals or organizations that obtain products from an enterprise, such as a service provider. It represents of all types of contact with the customer, the management of the relationship, and the administration of customer data. The Customer Domain also includes data and contract operations related to the customer bills for products, collection of payment, overdue accounts, and the billing inquiries and adjustments made as a result of inquiries.

Customer ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Customer Order Handles single customer orders and the various types thereof, such as regulated and non-regulated orders.	CRM – F	Order Handling	Retention & Loyalty
			Service Configuration & Activation
Customer Bill Handles real-time and non-real-time Call Detail Records (CDRs) and other sources of data that result in invoice items. The Customer Bill ABE also represents the format of a bill, schedule the production of bills, customer invoicing profiles, all the financial calculations necessary to deter-mine the total of the bill (except for rating and rating discounts), and credits and adjustments to bills.	CRM – B	Billing & Collections Management	Retention & Loyalty
			Service & Specific Instance Rating
Applied Customer Billing Rates Deals with the correlation of related usage for subsequent rating, rates applied to the usage (both regulated and non-regulated), discounts to usage, and any taxes due on the rated usage.	SM&O – B	Service & Specific Instance Rating	Retention & Loyalty
			Billing & Collections Management
Customer Bill Collections Handles credit violations, actions for overdue debts, and facility billing audits.	CRM – B	Billing & Collections Management	Retention & Loyalty
			Financial Management
Customer Bill Inquiry Represents invoice inquiries associated with invoices sent to customers and handles disputes and adjustments on individual charges, invoices, and accounts.	CRM – B	Billing & Collections Management	Retention & Loyalty

Table 3 – Customer Domain Information/Business Process Framework Mappings

1.1.6. Service Domain

The **Service** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of Services provided by an NGOSS system. Entities in this domain support various Business Process Framework processes that deal with the definition, development and management of services offered by an enterprise. This includes agreement on Service levels to be offered, deployment and configuration of Services, management of problems in Service installation, deployment, usage, or performance, quality analysis, and rating. Finally, this domain also includes entities to perform planning for future offerings, service enhancement or retirement, and capacity.

Service ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Service Specification The Service Specification ABE contains entities that define the invariant characteristics and behavior of both types of Service entities. This enables multiple instances to be derived from a single specification entity. In this derivation, each instance will use the invariant characteristics and behavior defined in its associated template. Entities in this ABE focus on adherence to standards, distinguishing features of a Service, dependencies (both physical and logical, as well as on other services), quality, and cost. In general, entities in this ABE enable Services to be bound to Products and run using Resources.	SD&M – PLM	Service Development & Retirement	Service Capability Delivery Service Configuration & Activation Service Problem Management Service Quality Management Service & Specific Instance Rating SM&O Support & Readiness
Service The Service ABE contains entities that are used to represent both customer-facing and resource-facing types of services. Entities in this ABE provide different views to examine, analyze, configure, monitor and repair Services of all types. Entities in this ABE are derived from Service Specification entities.	SM&O – F	Service Configuration & Activation	Service Capability Delivery Service Problem Management Service Development & Retirement SM&O Support & Readiness Service Quality Management Service & Specific Instance Rating
Service Applications The Service Applications ABE contains entities that define different types of Services implemented as applications. There are at least three different types of entities in this domain,	SM&O – F	Service Configuration & Activation	Service Problem Management

The **Service** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of Services provided by an NGOSS system. Entities in this domain support various Business Process Framework processes that deal with the definition, development and management of services offered by an enterprise. This includes agreement on Service levels to be offered, deployment and configuration of Services, management of problems in Service installation, deployment, usage, or performance, quality analysis, and rating. Finally, this domain also includes entities to perform planning for future offerings, service enhancement or retirement, and capacity.

Service ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
which form a hierarchy of applications. The simplest is a coordinated set of Service Mechanisms, such as the ability to fine-tune QoS. The next level of application is a type of transport, such as a VPN, that uses one or more Service Mechanisms to provide basic functionality to a PartyRole. The highest level of application is a management application that uses Transport(s) and Mechanisms to provide an end-to-end manageable application, such as distance learning or VoIP.			Service Capability Delivery
			Service Development & Retirement
			Service Quality Management
			Service & Specific Instance Rating
Service Configuration The Service Configuration ABE contains entities that are used to represent and manage configurations of CustomerFacingService and ResourceFacingService entities. This set of entities also provides details on how the configuration of each of these types of Services can be changed. The entities in this ABE depend on entities in the Resource Domain, which provide the physical and logical infrastructure for implementing a Service. They all define dependencies between a higher-level Service and any sub-Services that are used by the higher-level Service.	SM&O – F	Service Configuration & Activation	Service Capability Delivery
			SM&O Support & Readiness
			Resource Provisioning
Service Performance The Service Performance ABE collects, correlates, consolidates, and validates various performance statistics and other operational characteristics of	SM&O – A	Service Quality Management	Service Problem Management

The **Service** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of Services provided by an NGOSS system. Entities in this domain support various Business Process Framework processes that deal with the definition, development and management of services offered by an enterprise. This includes agreement on Service levels to be offered, deployment and configuration of Services, management of problems in Service installation, deployment, usage, or performance, quality analysis, and rating. Finally, this domain also includes entities to perform planning for future offerings, service enhancement or retirement, and capacity.

Service ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
customer and resource facing service entities. It provides a set of entities that can monitor and report on performance. Each of these entities also conducts network performance assessment against planned goals, performs various aspects of trend analysis, including error rate and cause analysis and Service degradation. Entities in this ABE also manage the traffic generated by a Service, as well as traffic trend analysis. This is important for newer technologies that separate data, control and management functions for a given Service.			SM&O Support & Readiness
			Service Development & Retirement
			Resource Performance Management
Service Test The Service Test ABE contains entities that are used to test customer and resource facing service entities. These entities are usually invoked during installation, as a part of trouble diagnosis, or after trouble repair has been completed.	SM&O – F	Service Configuration & Activation	Service Problem Management
			Service Quality Management
Service Trouble The Service Trouble ABE manages faults, alarms, and outages from a Service point-of-view. This is then correlated to trouble tickets, regardless of whether the cause is physical or logical. Other entities in this ABE are used to direct the recovery from each of these three types of problems. They provide the ability to associate Resource faults and alarms to degradation and outages of Services that run on those Resources. These functions are independent of the Resources and technologies used to build the Service. A third set of entities in this ABE is used to differentiate between customer-reported problems and network-induced problems.	SM&O – A	Service Problem Management	SM&O Support & Readiness
			Problem Handling
			Service Quality Management
			Resource Trouble Management
Service Usage The Service Usage ABE collects Service consumption data, and generates Service usage records, for use by other business entities. The entities in this ABE provide physical, logical, and	SM&O – B	Service & Specific Instance Rating	Resource Data Collection & Processing
			Service Quality Management

The **Service** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of Services provided by an NGOSS system. Entities in this domain support various Business Process Framework processes that deal with the definition, development and management of services offered by an enterprise. This includes agreement on Service levels to be offered, deployment and configuration of Services, management of problems in Service installation, deployment, usage, or performance, quality analysis, and rating. Finally, this domain also includes entities to perform planning for future offerings, service enhancement or retirement, and capacity.

Service ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
network usage information.			Service Development & Retirement
Service Strategy & Plan The Service Strategy and Plan ABE contains entities that are used to address the need for enhanced or new Services, as well as the retirement of existing Services, by the enterprise. These entities have a strong dependency to both entities in the Resource and Product domains. Resulting efforts, such as deciding what Resources to use to host a Service, or what Services are used to support new Product Specifications, are also supported, as are service demand forecasts.	SD&M – SC	Service Strategy & Planning	Product & Offer Portfolio Planning
			Service Capability Delivery
			Service Development & Retirement
			Resource Strategy & Planning

Table 4 – Service Domain Information/Business Process Framework Mappings

1.1.7. Resource Domain

The **Resource** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of the information computing and processing infrastructure of an NGOSS system. It supports the Business Process Framework processes that deal with the definition, development and management of the infrastructure of an enterprise. This includes the components of the infrastructure as well as Products and Services that use this infrastructure.

The Resource Domain has three important objectives. The first is to associate Resources to Products and Services, and provide a detailed enough set of Resource entities (organized as ABEs) to facilitate this association. The second is to ensure that Resources can support and deliver Services offered by the enterprise. Management of resources involves planning, configuration, and monitoring to capture performance, usage, and security information. This also includes the ability to reconfigure Resources in order to fine tune performance, respond to faults, and correct operational deficiencies in the infrastructure. Resources also provide usage information which is subsequently aggregated to the customer level for billing purposes. The final objective of the Resource domain is to enable strategy and planning processes to be defined. Entities in the Resource domain may be associated with processes that involve planning new and/or enhanced Services, or even the retirement of Services, offered by the Enterprise.

Resource ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
Resource Strategy & Plan The Resource Plan ABE is used to plan networks and resource elements both initially and for growth. It will coordinate both logical and physical resource growth. Inputs are budgets from business sources, service forecasts, current and projected network utilization, new technologies, and retiring technologies. It handles the lifecycle (installation, modification, removal, and retirement) for both logical and physical resources.	RD&M – SC	Resource Strategy & Planning	Resource Development & Retirement Service Strategy & Planning Resource Capability Delivery RM&O Support & Readiness
Resource Specification The Resource Specification ABE contains entities that define the invariant characteristics and behavior of each type of Resource entities. This enables multiple instances to be derived from a single specification entity. In this derivation, each instance will use the invariant characteristics and behavior defined in its associated template.	RD&M – PLM	Resource Development & Retirement	RM&O Support & Readiness Resource Provisioning Resource Capability Delivery Resource Trouble Management Resource Performance Management Resource Data Collection & Processing
Resource The Resource ABE contains entities that are used to represent the various aspects of a Resource. This includes four sets of entities that represent: the physical and logical aspects of a Resource; show how to aggregate such resources into aggregate entities that have physical and logical characteristics and behavior; and show how to represent networks, sub-networks, network components, and other related aspects of a network.	RM&O – F	Resource Provisioning	RM&O Support & Readiness Resource Trouble Management Resource Capability Delivery Resource Performance Management Resource Data Collection & Processing
Resource Topology The Resource Topology ABE contains entities that define physical, logical, and network topological information. This information is critical for assessing the current state of the network, as well as	RD&M – ILM	Resource Capability Delivery	Resource Development & Retirement

The **Resource** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of the information computing and processing infrastructure of an NGOSS system. It supports the Business Process Framework processes that deal with the definition, development and management of the infrastructure of an enterprise. This includes the components of the infrastructure as well as Products and Services that use this infrastructure.

The Resource Domain has three important objectives. The first is to associate Resources to Products and Services, and provide a detailed enough set of Resource entities (organized as ABEs) to facilitate this association. The second is to ensure that Resources can support and deliver Services offered by the enterprise. Management of resources involves planning, configuration, and monitoring to capture performance, usage, and security information. This also includes the ability to reconfigure Resources in order to fine tune performance, respond to faults, and correct operational deficiencies in the infrastructure. Resources also provide usage information which is subsequently aggregated to the customer level for billing purposes. The final objective of the Resource domain is to enable strategy and planning processes to be defined. Entities in the Resource domain may be associated with processes that involve planning new and/or enhanced Services, or even the retirement of Services, offered by the Enterprise.

Resource ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
providing information on how to fix problems, tune performance, and in general work with the network (both as a whole and with its components). Each of these topological views provides its own physical, logical, or network related information that can be used to manage one or more layers in a layered network.			RM&O Support & Readiness
Resource Configuration The Resource Configuration ABE contains entities that are used to represent and manage configurations of PhysicalResource, LogicalResource, and CompoundResource entities. It should be noted that configurations themselves are managed entities. This set of entities also provides details on how the configuration of each of these types of resources is changed in order to meet product, service, and resource requirements, including activation, deactivation, and testing. Areas covered include verifying resource availability, reservation and allocation of resource instances, configuring and activating physical and logical resource instances, testing and updating of the resource inventory database.	RM&O – F	Resource Provisioning	Resource Capability Delivery
			RM&O Support & Readiness
Resource Trouble The Resource Trouble ABE manages problems found in allocated resource instances, regardless of whether the problem is physical or logical. Entities in this ABE detect these problems, act to determine their root cause, resolve these problems and maintain a history of the activities involved in diagnosing and solving the problem. Detecting problems can be done via software (e.g. responding to an alarm) and/or	RM&O – A	Resource Trouble Management	RM&O Support & Readiness
			Resource Performance Management

The **Resource** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of the information computing and processing infrastructure of an NGOSS system. It supports the Business Process Framework processes that deal with the definition, development and management of the infrastructure of an enterprise. This includes the components of the infrastructure as well as Products and Services that use this infrastructure.

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Resource ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
by hardware (e.g. a measurement or probe) and/or manually (e.g. visual inspection). This includes tracking, reporting, assigning people to fix the problem, testing and verification, and overall administration of repair activities.			Service Problem Management
Resource Test The Resource Test ABE contains entities that are used to test PhysicalResources, LogicalResources, CompoundResources, and Networks. These entities are usually invoked during installation, as a part of trouble diagnosis, or after trouble repair has been completed.	RM&O – F	Resource Provisioning	Resource Capability Delivery
			Resource Trouble Management
			Resource Performance Management
Resource Performance The Resource Performance ABE collects, correlates, consolidates, and validates various performance statistics and other operational characteristics of Resource entities. It provides a set of entities that can monitor and report on performance. The entities in this ABE provide physical, logical, and performance information. Each of these entities also conducts network performance assessment against planned goals,	RM&O – AB	Resource Performance Management	RM&O Support & Readiness
			Resource Development & Retirement

The **Resource** Domain consists of a set of layered ABEs that are used to manage the definition, development, and operational aspects of the information computing and processing infrastructure of an NGOSS system. It supports the Business Process Framework processes that deal with the definition, development and management of the infrastructure of an enterprise. This includes the components of the infrastructure as well as Products and Services that use this infrastructure.

The Resource Domain has three important objectives. The first is to associate Resources to Products and Services, and provide a detailed enough set of Resource entities (organized as ABEs) to facilitate this association. The second is to ensure that Resources can support and deliver Services offered by the enterprise. Management of resources involves planning, configuration, and monitoring to capture performance, usage, and security information. This also includes the ability to reconfigure Resources in order to fine tune performance, respond to faults, and correct operational deficiencies in the infrastructure. Resources also provide usage information which is subsequently aggregated to the customer level for billing purposes. The final objective of the Resource domain is to enable strategy and planning processes to be defined. Entities in the Resource domain may be associated with processes that involve planning new and/or enhanced Services, or even the retirement of Services, offered by the Enterprise.

