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THE LEADING PRACTICE
COST REFERENCE CONTENT
#LEAD-ES20012BC

A Cost Ontology & Cost Semantic Description, Views, Stakeholders and Concerns

Version Status: LEAD 3.0

Contents

Overview of the Cost Reference Content

Introduction

The LEADing Practice Cost Reference Content provides cost ontology with its specific cost descriptions, semantic relations and correlations. It is based on a collection of best and leading practice around cost modelling, cost engineering and cost architecture disciplines all related to cost identification, cost planning, cost creation, cost realization as well as cost management and cost governance. The Cost Reference Content is therefore and essential part for any practitioner working with and around cost aspects. It provides a structural way of thinking, working, modelling, implementation and governance around cost definitions e.g. external forces influencing and impacting the cost drivers. As well as an overview of the key cost aspects of the organisation and how they relate to the various strategies, critical success factors, goals, business area and groups, the business owners, stakeholders and their cost requirements as well as a way of cost modelling, cost engineering and cost architecture, where the Cost Reference Content provides a way of analysing, appraising, approximating, assessing and capturing cost related objects to enable innovation and transformation.

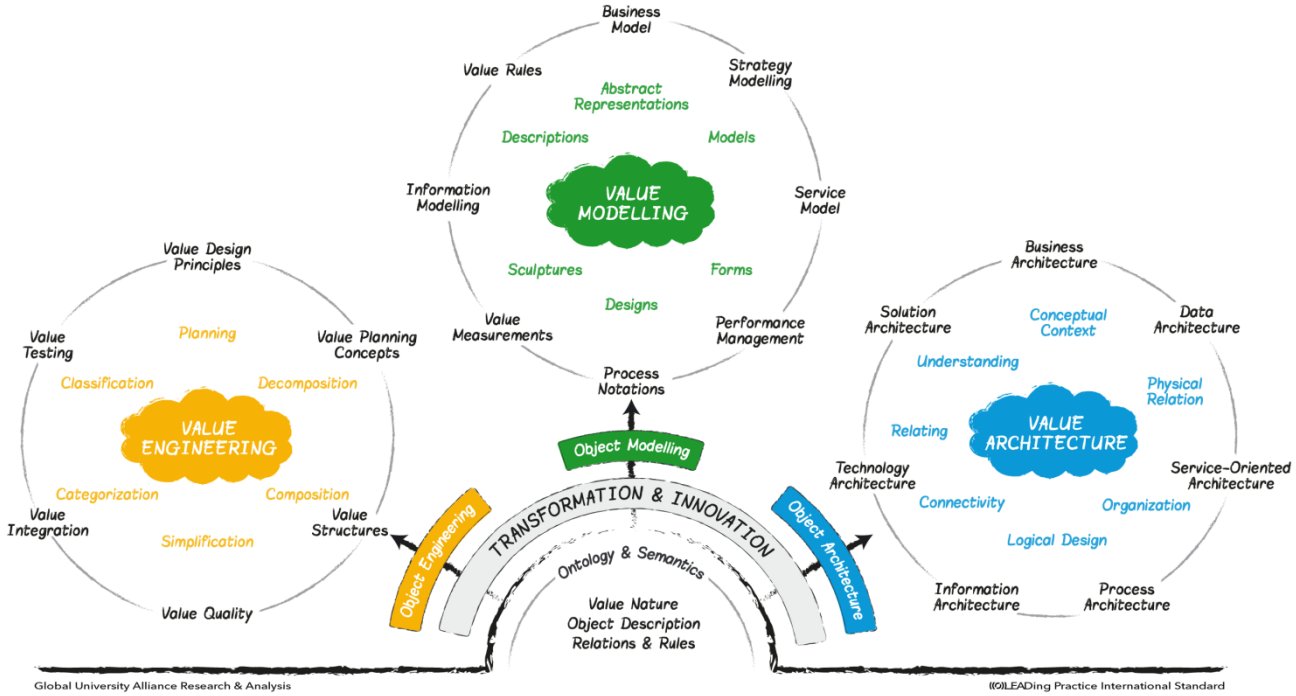

Figure 1: The Cost Objects are the semantic relations between the enterprise engineering, enterprise modelling, and enterprise architecture enabling transformation and innovation.

Why use the Cost Reference Content?

- It provides cost ontology with its specific cost descriptions, semantic relations and correlations.
- It defines how to organize and structure the viewpoints and objects associated with cost related enterprise engineering, enterprise modelling, and enterprise architecture.

- Established guiding principles for creating, interpreting, analysing and using cost objects within a particular domain and/or layers of an enterprise or an organization.
- Using the Cost Reference Content is done through a set of principles e.g. how and where can the cost objects be related (and where not).
- It is vendor neutral and agnostic and can therefore be used with most existing frameworks, methods and or approaches that have any of the meta-objects mentioned in this document.
- It has captured a repeatable pattern for cost related objects, structures as well as artefacts (the basis of our standards)
- It has cost standards that increase the level of re-usability and replication for cost identification, cost planning, cost creation, cost realization as well as cost management and cost governance.
- It has a fully integrated and standardized cost maps, matrices and models that allow for advanced ways of cost thinking, working, modelling and implementation.

Meta-objects relevant to the Cost Reference Content

The following LEAD objects are the most relevant to cost aspects within the Cost Reference Content and its templates:

Forces (external & internal)	Pressures that arise from outside or inside a system. In the context of an enterprise, forces typically refer to those factors that can have an effect on parts or full aspects of an organization.
Drivers (external/internal)	An external or internal factor, which influences and pushes some aspect of an enterprise in a specific direction.
Driver Type: Performance	Those variables that are critical to develop the means and overall presentation of an enterprise.
Performance Indicator (business) Tier: Strategic, Tactical, or Operational	The classification of the metrics used by an enterprise as being Strategic, Tactical, or Operational in nature.
Driver Type: Value	A Categorization of the factors that advance action and principles toward a specific direction.
Value Indicator (Critical Success Factor)	A measure of the critical benefit or merit endeavours intended to be attained (and which is believed to be attainable) within an enterprise.
Value Type	A categorization of value objects into high, medium and low types based on the specific attributes of the value object.
Value Expectation	The anticipated benefits that are of worth, importance, and significance to a specific stakeholder.
Value Proposition	The merit and benefit that a customer, added value partner, or the market itself can obtain from their perspective and point of view.
Performance Expectation	The <desire for the> manner in which, or the efficiency with which, something reacts or fulfils its intended purpose as anticipated by a specific stakeholder.

