

Framework 18.5

Product Conformance Certification Report

Sigma Systems **Sigma Catalog v7.1**

May 2019

Version 1.0

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1 Introduction

1.1 Executive Summary

This document provides details of Sigma Systems' self-assessment and TM Forum's Conformance Assessment of **Sigma Catalog v7.1** product, against the following Framework components:

- Business Process Framework (eTOM) version 18.5

The assessment was based on a review of:

- The methodology approach to process modeling against the TM Forum's Business Process Framework Release 18.5 according to the specific processes submitted in scope for the Assessment.

The following figure provides a high level illustration of the conformance certification process.

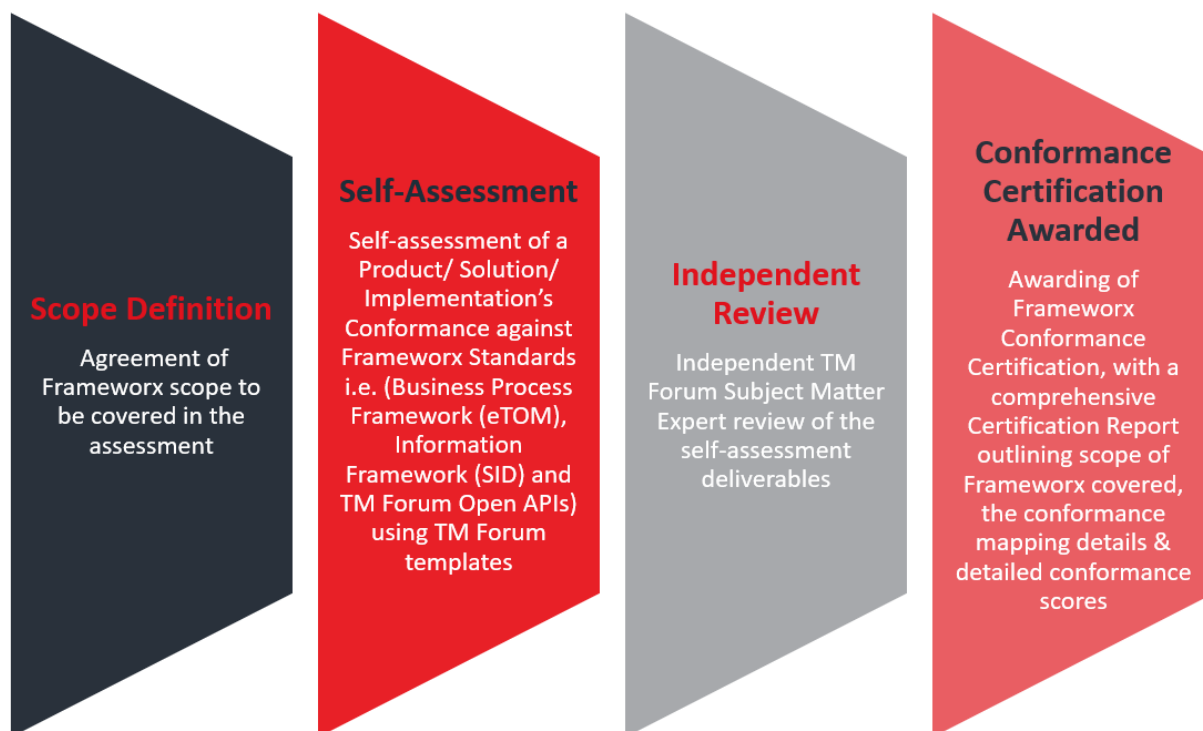


Figure 1 – Conformance Process Steps

2 Product Functionality/Capability Overview

2.1 Sigma Catalog v7.1 – Product Overview

Critical to the ability of communication service providers (CSPs), media and high-tech companies to operate successfully and profitably in an increasingly competitive and convergent marketplace is the capability to introduce and manage effectively a portfolio of products that are relevant to customers, released at the most opportune time, and done so at a low cost. The Sigma Catalog solution is designed specifically to manage the end-to-end processes and product data relevant to the product development, product launch, and in-life product management activities of an organization. In so doing, Sigma Catalog enables true product management transformation. Sigma Catalog provides organizations with the essential components of a full product lifecycle management (PLM) framework and product data management (PDM) capability. Sigma Catalog is an automated, packaged solution that asserts centralized business control over the product management process by forming the product management platform at the heart of the enterprise. Sigma Catalog synchronizes the product management process and corresponding data into a single, automated, error-resilient stream through:

- **A centralized product and service catalog**, providing master data management (MDM) for products and services that are controlled and reusable throughout their lifecycle.
- **Best-practice PLM**, with products and services managed through a defined, repeatable, and measurable process.
- **Seamless, automated integration**, because Sigma Catalog knows the product ecosystem across the applications and has an open, standards- and service oriented architecture (SOA)- based integration framework, enabling inter-operation with different platforms and applications.
- **Sophisticated reporting and analytics** through the Sigma Catalog reporting system for the review and tracking of products and services throughout the lifecycle.
- **A 360-degree view and single-point-of-truth for products**, with a global system of record for all product information, reducing inconsistencies across the enterprise.
- **Multi-purpose configuration and build capability** delivered by the set of workspaces and tools needed to perform both core component build in the factory, namely in IT and engineering, as well as product packaging and offer creation by marketing, including product managers and business users.

The Sigma Catalog product suite provides the core components necessary to centralize, configure, integrate and maintain the product and service portfolio across the enterprise. At the heart of the solution is the central product and service catalog, which brings together into a single master all of the commercial and technical elements that define the reusable product and service building blocks and resulting offers.

