Frameworx 19.0
Product Conformance
Certification Report

Tecnotree
DCLM - Digital Customer Lifecycle Manager v5.0.2

September 2020

Version 1.0

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1 Introduction

1.1 Executive Summary

This document provides details of Tecnotree self-assessment and TM Forum's Conformance Assessment of the **DCLM - Digital Customer Lifecycle Manager v5.0.2**, against the following Frameworx 19.0 components:

- Business Process Framework Version 19.0

The assessment included a review of the methodology approach to process modeling against the TM Forum's Business Process Framework (eTOM) Release 19.0 according to the specific processes submitted in scope for the Assessment.

For more information on the Tecnotree DCLM Product please contact: Marketing@tecnotree.com

For any additional information on this Frameworx Conformance Certification Report, please contact TM Forum at: conformance@tmforum.org.

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2 Product Functionality/Capability Overview

2.1 DCLM - Digital Customer Lifecycle Manager v5.0.2 Platform Overview

In today's dynamic market, connectivity is taken for granted and OTT players dream up new disruptions almost every day. Digital Service Providers (DSPs) face the unique challenge of retaining existing customers and remaining relevant, and, of course attracting new customers. This forces DSPs to adopt innovative strategies to simultaneously renew existing systems, processes and tools while adding new, complementary ones to stay future-proof, moving to becoming truly digital. Transforming from a Communications Service Provider (CSP) to a Digital Services Provider (DSP).

Tecnotree's Digital Customer Lifecycle Manager (DCLM) for Digital Service Provider's (DSP) is a user-friendly system dedicated to build unique and personalized customer relations. It automates key processes in customer onboarding and lifecycle care. It allows personalization of every customer's experience by providing consistent message across all channels and creation of a single view of each customer with information from all customer touchpoints. DCLM offers the following features to enable digital service providers to deliver services more efficiently and quickly:

- **Customer Centric Architecture:** DCLM enables DSPs to capture and maintain all customer related information. This eliminates duplication and customer data ambiguity, across various customer functional units. DCLM enables a unified convergent view of a customer and the related information across service lines and channels. It provides a 360-degree view of the customer including the history of interactions and service requests. DCLM users have access to customer information set that is aggregated, maintained, and managed.
- **Analytics and KPIs:** DCLM provides DSPs the insights on customer behavior as well as on the performance of their CSRs and stores, using state-of-the-art analytics engine built into the system.
- **Omni-channel support:** A customer will be able choose when and where to interact with the DSP and be able to smoothly switch channels at any time and continue the interaction. Customer data will be consistent and seamlessly available across channels. DCLM will be the single source of truth for customer data.
- **Mobile App:** The feature rich DCLM mobile application has been conceptualized and designed to mobilize the operator's on premise agents in shops and service centers to help reduce delay in servicing customers due to long queues in shops and service centers.

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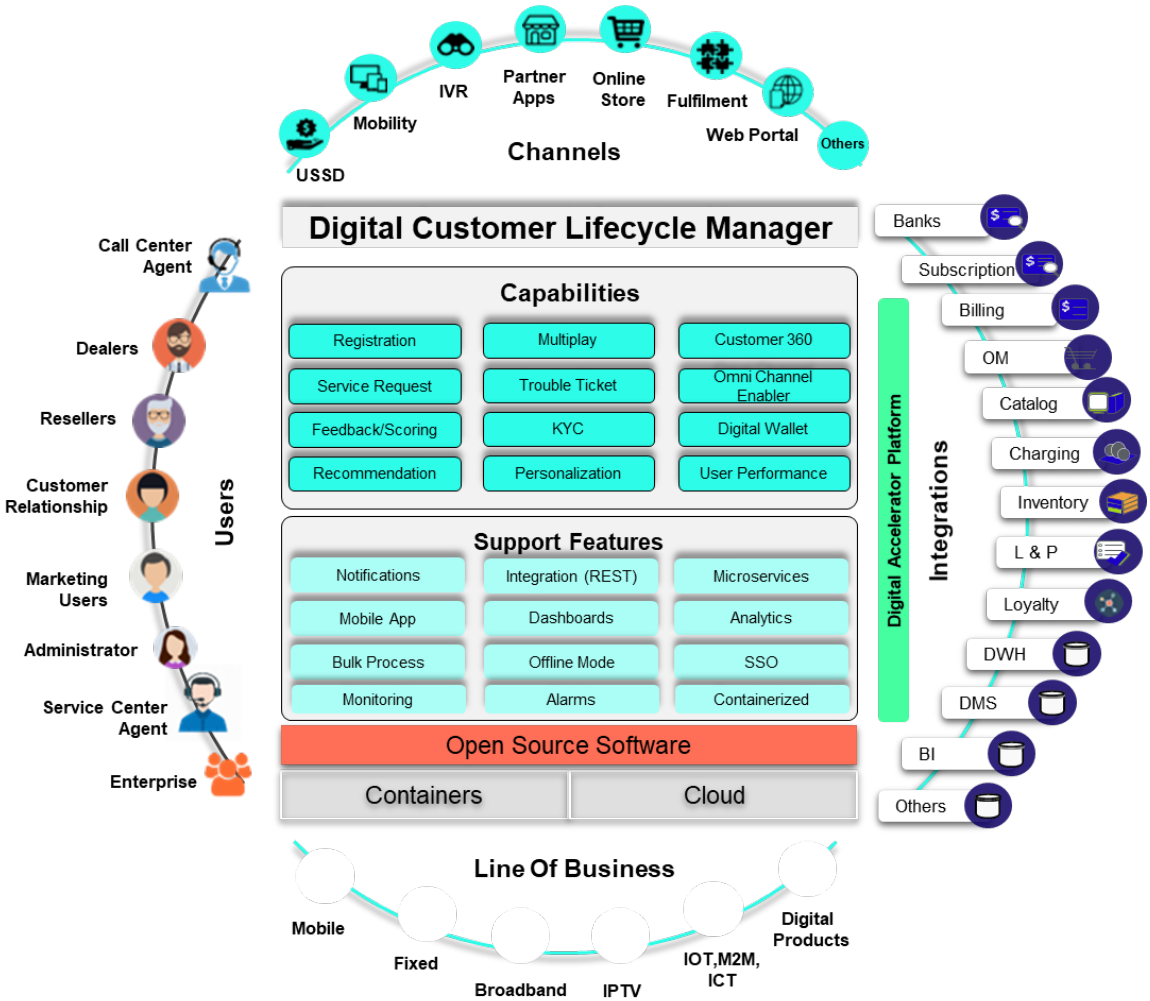