Resource ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
performs various aspects of trend analysis, including error rate and cause analysis and Resource degradation. Entities in this ABE also manage traffic in a Resource. This includes statistics defining Resource loading, and traffic trend analysis.			Resource Data Collection & Processing
Resource Usage The Resource Usage ABE collects Resource consumption data, and generates Resource usage records, for use by other business entities. The entities in this ABE provide physical, logical, and network usage information.	RM&O – B	Resource Data Collection & Processing	Billing & Collections Management
			Service & Specific Instance Rating

Table 5 – Resource Domain Information/Business Process Framework Mappings

1.1.8. Supplier/Partner Domain

The **SupplierPartner** Domain includes all SupplierPartner-oriented data and contract operations associated with a SupplierPartner. Its scope encompasses, planning of strategies vs. SupplierPartners, handling of all types of contact with the SupplierPartner, the management of the relationship, and the administration of SupplierPartner data. The SupplierPartner Domain also includes data and contract operations related to the SupplierPartner Bills, disputes and inquiries.

SupplierPartner ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
SupplierPartner Plan The SupplierPartner Plan ABE handles the strategies and the planning of the business relation with the SupplierPartner with input from other ABEs, such as MarketSales, S/P Performance and Competitor Analysis.	SCD&M – SC	Supply Chain Strategy & Planning	Market Strategy & Policy
			Service Strategy & Planning
			Resource Strategy & Planning
			Sales Development
			Strategic Business Planning
			S/P Performance Management
			Business Development
			Enterprise Performance Assessment
SupplierPartner Is the focus for the SupplierPartner Domain. SupplierPartner represents the enterprise's knowledge of the SupplierPartner, their accounts and the relations the Enterprise has with the SupplierPartner. It also contains all Supplier Partner agreements and negotiations.	SCD&M – ILM and/or SCD&M – PLM and/or S/PRM –S&R	Supply Chain Capability Delivery^ *	Business Development
		Supply Chain Development & Change Management^ *	Service Configuration & Activation
		S/PRM Support & Readiness*	S/P Problem Reporting & Management
			S/P Settlements & Billing Management
SupplierPartner Interaction Represents communication with SupplierPartners, and translating SupplierPartner requests and inquiries into	S/PRM – FAB	S/P Interface Management	Supply Chain Development & Change Management

The **SupplierPartner** Domain includes all SupplierPartner-oriented data and contract operations associated with a SupplierPartner. Its scope encompasses, planning of strategies vs. SupplierPartners, handling of all types of contact with the SupplierPartner, the management of the relationship, and the administration of SupplierPartner data. The SupplierPartner Domain also includes data and contract operations related to the SupplierPartner Bills, disputes and inquiries.

SupplierPartner ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
appropriate "events". *Initiated by the Service Provider as a Customer* such as the requisition for the Wholesale Service, the quotation order for the End-Customer instance, the quotation update Confirmation, requisition for Service Instance Problem reporting or *Inititiated by the Supplier_Partner* such as the proposal for a Wholesale Service Purchase, the quotation proposal, the quotation update proposal, the requisition confirmation the order executed and the problem report answer.			S/PRM Support & Readiness
			S/P Requisition Management
			S/P Problem Reporting & Management
			S/P Settlements & Billing Management
SupplierPartner Product The SupplierPartner Product ABE represents the Service Provider's knowledge of the Products that the Service Provider may order from the SupplierPartner	SCD&M – ILM	Supply Chain Development & Change Management	S/P Requisition Management
			Product & Offer Development & Retirement
			Service Development & Retirement
			Resource Development & Retirement
			Supply Chain Capability Delivery
SupplierPartner Problem Deals with problem associated with the Supplier Partner such as a request for technical assistance, Bill disputes etc.	S/PRM – A	S/P Problem Reporting & Management	Problem Handling
			Service Problem Management
			S/PRM Support & Readiness
			S/P Performance Management
SupplierPartner SLA Manages SLA Specification that contain standard components used to negotiate and define SLAs with SupplierPartners both for the Wholesale Service SP-SP *and*	SCD&M – ILM and/or S/PRM – S&R	Supply Chain Capability Delivery*	S/P Problem Reporting & Management

The **SupplierPartner** Domain includes all SupplierPartner-oriented data and contract operations associated with a SupplierPartner. Its scope encompasses, planning of strategies vs. SupplierPartners, handling of all types of contact with the SupplierPartner, the management of the relationship, and the administration of SupplierPartner data. The SupplierPartner Domain also includes data and contract operations related to the SupplierPartner Bills, disputes and inquiries.

SupplierPartner ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
the End-Customer instances within the Wholesale service. The SupplierPartner SLA ABE also supports the negotiation and establishment of SLA instances. It also measures performance against the SLAs, and handles inquiries (both internal & external) about SLAs and the performance of Supplier Partner service with respect to the Supplier Partner SLA. It also handles SLA violations and the notification of the appropriate parties regarding violations. The ABE also identifies discount reasons for SLA violations and notifies S/P Payment of the discount reasons. The ABE also reads the notifications from the SupplierPartner, analyse the data and identifies the rigth party to deal with the data and sends out a notification.		S/PRM Support & Readiness*	Supply Chain Capability Delivery
			S/P Requisition Management
			S/P Performance Management
SupplierPartner Performance Reads the SupplierPartners performance data for each End-Customer instance running in the infrastructure of the Service Provider and for which performance parameters are established by the Supplier/Partner SLA ABE. Only data that lies above the agreed tresholds and that may jeopardise the Service Providers service to the End Customer is sent by the SupplierPartner. The performance data from the SupplierPartner is analysed and redirected to the correct Service Mgmt process/actor for them to decide on appropriate actions. Based on SLA violation persistance of supplier/patners, their relation with the organizaton is terminated.	S/PRM – A	S/P Performance Management	Service Problem Management
			Service Quality Management
			S/PRM Operations Support & Readiness
			Supply Chain Development & Change Management
			S/P Problem Reporting & Management
SupplierPartner Order Handles single SupplierPartner orders and supervises various types thereof. This includes the quotation and order for the SupplierPartner Wholesale Service as well as the quotation and order for the EndCustomer instances within	CRM – F and/or S/PRM – F	Order Handling^	Supply Chain Development & Change Management
		S/P Requisition	S/P Interface Management

The **SupplierPartner** Domain includes all SupplierPartner-oriented data and contract operations associated with a SupplierPartner. Its scope encompasses, planning of strategies vs. SupplierPartners, handling of all types of contact with the SupplierPartner, the management of the relationship, and the administration of SupplierPartner data. The SupplierPartner Domain also includes data and contract operations related to the SupplierPartner Bills, disputes and inquiries.

SupplierPartner ABEs	Primary Vertical Business Process Framework Process Groupings	Primary Business Process Framework Level 2 Processes	Secondary Business Process Framework Level 2 Processes
the Wholesale service.		Management^	S/PRM Support & Readiness
SupplierPartner Bill Monitors the collection process and initiates different actions for overdue bills. It also handles credit violations. The ABE also provides the functionality to register disputes and adjustments on individual charges, invoices, and accounts.	S/PRM – B	S/P Settlements & Billing Management	S/P Performance Management
			Service & Specific Instance Rating
SupplierPartner Bill Inquiry The Supplier Partner Bill Inquiry ABE monitors the bill Disputes towards the Supplier Partner.	S/PRM – B	S/P Settlements & Billing Management	S/P Performance Management
			S/PRM Support & Readiness
Supplier Partner Payment This ABE monitors the payment process versus the Supplier/Partner.	S/PRM – B	S/P Settlements & Billing Management	S/P Performance Management
SupplierPartner Statistic The Supplier/Partner Statisitics ABE represents the usage analysis of services purchased from the SupplierPartner, SupplierPartner profitability statistics and the overall performance of the Supplier/partner.	S/PRM – A	S/P Performance Management	S/P Settlements & Billing Management
			S/PRM Support & Readiness
Notes: * Due to process duality ^ Due to ABE ambiguity			

Table 6 – Supplier/Partner Domain Information/Business Process Framework Mappings

1.1.9. Common Business Entities Domain

Common Business Entities were not mapped to Business Process Framework processes since these entities use is spread across a number of Business Process Framework processes.

Domain Name	Common Business Entities

Description	The **Common Business Entities Domain** represents business entities shared across two or more other domains. As such, these business entities are not "owned" by any particular domain. In some cases a common business entity represents a generic abstraction of other real-world business entities. For example, Business Interaction is an abstraction (super-class) of business entities such as Customer Order and Supplier/Partner SLA.
Aggregate Business Entity	**Party** The Party ABE represents the abstract concept of organization or individual that can play varying roles during interactions with an enterprise. Roles include customer, supplier/partner, employee, and so forth.
ABE	**Agreement** The Agreement ABE represents a contract or arrangement, either written or verbal and sometimes enforceable by law, such as a service level agreement or a customer price agreement. An agreement involves a number of other business entities, such as products, services, and resources and/or their specifications.
ABE	**Location** The Location ABE represents the site or position of something, such as a customer's address, the site of equipment where there is a fault and where is the nearest person who could repair the equipment, and so forth. Locations can take the form of coordinates and/or addresses and/or physical representations.
ABE	**Business Interaction** The Business Interaction ABE represents an arrangement, contract, or communication between an enterprise and one or more other entities such as individuals and organizations (or parts of organizations). Interactions take on the form of requests, responses, and notifications.
ABE	**Policy** Policy consists of a set of layered ABEs that define specifications (for example, templates) and definitions of Policy entities that can be used in managing the behavior and definition of entities in other Domains. Policy takes three primary forms. The first is the definition of how policy is used to manage the definition, change, and configuration of other entities. The second is the definition of how policy itself is managed. The third is how applications use policies to manage entities.
ABE	**Project** The Project ABE represents the tools used by project managers to ensure that enterprise objectives of quality, cost, and time are achieved by planning and scheduling work. It uses common industry definitions of Project, Work Breakdown Structure and Activity to provide support to project managers.
ABE	**Time** The Time ABE represents Entities used to provide time related functions. This includes scheduling, time conflicts and time based presentation support. Currently the Calendar model is the only part of the Time ABE.

Table 7 – Common Business Entities Domain Information/Business Process Framework Mappings

1.2. Mapping Uses

The mappings are used internal to TM Forum teams to ensure the completeness and correctness of the frameworks. For example, there should be a primary process for each Level 1 ABE; there should be only one primary process; there should be task level processes that support each life cycle state of an entity, there should be a Level 1 ABE for each Level 2 process, and so forth.

Besides helping confirm the correctness and completeness there are a number of uses to which TM Forum members can put the mappings.

The frameworks can be used to assist in defining the scope (boundaries) of a project. Together, they provide an industry standard method, or language, to define the scope in terms of both process and the entities upon with the processes act and use, as well as the application areas that support the entities and processes and business services that can be used to integrate and/or construct applications. By defining the scope of a project independently in terms of each framework, mappings between them can be used to confirm the project's scope. For example one aspect of a project's scope is determined by first independently identifying the L2 processes and the ABEs that define the boundaries of the project. Then the mappings between the Business Process Framework and Information Framework are used to check that all L2 processes and ABEs have been considered for inclusion. To further explain this example, if the L2 process, Product & Offer Development & Retirement is included, then the ABE Product Offering should be contained within the scope; if the Product ABE is included in the scope, then Order Handling should be included in the scope.

And, the definition of the scope in terms of both can be used to control scope creep, (an expansion in the boundaries of a project) in terms of the frameworks. It becomes very obvious when a new component of a framework enters into the boundaries of a project.

The mappings can also be used to support impact analysis. For example, if a process changes, what entities, application areas, and/or business services could be impacted by this change and vice versa.

2. Information Framework/Business Process Framework Mappings - Entities/L3/L4 Processes

A joint Information Framework/Business Process Framework team began investigating the relationship between L3+ Business Process Framework processes and Information Framework entities. As the work progressed, the team identified inputs and outputs associated with the processes in terms of entities by analyzing the description of the processes. In most cases there were groups of inputs and outputs associated with each L3 process. This led the team to believe that the segments of the L3 descriptions and their associated inputs and outputs represented the next level of the Business Process Framework decomposition.

2.1. The Mappings and L4 Processes

The L3 processes, their associated L4 processes, descriptions and actions on Information Framework entities are the focus of the team's work-to-date. It includes L4 processes for L3 processes associated with the following L2 Business Process Framework processes:

- Order Handling

- Service Configuration & Activation

- Resource Provisioning

- Problem Handling

- Service Problem Management

- Resource Trouble Management

- Service Quality Management

The team will continue their efforts on other areas of the Business Process Framework based on member interest. The work is in draft form and therefore has not yet been incorporated in the "official" release of the Business Process Framework. A future release of the Business Process Framework will incorporate the final version of these L4 processes.

Note: Presented here are examples of the work in progress[1] for the Recover Resource and Recover Service L3 processes. The full set of L4s follow the examples.