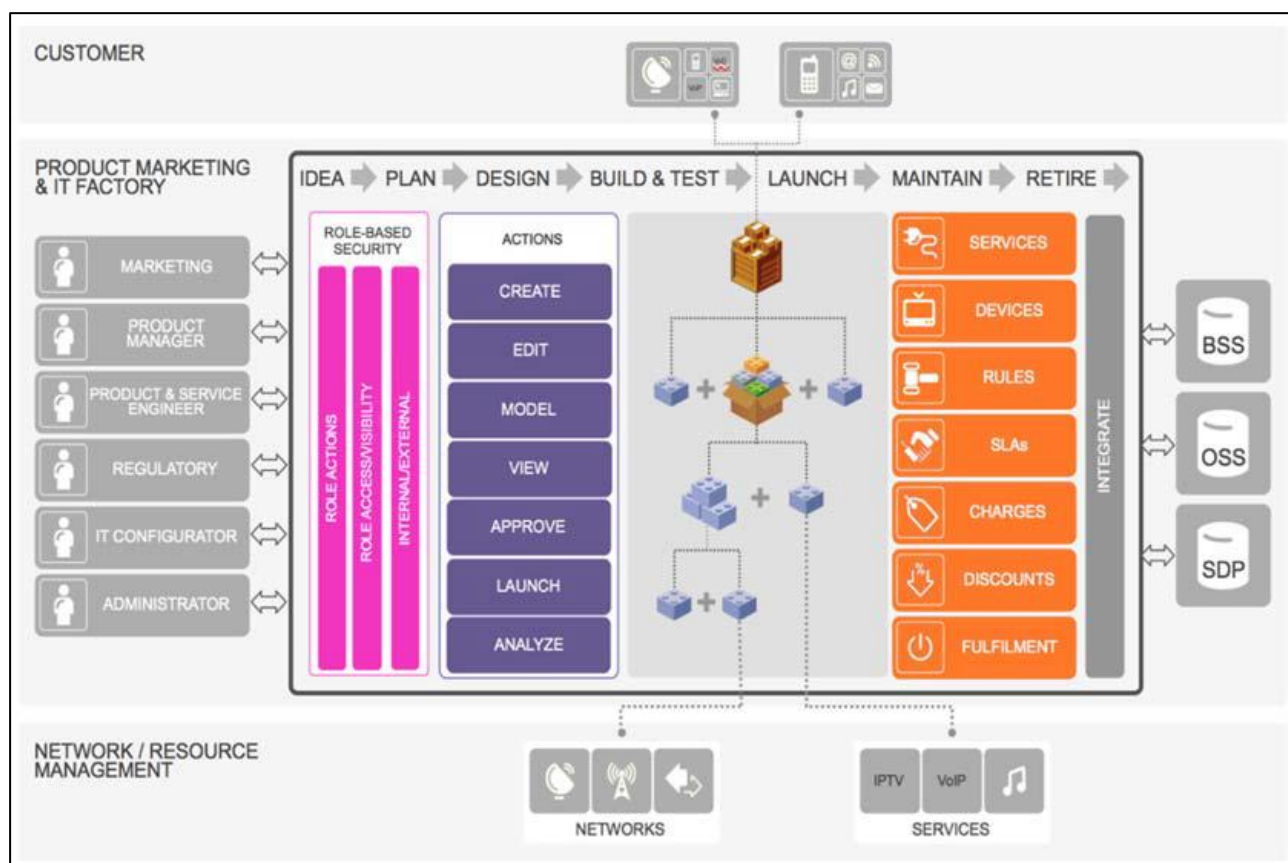


Figure 2 Sigma Catalog Solution

The Sigma Catalog user interface provides a single point-of-entry and single point-of-access to the master product and service data, through which users can perform all the activities necessary to manage the full catalog of product offerings and underlying services, including the creation, modification, reuse, launch, maintenance, and retirement of products and services. The open, standards- and SOA-based Sigma Catalog integration framework provides the necessary infrastructure to interface product and service data to BSS and OSS systems in an automated and efficient fashion, including order-capture, CRM, billing, order-management, mediation, and provisioning systems, online portals, and more. Key features of the Sigma Catalog suite include:

- Collaboration environment for both business and IT users
- Cross-function, role-based user definitions and security:
- Multi-dimensional, role-based management access to the functions and catalogs in the application
- End-to-end PLM process and activities:
 - Project definition and tracking
 - Configurable and automated workflow
 - Tasks lists with impact and notification reporting to manage the change process tightly
- Centralized MDM for the product and service catalog:
 - Componentized data model for offers, products, services, devices, pricing, target system rules, and processes

- Simple and complex product and service structures
- Definition of commercial and technical aspects of product and service components
- Convergent / N-play, cross-product-line *bundles*
- Sharing of product *components* across different product and market categories
- Cloning and modification of product structures or individual entities to enable rapid product modeling
- Business and technical modeling of product offers and underlying *component* specifications
- Highly configurable capability for defining rating attributes for *charges* and *discounts*, to support attribute-based, tiered, threshold, and flat rating and discounting, variable across product lines
- Channel-, market-, and customer-specific price lists to manage the reuse of products across target markets through different offers
- Enterprise and business-to-business (B2B) products, contracts and service-level agreements (SLAs) can be constructed from reusable assets in the product catalog
- Support for E2E, order-to-install and fulfillment processes
- Fully inter-operable inbound/outbound integration framework, including a SOA-web-services-based integration framework and application connector sets to expedite integration configuration between Sigma Catalog and target applications
- Comprehensive reporting and business intelligence capabilities, including native reporting and search functions plus a product-performance analytics framework

2.1.1 About Sigma Systems

Sigma Systems is an award-winning solutions provider and a valued partner to over 80 of the world's leading service providers in 40 countries. Every day, our high-demanding customers put our people and our software to work to launch new digital products and deliver a frictionless omni-channel product-selling experience to more than 350 million globally.

We are the global leader in catalog-driven software solutions for communications, media and high-tech companies. With over 20 years of serving the world's leading CSPs, the company's portfolio spans enterprise-wide Catalog, Configure Price Quote (CPQ), Order Management, Provisioning, Insights and Portfolio Inventory products, and offers a core set of services including professional services, cloud services, and managed services.

Today, with offices in North and South America, Europe and the Asia-Pacific region, Sigma Systems utilizes an agile approach to implementing its B/OSS products for its customers.

2.1.2 What the industry says

Over the years, we have been recognized in a number of areas. These are our market-leading solutions, our executive leadership and being an employer of choice in both Canada and the UK:

- Featured in the 2018 Gartner Magic Quadrant for Configure-Price-Quote Application Suites.