Strategy (Strategic Business Objective)	The direction and ends that the enterprise seeks, as well as the means and methods by which these ends will be attained.
Goal (e.g. business, application, technology)	A desired result considered a part of the direction, aims, targets, and aspirations of the enterprise.
Objective (Critical Success Factor)	Time-bounded milestones to measure and gauge the progress towards a strategy or goal.
Business Measure	A number or quantity that records a directly observable value or performance, enabling a basis for comparison; a reference point against which other things can be evaluated
Report	The exposure, description, and portrayal of information, about the status, direction or execution of work within the functions, services, processes, and resources of the enterprise.
Timing	A period or interval, as between two successive events. The system of those sequential relations that any event has to any other, as past, present, or future.
Organizational Construct	The components of the organization and how they are assembled.
Business Area	The highest level meaningful grouping of the activities of the enterprise.
Business Group	An aggregation within an enterprise which is within a Business Area.
Business Competency	An integrated and holistic set of interconnected knowledge, skills, and abilities, related to a specific set of resources (including persons and organizations) that combined, enable the enterprise to act in a particular situation.
Business Competency Type	The classification of competencies is into Core Differentiated Competencies, core competitive competencies or non-core competencies. Sorting the role played by each competency in the creation of value and in the execution of the enterprise's strategy.
Business Resource/Actor	A specific person, system or organization internal or external to the enterprise that initiates or interacts with the defined functions and activities. Actors may be *internal or external to an organization.*
Business Role	A part that someone or something has in a particular defined function, activity or situation. A resource/actor may have a number of roles.
Business Owner	A role performed by an actor with the rules, competencies and capabilities to take decisions for the part of enterprise the owner is responsible ~~for.~~
Business Object	Expresses real-world objects relevant to the business
Cost	The economic costs that a business incurs through its operations
Revenue	The realised income of an enterprise or part thereof.

Product	A result and output generated by the business. It has a combination of tangible and intangible attributes (features, functions, usage)
Location	A geographic space demarked by a closed set of connected lines which intersect through a series of points - The name of a location may be a facility, place or position.
Service Construct (setup and delivery)	The set up and arrangement, which creates, organizes and delivers the services.
Service Area	A high level, conceptual, aggregation of provided services.
Service Group	An aggregation of services based on a common factor or domain which exist within a common service area.
Business Service	The externally visible ("logical") deed, or effort performed to satisfy a need or to fulfil a demand, meaningful to the environment.
Service Measurement (SPIs & SLAs)	The basis by which the enterprise evaluates or estimates the nature, quality, ability, or extent of the services. The commitments of a service are assessed.
Service Owner	A role performed by an actor with the rules, competencies and capabilities to take decisions for the service for which the owner is accountable.
Business Process	A set of structured activities or tasks, with logical behaviour that produce a specific service or product
Process Step	A conceptual set of behaviours bound by the scope of a process which, each time it is executed leads to a single change of inputs (form or state) into a single specified output. Each process step is a unit of work normally performed within the constraints of a set of rules by one or more actors in a role that are engaged in changing the state of one or more resources or business objects to create a single desired output.
Process Activity	A part of the actual physical work system which specifies how to complete the change in the form or state of an input, oversee, or even achieve the completion of an interaction with others actors and which results in the making of a complex decision based on knowledge, judgment, experience, and instinct.
Process Flow (incl. Input/output)	A stream, sequence, course, succession, series, progression, all based on the process input output states, where each process input/output defines the process flow that together executes a behaviour.
Process Measurement (PPI)	The basis by which the enterprise evaluates or estimates the nature, quality, ability, extent, as to whether a process or activity is performing as desired.
Process Owner	A role performed by an actor with the fitting rights, competencies, and capabilities to take decisions to ensure work is performed.
Application Owner	A role performed by an actor with the fitting rights, competencies, and capabilities to take decisions about the application components and modules the owner is responsible for.
System Measurement	Measures that are defined and implementable within an application.
Data Owner	A role performed by an actor with the rights, competencies, and capabilities to take decisions about the aspects of data for which the owner is responsible.
Platform Owner	A role performed by an actor with the fitting rights, competencies, and capabilities to take decisions about the platform devices the owner is responsible for.
Infrastructure Owner	A role performed by an actor with the rights, competencies, and capabilities to take decisions about the components within the infrastructure the owner is responsible for.

Figure 2: The 46 cost meta-objects.

The three main properties characterizing the Meta-Objects

In order to have a structured way of thinking, working and modelling within the Cost Reference Content, the three main properties characterizing the meta-objects relevant to modelling and architecture principles are applied:

- **Identity:** the decomposed cost objects that distinguishes it from other meta-objects areas.
- **State:** describes the purpose of the composed object.
- **Behaviour:** describes how the decomposed or composed objects can be used with other meta-object's relations across other modelling disciplines and architectural layers.

Cost Objects and their usage in the Cost Templates

The Cost Reference Content templates consist of both cost maps, cost matrices and cost models that capture the relevant cost meta-objects. Each of these is based on a specific view to a related cost topic and thereby with particular stakeholder concern, modelling and architecture rules related to enable cost identification, creation, and realization in achieving the outlined needs and wants. For this the Cost Reference Content templates identify the relevant stakeholders, their requirements and concerns, the cost object descriptions and their modelling and architecture rational, corresponding rules, architecture views and viewpoints; each of these artefacts are built as templates to support a particular need and want.

Fully integrated and standardized cost templates enable the strategist, cost expert/practitioner or architect (cost or business architect) to work with the relevant cost meta-objects throughout all the architectural layers (business, application and technology). Advanced cost modelling and relating the relevant objects throughout the layers is one of the strengths of the Cost Reference Content. Not only are the cost objects governed by its connection modelling rules, but also how and where the cost templates interlink and share common objects is defined and standardized.