The two figures below show the decomposition of each process and the entities acted on by each process. The two tables below contain the descriptions of each L4 process and the detailed actions taken on each entity. Descriptions were taken from part of the L3 description applicable to the L4.
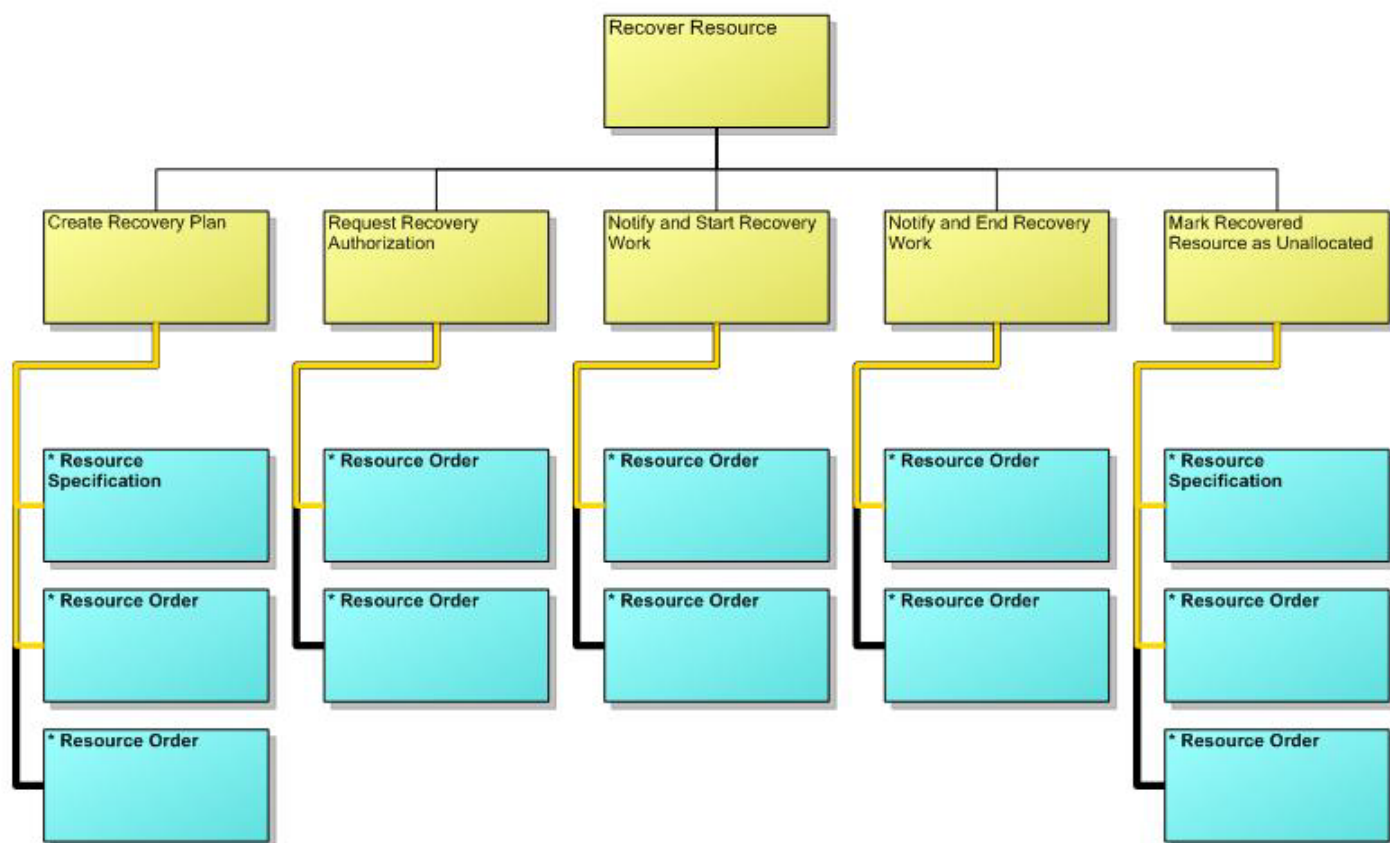
Figure 1 – Recover Resource Decomposition

Name	Process Identifier	Brief Description	Category	(Primary)	(Secondary)
Create Recovery Plan		This process is responsible for following the resource recovery plan as provided by the supplier or SP. In case none is available, then the	(4) Process Type	Resource Order	Resource Order Resource Specification

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[1] Note that work in progress implies maturity level 2 or lower and subject to change during team review.

Name	Process Identifier	Brief Description	Category	(Primary)	(Secondary)
		process prepares an appropriate recovery plan. The RO is updated accordingly.			
Mark Recovered Resource as Unallocated		The resources freed as a result of recovery are marked as 'Unallocated' in the RO, during this activity.	(4) Process Type	Resource Order	Resource Order Resource Specification
Notify and End Recovery Work		*[Not Available]*	(4) Process Type	Resource Order	Resource Order
Notify and Start Recovery Work		This task involves notifying concerned entities about the end of the recovery process and updating the RO with this information. This task involves notifying the start of the recovery process, the duration & the impact of the recovery to the concerned entities. The RO is updated with this status.	(4) Process Type	Resource Order	Resource Order
Recover Resource	1.1.3.2.9	Recover specific resources that are no longer required.	(3) Process Type		
Request Recovery Authorization		This task deals with getting an authorization from the concerned authorities to recover specific unused resources. The procedure to receive authorization, along with the recovery plan is mentioned in the RO.	(4) Process Type	Resource Order	Resource Order

Table 8 – Recover Resource L4 Details
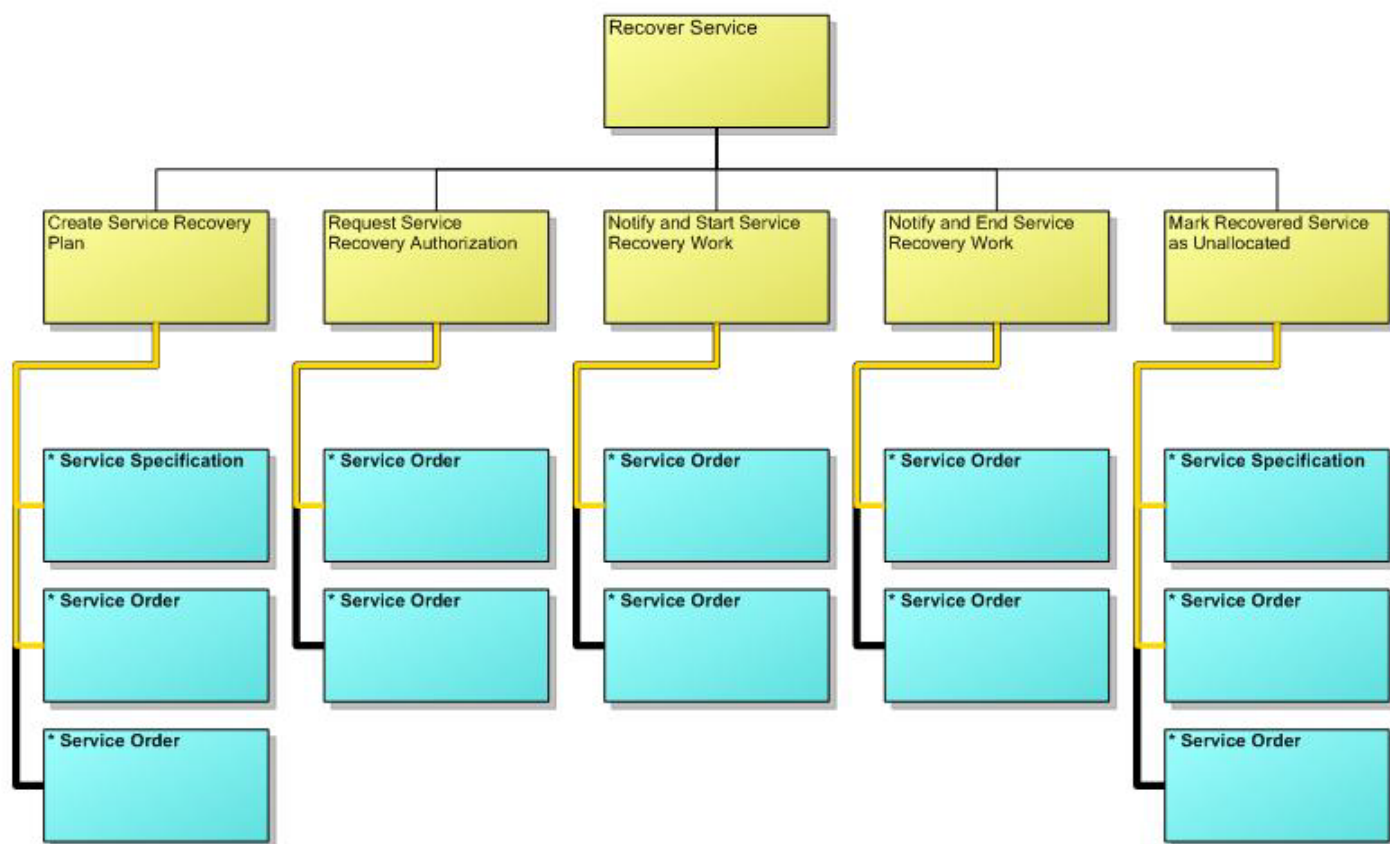
Figure 2- Recover Service Decomposition

Name	Process Identifier	Brief Description	Category	(Primary)	(Secondary)
Create Service Recovery Plan		When appropriate recovery plans are not available then develop them.	(4) Process Type	Service Order	Service Order Service Specification
Mark Recovered Service as Unallocated		The services are marked unallocated when they are recovered.	(4) Process Type	Service Order	Service Order Service Specification
Notify and End Service Recovery Work		Notify when the recovery work is completed.	(4) Process Type	Service Order	Service Order
Notify and Start Service Recovery Work		Notify when the recovery work is starting.	(4) Process Type	Service Order	Service Order
Recover Service	1.1.2.2.10	Recover specific services that are no longer required by customers.	(3) Process Type		
Request Service Recovery Authorization		*[Not Available]*	(4) Process Type	Service Order	Service Order

Table 9 – Recover Service L4 Details

2.2. Draft L4 Processes[2]

2.2.1. Order Handling

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Determine Customer Order Feasibility	L3	Order Handling		Customer Order, Product Offering	Check the availability and/or the feasibility of providing and supporting standard and customized product offerings where specified as part of the standard product offering process flow, to a customer. Invoke requests to SM&O provisioning processes to determine the availability and supportability of product offerings to a customer. Determine whether the offering can be supported by other CRM processes.
Authorize Credit	L3	Order Handling	Customer Account	Customer	Assess a customer's credit worthiness in support of managing customer risk and company exposure to bad debt. Initiate customer credit checks and for authorizing credit and credit terms in accordance with established enterprise risk and policy guidelines.
Assess Customer Order	L4	Issue Customer Orders		Customer Order	Assess the information contained in the customer order relating to the sales request or initiating customer process request to determine the associated customer orders that need to be issued. The issued customer order may require a feasibility assessment, may require new provisioning activities, may require a change to a previously issued customer order, or may require cancellation of a previously initiated customer order. The customer order may also relate to the cancellation of previously purchased specific services.
Issue Customer Order	L4	Issue Customer Orders	Customer Order		Issue a customer order, creating a record of the relevant initiating sales request and the associated customer order. Where the initiating request for a purchased product offering has special or unusual requirements, if a specific feasibility assessment has been previously undertaken, create a record of the relevant initiating request information. If a specific feasibility assessment has not been previously undertaken, mark the issued customer order as requiring special

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[2] Note that Draft implies maturity level 2 or lower and subject to change during team review

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					handling.
Manage Customer Order	L4	Track & Manage Customer Order Handling		Customer Order	Schedule, assign and coordinate customer provisioning related activities. Generate the respective service order creation request(s) to Issue Service Orders based on specific customer orders. Escalate status of customer orders in accordance with local policy. Add additional information to an existing customer order. Modify information in an existing customer order. Cancel a customer order when the initiating sales request is cancelled. If some specific product components are delivered directly by suppliers/partners, initiate requests, through S/P Requisition Management, for the delivery by the supplier/partner of the specific product components.
Track Customer Order	L4	Track & Manage Customer Order Handling	Customer Order		Undertake necessary tracking of the execution process. Modify the customer order status. Monitor the jeopardy status of customer orders, escalating customer orders as necessary.
Monitor Customer Order Status	L4	Report Customer Order Handling		Customer Order	Continuously monitor the status of customer orders.
Manage Customer Order Status Notification	L4	Report Customer Order Handling		Customer Order	Manage notifications to processes and other parties registered to receive notifications of any status changes.
Report Customer Order Status	L4	Report Customer Order Handling		Customer Order	Record, analyze and assess the customer order status changes to provide management reports and any specialized summaries of the efficiency and effectiveness of the overall Order Handling process, including specific reports required by specific customers.
Manage Customer Information	L4	Complete Customer Order	Customer	Customer Order	Manage customer information after customer contracts or associated service orders have been finalized and during the order completion phase. Ensure that any customer information required by other CRM processes is updated as part of the customer order completion.
Manage Customer Interaction	L4	Complete Customer Order		Customer, Customer Order	Manage customer interactions after customer contracts or associated service orders have been finalized and during the order completion phase. Coordinate

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					customer participation in commissioning or end-to-end testing and satisfactory delivery. Train the customer on the functionality and benefits of the solution.
Close Customer Order	L3	Order Handling	Customer Order		Close a customer order when the customer provisioning activities have been completed. Monitor the status of all open customer orders, and recognize that a customer order is ready to be closed when the status is changed to completed.

2.2.2. Service Configuration & Activation

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Develop Overall Service Design	L4	Design Solution		Customer Order Customer Customer Interaction	Develop an overall service solution design for a particular customer, including customer premises equipment, operational methods, resource assignments and pre-order feasibility;
Develop Service Implementation Plan	L4	Design Solution	Customer Account		Develop an implementation plan considering training and operational support measures and needs, such as the proper parameter information for the Service Quality Management process; · Consideration of current and future service and underlying resources infrastructure, as well as expected solution results, budget, duration and risks; · Consideration of the time schedule according with customer requirements; · Ensure service and provisioning efficiency; · Undertaking a business assessment, ensuring an appropriate time-to-revenue as a result of the service and underlying resource investment;
Develop Detailed Service Design	L4	Design Solution		Service Specification Product Specification Product	Develop a detailed design identifying the relevant service orders to be issued to the Implement, Configure & Activate Service process and the Allocate Specific Service Parameters to Services processes.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Test Service	L4	Test Service End to End	Customer Order	Service Specification Service Order	Test specific services to ensure all components are operating within normal parameters, and that the service is working to agreed performance levels before its activation for the customer. This purpose is performed through testing the service end-to-end as far as possible. These processes test specific services against supplier/partner defined test plans, or against test plans developed by the service provider.
Develop Test Plans	L4	Test Service End to End	Customer Order		Where appropriate test plans are not available this process is responsible for developing appropriate test plans.
Capture Test Results	L4	Test Service End to End	Customer Order		Capture and store the test results for historical and downstream testing comparison purposes. If the tests succeed, the specific services will be marked as in-service which means the specific services are available for use by customers.
Assign Service Provisioning Activity	L4	Track & Manage Service Provisioning			Schedule, assign and coordinate service provisioning related activities.
Track Service Provisioning Activity	L4	Track & Manage Service Provisioning			Undertake necessary tracking of the execution process. Monitor the jeopardy status of service orders, and escalating service orders as necessary.
Manage Service Provisioning Activity	L4	Track & Manage Service Provisioning	Customer Order		Responsibilities of this processes include, but are not limited to: - Generating the respective resource order creation request(s) to Issue Resource Orders based on specific service orders; · Escalating status of service orders in accordance with local policy; · Undertaking necessary tracking of the execution process; · Adding additional information to an existing service order; · Modifying information in an existing service order;· · Modifying the service order status; · Canceling a service order when the initiating customer order is cancelled; · Indicating completion of a service order by modifying the service order status. Note that some specific service components may be delivered by suppliers/partners. In these cases the Track & Manage Service Provisioning process is responsible for