- Shortlisted for two awards at the 2019 TM Forum Excellence Awards.
- Winner in the 'Innovation in Business Support Systems' category at the 2018 Pipeline Innovation Awards.
- Winner in the Outstanding Digital Enablement Vendor of the Year' category at the 2018 Leading Lights awards.
- Named one of Canada's top 25 software companies by the Branham Group.
- Winner of the Mayor's Challenge Award for Aging Population at the Global Smart City Summit in Liverpool.
- Catherine Michel, our Chief Technology Officer, was named CTO of the Year at the 2018 TM Forum Excellence Awards, and has also been shortlisted for the same honour this year as well. Furthermore, she also won the 2018 Total Telecom World Communications Women in Telecoms Award and was named one of the top 50 Women to Watch by Global Telecoms Business. She was also recently appointed to the UK5G Advisory Board.
- In 2019, Sigma Systems secured the Gold Standard in the category of Canada's Best Managed Companies from Deloitte.
- Recently named among 30 Top Companies to Work For in Wales.
- Recognized as one of Greater Toronto's Top Employers by *The Globe and Mail*.

2.2 Business Process Framework Level 2 Process Scope

The following figure represents the Business Process Framework Level 2 processes that were presented in scope for the assessment, and the textual callouts represent the components of Sigma Catalog v7.1 that were assessed and support the corresponding Business Process Framework processes according to the Framework Conformance results.

eTOM Business Process Framework – v18.5

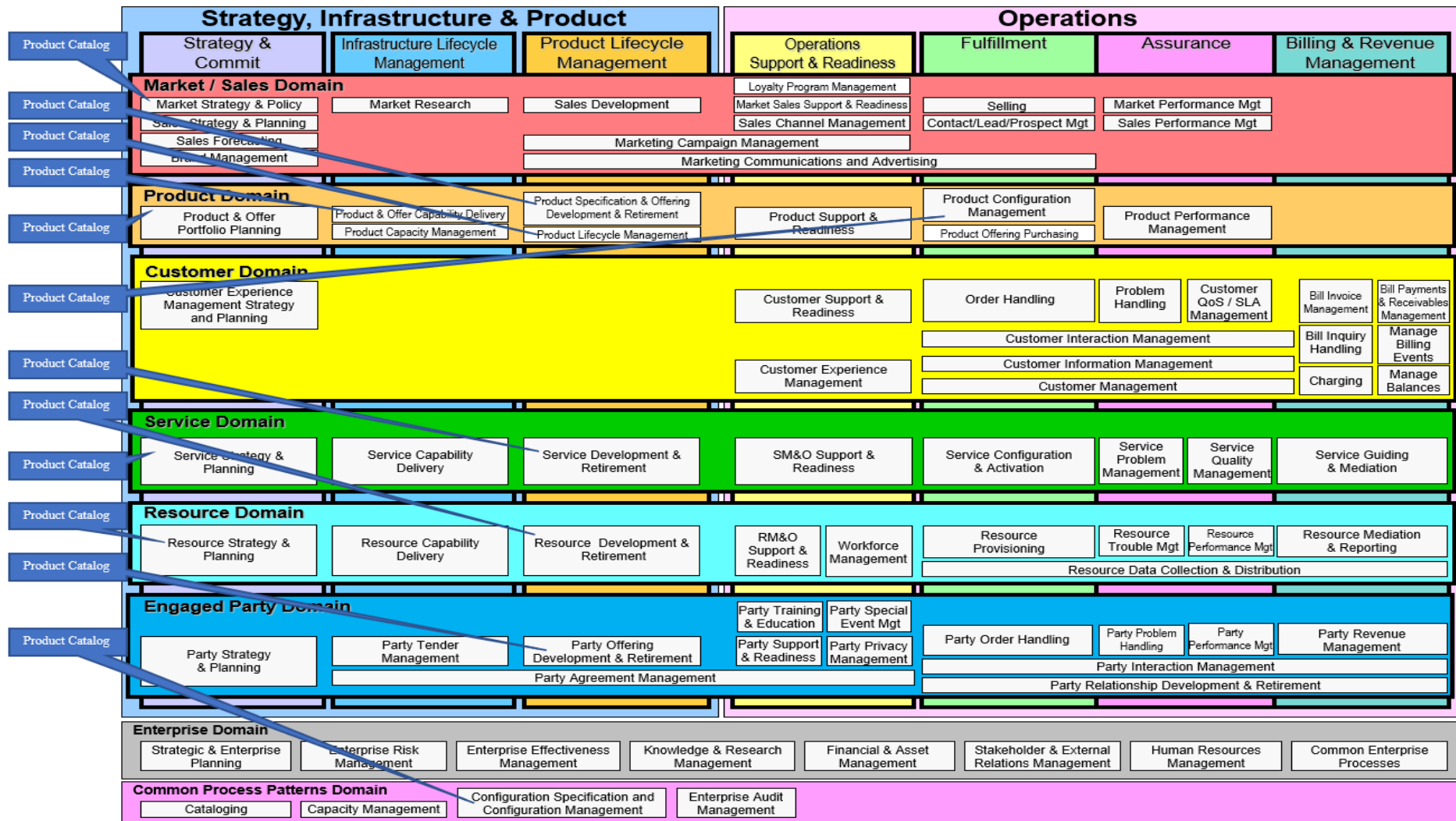


Figure 3 - Level 2 process coverage for Sigma Catalog v7.1 Assessment

2.3 Sigma Catalog v7.1 Benefits

Communications, media and high-tech companies gain significant benefits through the adoption of an enterprise-wide, centralized, product-management capability. An enterprise product-management solution yields more highly competitive products with stronger profit margins and greater customer satisfaction. Sigma Catalog delivers these benefits, improving the bottom line through faster time-to-market and lower cost-to-market, enabling innovation and improving quality across PLM.