Figure 1 - Digital Customer Lifecycle Manager Overview

Following are the key features of DCLM 5.0.2:

- DCLM provides a unified view of Products & Services across multiple line of business.
- It provides a platform for single truth of Customer Information.
- It Enables Omni Channel User Experience across multiple touch points.
- Its "Multi enabled"- Constituting Multi Play, Multi-Tenant, Multi Currency, Multi Lingual, Multi Calendar and Multi Device.
- It follows the principle of Catalog driven templates for Registration & Service Changes.
- DCLM provides Configurable workflow based orchestration for Registration and Service Requests.
- It has Personalized User Dashboard (for Task, performance).
- It can also help you unify monetary assets through Digital Wallet.
- With its inherent analytics module, it provides recommendations for Cross sell / Up Sell Opportunities.
- Based on a comprehensive Customer data centric architecture.

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2.1.1 About Tecnotree

Tecnotree is a global provider of telecom IT solutions for the management of products, customers and revenue. Tecnotree helps Communications Service Providers to transform their business towards a marketplace of modern and digital services. Tecnotree empowers service providers to monetize service bundles, provide personalized user experiences and augment value throughout the customer lifecycle. Tecnotree serves around 90 service providers in more than 70 countries. Tecnotree is listed on the main list of NASDAQ Helsinki with the trading code TEM1V.
Tecnotree has a well-defined and augmented portfolio of products that is in line with the vision of Digital Transformation for DSPs and one which can provide a smooth transition from CSPs to DSPs. The following table provides this digital strategy that Tecnotree has embedded in its portfolio of products.

Table 1 Tecnotree's Digital BSS Strategy

Tecnotree Digital Strategy		
Digital for Business	Continuous customer engagement through different channels to understand consumer behaviors and generate higher revenues	▪ Omni Channel ▪ Digital Marketplace ▪ Digital Wallet ▪ Advanced Campaigns ▪ Loyalty Monetization ▪ Personalize Experience
Digital for Technology	Providing Platforms and Tools to achieve agility for delivering Business goals	▪ Orchestration ▪ Open API ▪ Service Innovation ▪ Micro services ▪ Advance Analytics/ML ▪ Containerization
Digital for Operations	Automation of tasks and providing insights into process or business performance through guided application intelligence	▪ Self-Healing -ML ▪ Operations Anywhere APP ▪ Continuous Deployment ▪ Automated Fault Management ▪ Self-Monitoring

Below table highlights Tecnotree signatures for Digital BSS Suite 5.

Table 2 Tecnotree Digital BSS signatures

Tecnotree Digital BSS Signatures	
Mobile First	Tecnotree's strategy is to move from Mobile too to Mobile first experience. Mobile native Apps are provided for partners, DSP's marketplace managers and consumers.
Omnichannel Enabled	Extending Omni channel experience which is all about creating an Omni-present and consistent experience across all channels.
Open APIs	Opening Partner ecosystem through Open API's and monetization capabilities with Seamless integrations
Reduced TCO	▪ Open source technical stack eliminates expensive license cost

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Tecnotree Digital BSS Signatures	
	▪ Standardized services increase reusability and reduce overall cost ▪ Improved performance and availability reduce the downtime
Cloud-Native	Embracing Cloud-Native technologies helps in selecting the right future-proof stack among the rapidly evolving options is critical and cannot wait
Micro-services Orchestration	Achieving Agility, Reusability, Self-Governing, Cohesiveness, Testability, Deploy-ability, Scalability and high Availability
Incremental feature improvements	Continuous Delivery as the means of fast delivery of incremental features
AI Enabled	▪ AI Enabled digital products providing deep insights about Customers, Partners, Services/Products ▪ Adding intelligence to ease Operations
Self-healing	Proactive Managed Services through Self-Healing based on AI & ML capabilities
Automated fault management	Through Fault Tolerant and Resilient solution
Auto Scaling	Capability to augment capacity on demand basis