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					initiating requests, through S/P Requisition Management for the delivery by the supplier/partner of the specific service components.
Monitor Service Order Status	L4	Report Service Provisioning	Customer	Service Order	The order placed by Information Framework is monitored at every step carefully.
Distribute Service Order Notification	L4	Report Service Provisioning		Service Order	The Notification list is maintained. Notifications are used to notify the owner of the current status of the order and also distributed to the other parties who require it.
Distribute Service Provisioning Reports	L4	Report Service Provisioning	Customer Order	Service Order	The analysis and summary of the order is done and is read by the specific audiences.
Close Service Order	(3) Process Type	Close Service Order		Service Order	The status of the order is monitored closely and is changed to closed when it is completed.
Assess Service Request	L4	Issue Service Orders			This process assesses the information contained in the customer order, through a service order request, relating to the purchased product offering, initiating service process or supplier/partner initiated request, to determine the associated service orders that need to be issued.
Create Service Orders	L4	Issue Service Orders		Product Specification Physical Service Specification Customer Order Product Service Order SP Order Item Service Fault Service Performance	The service orders may be required to satisfy pertinent customer order information received, may arise as a result of requests for service provisioning to satisfy service problem recovery activities, may arise to alleviate service performance issues, or may arise as a result of information received from suppliers/partners in relations to specific services. The issued service order may require a service feasibility assessment or a service design to be produced, may require new provisioning activities for specific services,

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					may require a change to a previously issued service order, or may require deletion and/or recovery of previously delivered specific services. Where, the initiating request or the purchased product offering has a standard set of associated service orders this process is responsible for issuing the service orders, and for creating a record of the relevant initiating request or customer order information and the associated service orders. Where the initiating request or the purchased product offering has special or unusual requirements, and a specific feasibility assessment and/or service design has been previously created, this process is responsible for issuing the service orders, and for creating a record of the relevant initiating request or customer order information and the associated service orders.
Mark Service Order for Special Handling	L4	Issue Service Orders			Where the purchased product offering has special or unusual requirements, and a specific feasibility assessment and/or specific service design has not been previously created, this process marks the issued service order as requiring special handling, and passes management for further processing to the Track & Manage Service Provisioning process. The orchestration, if required, and tracking of the service order progress is the responsibility of the Track & Manage Service Provisioning processes.
Determine Service Parameter Availability	L4	Allocate Specific Service Parameters to Services			Where the Allocate Specific Service Parameters to Services processes are requested by a pre-feasibility service order, or by the Design Services processes, these processes determine whether the requested service parameters are available.
Reserve Service Parameters	L4	Allocate Specific Service Parameters to Services		Service Order	Depending on business rules, and on any specific levels of commitment contained in the initiating service order or service design request, these processes may reserve specific service parameters linked to the initiating service order or service design request for a period of time
Release Service Parameter	L4	Allocate Specific Service Parameters to			Release the reservation when the time period has expired.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
		Services			
Allocate Service Parameters	L4	Allocate Specific Service Parameters to Services		Service Order	Where the Allocate Specific Service Parameters to Services processes are requested by a service order issued in response to a confirmed customer order, this process is responsible for allocating the specific service parameters required to satisfy the initiating service order. Any previously reserved specific service parameters are marked as allocated.
Configure Service	L4	Implement, Configure & Activate Service		Service Order	Assess and plan the approach to be undertaken for configuration. Re-use standard configuration and processes applicable to specific services. Configure and reconfigure specific services, including customer premises equipment if part of the service provider offering. Provide notifications as required if the configuration activity requires a planned outage or is likely to initiate false specific service alarm event notifications. Update the information contained in the service inventory as to the configuration of specific services and their status.
Implement Service	L4	Implement, Configure & Activate Service		Service Order	Assess and plan the approach to be undertaken for implementation. Re-use standard implementation processes applicable to specific services. Implement specific services, including customer premises equipment if part of the service provider offering. Provide notifications as required if the implementation activity requires a planned outage or is likely to initiate false specific service alarm event notifications.
Activate Service	L4	Implement, Configure & Activate Service		Service Order	Assess and plan the approach to be undertaken for activation. Re-used standard activation processes applicable to specific services. Provide notifications as required if the activation activity requires a planned outage or is likely to initiate false specific service alarm event notifications. At the successful conclusion of this activity, the status of the specific services will be changed from allocated to activated, which means they are in-use.
Develop Service Recovery Plan	L4	Recover Service		Service Order Service Specification	Where appropriate recovery plans are not available this process is responsible for developing appropriate recovery plans.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Provide Recovery Proposal Notification	L4	Recover Service			Where recovery of services is likely to impact other in-use specific services, this process is responsible for providing appropriate notification of the recovery proposal.
Request Service Recovery Authorization	L4	Recover Service		Service Order	Ensure authorization is received to proceed with the recovery plan.
Commence Service Recovery	L4	Recover Service		Service Order	When the recovery activity is about to commence, this processes is responsible for notifying when recovery work is commencing.
Complete Service Recovery	L4	Recover Service		Service Order	This process is responsible for notifying when it is completed. When recovered, the specific services and/or associated service specific parameters will be marked as unallocated.

2.2.3. Resource Provisioning

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Test Specific Resources	L4	Test Resource	Resource	Test Plan	This process tests specific resources against supplier/partner defined test plans, or against test plans developed by the service provider.
Develop Test Plans	L4	Test Resource	Test Plan	Resource	Where appropriate test plans are not available this process is responsible for developing appropriate test plans.
Capture Test Results	L4	Test Resource	Test Results	Resource	Capture and store the test results for historical and downstream testing comparison purposes. If the tests succeed, the specific resources will be marked as in-service which means the specific resources are available for use.
Coordinate Resource Provisioning Activity	L4	Track & Manage Resource Provisioning		Resource Order	This process schedules, assigns and coordinates resource provisioning related activities.
Track Resource Provisioning Activity	L4	Track & Manage Resource Provisioning		Resource Order	This process tracks the order execution process.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Manage Resource Provisioning Activity	L4	Track & Manage Resource Provisioning		Resource Order	This process escalates resource orders in accordance with local policy, adds information to an existing resource order, modifies information in an existing resource order, cancels a resource order when the initiating service order is cancelled, and also modifies the resource order status, including setting it to complete when the resource order has been fulfilled.
Monitor Resource Order Status	L4	Report Resource Provisioning		Resource Order	This process is responsible for continuously monitoring the status of resource orders.
Distribute Resource Order Notification	L4	Report Resource Provisioning		Resource Order	This process is responsible for managing notifications to processes and other parties registered to receive notifications of any status changes.
Distribute Resource Provisioning Reports	L4	Report Resource Provisioning		Resource Order	This process records, analyzes and assesses the resource order status changes to provide management reports and any specialized summaries of the efficiency and effectiveness of the overall Resource Provisioning process, including specific reports required by specific audiences.
Close Resource Order	L3	Resource Provisioning	Resource Order		This process monitors the status of the order and changes the status to closed when it is completed.
Assess Resource Request	L4	Issue Resource Orders	Resource Order	Service Order	This process assesses the information contained in the service order, through a resource order request, initiating resource process request or supplier/partner initiated request, to determine the associated resource orders that need to be issued.
Create Resource Orders	L4	Issue Resource Orders		Product Specification Physical Resource Specification Resource Order Product Resource Order SP Order Item Resource Fault Resource Performance	Where the initiating request or the purchased product offering has a standard set of associated resource orders this process is responsible for issuing the resource orders, and for creating a record of the relevant initiating request or customer order information and the associated resource orders. Where the initiating request or the purchased product offering has special or unusual requirements, and a specific feasibility assessment and/or resource design has been previously created, this

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					process is responsible for issuing the resource orders, and for creating a record of the relevant initiating request or customer order information and the associated resource orders.
Mark Resource Order for Special Handling	L4	Issue Resource Orders	Resource Order		Where the purchased product offering has special or unusual requirements, and a specific feasibility assessment and/or specific resource design has not been previously created, this process marks the issued resource order as requiring special handling, and passes management for further processing to the Track & Manage Resource Provisioning process.
Determine Resource Availability	L4	Allocate & Install Resource	Resource Order	Resource	This process investigates the ability to be able to satisfy specific service orders as a part of a feasibility check. Where the Allocate & Install Resource processes are requested by a pre-feasibility resource order, or by the Design Resources processes, these processes determine whether the requested resources are available.
Reserve Resource	L4	Allocate & Install Resource	Resource	Resource Order	This process reserves specific resources in response to issued resource orders. Depending on business rules, and on any specific levels of commitment contained in the initiating resource order or resource design request, these processes may reserve specific resources linked to the initiating resource order or resource design request for a period of time
Release Resource	L4	Allocate & Install Resource		Resource Order	Release the reservation when the time period has expired.
Allocate Resource	L4	Allocate & Install Resource	Resource	Resource Order	This process allocates specific resources in response to issued resource orders. Where the Allocate & Install Resource processes are requested by a resource order issued in response to a confirmed customer order, this process is responsible for allocating the specific resources required to satisfy the initiating resource order. Any previously reserved specific resources are marked as allocated.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Install and Commission Resource	L4	Allocate & Install Resource	Resource	Resource Order	This process is responsible for installing and commissioning specific resources, and updating the resource inventory as part of these processes
Configure Resource	L4	Configure & Activate Resource	Resource	Resource Order	This process assesses and plans the approach to be undertaken for configuration. It re-uses standard configuration and processes applicable to specific resources. It configures and reconfigures specific resources, including customer premises equipment if part of the resource provider offering. It provides notifications as required if the configuration activity requires a planned outage or is likely to initiate false specific resource alarm event notifications. It updates the information contained in the resource inventory as to the configuration of specific resources and their status.
Implement Resource	L4	Configure & Activate Resource	Resource	Resource Order	This process re-uses standard implementation processes applicable to specific resources. It implements specific resources, including customer premises equipment if part of the resource provider offering. It provides notifications as required if the implementation activity requires a planned outage or is likely to initiate false specific resource alarm event notifications.
Activate Resource	L4	Configure & Activate Resource	Resource	Resource Order	This process assesses and plans the approach to be undertaken for activation. It re-uses standard activation processes applicable to specific resources. It provides notifications as required if the activation activity requires a planned outage or is likely to initiate false specific resource alarm event notifications. At the successful conclusion of this activity, the status of the specific resources will be changed from allocated to activated, which means they are in-use.
Develop Resource Recovery Plan	L4	Recover Resource		Resource Order Resource Specification	Where appropriate recovery plans are not available this process is responsible for developing appropriate recovery plans.
Provide Recovery Proposal Notification	L4	Recover Resource		Resource Order	Where recovery of resources is likely to impact other in-use specific resources, this process is responsible for providing appropriate notification of the recovery proposal.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Request Resource Recovery Authorization	L4	Recover Resource		Resource Order	Ensure authorization is received to proceed with the recovery plan.
Commence Resource Recovery	L4	Recover Resource		Resource Order	When the recovery activity is about to commence, this processes is responsible for notifying when recovery work is commencing.
Complete Resource Recovery	L4	Recover Resource		Resource Order	This process is responsible for notifying when it is completed. When recovered, the specific resources and/or associated resource specific parameters will be marked as unallocated.
Recover Specific Resource	L4	Recover Resource	Resource	Resource Order	This process recovers a specific resource that is no longer required.

2.2.4. Problem Handling

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Create Customer Problem Report	L3	Problem Handling	Customer Problem		This process creates a new Customer Problem Report.
Verify Product Configuration	L4	Isolate Customer Problem	Customer Problem	Product	This process verifies whether the customer is using the purchased product offering correctly.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Perform Specific Customer Problem Diagnostics	L4	Isolate Customer Problem	Customer Problem, Customer Problem Root Cause	Customer Problem Diagnostic Specifications, Customer Problem Diagnostic Methodology Template	This process performs diagnostics based on the customer provided information to determine whether the root cause of the customer problem is linked to the underlying services.
Perform Specific Customer Problem Tests	L4	Isolate Customer Problem	Customer Problem, Customer Problem Test Results	Customer Problem Diagnostic Specifications	This process runs tests against the specific services.
Notify T&M Root Cause Customer Problem	L4	Isolate Customer Problem	Customer Problem, Customer Problem Root Cause Analysis		This process notifies the Track & Manage Customer Problem processes when the analysis is complete.
Manage Product Restoration	L4	Correct & Recover Customer Problem	Customer Problem, Customer Problem Status		This process attempts to restore the purchased product offerings to a normal operational state as efficiently as possible.
Report Product Restoration Results	L4	Correct & Recover Customer Problem	Customer Problem, Customer Problem Status		This process reports successful restoration of normal operation or an unsuccessful attempt at restoration to Track & Manage Customer Problem through updates to the associated Customer Problem Report.
Coordinate Customer Problem	L4	Track & Manage Customer Problem	Customer Problem Status	Customer Problem	This process coordinates all the actions necessary in order to guarantee that all tasks are finished at the appropriate time and in the appropriate sequence. It schedules, assigns and coordinates any recovery activities, and any repair and restoration activities delegated to other processes. It undertakes necessary tracking of the execution progress, modifies information in an existing Customer Problem Report based on assignments, and modifies the Customer Problem Report

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					status.
Cancel Customer Problem	L4	Track & Manage Customer Problem	Customer Problem		This process cancels a Customer Problem Report when the specific trouble was related to an incorrect customer problem report.
Escalate/End Customer Problem	L4	Track & Manage Customer Problem	Customer Problem, Customer Problem Status	Customer Problem, Customer Problem Status	This process monitors the jeopardy status of open Customer Problem Reports, and escalates Customer Problem Reports as necessary.
Engage External Service Suppliers	L4	Track & Manage Customer Problem	Customer Problem, Customer Problem Status	Customer Problem, Customer Problem Status	This process is responsible for engaging external suppliers/partners in correction and recovery activities when higher level expertise and/or higher level support is required to resolve the Customer Problem, (which may be automatic in the case of highest priority Customer Problems), the specific service has been purchased from an external supplier (as in an interconnect service), or the specific service is delivered by an external partner.
Monitor Customer Problem	L4	Report Customer Problem		Customer Problem, Customer Problem Status	This process is responsible for continuously monitoring the status of customer problem reports and managing notifications to processes and other parties registered to receive notifications of any status changes. Notification lists are managed and maintained by the Support Problem Handling processes.
Distribute Notifications	L4	Report Customer Problem		Customer Problem, Customer Problem Status, Registered Process List	This process makes the necessary reports about the problem that occurred, the root cause and the activities carried out for recovery of normal operation.
Distribute Management Reports & Summaries	L4	Report Customer Problem		Customer Problem, Customer Problem Status, Management Report, Specialized Summary	This process records, analyzes and assesses the customer problem report status changes to provide management reports and any specialized summaries of the efficiency and effectiveness of the overall Problem Handling process. These specialized summaries could be creation of specific reports required by customers

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					and/or other specific audiences
Close Customer Problem Report	L4	Close Customer Problem Report		Customer Problem, Customer Problem Status	This process monitors the status of all open customer problem reports and recognizes that a customer problem report is ready to be closed when the status is changed to cleared.
Contact Customer for Feedback	L4	Close Customer Problem Report		Customer Problem, Customer Problem Status	This process is responsible for contacting the customer to inquire about the customer's satisfaction with resolution of the problem.