	LEAD Templates & LEAD Meta Object Relations	The LEAD Cost Templates																														
		Forces & Drivers (FD)	Vision, Mission & Goals (VMG)	Requirement (Rq)	Stakeholder (ST)	Strategy (S)	Value (V)	Balanced Scorecard (BSC)	Performance (Pe)	Measurement & Reporting (MR)	Competency/Business Model (BC)	Revenue (Rev)	Cost (Co)	Operating (Op)	Information (I)	Role (Ro)	Owner (O)	Organizational Chart (OC)	Object (Ob)	Workflow (WF)	Rule (Ru)	Channel (Ch)	Media (Me)	Process (P)	BPMN Notation (BPMN)	Service (Se)	Application (A)	System Measurements/Reporting (AM)	Data (D)	Platform (PL)	Infrastructure (IF)
COST META-OBJECTS	Forces (external & internal)	1,2,3	2	2	2	2	2				2.3											2.3				2.3						
	Drivers (external & internal)	1,2,3	2.3	2	2	2	1.2	2	2	2	2.3			2								2.3				2.3						
	Value Indicator (Critical Success Factor)		2	2	2	1,2,3	1,2,3	2.3	2	2.3	2.3	2	2	2	2.3		2							2.3		2		2.3				
	Value Type (high, medium, low)		2	2	1.2	2	1,2,3	2	2	1,2,3		1,2,3	1,2,3																			
	Value Expectation	2		1.2	1,2,3	2	1,2,3	2	2	2	2.3	2	2	2			2							2.3		2.3						
	Value Proposition						1.2				2																					
	Driver Type: Performance	1,2,3		2.3				1,2,3	1,2,3	1,2,3	2.3	2	2	2	2.3									2.3	2	2						
	Performance Indicator			2.3				1,2,3	1,2,3	1,2,3	2.3	2	2	2	2.3									2.3	2	2						
	Performance Expectation			1.2	1,2,3			2	1,2,3	1.2	2.3		2				2							2.3		2.3						
	Strategy (Strategic Business Objective)		2	2		1,2,3	1.2	2.3			2.3	2	2													2						
	Goal (e.g. business, application, etc.)	2	1.2	2	2	2.3	1.2				2.3	2	2	2		2.3	2.3	2				2.3	2.3	2.3		2	2		2	2	2	
	Objective		2			1,2,3	1,2,3	1,2,3		1,2,3	2.3	2	2											2.3		2						
	Business measure			2.3			2	1,2,3	1,2,3	1,2,3	2.3	2	2	2.3	2.3	2.3	2.3							2.3	2	2						
	Timing	2	2	2		2.3	2	2.3	1,2,3	1,2,3	2	2	2	2.3	2		2			2	2	2	2	2	2	2	2	2.3	2	2	2	
	Quality			2	2		2		2	2.3			2	2.3			2				2							2.3	2			
	Reporting			1.2		2.3		2.3	1,2,3	1,2,3	2.3	2			2		1.2								2	2						
	Organizational Construct				2.3						2					2.3	2.3	1,2,3														
	Business Area	1.2	2	1.2	1,2,3	1,2,3	2.3		2.3	2.3	1,2,3	1.2	1.2	1.2		2.3	2.3	1,2,3		2.3		2.3										
	Business Group	1.2	2	1.2	1,2,3	1,2,3	2.3		2.3	2.3	1,2,3	1.2	1.2	1.2		2.3	2.3	1,2,3		2.3		2.3										
	Resource/Actor			1.2							1,2,3			1,2,3			1.2				2.3		2		2						
	Business Roles			1,2,3							1,2,3		2	1,2,3		1.2		1,2,3	2.3			2.3		2		2			1	1		
	Business Competency	2		1.2	1,2,3						2.3	1.2	1.2	1,2,3												2						
	Business Competency type (Differentiated, Competitive or Non-Core)	2		1.2	2.3						2.3	1,2,3	1,2,3	1,2,3	2.3		2.3			2		2		2		2.3						
	Location	2	1	1.2	1,2,3	2	2	2	1.2	1,2,3	1.2	1,2,3	1,2,3	1,2,3	2.3	1,2,3	2.3	1,2,3	2	2	2.3	2.3	2.3	1.2	3	2	2	2	2	2	2	1,2,3
	Product	2	2	1.2	1.2	2	2	2.3	2.3	2.3	2	1,2,3	1,2,3	2	2	2	1,2,3					2.3	2			1,2,3	2	2.3	2		2	
	Cost			2.3							2.3		1,2,3	1.2		2		2								1,2,3						
	Revenue			2							2.3	1,2,3		1.2																		
	Object (Business & Information)			1.2											1,2,3				1.2	1,2,3	2.3										
	Business Owner	2	2	1.2	1,2,3	2.3	2.3	2.3	2.3	2.3	1,2,3	1.2	1.2	2.3	1,2,3		1.2	1.2						2				2.3				
	Service Construct (setup & delivery)			2.3	3						2	2	2	3												1,2,3						
	Service Area	1.2	2	1.2	1,2,3	1,2,3			2.3	2.3			2	2		2.3	2.3	2.3		2.3						1,2,3						
	Service Group	1.2	2	1.2	1,2,3	1,2,3			2.3	2.3			2	2		2.3	2.3	2.3		2.3					2.3	1,2,3						
	Business Service	2		1.2	1,2,3							2	2								2.3				2.3	1,2,3			2			
	Service Measurement (SPI & SLA)			2				2.3	1,2,3	1,2,3		2.3													2	2.3						
	Service Owner	2	2	1,2,3	1,2,3	2.3		2.3	2.3	1,2,3	1.2	1.2	2.3			1.2									2.3	1.2						
	Service Roles			1.2						1,2,3		2			1.2			2.3						2		1.2			1	1		
	Business Process	2		1.2	1,2,3					2	2	2	1							2.3	2.3			1,2,3	2.3	2	2					
	Process Step			2.3							2	2								2.3	2.3			1,2,3	3	2	2					
	Process Activity			2.3							2	2								2.3	2.3			1,2,3	3	2	2					
	Process Flow (incl. Input/output)			2.3							3	3						2	1,2,3					3	3	2.3						
	Process Roles			2.3						1,2,3		2			1.2			2.3						2.3	2.3	1.2			1	1		
	Process Measurement (PPI)			2.3				2.3	1,2,3	1,2,3		2.3	2.3											2	2.3			1.2				
	Process Owner	2	2	1,2,3	1,2,3	2.3			2.3	2.3	1,2,3	1.2	1.2	2.3			1.2								1,2,3	2.3	2.3						
	System Measurements			2.3				2.3	1,2,3	1,2,3		2.3	2.3											2	2.3			2	2.3				
	Application/System Owner	2	2	1,2,3	1,2,3	2.3			2.3	2.3	1,2,3	1.2	1.2	2.3			1.2											1	1,2,3				
	Application Roles			1.2							1,2,3		2			1.2			2.3						2		1.2			2	1		
	Data Owner	2	2	1,2,3	1,2,3	2.3			2.3	2.3	1,2,3	1.2	1.2	2.3			1.2												2.3	2			
	Platform Owner	2	2	1,2,3	1,2,3	2.3			2.3	2.3	1,2,3	1.2	1.2	2.3			1.2												2.3		1.2		
	Infrastructure Owner	2	2	1,2,3	1,2,3	2.3			2.3	2.3	1,2,3	1.2	1.2	2.3			1.2												2.3			1.2	