2.2 DCLM - Digital Customer Lifecycle Manager v5.0.2 Platform Benefits

DCLM is a highly scalable, and easy-to-integrate platform that ensures the least total cost of ownership, when compared to similar platforms.
DCLM enables purchase of new offerings on the fly with minimal customizations, through configurations thus reducing the time to market of offerings drastically.
The following are the capabilities of DCLM to create value for Enterprise/DSP's business:

- **Digital Services enabled solution** - All-inclusive customer management solution, exclusively designed for service providers, to cater to the needs of customers across various lines of service, technology, business and touch points
- **Consolidated Customer Management Platform with Insights** – DCLM provides a convergent view of all customer data to enable DSPs and customers to effectively manage customer information and customer interactions across disparate standalone sources of information. The feature ensures a consolidated view of relevant customer information for users querying customer information. Customer data consolidation lays a strong foundation for customer analytics and relevant recommendations for customer.
- **Built-in capabilities for lifecycle management** - Extensive request management capabilities for DSPs to enable them to create, manage and track requests across various service lines. This includes capabilities such as a solution repository for CSRs to resolve customer requests, driven by configurable workflows that can be tailored for optimal resolutions.

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2.2.1 Target Users & Apps

DCLM is designed to aid the various teams that interact with customer directly or those who handle customer operations at the back office. These include:

1. **Retail Sales Agents** - Teams at the direct sales offices of the DSP such as shops, mobile sales teams working at kiosks, or outside the premises
2. **CSR and Dealer Agents** who handle customer interactions, complaints
3. **Supervisors** of these teams who assess the key performance indicators as well as have special rights to perform approvals
4. **Account managers** designated for enterprise segments
5. **Business Process Task Management teams** working on customer requests, complaints, approvals, credit vetting and various other inbound and outbound interactions

2.3 DCLM - Digital Customer Lifecycle Manager v5.0.2 Modules

DCLM constitutes of the following key modules:

- **Registration:** Customer Registration encompasses all the relevant functionalities in support of capturing the details of a new Customer for acquisition or enrolment and offering the services through relevant offerings supported by the CSP.
    - Register customer by creating the customer's profile, billing profile and service profile.
    - Initiate customer verification, request validation, manage payments and document collection.
    - Initiate order requested by the customer.
- **360 Degree View:** DCLM enables a unified convergent view of a customer and the related information across service lines. It provides a 360 Degree view of the customer including the history of interactions and service requests raised by the customer. 360 Degree view also supports viewing the customer hierarchy. Authorized application users have access to customer information set that is aggregated, maintained, and managed.
    - Personalize and customize relevant customer information to be displayed.
    - View all customer related information like active subscriptions, requests, interaction history, etc.
- **Request Management:** DCLM supports performing various operations during the lifecycle of customer. These operations are referred to as service requests and may or may not require an order fulfilment. These can be initiated by the DCLM user on behalf of customer or the DSP in some cases.
    - Customer inquiries/Complaints
    - Customer orders
    - Customer information modification (profile, account, service level modifications)
    - Customer interaction from various channels

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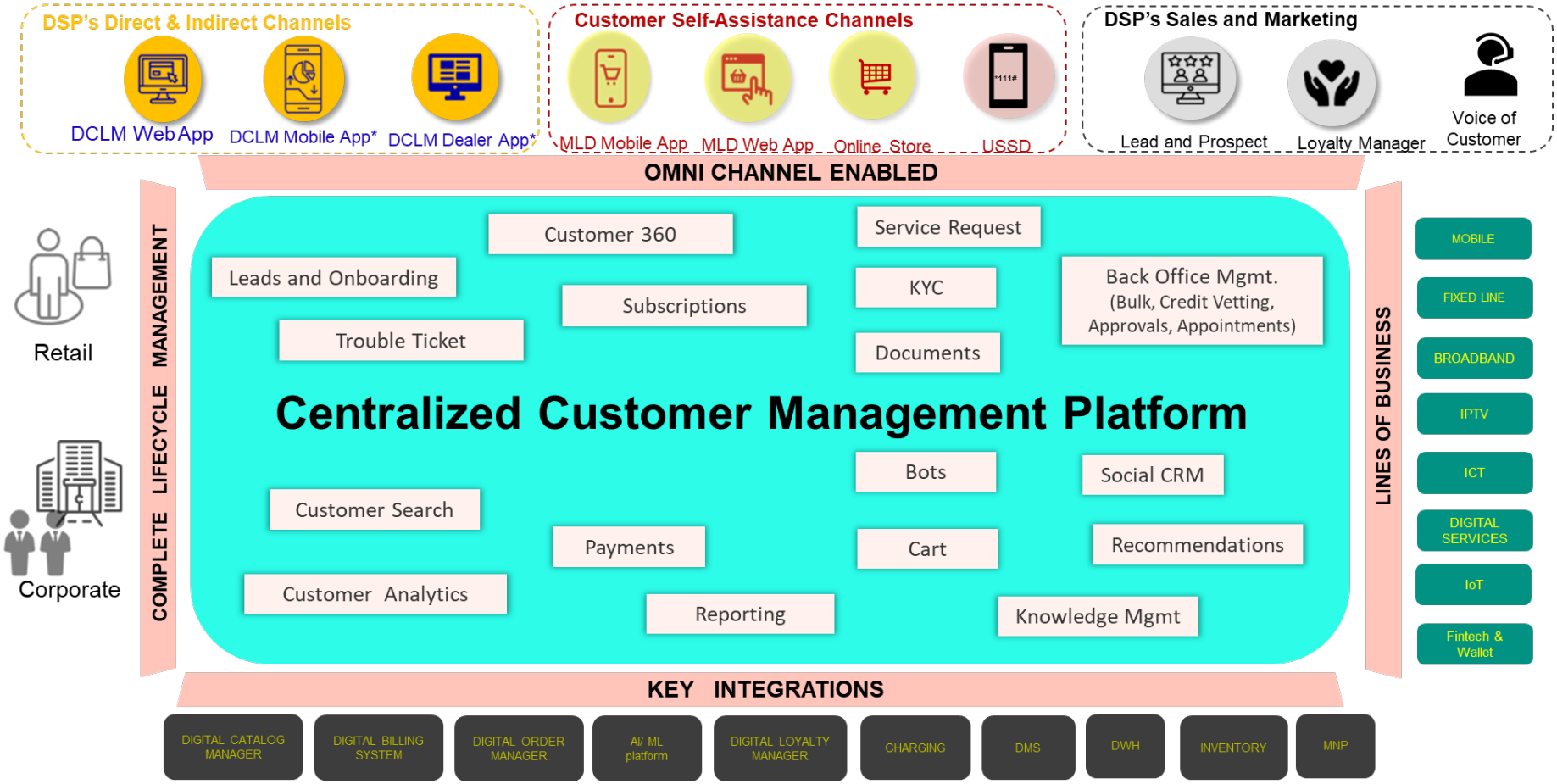