2.2.5. Service Problem Management

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Manage Service Alarm Event Notifications	L4	Survey and Analyze Service Problem	Alarm Event Records	Alarm Event Record, Alarm Notification	This process may determine that a service alarm event notification may represent a customer impacting condition. In these circumstances this process is responsible for indicating a potential customer problem to the Problem Handling processes. As a part of this indication this process is responsible for identifying the impacted deployed product instances associated with the service instances presenting alarm event notifications and passing this information to the Problem Handling processes.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Filter Service Alarm Event Notifications	L4	Survey and Analyze Service Problem		Alarm Event Record, Alarm Notification	This process encompasses the correlation of redundant, transient or implied service alarm event notifications with a specific "root cause" service alarm event notification and associated service alarm event record.
Correlate Service Alarm Event Notifications	L4	Survey and Analyze Service Problem	Alarm Event Notification, Root Cause Identification, Service Alarm Notification, Alarm Event Record	Alarm Event Record, Alarm Notification	This process encompasses the correlation of redundant, transient or implied service alarm event notifications with a specific "root cause" service alarm event notification and associated service alarm event record. This process correlates service alarm event notifications to planned outage notifications to remove false service alarm event notifications arising as a result of the planned outage activity.
Abate Service Alarm Event Records	L4	Survey and Analyze Service Problem	Alarm Event Record, Alarm Event , Notification Message	Alarm Event Record	This process includes the notification of new service alarm event records, or status changes of previously reported service alarm event records, as well as abatement messages when service alarm event records have been cleared.
Trigger Defined Service Alarm Action	L4	Survey and Analyze Service Problem	Alarm Notification, Alarm Event Record, Trigger Action		This process triggers a well-defined action based on specific service alarm event notification information as well as the non-arrival of service alarm event notification information after a specific time interval has elapsed. This process is also responsible for monitoring and triggering the appropriate action when a service alarm event record is not cleared within a pre-defined period of time.
Generate Service Problem	L4	Create Service Trouble Report	Service Problem	Alarm Event Record	This process creates a new Service Trouble report.
Convert Report To Service Problem	L4	Create Service Trouble Report	Service Problem	Service Problem	If the service trouble report is created as a result of a notification or request from processes other than the Survey & Analyze

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Format					Service Problem processes, this process is responsible for converting the received information into a form suitable for the Service Problem Management processes, and for requested additional information if required.
Estimate Time For Restoring Resource	L4	Create Service Trouble Report	Service Problem	Resource Restoration Time	This process estimates the time to restore service which is included in the new Service Trouble report so that other processes can gain access to this information.
Verify Service Configuration	L4	Diagnose Service Problem	Service Problem, Service Configuration Verification	Customer Problem, Service Configuration	This process verifies whether the service configuration matches the appropriate product features.
Perform Specific Service Problem Diagnostics	L4	Diagnose Service Problem	Service Problem, Service Problem Root Cause	Service Configuration Verification, Service Problem Diagnostic Specifications, Service Problem Diagnostic Methodology Template	This process performs diagnostics against the specific services.
Perform Specific Service Problem Tests	L4	Diagnose Service Problem	Service Problem, Service Problem Root Cause Analysis, Service Problem Test Results	Resource Test Specifications	This process runs tests against the specific services.
Stop And Start Audit On Services	L4	Diagnose Service Problem	Service Problem, Service	Service Problem Audit Specifications	This process starts and stops audits against specific services.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
			Problem Audit Results		
Schedule Routine Service Problem Tests	L4	Diagnose Service Problem	Service Problem, Service Problem Routine Test Results, Service Problem Root Cause Analysis	Service Problem Audit Specifications, Service Routine Test Specifications (Read)	This process schedules routine testing of the specific services.
Notify T&M Root Cause Service Problem	L4	Diagnose Service Problem	Service Problem, Service Problem Root Cause Analysis		This process makes the results of the root cause analysis available to other processes. It updates the open Service Trouble report, as required during the assessment, and when the root cause has been identified. This process notifies the Track & Manage Service Problem processes.
Reassign / Reconfigure Failed Service	L4	Correct and Resolve Service Problem	Service Problem, Service Problem Status		Depending on the nature of the specific service failure, these processes may possibly re-assign services or re-configure service parameters. It also reports successful restoration of normal operation or an unsuccessful attempt at restoration to Track & Manage Service Problem through updates to the associated Service Trouble report.
Manage Service Restoration	L4	Correct and Resolve Service Problem	Service Problem, Service Problem Status, Standby Resource Units Deployment ABE		Based on the nature of the service failure leading to the associated service alarm event notification, this restoration process might be triggered. It reports successful restoration of normal operation or an unsuccessful attempt at restoration to Track & Manage Service Problem through updates to the associated Service Trouble report.
Implement Work Arounds	L4	Correct and Resolve Service Problem	Service Problem, Service Problem Status, Service Problem Work Around ABE		For large service failures requiring extensive re-assignment and/or re-configuration activity to restore normal operation, this process will attempt to implement workarounds to recover the specific service operation. It also reports restoration through temporary workarounds or an unsuccessful attempt at restoration to Track & Manage Service Problem through updates to the associated

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					Service Trouble report.
Invoke Support Service Problem Management Processes	L4	Correct and Resolve Service Problem	Service Problem, Service Problem Status		This process recovers normal operation by invocation of the Support Service Problem Management processes. It also reports successful restoration of normal operation or an unsuccessful attempt at restoration to Track & Manage Service Problem through updates to the associated Service Trouble report.
Coordinate Service Problem	L4	Track and Manage Service Problem	Service Problem Status	Service Problem	This process coordinates all the actions necessary in order to guarantee that all tasks are finished at the appropriate time and in the appropriate sequence. It schedules, assigns and coordinates repair and restoration activities, undertakes necessary tracking of the execution progress, modifies information in an existing Service Trouble report based on assignments, and modifies the Service Trouble report status.
Perform First in Service Testing	L4	Track and Manage Service Problem	Service Problem	First In Test	This process initiates first-in testing using automated remote testing capabilities, and adds additional information to an open Service Trouble report based on the first-in testing.
Cancel Service Problem	L4	Track and Manage Service Problem	Service Problem		This process cancels a Service Trouble report when the specific trouble was related to a false alarm event.
Escalate/End Service Problem	L4	Track and Manage Service Problem	Service Problem, Service Problem Status	Service Problem, Service Problem Status	This process monitors the jeopardy status of open Service Trouble reports, and escalates Service Trouble reports as necessary.
Perform Final Service Test	L4	Track and Manage Service Problem	Service Problem, Service Problem Status	Service Problem, Service Problem Status, Service Problem Final Test Template	This process initiates any final testing to confirm clearance of the Service Problem.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Engage External Service Suppliers	L4	Track and Manage Service Problem	Service Problem, Service Problem Status	Service Problem, Service Problem Status	This process is responsible for engaging external suppliers/partners in correction and recovery activities when higher level expertise and/or higher level support is required to resolve the service problem, (which may be automatic in the case of highest priority service problems), the specific service has been purchased from an external supplier (as in an interconnect service), or the specific service is delivered by an external partner.
Monitor Service Problem	L4	Report Service Problem		Service Problem, Service Problem Status	This process is responsible for continuously monitoring the status of Service Trouble reports and managing notifications to processes and other parties registered to receive notifications of any status changes, for example, Resource Performance Management and Service Quality Management. Notification lists are managed and maintained by the Support Service Problem Management processes.
Distribute Notifications	L4	Report Service Problem		Service Problem, Service Problem Status, Registered Process List	This process makes the necessary reports about the Service Problem that occurred, the root cause and the activities carried out for restoration.
Distribute Management Reports & Summaries	L4	Report Service Problem		Service Problem, Service Problem Status, Management Report, Specialized Summary	This process records, analyzes and assesses the Service Trouble report status changes to provide management reports and any specialized summaries of the efficiency and effectiveness of the overall Service Problem Management process. These specialized summaries could be specific reports required by specific audiences.
Close Service Problem	L3	Service Problem Management		Service Problem, Service Problem Status	This process monitors the status of all open Service Trouble reports, and recognizes that a Service Trouble report is ready to be closed when the status is changed to cleared.

2.2.6. Resource Trouble Management

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Manage Resource Alarm Event Notifications	L4	Survey and Analyze Resource Trouble	Alarm Event Records	Alarm Event Record, Alarm Notification	This process may determine that a resource alarm event notification may represent a service impacting condition. In these circumstances this process is responsible for indicating a potential service problem to the Service Problem Management processes. As a part of this indication this process is responsible for identifying the impacted service instances associated with the resource instances presenting alarm event notifications and passing this information to the Service Problem Management processes.
Filter Resource Alarm Event Notifications	L4	Survey and Analyze Resource Trouble		Alarm Event Record, Alarm Notification	This process encompasses the identification of the resource alarm event in terms of reporting entity and nature of the resource alarm event. It then analyzes the resource alarm events based on a number of criteria and then suppresses redundant, transient or implied resource alarm events by means of filtering and correlation
Correlate Resource Alarm Event Notifications	L4	Survey and Analyze Resource Trouble	Alarm Event Notification, Root Cause Identification, Resource Alarm Notification, Alarm Event Record	Alarm Event Record, Alarm Notification	Resource alarm event record correlation and filtering encompasses the correlation of redundant, transient or implied resource alarm event notifications with a specific "root cause" resource alarm event notification and associated resource alarm event record. This process correlates resource alarm event notifications to planned outage notifications to remove false resource alarm event notifications arising as a result of the planned outage activity.
Abate Alarm Event Records	L4	Survey and Analyze Resource Trouble	Alarm Event Record, Alarm Event , Notification Message	Alarm Event Record	This process includes the notification of new resource alarm event records, or status changes of previously reported resource alarm event records, as well as abatement messages when resource alarm event records have been cleared.
Trigger Defined Action	L4	Survey and Analyze Resource Trouble	Alarm Notification, Alarm Event Record,		This process triggers a well-defined action based on specific resource alarm event notification information as well as the non-arrival of resource alarm event notification information after a specific time interval has

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
			Trigger Action		elapsed. This process is also responsible for monitoring and triggering the appropriate action when a resource alarm event record is not cleared within a pre-defined period of time.
Generate Resource Trouble	L4	Create Resource Trouble	Resource Trouble	Alarm Event Record	This process creates a new resource trouble report.
Convert Report To Resource Trouble Format	L4	Create Resource Trouble	Resource Trouble	Resource Trouble	If the resource trouble report is created as a result of a notification or request from processes other than the Survey & Analyze Resource Trouble processes, this process is responsible for converting the received information into a form suitable for the Resource Trouble Management processes, and for requesting additional information if required.
Estimate Time For Restoring Resource	L4	Create Resource Trouble	Resource Trouble	Resource Restoration Time	This process estimates the time to restore resource which is included in the new resource trouble report so that other processes can gain access to this information.
Verify Resource Configuration	L4	Localize Resource Trouble	Resource Trouble, Resource Configuration Verification	Customer Problem, Resource Configuration, Resource Facing Service Configuration	This process verifies whether the resource configuration matches the appropriate service features.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Perform Specific Resource Trouble Diagnostics	L4	Localize Resource Trouble	Resource Trouble, Resource Trouble Root Cause	Resource Configuration Verification, Resource Trouble Diagnostic Specifications, Resource Trouble Diagnostic Methodology Template	This process performs diagnostics against the specific resources.
Perform Specific Resource Trouble Tests	L4	Localize Resource Trouble	Resource Trouble, Resource Trouble Root Cause Analysis, Resource Trouble Test Results	Resource Test Specifications	This process runs tests against the specific resources.
Stop And Start Audit On Resources	L4	Localize Resource Trouble	Resource Trouble, Resource Trouble Audit Results	Resource Trouble Audit Specifications	This process starts and stops audits against specific resources.
Schedule Routine Resource Trouble Tests	L4	Localize Resource Trouble	Resource Trouble, Resource Trouble Routine Test Results, Resource Trouble Root Cause Analysis	Resource Trouble Audit Specifications, Resource Routine Test Specifications (Read)	This process schedules routine testing of the specific resources.
Notify T&M Root Cause Resource Trouble	L4	Localize Resource Trouble	Resource Trouble, Resource Trouble Root Cause Analysis		This process makes the results of the root cause analysis available to other processes. It updates the open resource trouble report, as required during the assessment, and when the root cause has been identified. This process notifies the Track & Manage Resource Trouble processes.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Repair / Replace Failed Resource	L4	Correct and Resolve Resource Trouble	Resource Trouble, Resource Trouble Status		Depending on the nature of the specific resource failure, this process may possibly repair or replace the failed unit or specific resource. It also reports successful restoration of normal operation or an unsuccessful attempt at restoration to Track & Manage Resource Trouble through updates to the associated resource trouble report.
Isolate Unit with Fault	L4	Correct and Resolve Resource Trouble	Resource Trouble, Resource Trouble Status, Isolated Resource Unit ABE		This process is responsible for isolating a unit with a fault.
Manage Standby Resource Units	L4	Correct and Resolve Resource Trouble	Resource Trouble, Resource Trouble Status, Standby Resource Units Deployment ABE		This process is responsible for managing the redundant resource units (e.g. hot standby).
Implement Work Arounds	L4	Correct and Resolve Resource Trouble	Resource Trouble, Resource Trouble Status, Resource Trouble Work Around ABE		For large resource failures requiring extensive repair and/or replacement activity to restore normal operation, this process attempts to implement workarounds to recover the specific resource operation. It also reports restoration through temporary work-arounds or an unsuccessful attempt at restoration to Track & Manage Resource Trouble through updates to the associated resource trouble report.
Invoke Support Resource Trouble Management Processes	L4	Correct and Resolve Resource Trouble	Resource Trouble, Resource Trouble Status		This process recovers normal operation by invocation of the Support Resource Trouble Management processes. It also reports successful restoration of normal operation or an unsuccessful attempt at restoration to Track & Manage Resource Trouble through updates to the associated resource trouble report.
Coordinate Resource Trouble	L4	Track and Manage Resource Trouble	Resource Trouble Status	Resource Trouble	This process coordinates all the actions necessary in order to guarantee that all tasks are finished at the appropriate time and in the appropriate sequence. It schedules, assigns and coordinates repair and restoration activities, undertakes necessary