LEADing Practice Cost Modelling Reference Content (#LEAD-ES20012BC) Legenda: 1 = Map 2 = Matrix 3 = Model

Figure 3: The cost objects and their Maps, Matrices & Models.

The cost templates are maps, matrices and models. The maps are often in the form of a list and are a representation of the decomposed cost objects, while the matrices are the continuity of and interconnection between a map (a representation of decomposed objects) and a representation of interconnected and related objects. Models often show the graphical representation of the relations and connections. The maps, matrices and models are used in the decomposition and composition work within and throughout the layers. The specific templates do not only show which objects are within what template, thereby specifying if it is a map, matrix or model, it furthermore shows where the object of one template can be reused in another template.

Cost Object related Specifics (e.g. Definition, Decomposition)

Costs for LEAD refer to the economic costs that a business incurs through its operations.

Cost can be **decomposed** into the following objects:

- Cost Type (High, Medium, Low)
- Cost Flow
- Competency (Business Area and Group)
- Competency Type (Core Differentiated, Core Competitive, Non-Core)
- Strategy (Cost Strategy)
- Owner.

Way of Thinking around Cost aspects

The Way of Thinking around Cost disciplines is essential, as it is the basis of the guiding principles around the Cost Reference Content. It provides a structural concept around strategic cost definitions e.g. wants, needs, identification, goals, issues and problems. The way of cost thinking furthermore postulates about what ought to be, including specifying the right cost abstraction level. The way of thinking does the following; it analyses, appraises, approximates, assesses and captures all aspects of the cost objects and artefacts; their idea, design, plan, scheme and structure. All this in order to understand the underlying cost concept, thought, view, vision as well as perspective, philosophy and belief.

The purpose of having a common way of thinking around cost concepts is to define how to organize and structure the viewpoints and cost objects associated with the various disciplines e.g. enterprise engineering, enterprise modelling and enterprise architecture applying the concepts. The cost reference concept has proven to help companies with some of the most common and complex advanced cost principles, dilemmas and challenges that companies have to confront today.

This includes, but is not limited to:

- The definition of a cost model.
- Clear cost assignment to its context; value proposition, cost drivers, goals and objectives, owners, measurement & reporting.
- Clear focus on the costs of core competitive, core differentiating and non-core business areas.
- The right cost-cutting programmes in view of the chosen strategy and the external and internal forces and drivers, e.g. the economical situation.

Chapter 'Way of Modelling around Cost aspects' addresses these challenges in more detail.

What many organizations do not realize is that there is something common within all the mentioned areas where cost aspects need to be applied. The common things are the cost objects. We have through research and analysis identified the semantic relations of the various cost objects and how they can be applied within different disciplines. The relations of the cost objects are built into our cost templates e.g. cost maps, cost matrices and or cost models.

Usage of Cost Maps

A Cost Map is an accurate list and representation of the decomposed and/or composed Cost Objects. Therefore the cost map provides an overview of the key costs of the organisation and their specific income, business competency area and -group, their location/place in the organisational construct/chart, their stakeholder, and their business unit owner, branch owner and department owner. The cost maps are often portrayed in the form of a list, which can range from a simple row to a catalogue of cost objects. It has the purpose of building an inventory or index list of the cost objects that are to be decomposed and/or composed and thereby applied in the different Layers (business, application and technology).

The Cost Reference Content Architecture & Modelling Rules

The cost map should capture the key costs of the organisation and their specification in strategy, objective, performance, competencies, strategic business objectives, critical success factors, stakeholders, owner, and organisation chart.

	What/which specification:			Where specification:			Where specification:		
Cost #	Cost Cutting Strategy (Strategic Business Objective)	Cost Cutting Objective (CSF, plan, forecast, budget)	Cost Cutting Performance Indicator (Strategic/Tactical/Operational)	Business Competency Area	Business Competency Group	Location /place	Stakeholder involved	Business Unit Owner	Area Owner/ Manager
#									
#									
#									

A part of the LEADing Practice Modelling and Architecture Principles and Templates

Figure 4: Cost map with decomposed cost objects.

The cost map's capturing should be based on enterprise modelling- and architecture rules and is related to LEAD tasks. Therefore for each individual column of the cost map their applicable decomposition- (D), primary- (P) and secondary (S) relationship related rules (Rule) as well as the related tasks (Task) are described below:

The 'what/which' specification in terms of which cost cutting Strategy (Strategic Business Objective).	
Rules	(D) Cost relates to Strategy.
Tasks	• Link the business strategy through strategic business objectives to; 1. 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output Identify, label and categorize the cost flows
The 'what/which' specification in terms of which cost cutting Objective (CSF, Plan, Forecast, Budget).	
Rules	(D) Cost relates to Objective (CSF, Plan, Forecast, Budget)
Tasks	• Associate and attach objectives, critical success factors, plans, forecasts and budgets to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output.