Figure 2 - DCLM Functional Modules

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2.4 DCLM - Digital Customer Lifecycle Manager v5.0.2 Supported Installation Models

The following installation models are applicable for DCLM - Digital Customer Lifecycle Manager v5.0.2:
DCLM application is based on Containerization and uses the Docker Containerized model for its deployment. Docker Container based application deployment is inherently simpler and has hugely less integration points than any previous deployment models. That is because the application is not actually installed on target. It is merely copied in place, as the Container image has all the required 3rd party dependencies (libraries etc.) already incorporated inside the container image. Essentially Dockers can be deployed on Bare metal, Virtualized Machines or on Cloud.

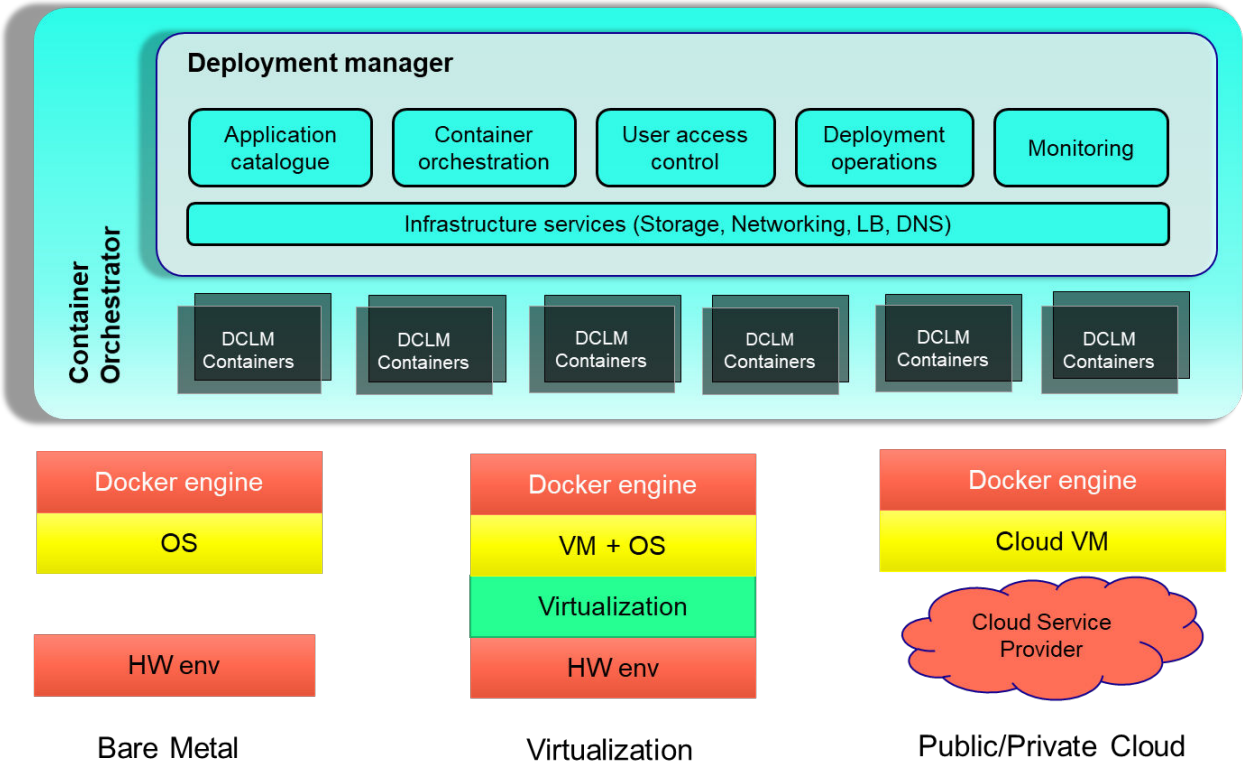

Figure 3 - DCLM Installation Models

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2.5 Product Scope

The following diagram depicts the scope of DCLM that includes the functional modules, the NFRs (Non Functional Requirements) and the cross-module features.