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
					tracking of the execution progress, modifies information in an existing resource trouble report based on assignments, and modifies the resource trouble report status;
Perform First in Testing	L4	Track and Manage Resource Trouble	Resource Trouble	First In Test	This process initiates first-in testing using automated remote testing capabilities, and adds additional information to an open resource trouble report based on the first-in testing.
Cancel Resource Trouble	L4	Track and Manage Resource Trouble	Resource Trouble		This process cancels a resource trouble report when the specific trouble was related to a false alarm event.
Escalate/End Resource Trouble	L4	Track and Manage Resource Trouble	Resource Trouble, Resource Trouble Status	Resource Trouble, Resource Trouble Status	This process monitors the jeopardy status of open resource trouble reports, and escalating resource trouble reports as necessary.
Perform Final Test	L4	Track and Manage Resource Trouble	Resource Trouble, Resource Trouble Status	Resource Trouble, Resource Trouble Status, Resource Trouble Final Test Template	This process initiates any final testing to confirm clearance of the service problem.
Engaging External Suppliers	L4	Track and Manage Resource Trouble	Resource Trouble, Resource Trouble Status	Resource Trouble, Resource Trouble Status	This process is responsible for engaging external suppliers in correction and recovery activities when higher level expertise and/or higher level support is required to resolve the resource trouble. This engagement can be linked to the priority of the resource trouble report, and could occur automatically for highest priority resource trouble reports.
Monitor Resource Trouble	L4	Report Resource Trouble		Resource Trouble, Resource Trouble Status	This process is responsible for continuously monitoring the status of resource trouble reports and managing notifications to processes and other parties registered to receive notifications of any status changes, for example, Resource Performance Management and Service Quality Management. Notification lists are managed and maintained by the Support Resource Trouble Management processes.

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Distribute Notifications	L4	Report Resource Trouble		Resource Trouble, Resource Trouble Status, Registered Process List	This process makes the necessary reports about the resource trouble that occurred, the root cause and the activities carried out for restoration.
Distribute Management Reports & Summaries	L4	Report Resource Trouble		Resource Trouble, Resource Trouble Status, Management Report, Specialized Summary	This process records, analyzes and assesses the resource trouble report status changes to provide management reports and any specialized summaries of the efficiency and effectiveness of the overall Resource Trouble Management process. These specialized summaries could be specific reports required by specific audiences.
Close Resource Trouble	L3	Resource Trouble Management		Resource Trouble, Resource Trouble Status	This process monitors the status of all open resource trouble reports, and recognizes that a resource trouble report is ready to be closed when the status is changed to cleared.

2.2.7. Service Quality Management

Business Process Framework Process	Category	Business Process Framework Parent Process	Primary Entity	Secondary Entity	Brief Description
Manage Service Performance Quality Data	L4	Monitor Service Quality	Service Performance		This process monitors and logs the received specific service performance quality data, compares the received specific service performance quality data to performance quality standards set for each specific service (available from the Service Inventory), detect performance quality threshold violations which represent specific service failures due to abnormal performance, and detects performance degradation for specific services which provide early warning of potential issues.

Record Service Performance Quality Data	L4	Monitor Service Quality	Service Performance		This process assesses and records received specific service performance quality data which is within tolerance limits for performance quality standards, and for which continuous monitoring and measuring of performance is required. It records the results of the continuous monitoring for reporting through the Report Service Quality Performance processes, and logs specific service performance quality degradation and violation details within the repository in the Manage Service Inventory processes to ensure historical records are available to support the needs of other processes.
Correlate Service Alarm Event Notifications	L4	Monitor Service Quality	Service Performance	Product Offering	This process passes information about specific service failures due to performance quality threshold violations to Service Problem Management to manage any necessary restoration activity as determined by that process. It passes information about potential specific customer SLA/QoS performance degradations arising from specific service quality performance degradations (using knowledge about service to purchased product offering linkages) to Problem Handling to manage any necessary restoration activity as determined by that process. It forwards service performance degradation notifications to other Service Quality Management processes, which manage activities to restore normal specific service performance quality.
Correlate Service Alarm Event Notifications	L4	Monitor Service Quality	Service Performance		Perform automated service testing using simulated calls simulating standard user behavior, collect data related to service usage
Generate Service Problem	L4	Create Service Performance Degradation Report	Service Performance Degradation Report		This process creates a new Service Performance Degradation Report as a result of specific service performance notifications undertaken by the Monitor Service Performance processes, or at the request of analysis undertaken by other CRM, SM&O or RM&O processes which detect that some form of deterioration or failure has occurred requires an assessment of the specific service performance.

Convert Report To Service Performance Degradation Report Format	L4	Create Service Performance Degradation Report	Service Performance Degradation Report	Service Performance Degradation Report	If the service performance degradation report is created as a result of a notification or request from processes other than Monitor Service Performance processes, this process responsible for converting the received information into a form suitable for the Service Performance Management processes, and for requesting additional information if required.
Perform Specific Service Performance Diagnostics	L4	Analyze Service Quality	Service Performance Degradation Report		This process performs analysis as required on specific service performance information received from the Monitor Service Quality processes. It determines the root causes of specific service performance degradations and violations, records the results of the analysis and intermediate updates in the Service Inventory for historical analysis and for use as required by other processes, and undertakes specific detailed analysis (if the original requested came from Customer QoS/SLA Management processes) to discover the root cause of customer QoS performance degradations that may be arising due to interactions between service instances, without any specific service instance having an unacceptable performance in its own right.
Manage Service Performance Data Collection Schedules	L4	Analyze Service Quality	Service Performance Degradation Report		This process initiates, modifies and cancels continuous performance data collection schedules for specific services required to analyze specific service performance. These schedules are established through requests sent to the Enable Service Quality Management processes.
Reassign / Reconfigure Service or Service Parameters	L4	Improve Service Quality	Service Performance Degradation Report		Based on the information determined within the Analyze Service Quality processes and the nature of the specific service degradation, this process may re-assign services or re-configure service parameters.
Manage Service Improvement Notification and Authorization	L4	Improve Service Quality	Service Performance Degradation Report		Where activity to improve service quality performance is likely to impact other in-use specific services, this process is responsible for providing appropriate notification of the improvement proposal and ensuring authorization is received to proceed with the service improvement plan. When the service improvement activity is about to commence, this process is responsible for notifying when service improvement activity is commencing and when it is completed.

Develop Service Improvement Plans	L4	Improve Service Quality			Where appropriate service improvement plans are not available this process is responsible for developing appropriate service improvement plans.
Coordinate Service Quality	L4	Track and Manage Service Quality Performance Resolution		Service Performance Degradation Report	This process schedules, assigns and coordinates analysis and specific service performance restoration activities and/or repair activities delegated to other processes, undertakes necessary tracking of the execution progress, modifies information in an existing Service Performance Degradation Report based on assignments, and modifies the Service Performance Degradation Report status.
Request Service Performance Degradation Report Creation and Update	L4	Track and Manage Service Quality Performance Resolution	Service Performance Degradation Report		This process generates the respective resource trouble report creation request(s) to Create Resource Trouble Report based on specific service performance degradation reports where analysis the root cause is related to resources. It modifies information in an existing service performance degradation report based on assignments, and modifies the service performance degradation report status.
Update First in Service Testing Results	L4	Track and Manage Service Quality Performance Resolution	Service Performance Degradation Report		This process adds additional information to an open Service Performance Degradation Report based on the first-in testing.
Cancel Service Performance Degradation Report	L4	Track and Manage Service Quality Performance Resolution	Service Performance Degradation Report		This process cancels a Service Performance Degradation Report when the specific trouble was related to a false service failure event.
Escalate/End Service Performance Degradation Report	L4	Track and Manage Service Quality Performance Resolution	Service Performance Degradation Report		This process monitors the jeopardy status of open Service Performance Degradation Reports, and escalates Service Performance Degradation Reports as necessary.
Clear Service Performance Degradation Report Status	L4	Track and Manage Service Quality Performance Resolution	Service Performance Degradation Report		This process informs the Close Service Performance Degradation Report process by modifying the Service Performance Degradation Report status to cleared when the specific service performance quality issues have been resolved.

Engage External Service Suppliers	L4	Track and Manage Service Quality Performance Resolution	Service Performance Degradation Report		If some specific resource components are owned and managed by suppliers/partners, this process is responsible for initiating ☐requests, through S/P Performance Management, for resolution by the supplier/partner of the specific resource components. This process will co-ordinate all the actions necessary in order to guarantee that all tasks are finished at the appropriate time and in the appropriate sequence.
Monitor Service Performance Degradation Report	L4	Report Service Quality Performance	Service Performance Degradation Report		This process is responsible for continuously monitoring the status of Service Performance Degradation Reports and managing notifications to processes and other parties registered to receive notifications of any status changes. Notification lists are managed and maintained by the Enable Service Quality Management processes.
Report Constraints to Other Processes	L4	Report Service Quality Performance	Service Performance Degradation Report	Registered Process List	This process reports any identified constraints that can affect service quality standards to other processes. These constraints may include specific resource failures, capacity shortages due to unexpected demand peaks, etc.
Distribute Management Reports & Summaries	L4	Report Service Quality Performance	Service Performance Degradation Report		This process records, analyzes and assesses the Service Performance Degradation Report status changes to provide management reports and any specialized summaries of the efficiency and effectiveness of the overall Service Quality Management process. These specialized summaries could be specific reports required by specific audiences.
Close Service Performance Degradation Report	L3	Close Service Performance Degradation Report	Service Performance Degradation Report		This process monitors the status of all open Service Performance Degradation Reports, and recognizes that a Service Performance Degradation Report is ready to be closed when the status is changed to cleared.

2.3. L4 Process and Mapping Uses[3]

The L4 processes provide a new dimension to the Business Process Framework. Most members decompose the Business Process Framework L3 processes on their own using a variety of techniques. The L4 processes presented in this guide book provide a "standard" decomposition for Business Process Framework L3 processes upon which members can base further decomposition where applicable.

Business Process Framework L3 processes are often used as starting points for use case development, but are often found to be too high level. The L4 processes represent a finer grain of processes that may be more suitable for use case development. The expected actions on Information Framework entities (Create, Read, Update, Delete often referred to as CRUD actions) can be used to assist in the identification of pre- and post-conditions for use cases.

The L4 processes can also be used, via use cases if desired, as the basis for task-centric business services in the development of service-oriented applications. Additionally the CRUD actions can be used to identify the entities associated with business service interfaces and the actions taken by the services on entities.

The L4 processes can also be used to represent a finer degree of project scope, to assist in identifying scope creep at a lower level of detail, and to conduct a lower level of impact analysis.

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[3] Note current L4 process are draft which implies maturity level 2 or lower and subject to change during team review

3. Business Service / Application Framework / Business Process Framework / Information Framework Mappings

The long-standing Business Process Framework and Information Framework mappings are being joined by mappings that depict the relationships among all the Frameworx. The mappings are progressively presented in this chapter, starting with examples that represent the mappings of the Application Framework, Business Process Framework and Information Framework. Next, a complete set of the mappings from the Application Framework to business services are presented. Lastly, examples of mappings among all the frameworks are presented.

It is planned to make the mappings available in a working copy of the Business Process Framework model as well as in html format until they are complete.

3.1. The Mappings

3.1.1. Application Framework / Business Process Framework / Information Framework Mappings

Figure 3 – Application Framework, Business Process Framework, Information Framework Mapping Example shows the mapping where the focus is the Application Framework Bill Calculation application area.
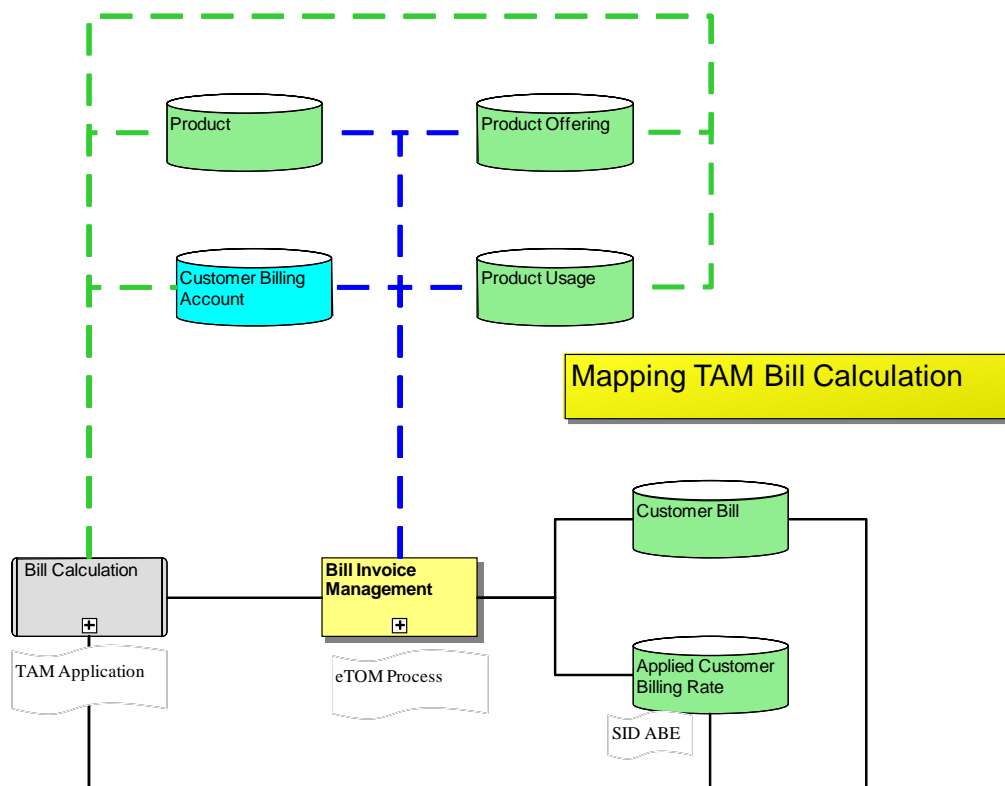
Figure 3 – Application, Business Process, Information Framework Mapping Example

In the figure the solid/dashed lines represent primary/secondary relationship from an Business Process Framework/Information Framework perspective and a strong/partial relationship from Application Framework/Business Process Framework and Application Framework/Information Framework perspectives.