The 'what/which' specification in terms of which cost cutting Performance Indicator (Strategic, Tactical, Operational).	
Rules	(D) Cost relates to Performance (Strategic-, Tactical and Operational performance Indicator)
Tasks	• Link and relate performance indicators, operational performance indicators, tactical performance operations and strategic performance indicators, to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output.
The 'where' specification in terms of which Business Competency Area.	
Rules	(S) Cost relates to Competency (Business Area).
Tasks	• Map: Recognize and group the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output of each business area.
The 'where' specification in terms of which Business Competency Group.	
Rules	(S) Cost relates to Competency (Business Group).
Tasks	• Recognize and group the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output of each business group.
The 'where' specification in terms of location.	
Rules	(P) Cost relates to Location.
Tasks	• Identify and label cost to location.
The 'who/whom' specification in terms of which stakeholder is involved.	
Rules	(P) Cost relates to Role and Resource/Actor (Stakeholder).
Tasks	• Identify the stakeholders that belong to which cost flow.
The 'who/whom' specification in terms of which Business Unit Owner is involved.	
Rules	(S) Cost relates to Owner (Business Unit Owner).
Tasks	• Identify which business unit owner belongs to which: 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output.
The 'who/whom' specification in terms of which Area Owner/Manager is involved.	
Rules	(S) Cost relates to Owner (Area Owner/Manager)
Tasks	• Identify which area owner/manager belongs to which: 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output.

Figure 5: How cost is based on rules and relates to LEAD tasks.

Way of Working around Cost aspects

The Cost Way of Working is critical discipline of translating both strategic planning and effective execution. Structure the arrangement of effort and work, by translating the "Way of Thinking" into a structural way of working. The Way of Working organizes, classifies, aligns, arranges, quantifies, recommends and selects the cost objects and with it the relevant cost template in a systemized and categorized way they need to be de-composed (broken down) or composed (related) together.

The Way of Working is where one defines the best suitable technique, manner, routine and method that will help the practitioner to ensure integrity, accuracy and completeness of each particular task related to the rule that ensures the right cost relation. The cost way of working is therefore a series of phases with a collection of activities that the user of the cost methods needs to follow and undertake in order to reach a specific goal/outcome. The below specified way of working therefore structures the practitioner's techniques in applying the right semantic principles, rules, procedures and practices.

Usage of Cost Matrices

The Cost Matrices are a representation that accurately shows the relationship between specific decomposed and composed cost objects. The core idea of a the cost matrices is that they consists of the cost objects that have primary and thereby direct natural relations, these are always in a list form (row and columns) and the cost objects that need to be related to them. This is seen in the cost matrices as the cross product between the rows and columns. This allows within the cost matrix to relate the unfamiliar to the familiar cost objects in the different layers (composition), which represents the matrix diagram (rows and columns). These ontology and semantic based cost relations have been standardized to ensure reusability and replication of success in outlining the right connection points that is actually based on a common relationship pattern of the cost objects.

The Cost Reference Content Architecture & Modelling Rules

The cost matrix should capture the key costs of the organisation and their related business area and group, service area and group, business process area and group, and role. The purpose of the cost matrix is to provide a clear overview of the key costs of the organisation that will have to be defined, targeted and realized by filling in their related cost aspects mentioned above. These are captured in separate matrixes as described below.

Cost-Business Area/Group Matrix

This Cost-Business Area/Group Matrix shows the columns of the Cost Map in combination with the competency; the which specification in terms of which business area and group.

Business Area & Group (Which business area and group is involved)		What/which specification:			Where specification:			Where specification:		
	Cost #	Cost Cutting Strategy (Strategic Business Objective)	Cost Cutting Objective (CSF, plan, forecast, budget)	Cost Cutting Performance Indicator (Strategic /Tactical/ Operational)	Business Compe-tency Area	Business Compe-tency Group	Location /place	Stake-holder involved	Busi-ness Unit Owner	Area Owner/ Manager
Business Area /Group 1	#									
Business Area /Group 2	#									
Business Area /Group N	#									

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Figure 6: A matrix showing how cost relates to business area and group.

The Cost-Business Area/Group Matrix's capturing should be based on enterprise modelling- and architecture rules and is related to the LEAD tasks as described under the Cost Map. In addition to those rules and tasks, the following rules and tasks are related to competency (business area and group):

The what/which specification in terms of which business area and group is involved.	
Rules	(S) Cost relates to Competency (Business Area and Group)
Tasks	• Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific business area and group.

Figure 7: A table showing how cost objects relate to business area and group and the tasks associated with it.

Cost-Service Area/Group Matrix

This Cost-Service Area/Group Matrix shows the columns of the Cost Map in combination with the service: the 'which' in terms of which service area and group is involved.

Service Area & Group (Which service area and group is involved)		What/which specification:			Where specification:			Where specification:		
	Cost #	Cost Cutting Strategy (Strategic Business Objective)	Cost Cutting Objective (CSF, plan, forecast, budget)	Cost Cutting Performance Indicator (Strategic /Tactical/ Operational)	Business Compe-tency Area	Business Compe-tency Group	Location /place	Stake-holder involved	Busi-ness Unit Owner	Area Owner/ Manager
Service Area /Group 1	#									
Service Area /Group 2	#									
Service Area /Group N	#									

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Figure 8: A matrix showing how cost relates to service area and group.

The Cost-Service Area/Group Map's capturing should be based on enterprise modelling- and architecture rules and is related to LEAD tasks as described under Cost Map. In addition to those rules and tasks, the following rules and tasks are related to service area and group:

The 'which' specification in terms of which service area and group is involved.	
Rules	(S) Cost relates to Service (Service Area and Group)
Tasks	• Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific service area and group.

Figure 9: A table showing how cost objects relate to service area and group and the tasks associated with it.

Cost-Business Process Area/Group Matrix

The Cost-Source Matrix shows the columns of both the Cost Map in combination with the source of the cost; the whence in terms of source specification, e.g. product, service or channel.