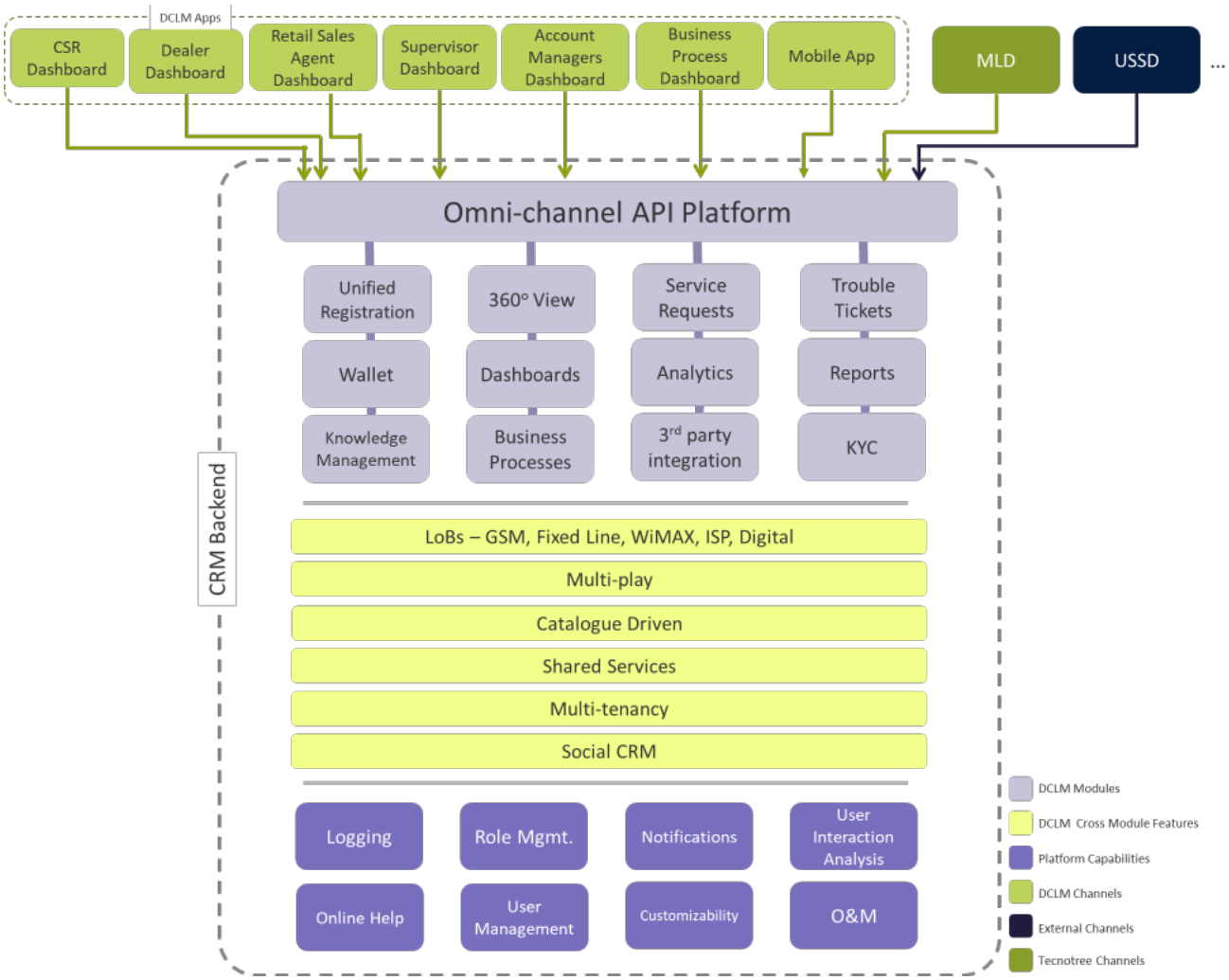

Figure 4 DCLM 5.0.2 Scope

2.6 Business Process Framework Level 2 Process Scope

The following figure on next page represents the Business Process Framework Level 2 processes that were presented in scope for conformance certification.