Time-to-Market

Faster time-to-market means:

- Reduced design, build, test and launch time for products through *component* reuse
- A reduced volume of data required to assemble and establish new offerings in the architecture
- A first-mover advantage
- Simplified and accelerated new product and service introduction through improved clarity around what to offer, which is critical in responding to competitors

Cost-to-Market

Lower cost-to-market means:

- Reduced operational and delivery costs through fewer disparate data points to manage
- Reduced complexity of business processes
- Structured components that maximize compatibility with long-term reference architecture

Innovation

Enabling innovation provides:

- Increased ability to support complex propositions due to simpler set-up from any channel
- Rapid monetization of data moving among people and systems through simplified definition of a unified product
- Improved customer satisfaction through better understanding of the product purchased
- Ability to compete with and support web-application and cloud-based solutions

2.4 Sigma Catalog v7.1 Products

The Sigma Catalog product suite comprises the following components:

- Sigma Catalog Manager
- Sigma Catalog Workbench
- Sigma Catalog Integration Services Framework
- Sigma Catalog Workflow Designer

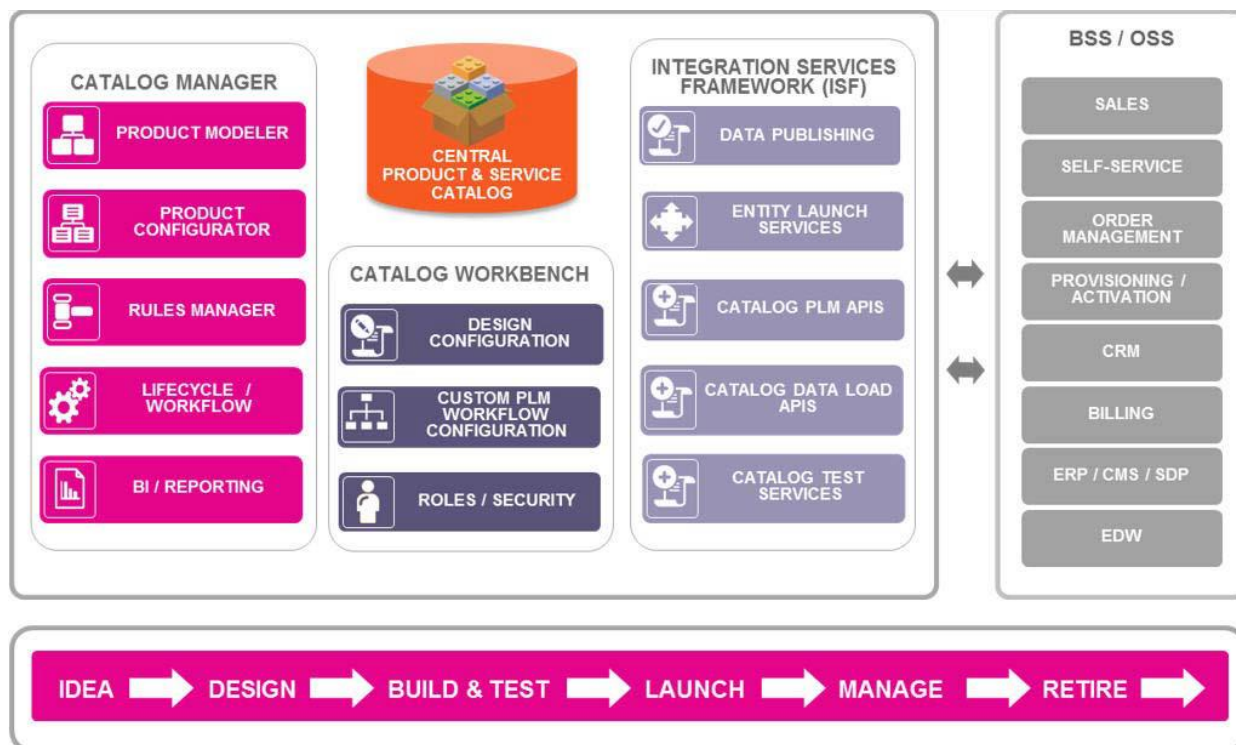


Figure 4 Sigma Catalog Solution Components

Sigma Catalog Manager and Sigma Catalog Workbench allow you to manage the central product and service catalog and the product-management process. Together, these applications provide centralized read and write access to the Sigma Catalog solution components for both factory and marketing creation of products and services.

The Sigma Catalog Integration Services Framework (ISF) provides the service-oriented architecture (SOA) framework for exposing and publishing product data from the centralized catalog into external applications.

The Sigma Catalog Workflow Designer is a visual tool for building workflows without coding. Sigma Catalog Workflow Designer supports custom workflows to enable the tailoring of Product Lifecycle Management workflows.

2.5 Sigma Catalog v7.1 Supported Installation Models

Sigma Catalog is deployed on dedicated servers that can be either Physical or Virtual. Virtual servers can be hosted in a data center or in the cloud.

Sigma Catalog is deployed on the Microsoft Windows platform and has a Multi-tiered architecture comprising presentation, application and data layers with secured access and physical separation between layers to provide a modular and scalable architecture. Sigma security and permission architecture integrated with Active Directory or a SAML based IDP provider provides user authentication and authorization.