Process Area & Group (Which process area and group are involved)		What/which specification:			Where specification:			Where specification:		
	Cost #	Cost Cutting Strategy (Strategic Business Objective)	Cost Cutting Objective (CSF, plan, forecast, budget)	Cost Cutting Performance Indicator (Strategic /Tactical/ Operational)	Business Compe-tency Area	Business Compe-tency Group	Location /place	Stake-holder involved	Busi-ness Unit Owner	Area Owner/ Manager
Process Area /Group 1	#									
Process Area /Group 2	#									
Process Area /Group N	#									

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Figure 10: A matrix showing how cost relates to process area and group.

The Cost-Process Area/Group Matrix capturing should be based on enterprise modelling- and architecture rules and is related to cost tasks as described under the Cost Map. In addition to those rules and tasks, the following rules and tasks are related to process area and group:

The 'which' specification in terms of which process area and group is involved.	
Rules	(S) Cost relate to Process (Process Area and Group)
Tasks	• Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific service area and group.

Figure 11: A table showing how cost objects relate to process area and group and the tasks associated with it.

Cost-Roles Matrix

The Cost-Report Matrix shows the columns of both the Cost Map in combination with the value/performance report; cockpits, dashboards or scorecards.

Roles (which business roles are involved)		What/which specification:			Where specification:			Where specification:		
	Cost #	Cost Cutting Strategy (Strategic Business Objective)	Cost Cutting Objective (CSF, plan, forecast, budget)	Cost Cutting Performance Indicator (Strategic /Tactical/ Operational)	Business Compe-tency Area	Business Compe-tency Group	Location /place	Stake-holder involved	Busi-ness Unit Owner	Area Owner/ Manager
Business Role 1	#									
Business Role 2	#									
Business Role N	#									

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Figure 12: A matrix showing how cost relates to business roles.

The Cost-Role Matrix capturing should be based on enterprise modelling- and architecture rules and is related to cost tasks as described under the Cost Map. In addition to those rules and tasks, the following rules and tasks are related to role:

Business Role: A part that someone or something has in a particular defined function, activity or situation. A resource/actor may have a number of roles.	
Rules	(S) Cost relate to Role (Business Role)
Tasks	• Link business roles to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output

Figure 13: A table showing how cost objects relate to business roles and the tasks associated with it.

Way of Modelling around Cost aspects

The Cost Way of Modelling provides the means for the various practitioners working with cost aspects to assist them in defining the modelling principles required to make an objective assessment of the possible cost object relationships with other objects. It provides a uniform and formal description of the models where the cost objects and artefacts within one or more different types of models can be portrayed. The cost models are a representation that graphically represent and shows the cost relationship and the interconnection of specific composed objects and complies with a specific set of rules for what the graphical components mean, and how they are connected to the rest of the business. The key ideal of a cost model is that it is a representation, an illustration, of a composition of information intended to represent an aspect of an enterprise (e.g. business, application and/or technology), using a specific set of rules, which express a logic or grammar.

Each practitioner working with cost aspects has to be able to translate the "Way of Working" into a "Way of Modelling", which for the most part include the following:

- **Expressiveness:** the degree to which a given modelling technique is able to denote the models of any number and kinds of layered domains (business, application and technology).
- **Arbitrariness:** the degree of freedom one has when decomposing and composing different models on the same domain.
- **Suitability:** the degree to which a given modelling technique is specifically tailored for a specific kind of wanted output/result.
- **Comprehensibility:** the ease of how the way of working and way of modelling techniques are understood by participants.
- **Coherence:** the degree to which the individual sub-models of a way of modelling constitute a whole.
- **Completeness:** the degree to which all-necessary concepts of the application domains are represented in the way of modelling.
- **Efficiency:** the degree to which the modelling steps (e.g. LEADing Practice steps) use resources such as time and people.
- **Effectiveness:** the degree to which the modelling principles achieve its goals.
- **Audit:** the degree to which the end results of the models achieve its goals.

Based on already acquired information from the cost maps and/or a cost matrices (or both), a cost model is usually crafted to enable complex information to be used in different disciplines and within this to be communicated more easily to stakeholders, management and leadership. The fully integrated and standardized cost templates enable the practitioner to work and model with the cost objects throughout all the aspects of the enterprise (business, application and technology). Not only are the objects governed by its semantic relations and connection, also the specified cost modelling rules and tasks, which ensure how and where the cost templates interlink and share common cost objects is defined and standardized.

As we explore earlier is the cost matrix is the continuity of and interconnection between a cost map (a representation of decomposed and/or composed objects) and a cost model (a representation of interconnected and related objects). The cost maps, matrices and models are therefore used in the decomposition and composition work (within and throughout the layers).

By using the cost templates to manage the different kinds of highly connected information and relations, the cost creation is ensured. The cost map (which list the various related objects in order to capture the decomposed unrelated objects) is vital as well as the cost matrix (which composes in terms of relating specific objects together) and the cost model (which graphically represent the decomposed and composed objects) are both critical in integrating and standardizing the cost templates and tools of the practitioner. Furthermore, it is an essential part of supporting as well as integrating and standardizing the practitioner's Way of Thinking, Working and Modelling.

Last but not least, it ensures integration of the Enterprise Modelling and Enterprise Architecture objects and artefacts. Bringing an organization that uses the cost way of modelling templates to the highest maturity possible of working not only documented (level 3) or managed (level 4) but enabling optimization, governance and continuous improvement (level 5). The cost Reference Content in this way captures the aspects of the cost and cost of innovation and transformation within its profile for Key Performance Indicators (KPI).

Cost Model

A Cost Model concentrates on topics like: how an organisation makes money by changing the value proposition (product/ service/ value mix) - and what needs to be done to optimize the pricing model. Changes in the Cost Model, also changes the business model upon which the entire organisation is build.

The business models involve the conception of how the business operates, its underlying foundations, and the exchange activities and financial flows upon which it depends. Such models are the architecture within which the various business competencies and activities take place. Cost Model changes with Cost Model are the most prominent, especially during challenging economic times. Considered easiest, but tends not to yield the same financial benefits, as the innovations are less defendable or lasting. Often used during downturns to rethink and improve enterprises' cost model and value proposition to respond to a different set of customer behaviours and market requirements. In fact, the outperformers offered a value-based service in an otherwise shrinking market. Service Model and Cost model are often combined to offer new services based on a new Cost Model.