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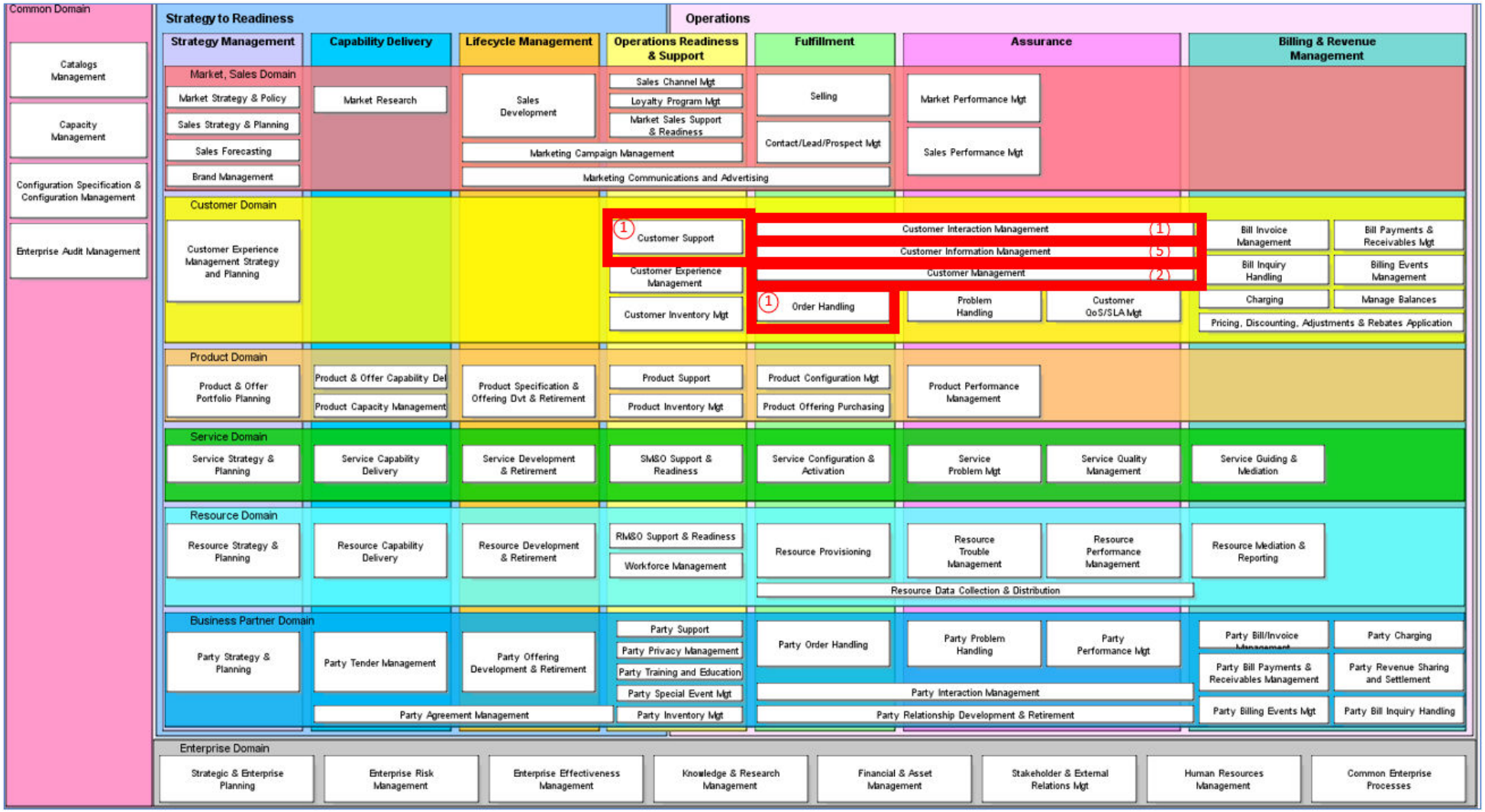

(#) Number of Level-3 process elements submitted for conformance certification

Figure 5 - Level 2 process coverage for Tecnotree's DCLM - Digital Customer Lifecycle Manager v5.0.2 Conformance Assessment

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2.7 Business Process Framework (eTOM) Assessment Overview

2.7.1 Mapping Technique Employed

Business Process Framework Level 3 descriptions are analyzed by focusing on implied tasks also referred to as implied functional requirements. (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.

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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.

2.8 Scope of Conformance Certification (eTOM)

TM Forum Frameworx 19.0 Assessment Scoping Document - Business Process Framework (eTOM)			
	Member:	*Tecnotree*	*Certification Scope for Level-3 Process Elements*
	Product:	*DCLM 5.0.2 - Digital Customer Lifecycle management*	
	Assessment Type	*Product*	
	Number of L3 Processes in Scope:	10	
Level 1	*Level 2*	*Level 3*	
1.3 - Customer Domain			
	1.3.1 - Customer Support		
		1.3.1.1 - Support Customer Interface Management	X
	1.3.3 - Order Handling		
		1.3.3.1 - Determine Customer Order Feasibility	X
	1.3.4 - Customer Management		
		1.3.4.2 - Establish Customer Relationship	X
		1.3.4.4 - Terminate Customer Relationship	X
	1.3.5 - Customer Interaction Management		
		1.3.5.1 - Create Customer Interaction	X
	1.3.6 - Customer Information Management		
		1.3.6.1 - Create Customer Record	X
		1.3.6.2 - Update Customer Data	X
		1.3.6.3 - Notify Customer Data Change	X
		1.3.6.4 - Archive Customer Data	X
		1.3.6.5 - Build a unified customer view	X

Table 3 - Business Process Frameworx (eTOM) Assessment Scope

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2.8.1 Scope of Conformance Certification – Chart (eTOM)