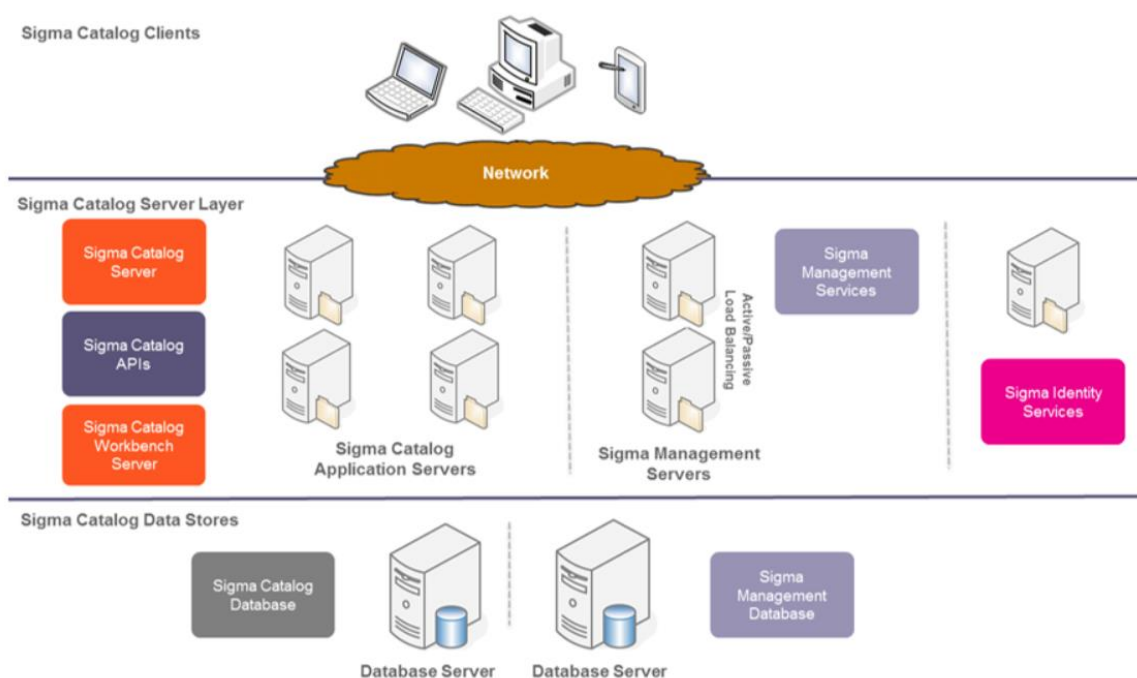


Figure 5 Sigma Catalog Installation Models

3 Business Process Framework Assessment Overview

3.1 Mapping Technique Employed

Business Process Framework Level 4 descriptions are analyzed by looking for implied tasks. (This is similar to how process decomposition can use Semantic Analysis). Each Business Process Framework process is supported by descriptive text. In many cases, each process is aligned and mapped to appropriate company documentation references solution, methodology or modeling material. Color coded text as highlighted below is used as part of the process mapping whereby highlighted text indicates the level of support for a Level 4 process implied task:

- **GREEN** is used to highlight key words or key statements that are fully supported
- **YELLOW** is used to highlight key words/key statements that are partially supported
- **GREY** is used to highlight key words/key statements that are not supported
- No highlighting is used for words/statements that are irrelevant, just for reference or needed to complete the sentence.

As of February 2018, TM Forum allows mappings to be provided against Level-3 process elements when:

- L3s have relevant, consistent full detailed descriptions reflecting all L4 process elements in their decomposition (usually implied tasks identified and separated by bullet points)
- No decomposition to Level 4 processes was available for a particular L3 process, but the Level-3 mappings fulfil the condition described above, therefore the score awarded hereafter is for the Level 3 process in its entirety.

Manual and Automated Support

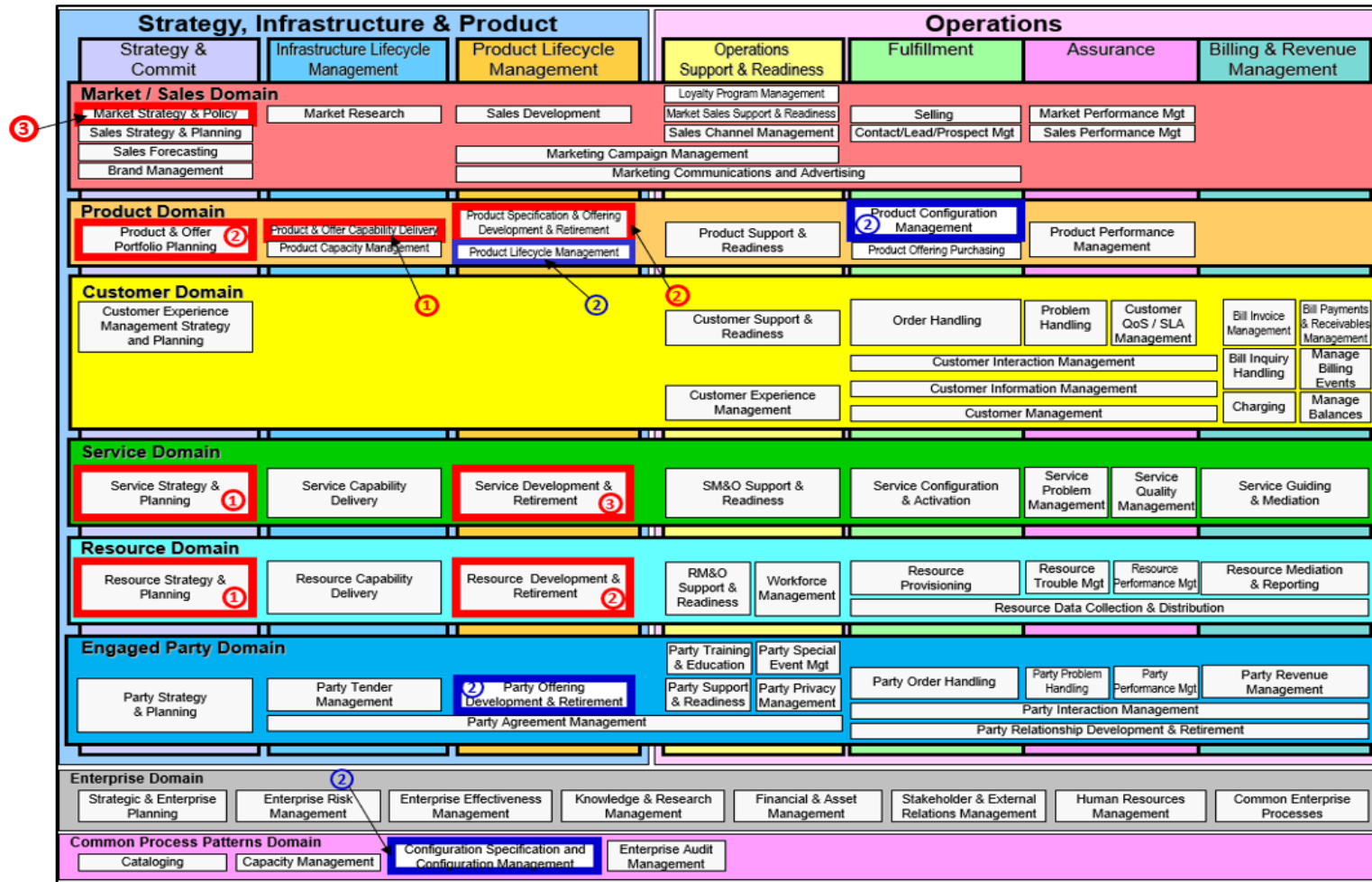
It is important to determine whether the implied task is supported by manual steps, automated steps, or a combination of both. In this document, “A”, “M”, or “AM” is used for each task to indicate that the step or steps is/are automated (A), manual (M), or both (AM).

TM Forum Note 1: *When process mappings are presented against Level 4 processes, the mappings are most often provided against the text in the “Mandatory” field for the process. In the event of the Mandatory field not being defined in the eTOM specification, the process mappings are in that case provided against the Level 4*

Extended description. If an Extended description is not defined, then the mapping is provided against the Brief description.

TM Forum Note 2: *Note that if a Level 3 process has not been decomposed to Level 4 processes in the Business Process Framework, in such cases the process mapping support is provided against the Level 3 process descriptions using the Mandatory/Extended/Brief description as per the guidelines explained for Level 4 based mappings in the previous note.*

3.2 Business Process Framework Level 2 – Certified Process Scope



- New Certified Processes
- Previously Certified Processes Re-certified
- # # Number of Processes

Figure 6 - - Level 2 eTOM processes in scope for Whale Cloud ZSmart 9 Conformance Certification

The following diagram depicts the number of Level 3 processes that were submitted for conformance certification, for each Level 2 process within the defined scope.

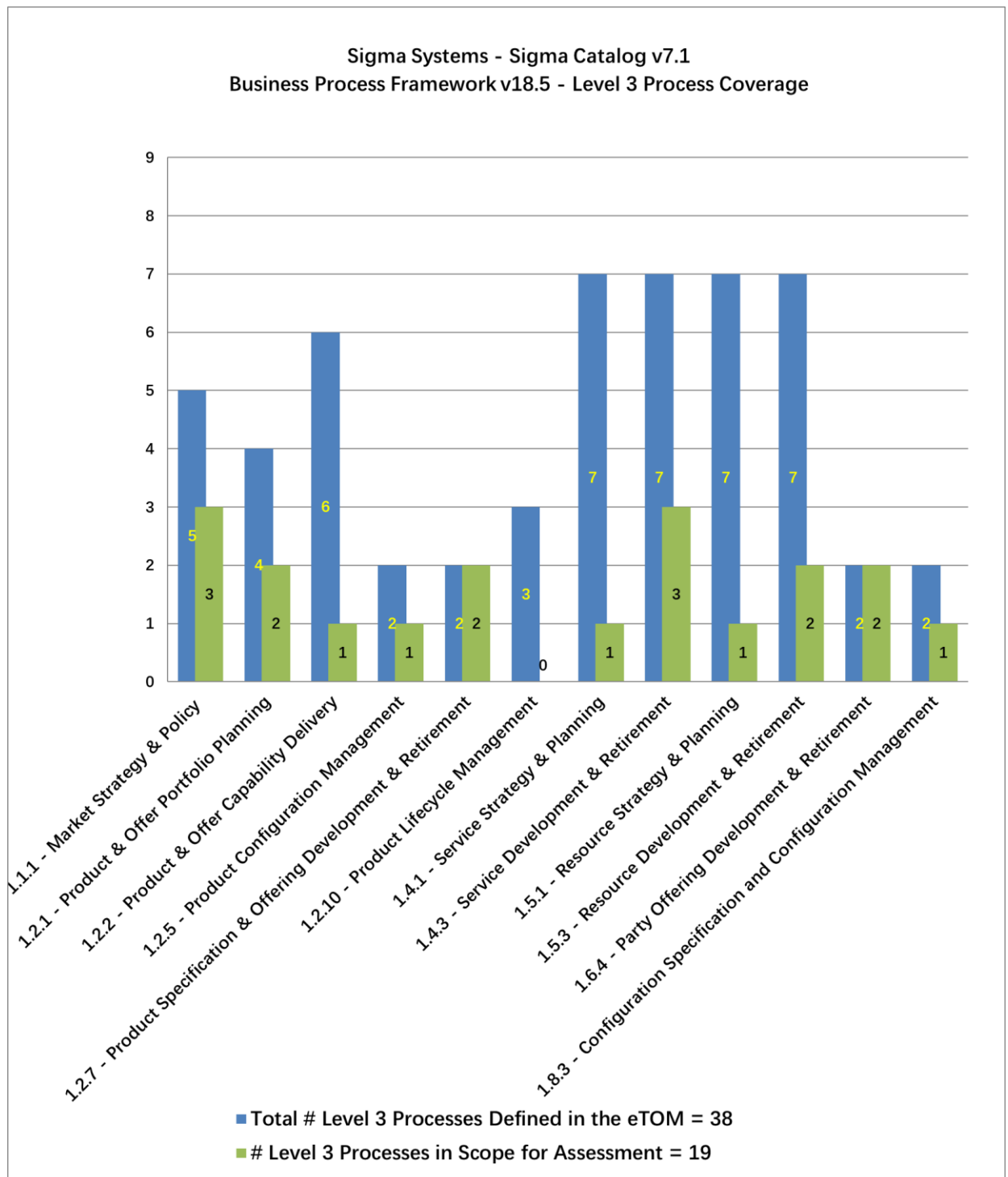


Figure 7 - Level 3 process scope for certification

Table 1 - Business Process Framework Assessment Scope

TM Forum Framework 18.5 Assessment Scoping Document - Business Process Framework (eTOM)					
Member:		Sigma Systems		Overall Scope in the certification	New Certification or Re-certification
Product:		Sigma Catalog v7.1			
Assessment Type		Product			
Number of L3 Processes in Scope:		19			
Level 1	Level 2	Level 3			
1.1 - Market / Sales Domain					
1.1.1 - Market Strategy & Policy					
		1.1.1.1 - Gather & Analyze Market Information	X	Re-certification	
		1.1.1.3 - Establish Market Segments	X	Re-certification	
		1.1.1.4 - Link Market Segments & Products	X	Re-certification	
1.2 - Product Domain					
1.2.1 - Product & Offer Portfolio Planning					
		1.2.1.1 - Gather & Analyze Product Information	X	Re-certification	
		1.2.1.2 - Establish Product Portfolio Strategy	X	Re-certification	
1.2.2 - Product & Offer Capability Delivery					
		1.2.2.1 - Define Product Capability Requirements	X	Re-certification	
1.2.5 - Product Configuration Management					
		1.2.5.1 - Manage Product Configuration Specification	X	New	
		1.2.5.2 - Manage Product Configuration		De-scoped	
1.2.7 - Product Specification & Offering Development & Retirement					
		1.2.7.1 - Product Specification Development & Retirement	X	Re-certification	
		1.2.7.2 - Product Offering Development & Retirement	X	Re-certification	
1.2.10 - Product Lifecycle Management					
		1.2.10.1 - Product Lifecycle Administration		De-scoped	
		1.2.10.2 - Product Pricing		De-scoped	
1.4 - Service Domain					
1.4.1 - Service Strategy & Planning					
		1.4.1.1 - Gather & Analyze Service Information	X	Re-certification	
1.4.3 - Service Development & Retirement					
		1.4.3.1 - Gather & Analyze New Service Ideas	X	Re-certification	
		1.4.3.3 - Develop New Service Business Proposal	X	Re-certification	
		1.4.3.4 - Develop Detailed Service Specifications	X	Re-certification	
1.5 - Resource Domain					
1.5.1 - Resource Strategy & Planning					
		1.5.1.1 - Gather & Analyze Resource Information	X	Re-certification	
1.5.3 - Resource Development & Retirement					
		1.5.3.1 - Gather & Analyze New Resource Ideas	X	Re-certification	
		1.5.3.4 - Develop Detailed Resource Specifications	X	Re-certification	
1.6 - Engaged Party Domain					
1.6.4 - Party Offering Development & Retirement					
		1.6.4.1 - On-board Party Product Specification & Offering	X	New	
		1.6.4.2 - Off-Board Party Offering & Specification	X	New	
1.8 - Common Domain					
1.8.3 - Configuration Specification and Configuration Management					
		1.8.3.1 - Configuration Specification Management	X	New	
		1.8.3.2 - Configuration Management		De-scoped	