The implications of Cost Model and pricing decisions are complex and have a fundamental impact on how your business operates. Those companies that have standardized services, offered on a periodic basis supported by a signed service agreement, seem to be far better off than those who don't use a recurring Cost Model. Organisations that put a lot of effort into refining their Cost Model had a major focus on topics like:

- The cost strategy and growth strategy.
- Development of core competitive and core differentiating.
- Growth, pricing models and value trade off.
- Owner responsibilities for optimization and development of growth and core critical competencies.
- Process integration and standardization to support the wanted cost model developments.
- Roles involved in the concept and developments.
- Business flow that needs to be changed or optimized to support new cost model concept.
- Which media should be involved in the cost model development and delivery.
- Channels that are needed in the wished cost model.

- Technology adoption, for the level of automation development though applications, data, platform and infrastructure to cut cost.
- Cost model measurements, in terms of critical success factors and key performance indicators.
- Cost model compliance to regulations and laws.
- Objects in terms of products and offerings that need to be developed for a new cost/cost/value trade off.
- Rules in terms of standards, guidelines and policies around the cost and pricing model.

While most types of business model innovation and transformation can lead to success, financial outperformers are more likely to focus on Cost Model initiatives (in combination with service and value model). Examples of Cost Model innovation and transformation:
1) Gillette innovated the pricing model by giving away razors and making money on the blades.
2) Netflix shifted the cost model from product / rental based to a subscription based annuity model.

Way of Implementing

The Cost Reference Content's Way of Implementation combines the cost engineering, cost modelling and cost architecture principles in an order to apply the way of cost thinking, cost working and cost modelling into the physical and thereby the cost execution.

Most implementations fall short of transforming the business and creating real cost due to the fact that they automate the existing Way of Working around Cost concepts. Thereby actually reinforcing a siloed and ineffective way of automation. It is about the possibility to totally rethink the cost flow within the information flow, the service flow, the process flow as well as the measurement and reporting flow. It can fundamentally rethink and transform the different ways of working within an organization.

The Way of Cost Implementation has been developed as a fully integrated part of a Blueprinting and Implementation concept. In this way, the cost aspects can be integrated to any other engineering, modelling or architecture discipline e.g. process, service, application/software, data etc. With this the Way of Implementation provides a uniform and formal implementation concept of where the Cost meta-objects and artefacts can be used. By using decomposition and composition modelling techniques within the 40 steps of the Way of Implementation, the cost objects within the templates can be applied to the relevant subjects within the different layers (business, application or technology).

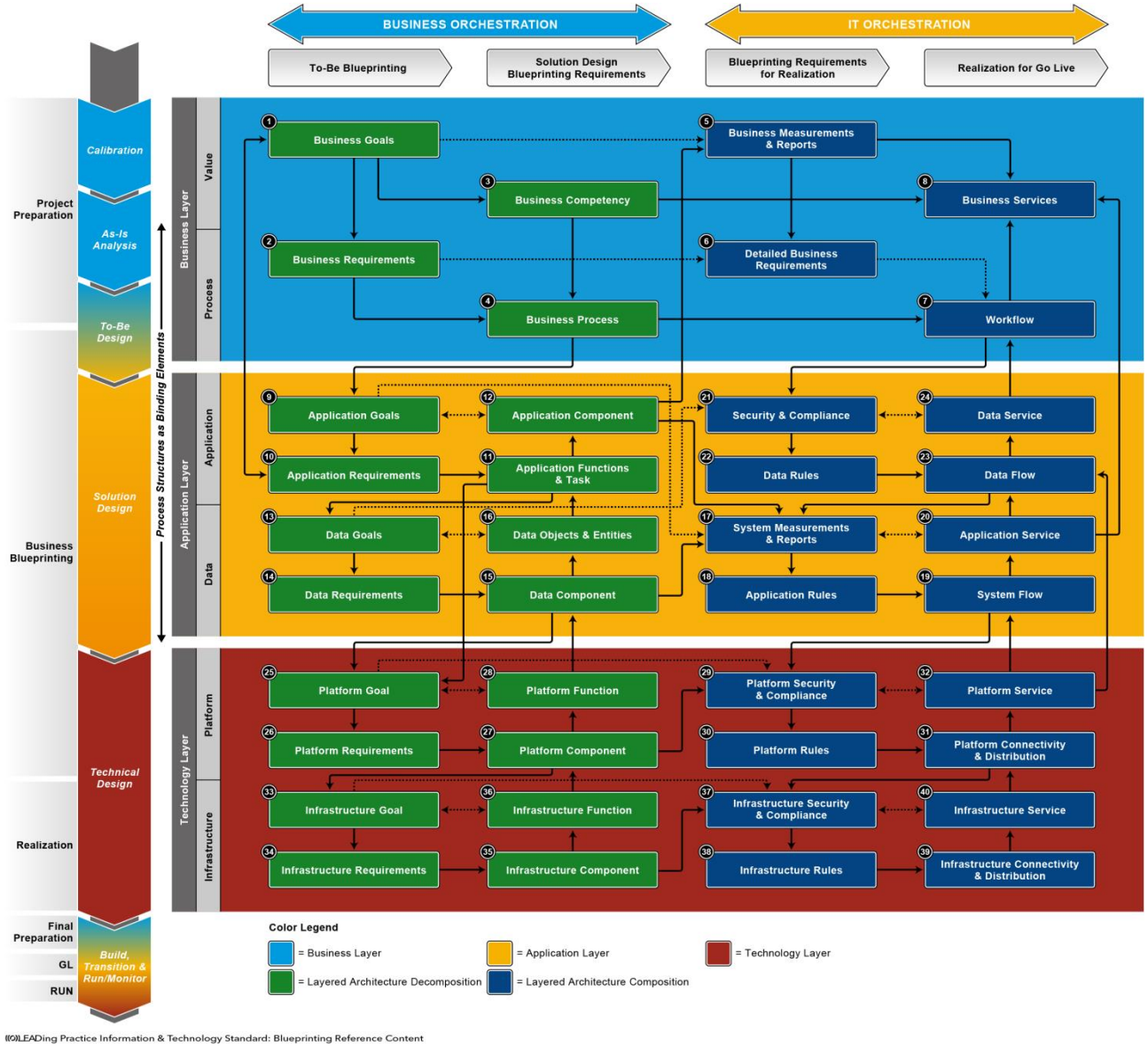

Figure 20: A model showing the 40 Blueprinting & Implementation steps across the Business, Application and Technology Layer.