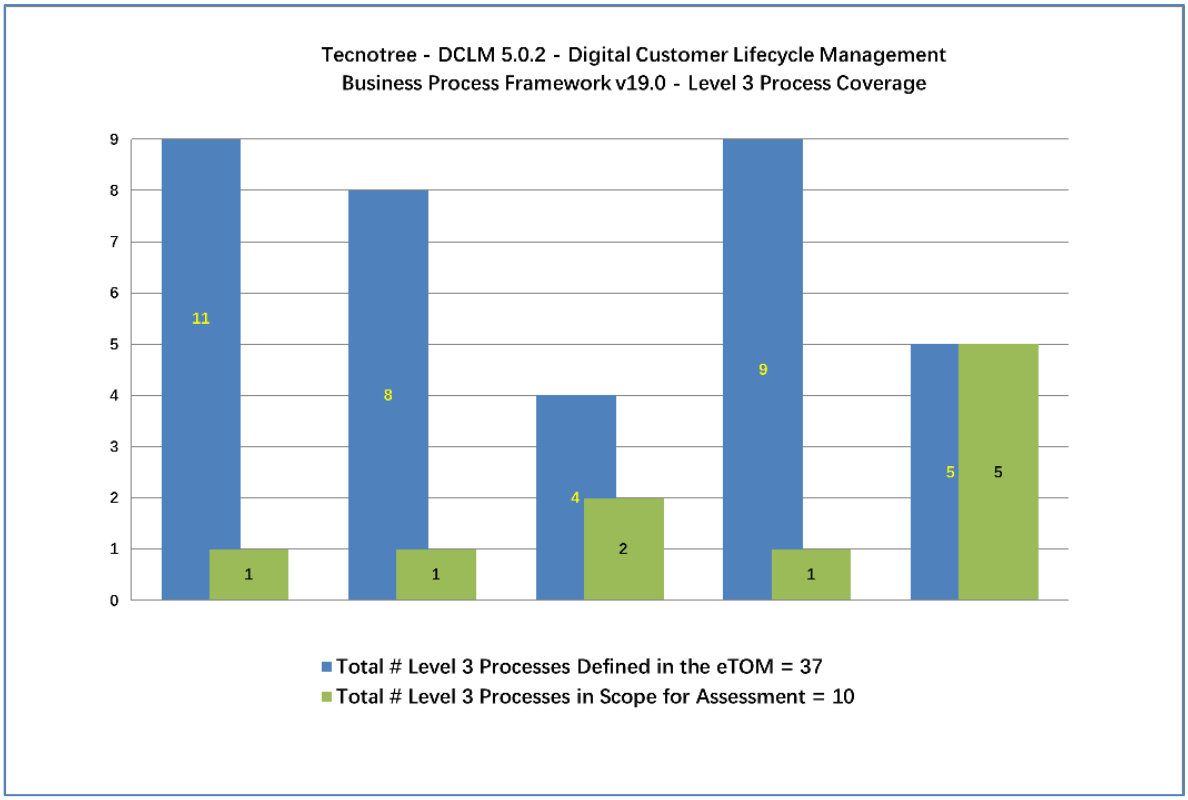

Figure 6- Level 3 process coverage for certification

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2.9 Business Process Framework – Scoring Guidelines

This section provides the Process Mapping output from the self-assessment carried out by TM Forum Subject Matter Experts alongside supporting documentation made available for this purpose.

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 Frameworx 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 7- TM Forum Business Process Framework: Conformance Scoring Rules

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2.10 Business Process Framework – Process Mapping Descriptions

This Section provides a summary of the solution mappings that were provided in the form of self-assessment.
The self-assessment was reviewed by TM Forum Subject Matter Experts alongside supporting documentation received.

2.11 Mapping Details & Supporting Evidence

The documented mapping information for all Level 3 processes in scope for the '1.3 – Customer Domain' business processes are available from the following link:

https://www.tmforum.org/wp-content/uploads/2020/09/DCLM-5.0.2-Digital-Customer-Lifecycle-Manager-eTOM_R19.0_Conformance-Tecnotree-V3RF.pdf

Mappings and supporting evidence were presented for the following **L3** processes:

1.3.1 - Customer Support	
	1.3.1.1 - Support Customer Interface Management
1.3.3 - Order Handling	
	1.3.3.1 - Determine Customer Order Feasibility
1.3.4 - Customer Management	
	1.3.4.2 - Establish Customer Relationship
	1.3.4.4 - Terminate Customer Relationship
1.3.5 - Customer Interaction Management	
	1.3.5.1 - Create Customer Interaction
1.3.6 - Customer Information Management	
	1.3.6.1 - Create Customer Record
	1.3.6.2 - Update Customer Data
	1.3.6.3 - Notify Customer Data Change
	1.3.6.4 - Archive Customer Data
	1.3.6.5 - Build a unified customer view

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2.12 Frameworx Conformance Result

This Section details the Scores awarded to reflect Conformance for Tecnotree - DCLM - Digital Customer Lifecycle Manager v5.0.2 to the Business Process Framework (eTOM) components of Frameworx 19.0.

TM Forum Frameworx 19.0 Assessment Scoping Document - Business Process Framework (eTOM)			
		Company:	*Tecnotree*	*Certification Final Scores for Level-3 Process Elements*
		Product:	*DCLM 5.0.2 - Digital Customer Lifecycle management*	
		Assessment Type:	*Product*	
		Frameworx Version:	*10*	
		Number of L3 Processes in Scope:	Level 3	
Level 1	*Level 2*	*Level 3*		
1.3 - Customer Domain				
	1.3.1 - Customer Support			
		1.3.1.1 - Support Customer Interface Management		5
	1.3.3 - Order Handling			
		1.3.3.1 - Determine Customer Order Feasibility		5
	1.3.4 - Customer Management			
		1.3.4.2 - Establish Customer Relationship		5
		1.3.4.4 - Terminate Customer Relationship		5
	1.3.5 - Customer Interaction Management			
		1.3.5.1 - Create Customer Interaction		5
	1.3.6 - Customer Information Management			
		1.3.6.1 - Create Customer Record		5
		1.3.6.2 - Update Customer Data		5
		1.3.6.3 - Notify Customer Data Change		5
		1.3.6.4 - Archive Customer Data		5
		1.3.6.5 - Build a unified customer view		5

Figure 8- TM Forum Business Process Framework: Conformance Scores

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2.13 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 Tecnotree - DCLM - Digital Customer Lifecycle Manager v5.0.2 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)

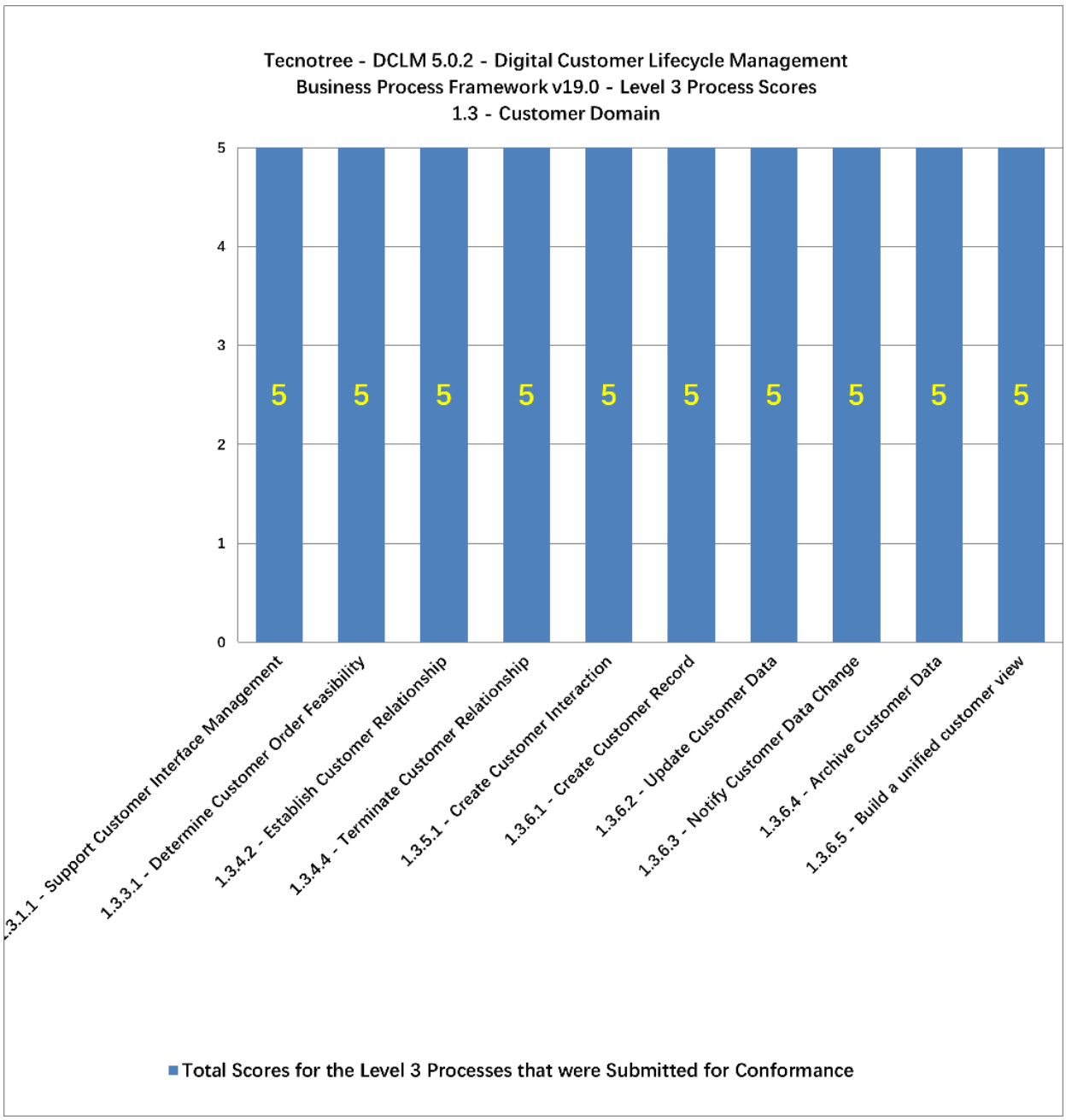

Figure 9- Conformance Scores – eTOM - 1.3 – Customer Domain Processes

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Version History

0.5	01-September-2020 Initial Draft from TM Forum	TM Forum
0.6	04-September-2020 Updated Draft from Tecnotree	TM Forum
0.7	08-September-2020 Updated Draft from TM Forum	TM Forum
0.8	10-September-2020 Updated Draft from TM Forum	TM Forum
0.9	14-September-2020 Pre-Final Draft from TM Forum	TM Forum
1.0	14-September-2020 Final Version from TM Forum approved by Tecnotree	TM Forum

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