3.1.2. Application Framework / Business Service Mappings

The following set of figures depicts a domain-oriented spreadsheet version of the mapping of business service categories and business services to Application Framework application areas. The initial set of business services is represented by the interfaces developed by the TM Forum Interface program. The set is expected to grow with the development of additional interfaces and as business services contributed by TM Forum members. Details on the classifications can be found in the Frameworx Implementation Methodology (GB945-M) and are summarized here:

A business service is an element of functionality. It may be:

- task-centric, such as *Allocate Resource* or *Identify Customer*,

- entity-centric, such as *Resource Service* or *Customer Service,*

- utility-centric such as Notify.

The technical specifications within the Integration Framework define how the services are described using common models.

A task-centric service's context represents a service modeled to encapsulate process logic or use case steps. In this case, the thread that ties together the grouped logic or steps is a specific activity being automated by the service logic. Therefore, the use of verbs in service names is common.

An entity-centric service's context represents a specific business entity or group of entities. The focus of the service is on the entity or group of entities, but may act on other entities. The labeling of entity-centric business services is often predetermined by the entity name.

Another type of service is a utility-centric. A utility-centric service's context is found in application services involving operations that encapsulate cross-cutting functions, such as event logging, exception handling, or notification. These reusable services need to be labeled according to a specific processing context, agnostic in terms of any particular solution environment. For example, a utility service might be named Notify.

These mappings have also been imported into the Casewise Corporate Modeler tool that is the repository of all the inter-framework mappings.

Business Service Classification	Level	TAM Application	Business Service
Market/Sales	1		
Marketing	2		
Market Segment	3		
Market Segment	4	Campaign Management	
Market Statistic	4		
		Mass Market Sales Management	
Party Demographic	4	Customer Contact Management, Retention & Loyalty	
Party Profile	4	Customer Contact Management, Retention & Loyalty	
Marketing Campaign	3		
Marketing Campaign	4	Campaign Management	
Media	4	Channel Sales Management	
Competitor	3		
Competitor	4		
Competitor Intelligence	4		
Sales Channel Management	2		
Sales Channel	3	Channel Sales Management	
Sales Statistic	3		
Contact/Lead/Prospect Management			
		Channel Sales Management	
		Campaign Management	
		Corporate Sales Management	
Contact/Lead/Prospect		Mass Market Sales Management	
Product	1		
Product Lifecycle Management	2		
Product Specification	3		Inventory (Product)
Service Specification	3		
			Inventory (Service)
			Service Activation
Service Specification	4	Service Specification Management	Manage Service Inventory
Customer Facing Service Specification	4		
Customer Facing Service Specification	5	Service Specification Management	Manage Service Inventory
Customer Facing Service Spec Role	5		
Resource Facing Service Specification	4		Manage Service Inventory
Resource Facing Service Specification	5	Service Specification Management	
Resource Facing Service Spec Role	5		

Business Service Classification	Level	TAM Application	Business Service
Product Offering	3		
Product Offering	4		Inventory (Product)
Product Catalog	4	Product / Service Catalog Management	*Product Catalog*
Product Offering Price	4	Product / Service Catalog Management	*Product Catalog*
Product Offering Price Rule	4	Product / Service Catalog Management	*Product Catalog*
Product Promotion	4	Channel Sales Management	

Figure 4 – Market/Sales and Product Business Service / Application Framework Mappings

Business Service Classification	Level	TAM Application	Business Service
Customer	**1**		
Customer Management	**2**		
Customer	3	Customer Information Management	
Customer Statistic	3		
Customer Order Management	**2**		
Customer Order	3	Customer Order Management	Order Management
Product	3		
			Inventory (Product)
Product	4	Customer Order Management	Order Management
Product Price	4	Customer Order Management	
Customer Problem Management	**2**		
Customer Problem	3	Customer Service / Account Problem Resolution	
Customer SLA Management	**2**		
Customer Service Level Agreement	3	uality of Service & Service Level Agreement Management	
Customer Billing	**2**		
Applied Customer Billing Rate	3	Product/Service Rating	
Customer Bill	3		
		Bill Calculation	
Customer Bill	4	Bill Format / Rendering	
Customer Billing Credit	4	Receivables Management	
Customer Billing Statistic	4		
Customer Bill Collection	3	Collection Management	
Customer Bill Inquiry	3	Billing Inquiry, Dispute & Adjustment Management	
Service	**1**		
Service Configuration	**2**		
Service	3		
			Inventory (Service)
			Service Activation (OSS/J)
			Service Activation (MTOSI)
			Manage Service Inventory
Service	4	Service Inventory Management	Order Management
Customer Facing Service	4	Service Inventory Management	
Resource Facing Service	4	Service Inventory Management	
QoS Service	4	Service Inventory Management	
Service Maintenance	4		
Service Management	4		
			Order Management
			Service Activation
Service Order	4	Service Order Management	Manage Service Inventory
Service Configuration	3	Service Order Management	

Figure 5 – Customer and Service Business Service / Application Framework Mappings

Business Service Classification	Level	TAM Application	Business Service
Resource	1		
Resource Lifecycle Management	2		
Resource Specification	3		
Resource Specification	4	Resource Lifecycle Management	Inventory (Resource)
Compound Resource Specification	4	Resource Lifecycle Management	
Logical Resource Specification	4		
Logical Resource Specification	5	Resource Lifecycle Management	
Logical Role Specification	5	Resource Lifecycle Management	
Physical Resource Specification	4		
Physical Resource Specification	5	Resource Lifecycle Management	
Physical Role Specification	5	Resource Lifecycle Management	
Resource Configuration	2		
Resource	3		
			Inventory (Resource)
		Resource Lifecycle Management	Manage Resource Inventory
		Resource Inventory Management	Resource Provisioning
Resource	4	Resource Order Management	Order Management
		Resource Lifecycle Management	
		Resource Inventory Management	
		Resource Order Management	Manage Resource Inventory
Compound Resource	4	Resource Domain Management	Resource Provisioning
Logical Resource	4		
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Logical Resource	5	Resource Order Management	Resource Provisioning
		Resource Lifecycle Management	
		Resource Inventory Management	
Address	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Device Interface	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Logical Capacity	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Logical Device	5	Resource Order Management	
Logical Role	5		
Managed Transmission Entity	5		
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Managed Transmission Entity	6	Resource Order Management	Resource Provisioning
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Termination Point	6	Resource Order Management	Resource Provisioning
Management Information	5		
Accounting	6		
Configuration	6		
Management Info	6		
Performance Info	6		
Resource State	6		
Resource Statistical	6		
Security	6		
Service State	6		
Service Statistical Info	6		
		Resource Lifecycle Management	
		Resource Inventory Management	
		Resource Order Management	
Network	5	Resource Domain Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Operating System	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Protocol Service	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Software	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Statistics	5	Resource Order Management	

Figure 6 – Resource Business Service / Application Framework Mappings - 1

Business Service Classification	Level	TAM Application	Business Service
Physical Resource	4		
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Physical Resource	5	Resource Order Management	Resource Provisioning
		Resource Lifecycle Management	
		Resource Inventory Management	
Auxiliary Component	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Equipment	5	Resource Order Management	Resource Provisioning
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Equipment Holder	5	Resource Order Management	Resource Provisioning
		Resource Lifecycle Management	
		Resource Inventory Management	Manage Resource Inventory
Hardware	5	Resource Order Management	Resource Provisioning
		Resource Lifecycle Management	
		Resource Inventory Management	
Physical Capacity	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Physical Component	5	Resource Order Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
Physical Device	5	Resource Order Management	
Physical Role	5		
Resource Management	4		
Resource Order	4	Resource Order Management	Order Management
Value Network Role	4		
		Resource Lifecycle Management	
		Resource Inventory Management	
		Resource Order Management	
Resource Configuration	3	Resource Domain Management	
		Resource Lifecycle Management	
		Resource Inventory Management	
		Resource Order Management	
Resource Topology	3	Resource Domain Management	
Workforce Management	**2**		
Workforce	3	Resource Process Management (Workflow/Integratin)	
		Service Order Management	
		Resource Order Management	
Work Order	3	Resource Lifecycle Management	Order Management
Digital Rights Management	**2**		
Digital Rights	3		
Content Management	**2**		
Content	3		

Figure 7 - Resource Business Service / Application Framework Mappings - 2

Business Service Classification	Level	TAM Application	Business Service
Supplier/Partner	**1**		
Supply Chain Development	**2**		
Supplier/Partner	3	Partner Management	
S/P Product	3	Partner Management	
Supply Chain Operations	**2**		
S/P Interaction	3	Partner Management	
S/P Order	3	Partner Management	
S/P SLA	3	Partner Management	
S/P Performance	3	Partner Management	
S/P Problem	3	Partner Management	
S/P Statistic	3	Partner Management	
Supply Chain Billing	**2**		
S/P Bill	3	Wholesale / Interconnect Billing	Supplier/Partner Settlements
S/P Bill Inquiry	3	Wholesale / Interconnect Billing	
S/P Payment	3	Wholesale / Interconnect Billing	Supplier/Partner Settlements
Enterprise	**1**		
Revenue Assurance	**2**		
RA Action Response	3	Revenue Assurance Management	
RA Assessment	3	Revenue Assurance Management	
RA Control	3	Revenue Assurance Management	
RA Key Performance Indicator	3	Revenue Assurance Management	
RA Trouble Ticket	3	Revenue Assurance Management	
RA Violation	3	Revenue Assurance Management	
Identity Management	**2**		
Identity	3	Customer Contact Management, Retention & Loyalty	Identity Management
Security Management	**2**		
Security	3	Security Management	

Figure 8 – Supplier/Partner and Enterprise Business Service / Application Framework Mappings

Business Service Classification	Level	TAM Application	Business Service
Common Business	1		
Usage	2		
Usage	3		
		Billing Data Mediation	
		Real-time Billing Mediation	Billing Mediation
Usage	4	Wholesale/Interconnect Billing	Network Data Management - Usage
		Billing Data Mediation	Billing Mediation
IPDR Usage	4	Real-time Billing Mediation	Network Data Management - Usage
Product Usage	3	Product/Service Rating	
Service Usage	3	Product/Service Rating	
		Billing Data Mediation	
Resouce Usage	3	Real-time Billing Mediation	
Performance	2		
Performance	3		
		Product Performance Management	
		Service Performance Management	
		Service Quality Monitoring & Impact Analysis	
Performance Category	4	Resource Assurance Management	
		Product Performance Management	
		Service Performance Management	
		Service Quality Monitoring & Impact Analysis	
Performance Specification	4	Resource Assurance Management	
		Product Performance Management	
		Service Performance Management	Quality of Service (QoS)
		Service Quality Monitoring & Impact Analysis	Resource Performance Management
Performance	4	Resource Assurance Management	*Performance Management*
Product Performance	3		
Product Performance Specification	4	Product Performance Management	
Product Performance	4	Product Performance Management	
Service Performance	3		
		Customer Quality of Service & Service Level Agreement	
Service Level Spec	4	Management	Service Quality Management
		Service Performance Management	
Service Performance Specification	4	Service Quality Monitoring & Impact Analysis	*Performance Management*
		Service Performance Management	
Service Performance	4	Service Quality Monitoring & Impact Analysis	*Performance Management*
Resource Performance	3		
Resource Performance Specification	4	Resource Assurance Management	*Performance Management*
			Resource Performance Management
Resource Performance	4	Resource Assurance Management	*Performance Management*
Test	2		
		Resource Process Management (Workflow/Integratin)	
Test	3	Service Order Management	*Test Lifecycle Management*
Service Test	3	Service Order Management	*Test Lifecycle Management*
Resource Test	3	Resource Process Management (Workflow/Integratin)	*Test Lifecycle Management*
Trouble Management	2		
		Customer Service / Account Problem Resolution	
		Service Order Management	
Trouble Ticket	3	Resource Assurance Management	Trouble Ticket
Service Problem	3	Service Problem Management	*Service Problem Management*
			Resource Alarm Management
			Quality of Service
			Fault Management
Resource Trouble	3	Resource Assurance Management	Resource Trouble Management
Project Management	2		
Time	3	Resource Lifecycle Management	
Project	3		
Project	4	Resource Lifecycle Management	
Activity	4	Resource Lifecycle Management	
Project Calendar	4	Resource Lifecycle Management	
Project Element	4	Resource Lifecycle Management	
Project Resource	4	Resource Lifecycle Management	
Project Role	4	Resource Lifecycle Management	
Work Breakdown Structure	4	Resource Lifecycle Management	

Figure 9 – Common Business Service / Application Framework Mappings - 1

Business Service Classification	Level	TAM Application	Business Service
Policy Management	2		
Policy Application	3		
Policy Application Role	4	Product / Service Catalog Management Collection Management Bill Calculation Customer Quality of Service & Service Level Agreement Management Resource Domain Management Resource Assurance Management Resource Process Management (Workflow/Integratin) Resource Order Management Partner Management Revenue Assurance Management Knowledge Management	
Policy Service	4	Product / Service Catalog Management Collection Management Bill Calculation Customer Quality of Service & Service Level Agreement Management Resource Domain Management Resource Assurance Management Resource Process Management (Workflow/Integratin) Resource Order Management Partner Management Revenue Assurance Management Knowledge Management	
Policy Framework	3	Product / Service Catalog Management Collection Management Bill Calculation Customer Quality of Service & Service Level Agreement Management Resource Domain Management Resource Assurance Management Resource Process Management (Workflow/Integratin) Resource Order Management Partner Management Revenue Assurance Management Knowledge Management	
Policy Framework Specification	3	Product / Service Catalog Management Collection Management Bill Calculation Customer Quality of Service & Service Level Agreement Management Resource Domain Management Resource Assurance Management Resource Process Management (Workflow/Integratin) Resource Order Management Partner Management Revenue Assurance Management Knowledge Management	