Example of the Business Layer where the Cost Objects are used or applied within the implementation steps:

<u>Step 1: Cost Objects and the tasks to apply them within the Business Goals step:</u>

- ✓ Matrix: Link the business **strategy** through strategic business objectives to; 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output (Figure 5).
- ✓ Matrix: Associate and attach **goals**, business goals, application goals and technology goals to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output
- ✓ Matrix: Associate and attach **objectives**, critical success factors, plans, forecasts and budgets to: 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output (Figure 5).

- ✓ Matrix: Link and relate **performance indicators**, operational performance indicators, tactical performance operations and strategic performance indicators, to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output (Figure 5).

Step 3: Cost Objects and the tasks to apply them within the Business Competency step:

- ✓ Map: Identify the **cost type**: 1. High cost types, 2. Medium cost types, 3. Low cost types.
- ✓ Map: Identify the **cost flow**: 1. Cost flow inputs, 2. Cost flow outputs.
- ✓ Matrix: Associate and relate the **cost types**, high cost, medium cost and low cost types to **cost flow**; 1. Cost flow input and 2. Cost flow output.
- ✓ Model: Construct a Cost Model that outlines the relationship between **cost types**, high cost type, medium cost type and low cost type and **cost flow**; 1. Cost flow input, 2. Cost flow output.
- ✓ Map: Recognize and group the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output of each **business area and group** (Figure 5)**.**
- ✓ Matrix: Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific **business area and group** (Figure 7).
- ✓ Map: Identify and label cost to **location** (Figure 5).
- ✓ Map: Identify the **stakeholders** that belong to which cost flow (Figure 5).
- ✓ Map: Identify the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output of the core differentiating, core competitive and non-core **competencies.**
- ✓ Matrix: Associate and relate the identified **competency type**, core differentiating, core competitive and non-core competencies with each specific; 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output.
- ✓ Map: Identify which **business owner, service owner, process owner, application owner, data owner, platform owner, infrastructure owner** belongs to which: 1. High cost type, 2. Medium cost type, 3. Low cost type, 4. Cost flow input, 5. Cost flow output (Figure 5).
- ✓ Matrix: Associate and connect each specific **business owner, service owner, process owner, application owner, data owner, platform owner, infrastructure owner** to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output.
- ✓ Matrix: Link **business roles, service roles, process roles, and application roles** to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output (Figure 13).

Step 4: Cost Objects and the tasks to apply them within the Business process step:

- ✓ Matrix: Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific **process area and group** (Figure 11).
- ✓ Matrix: Associate the cost flows to **business processes, process steps and process activities.**
- ✓ Model: Construct a Cost Model that relates the **process flows** to the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output

Step 5: Cost Objects and the tasks to apply them within the Measurement & reporting step:

- ✓ Matrix: Attach and relate the; 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to the **measurements**, process measurements (PPI's) and system measurements.

- ✓ Model: Construct a Cost Model that relates the **measurements**, process measurements (PPI's) and system measurements to; 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output.

Step 8: Cost Objects and the tasks to apply them within the Business Service step:

- ✓ Matrix: Link the **service construct** (setup & delivery) to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output.
- ✓ Matrix: Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific **business service area**.
- ✓ Matrix: Associate the: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output to each specific **service area and group** (Figure 9).
- ✓ Matrix: Link **service tiers**, strategic service tiers, tactical service tiers and operational service tiers to: 1. High cost types, 2. Medium cost types, 3. Low cost types, 4. Cost flow input, 5. Cost flow output.

Roles involved

The following roles are involved in the cost identification, cost planning, cost creation, cost realization as well as the cost governance of the Cost Templates:

ENTERPRISE MODELLERS	ENTERPRISE ENGINEERS	ENTERPRISE ARCHITECTS
Business Analyst (P)	Value Engineer (P)	Business Architect (P)
Process eXpert (P)	Technology Engineer (P)	Solution Architect (P)
Value eXpert (P)	Process Engineer (P)	Value Architect (P)
Information eXpert (S)	Quality Engineer (P)	Data Architect (P)
Service eXpert (P)	Change Engineer (P)	Service Architect (P)
Transformation eXpert (S)	Software Engineer (P)	Technology Architect (P)
		Process Architect (P)
		Enterprise Architect (P)
		Information Architect (P)

(P) = Primary object/role
(S) = Secondary object/role

Conclusion

While this document should be seen and used as a detailed description of how the cost reference content can be used, it does not have all aspects of the cost reference content and thereby its cost engineering, modelling and architecture content. It attempted to build a basis of a structured way of thinking, working, modelling and implementation of cost objects. It endeavoured to provide a standardized terminology, build common understanding and make available the standardized and integrated cost templates. Enabling practitioners to use the cost reference content to:

- Identify the relevant cost objects.
- Decompose the cost objects into the smallest parts that can, should and needs to be modelled, and then compose the cost objects entities before building them (through mapping, simulation and scenarios).
- Visualize and clarify cost object relationships with the cost artefacts by using maps, matrices and models (alternative representation of information).
- Reduce and/or enhance complexity of cost modelling, cost engineering and cost architecture principles applying the cost decomposition and composition standard (see Decomposition and Composition Reference Content)
- Model the relevant cost objects through the architectural layers (see Layered Architecture Reference Content).
- Adding Cost Requirements (see Requirement Reference Content)
- Provide a structured Cost Blueprinting and Implementation (see Blueprint & Implementation Reference Content).

For further learning around semantic object relations, decomposition and composition, layered modelling, engineering and architecture or how the cost reference content can be used within the other LEADing Practice Reference Contents we refer both to the LEADing Practice Body of Knowledge document as well as the other LEADing Practice Enterprise Standards and their Reference Content on www.LEADingPractice.com.

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