4 Business Process Framework – Scoring Guidelines

This section provides the Process Mapping output from the conformance self-assessment which was reviewed by TM Forum Subject Matter Experts alongside supporting documentation provided by the member company under assessment.

Business Process Framework - Conformance Certification Methodology		
Process Level	Conformance Score	Qualifier
Level 1 Process	Not applicable	Conformance Assessment shall not be carried out at this process level.
Level 2 Process	Not applicable	A conformance level is not awarded to Level 2 processes in Framework Certification. The Certification Report shall highlight the coverage within a Level 2 process submitted in scope for an Assessment, in terms of number of Level 3 processes submitted for assessment out of the total number defined in the Business Process Framework for the Level 2 process.
Level 3 Process	Conformance Score is awarded between 3.1 & 5.0	The Conformance Score is awarded for each Level 3 process submitted in scope for the Assessment. The Conformance Score awarded can be a value between 3.1* & 5 depending on the level of coverage & conformance to the Level 3 process based on the alignment to the level 3 Implied Tasks as decomposed in the Level 4 process definitions. If a Level 3 process has not been decomposed to Level 4 processes, the Level score is awarded according to alignment to the Level 3 defined Implied Tasks.
Level 4 Process	Level of conformance is calculated as input to parent Level 3 Process Score	Levels of conformance are calculated for Level 4 processes according to alignment to the individual implied tasks. Level 4 scores are summed and averaged to given an overall score for the parent Level 3 process.
* In earlier Conformance Assessments, scores were awarded to Level 1 & Level 2 processes using values 1 through to 3. For this reason, the Level 3 scores start from > 3.		
Additional Notes		
Note 1 - Level 1 processes shall be presented to define the assessment scope only. i.e. they shall not be assessed as self-contained processes since the level of detail is not considered sufficient. A conformance level shall not be awarded for Level 1 processes.		
Note 2 - Level 2 processes shall be presented to define the assessment scope only. i.e. they shall not be assessed as self-contained processes since the level of detail is not considered sufficient. A conformance level shall not be awarded for Level 2 processes. However, the Certification Report shall provide good indication of the coverage of the Level 2 process in terms of number of contained Level 3 processes submitted in scope for the Assessment.		
Note 3 - The Conformance Assessment shall be carried out at process level 3 (if there are no level 4 process elements defined for a specific level 3 in scope) or at level 4 (if there are level 4 process elements defined for a specific level 3 in scope). For each Level 3 process (when there are no level 4 processes available), conformance shall be deduced according to the documented support for the process implied tasks. For each Level 4 process (when available), conformance shall be deduced according to the documented support for the process implied tasks, as decomposed and described in the Level 4 process descriptions. The score awarded for a Level 3 process, is deduced according to the support mapped to the Level 4 processes/Implied Tasks.		
Note 4 - In evaluating conformance to the standards, manual intervention shall not impact the conformance score granted. However, any level of manual support shall be noted in the Conformance Report and Detailed Results Report. This note specifically applies to Product & Solution Assessments.		
Note 5 - Processes that are supported via manual implementation only, are not considered in scope for the Assessment. This note specifically applies to Product & Solution Assessments.		

Figure 8 - TM Forum Business Process Framework: Conformance Scoring Rules

5 Business Process Framework – Process Mapping Descriptions

This Section hosts the conformance mappings (through the link provided below) that were used as a basis for self-assessment.

The self-assessment was reviewed by TM Forum Subject Matter Experts alongside supporting documentation provided by Sigma Systems.

5.1.1 Mapping Details & Supporting Evidence

The documented mapping information for all Level 3 processes in scope for Sigma's conformance assessment are available through the following link:

https://www.tmforum.org/wp-content/uploads/2019/05/Sigma-Mapping-Template-for-eTOM_L3_Processes_V5RF-NC.pdf

6 Framework Conformance Result

This Section details the Scores awarded to reflect Conformance for Sigma Systems – Sigma Catalog v.7.1 to the Business Process Framework components of Framework v18.5.

TM Forum Framework 18.5 Assessment Scoping Document - Business Process Framework (eTOM)					
Member:		Sigma Systems		Overall Scores Achieved in the certification	New Certification or Re-certification
Product:		Sigma Catalog v7.1			
Assessment Type		Product			
Number of L3 Processes in Scope:		23			
Level 1	Level 2	Level 3			
1.1 - Market / Sales Domain					
1.1.1 - Market Strategy & Policy					
		1.1.1.1 - Gather & Analyze Market Information	5	Re-certification	
		1.1.1.3 - Establish Market Segments	5	Re-certification	
		1.1.1.4 - Link Market Segments & Products	5	Re-certification	
1.2 - Product Domain					
1.2.1 - Product & Offer Portfolio Planning					
		1.2.1.1 - Gather & Analyze Product Information	5	Re-certification	
		1.2.1.2 - Establish Product Portfolio Strategy	5	Re-certification	
1.2.2 - Product & Offer Capability Delivery					
		1.2.2.1 - Define Product Capability Requirements	5	Re-certification	
1.2.5 - Product Configuration Management					
		1.2.5.1 - Manage Product Configuration Specification	5	New	
		1.2.5.2 - Manage Product Configuration	0	De-scoped	
1.2.7 - Product Specification & Offering Development & Retirement					
		1.2.7.1 - Product Specification Development & Retirement	5	Re-certification	
		1.2.7.2 - Product Offering Development & Retirement	5	Re-certification	
1.2.10 - Product Lifecycle Management					
		1.2.10.1 - Product Lifecycle Administration	0	De-scoped	
		1.2.10.2 - Product Pricing	0	De-scoped	
1.4 - Service Domain					
1.4.1 - Service Strategy & Planning					
		1.4.1.1 - Gather & Analyze Service Information	5	Re-certification	
1.4.3 - Service Development & Retirement					
		1.4.3.1 - Gather & Analyze New Service Ideas	5	Re-certification	
		1.4.3.3 - Develop New Service Business Proposal	5	Re-certification	
		1.4.3.4 - Develop Detailed Service Specifications	5	Re-certification	
1.5 - Resource Domain					
1.5.1 - Resource Strategy & Planning					
		1.5.1.1 - Gather & Analyze Resource Information	5	Re-certification	
1.5.3 - Resource Development & Retirement					
		1.5.3.1 - Gather & Analyze New Resource Ideas	5	Re-certification	
		1.5.3.4 - Develop Detailed Resource Specifications	5	Re-certification	
1.6 - Engaged Party Domain					
1.6.4 - Party Offering Development & Retirement					
		1.6.4.1 - On-board Party Product Specification & Offering	5	New	
		1.6.4.2 - Off-Board Party Offering & Specification	5	New	
1.8 - Common Domain					
1.8.3 - Configuration Specification and Configuration Management					
		1.8.3.1 - Configuration Specification Management	5	New	
		1.8.3.2 - Configuration Management	0	De-scoped	

Figure 9 - TM Forum Business Process Framework: Conformance Scores

6.1 Business Process Framework – Conformance Result Summary

This Section provides a graphical view of the conformance levels granted to the Level 3 Processes presented in scope for Sigma Systems’ Catalog v7.1 conformance assessment. Each Level 3 process was measured using a Business Process Framework (eTOM) conformance score according to the level of Conformance – Full Conformance (Score = 5) or Partial Conformance (Score below 5)

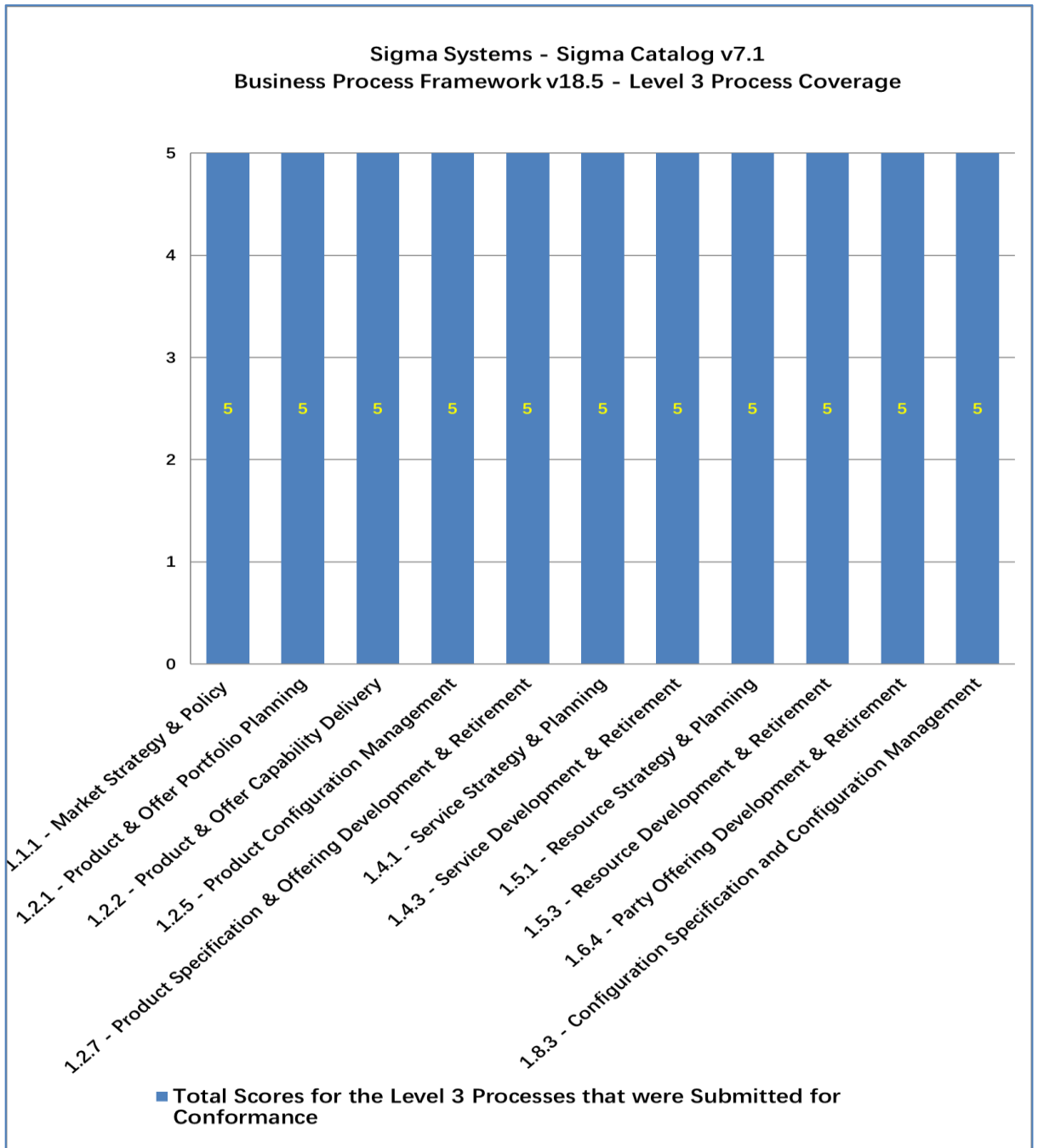


Figure 10 - Business Process Framework: Conformance Scores - All Domains.