Figure 10 - Common Business Service / Application Framework Mappings - 2

Business Service	Level	TAM Application	Business Service
		Product / Service Catalog Management	
		Collection Management	
		Bill Calculation	
		Customer Quality of Service & Service Level Agreement Management	
		Resource Domain Management	
		Resource Assurance Management	
		Resource Process Management (Workflow/Integratin)	
		Resource Order Management	
		Partner Management	
Policy Management	3	Revenue Assurance Management	
Policy Structure	3		
		Product / Service Catalog Management	
		Collection Management	
		Bill Calculation	
		Customer Quality of Service & Service Level Agreement Management	
		Resource Domain Management	
		Resource Assurance Management	
		Resource Process Management (Workflow/Integratin)	
		Resource Order Management	
		Partner Management	
Policy Action	4	Revenue Assurance Management	
		Product / Service Catalog Management	
		Collection Management	
		Bill Calculation	
		Customer Quality of Service & Service Level Agreement Management	
		Resource Domain Management	
		Resource Assurance Management	
		Resource Process Management (Workflow/Integratin)	
		Resource Order Management	
		Partner Management	
Policy Condition	4	Revenue Assurance Management	
		Product / Service Catalog Management	
		Collection Management	
		Bill Calculation	
		Customer Quality of Service & Service Level Agreement Management	
		Resource Domain Management	
		Resource Assurance Management	
		Resource Process Management (Workflow/Integratin)	
		Resource Order Management	
		Partner Management	
Policy Event	4	Revenue Assurance Management	
Policy Statement	4	Customer Quality of Service & Service Level Agreement	
		Product / Service Catalog Management	
		Collection Management	
		Bill Calculation	
		Customer Quality of Service & Service Level Agreement Management	
		Resource Domain Management	
		Resource Assurance Management	
		Resource Process Management (Workflow/Integratin)	
		Resource Order Management	
		Partner Management	
Policy Value	4	Revenue Assurance Management	
		Product / Service Catalog Management	
		Collection Management	
		Bill Calculation	
		Customer Quality of Service & Service Level Agreement Management	
		Resource Domain Management	
		Resource Assurance Management	
		Resource Process Management (Workflow/Integratin)	
		Resource Order Management	
		Partner Management	
Policy Variable	4	Revenue Assurance Management	

Figure 11 - Common Business Service / Application Framework Mappings - 3

Business Service Classification	Level	TAM Application	Business Service
Location Management	2		
Place	3		
Geographic Place	3		
Geographic Place	4	Enterprise Information	
Geographic Address	4	Enterprise Information	
Symbology	4	Enterprise Information	
Local Place	3	Enterprise Information	
Open GIS SFS	3	Enterprise Information	
Integration Services	2		
Party Management	2		
Party	3	Enterprise Information	
Contact	3	Enterprise Information	
Identification	3	Enterprise Information	
Roles	3	Enterprise Information	
Business Interaction	2		
Business Interaction	3	Customer Order Management / Service Order Management / Resource Order Management / Resource Process Management (Workflow/Integratin) / Customer Representative Tool Box / Customer Self Management / Customer Contact, Retention & Loyalty	Order Management
Customer Interaction	3	Customer Service Representative Tool Box / Customer Self Management / Customer Contact Management, Retention & Loyalty	
User Management	2		
User	3	Enterprise Information	Identity Management

Figure 12 - Common Business Service / Application Framework Mappings - 4

Figure 13 – Business Service Candidates Legend provides a legend for the business services candidates based on currently developed interfaces by the TM Forum Interface program and categorized by suite, for example OSS/J. Business Services in italics are in progress work by the program's various teams.

OSS/J	MTOSI/MTNM	IPDR	Identity Management	TM Forum Interfaces (TIP)
Trouble Ticket	Service Activation	Suppler/Partner Settlements	Identity Management	*Product Catalog*
Inventory	Manage Service Inventory	Network Data Management - Usage		*Test Lifecycle Management*
Service Activation	Manage Resource Inventory			*Service Problem Management*
Quality of Service (QoS)	Resource Provisioning			*Performance Management*
Fault Management	Resource Trouble Management			*Resource Alarm Management*
Order Management	Resource Performance Management			
Discovery				
Service Quality Management (SQM)				

Figure 13 – Business Service Legend

Figure 14 – Graphical View of Business Service / Application Framework Mapping shows an example of a graphical view of the mappings presented in the spreadsheets in this section. In this example, Resource is the business service classification, Resource Provisioning, Inventory (Resource), and Manage Resource Inventory are business services within the Resource classification, and Resource Order Management, Resource Lifecycle Management, and Resource Inventory Management are the Application Framework application areas supported by the classification and the business services within the classification.
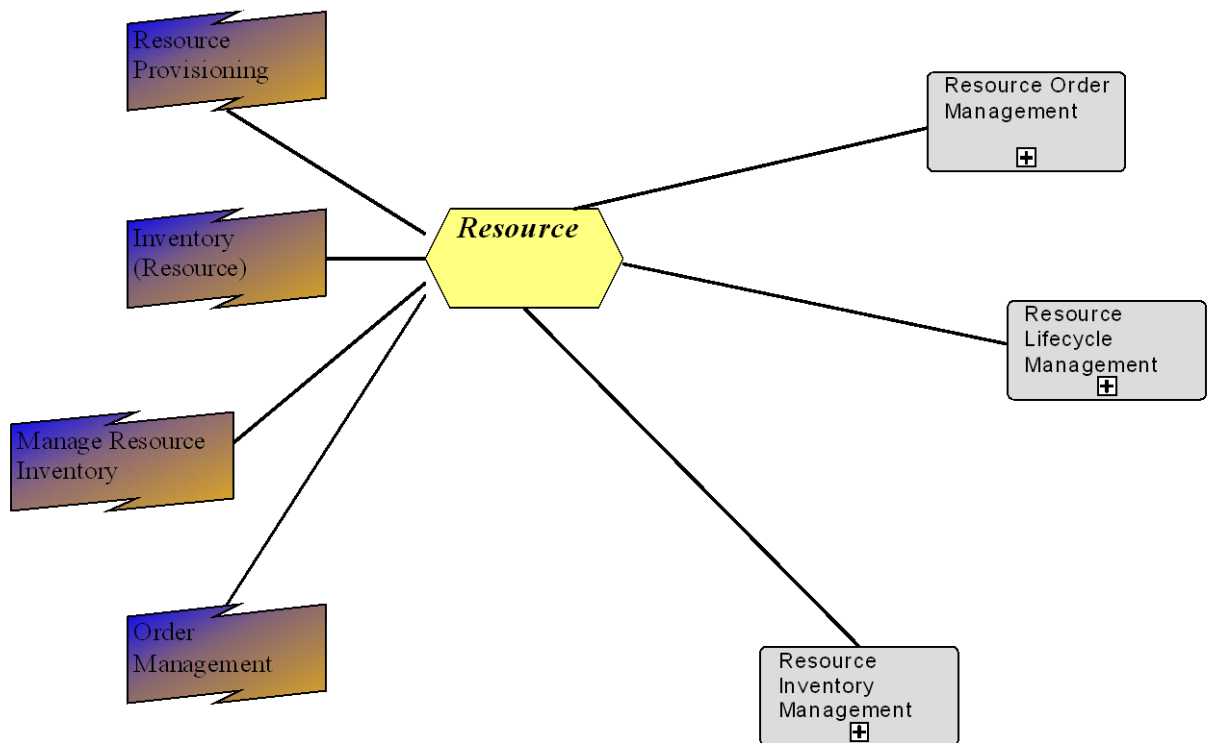

Figure 14 – Graphical View of Business Service / Application Framework Mapping

3.1.3. Business Service / Application Framework / Business Process Framework / Information Framework Mappings

Figure 15 – Graphical View of Complete Cross Framework Mappings shows an example of the inter-relationships between/among all the Frameworx.
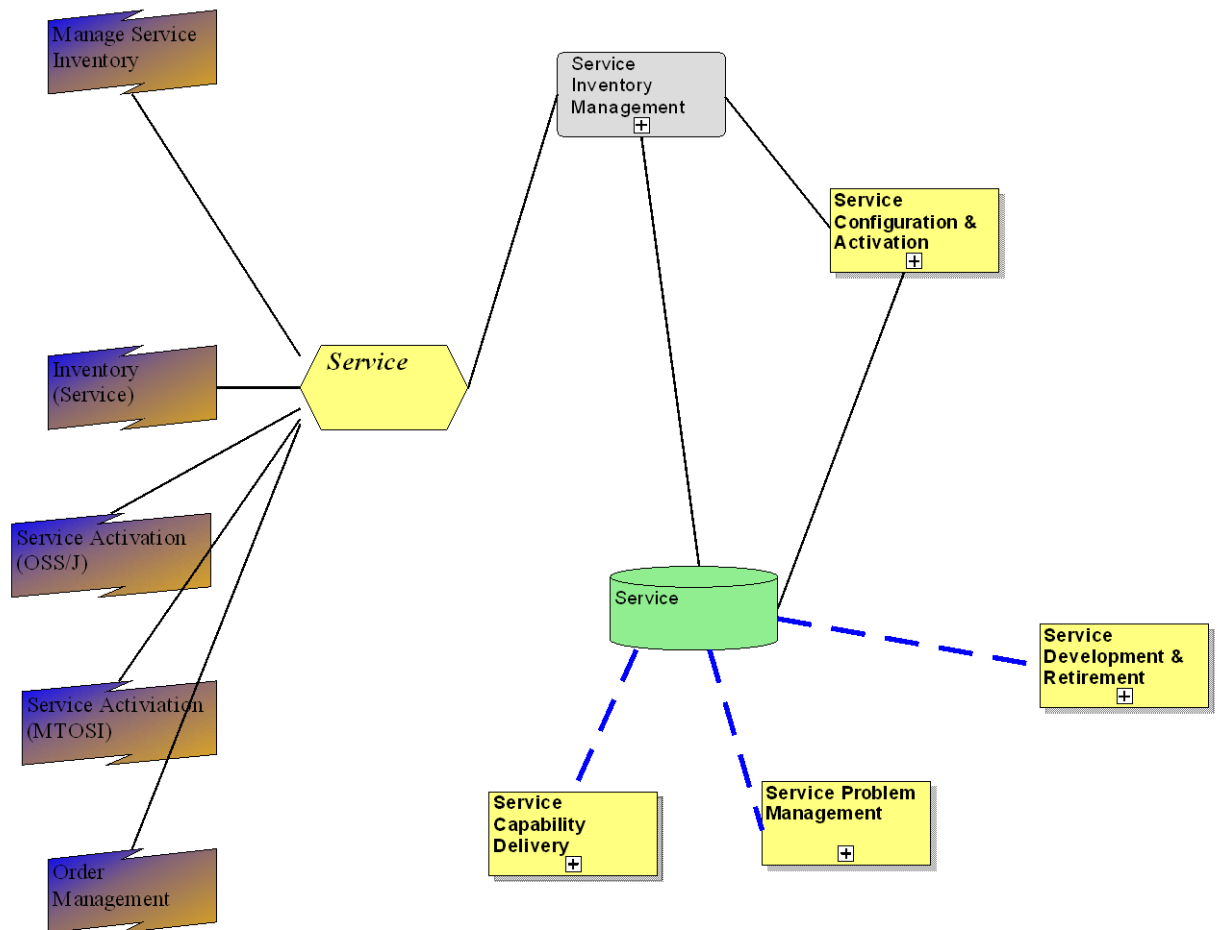

Figure 15 – Graphical View of Complete Cross Framework Mappings

In the figure the solid/dashed lines represent primary/secondary relationship from an Business Process Framework/Information Framework perspective and a strong/partial relationship from Application Framework/Business Process Framework, Application Framework/Information Framework, Application Framework / Business Service Classification perspectives.

3.2. Mapping Uses

These mappings provide a complete view of the inter-relationships between/among the TM Forum Frameworx. As such they can be used to provide a complete view of the scope of a project, no matter how many of the frameworks are used by a project. Additionally all the other uses of the mappings that were described in the chapter on the Information Framework/Business Process Framework mappings can be made of the mappings presented in this chapter.

For example, an application development project's scope can be expressed in terms of the Business Process Framework, Information Framework, and Application Framework. The mappings can also be used to identify the existing TM Forum interfaces and business services that can be used to support the development of the application and its interaction with other applications. The mappings can also be used to identify interfaces and/or services that should be developed by the project.

4. Administrative Appendix

This Appendix provides additional background material about the TM Forum and this document. In general, sections may be included or omitted as desired, however a Document History must always be included..

4.1. About this document

This is a TM Forum Guidebook. The guidebook format is used when:

- o The document lays out a 'core' part of TM Forum's approach to automating business processes. Such guidebooks would include the Telecom Operations Map and the Technology Integration Map, but not the detailed specifications that are developed in support of the approach.
- o Information about TM Forum policy, or goals or programs is provided, such as the Strategic Plan or Operating Plan.
- o Information about the marketplace is provided, as in the report on the size of the OSS market.

4.2. Document History

4.2.1. Version History

Version Number	Date Modified	Modified by:	Description of changes
0.1	30/Sep/2009	John Reilly	First issue of document
0.2	25/Nov/2009	John Reilly	Updated to include all L4 processes
0.3	10/Dec/2009	John Reilly	Updated version number
0.4	23/Dec/2009	Alicja Kawecki	Minor cosmetic corrections, including updated Notice, for web posting and ME
0.5	27Jan/2010	Ken Dilbeck	Solution Framework to Frameworx per Marketing
0.6	7Apr/2010	Ken Dilbeck	Complete name changes per marketing and address Technical Committees request to

				identify reference documents
0.7	28/Apr/2010	Ken Dilbeck		Minor changes to address Technical Committee comments on Figure 13
0.8	08/Jun/2010	Alicja Kawecki		Updated to reflect TM Forum Approved status
1.0	19/May/2011	Alicja Kawecki		Upversioned to align with R2.5 for Frameworx 11.0 – content remains unchanged

4.2.2. Release History

Release Number	Date Modified	Modified by:	Description of changes
1.0	30/Sep/2009	John Reilly	First issue of document
2.1	January 2010	John Reilly	Second issue of the document

4.3. Company Contact Details

Company (only editor contact provided)	Team Member Representative
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4.4. Acknowledgments

This document was prepared by the members of the TM Forum Business Process Framework and Information Framework teams:

- o John Reilly, TM Forum, **Editor**

- o John Wilmes, Progress Software, work group leader

- o Kevin Scaggs, AT&T, Business Process Framework team leader

Additional input was provided by the following people: