

Case Study



Linking Business Processes and Data using TMF eTOM and SID Frameworks

Abstract

Competition in the telecom services sector is immensely fierce, and Communication Service Providers must continuously introduce newer products and services for survival. Most service providers manage it by using multiple, complex Operational Support Systems (OSS). Different products require different OSS which results in multiple data requirements across the enterprise. Historically, these requirements tend to grow without any standardized enterprise data structure. TM Forum's SID provides an excellent standard to manage this requirement across various systems. This document elaborates Infosys's pioneering attempt to define NGN processes and implement SID from Conceptualization (Process Definition) to Implementation (Systems Data Design).

Overview

Competition in the telecom services sector is immensely fierce, and Communication Service Providers (CSP) must continuously introduce newer products and services for survival. Most service providers manage this by using multiple, complex Operational Support Systems (OSS). Different products require different OSS which results in multiple data requirements across the enterprise. Historically, these requirements tend to grow without any standardized enterprise data structure. TM Forum's (TMF) Shared Information/ Data (SID) provides an excellent standard to manage this requirement across various systems. This document elaborates Infosys's pioneering attempt to define Next Generation Network (NGN) processes, and implement SID from Conceptualization (Process Definition) to Implementation (Systems Data Design).

During discussions between Infosys' Process Designers and OSS Enterprise Data Architects of a leading European CSP, it was decided that the Data Model(s) identified for the NGN, the processes for next generation services and the operations groups must all be aligned. While Next-Gen Processes can be aligned with eTOM, the best way to make them Next Generation OSS effective and measurable is by using SID to link processes with measurable data identities.

Accordingly, an exercise being carried out by Infosys and the CSP is to define eTOM compliant NGN processes, and use SID to map data across the various processes being modified/ developed for the NGN. This approach will deliver the benefits of:

- Better “customer and market focus” due to well-aligned processes and systems at the back-end
- Faster “Concept-to-Market” capabilities
- Lesser OPEX
 - Reduced redesign activity, resulting in ramp-down of design teams for multiple instances
 - “Operations-Friendly” systems that enable scalability of operations teams across the product spectrums, thus reducing the costs of acquiring and maintaining specialized operations skill sets
- Product and service agnostic business data that expedite deployment of new products and services
- Service-Oriented Architecture-enabled environment

Business Problem

When the client embarked on the enterprise-wide NGN program, migration of existing assets and services, along with next generation services posed the following issues/problems:

- Multiple and broken data dictionaries
- Lack of a common understanding (definition) of data across systems/domains made data exchange between the various systems inefficient and costly
- Multiple ownership of data, duplicate records across the systems and lack of a single point of information
- Proliferation of multiple design conventions in various databases
- Lack of transparency in business processes and systems at the actual implementation level due to imperfect mapping of data at procedural levels
- Incompatible data and insufficient communication between Process Modelers and Data Designers

Infosys Approach

The exercise was carried out in two phases:

- Phase 1: Define eTOM compliant NGN Processes
- Phase 2: Map SID data with processes and systems

Define eTOM aligned NGN Processes

The NGN Processes were defined using the following approach:

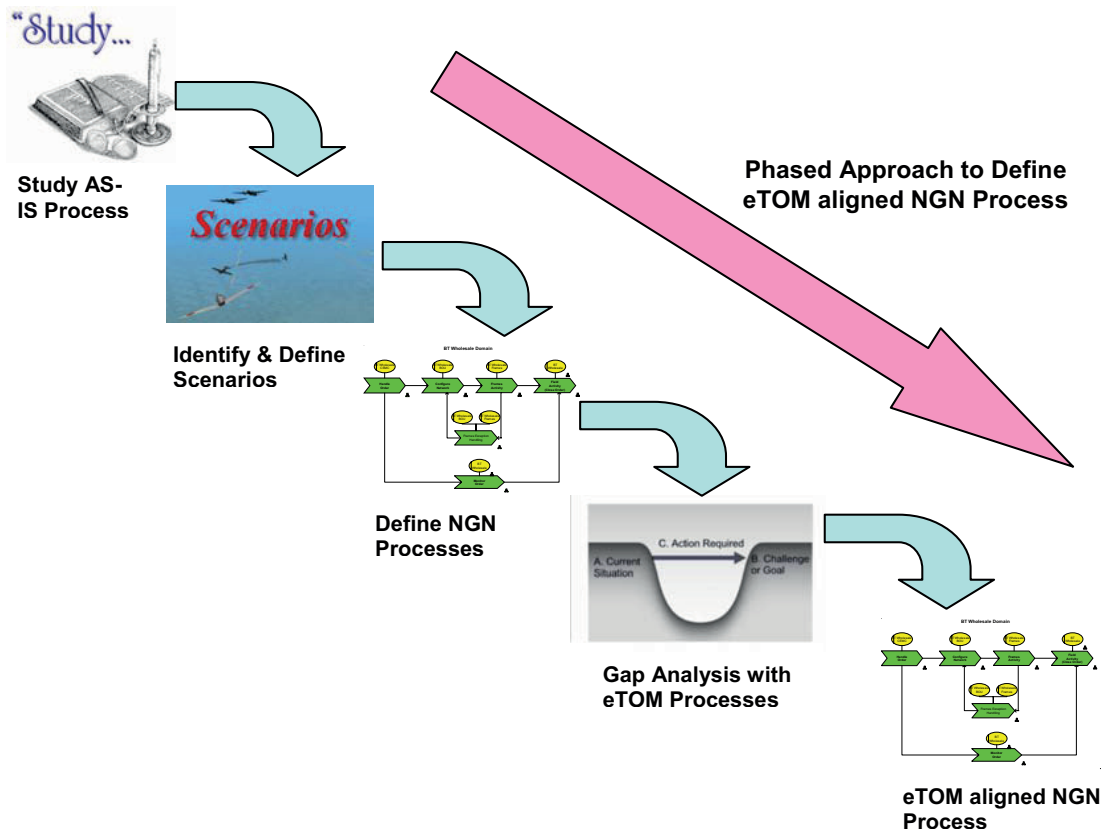


Figure 1: Infosys phased approach to define eTOM aligned business processes

The key steps in defining eTOM compliant NGN processes:

1. Study and analyze as-is processes
2. Understand the NGN requirements for products/services/processes
3. Develop scenarios for NGN processes
4. Define the NGN processes in process designer. Infosys used the following process hierarchy:

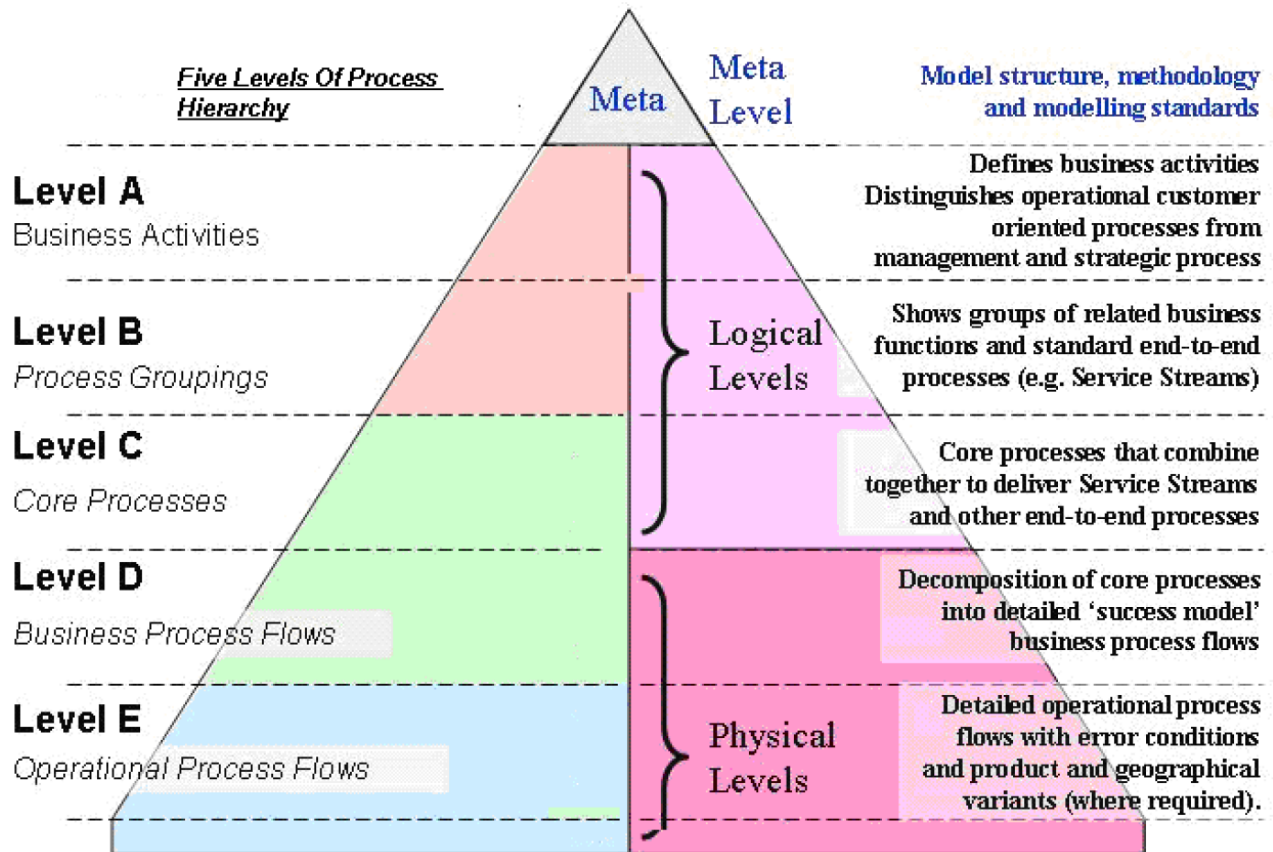


Figure 2: Process Hierarchy: Five Levels

5. Perform gap analysis between TO-BE processes and eTOM processes. The exercise helped identify the following issues in the existing process:
 - Inappropriate process definitions
 - Out-of-sequence process functions
 - Process steps that could be combined (Optimization)
 - Duplicate/redundant process steps to be removed (De-duplication)

Based on the outcome of the gap analysis, processes were altered and aligned with eTOM processes. This “process alignment” with eTOM made it possible for the service provider to purchase COTS applications that fitted the process without significant customisation.

Map SID with NGN Processes

After the eTOM compliant NGN processes were defined, the identified processes were mapped to SID using the following approach:

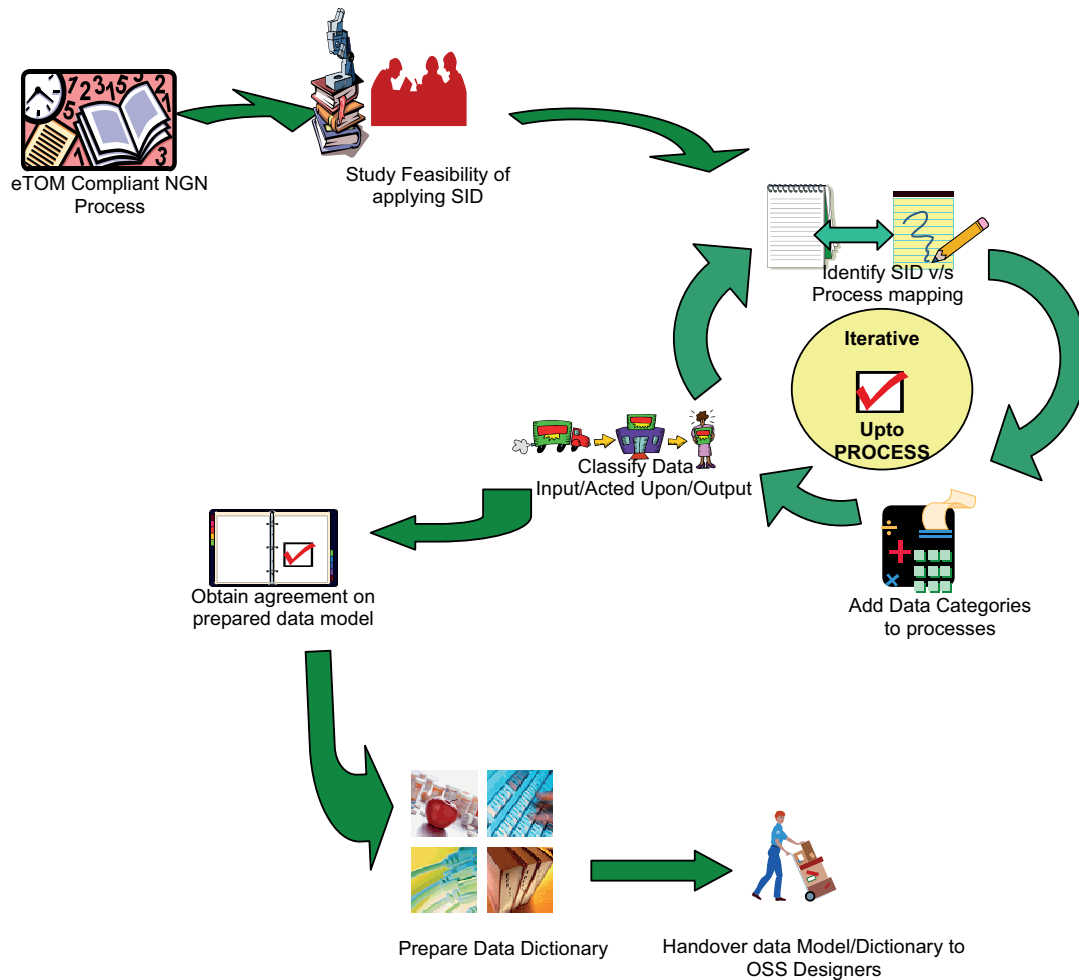


Figure 3: Infosys Approach to map SID with Business Processes

Broadly, Infosys adopted the following approach to map SID data identities to the service provider's next generation business processes:

1. Took business processes that were eTOM compliant as input to this stage and modeled those as EEPC (Extended Event Process Chain) using process designer tool.
2. Identified data requirements and mapped data with the process. Data mapping in Process Support gives more information along with the Action & Actor. This was done by addressing questions like – What is the data required in the process?, Where can one get the data?, What is the exact meaning of data?, Which are the systems using this data?..

3. Mapped SID on the NGN processes at high level using following activities –
 - Identify Aggregated Business Entities (ABEs) with respect to the Data Model
 - Map Level 1 ABEs with Level C & D processes
 - Map Level 2 ABEs with Level C & D processes
 - Map Level 3 ABEs with Level C & D processes
 - Identified Entities of SID and mapped them at Level E processes

The following figure shows the sample mapping of the process with the SID data:

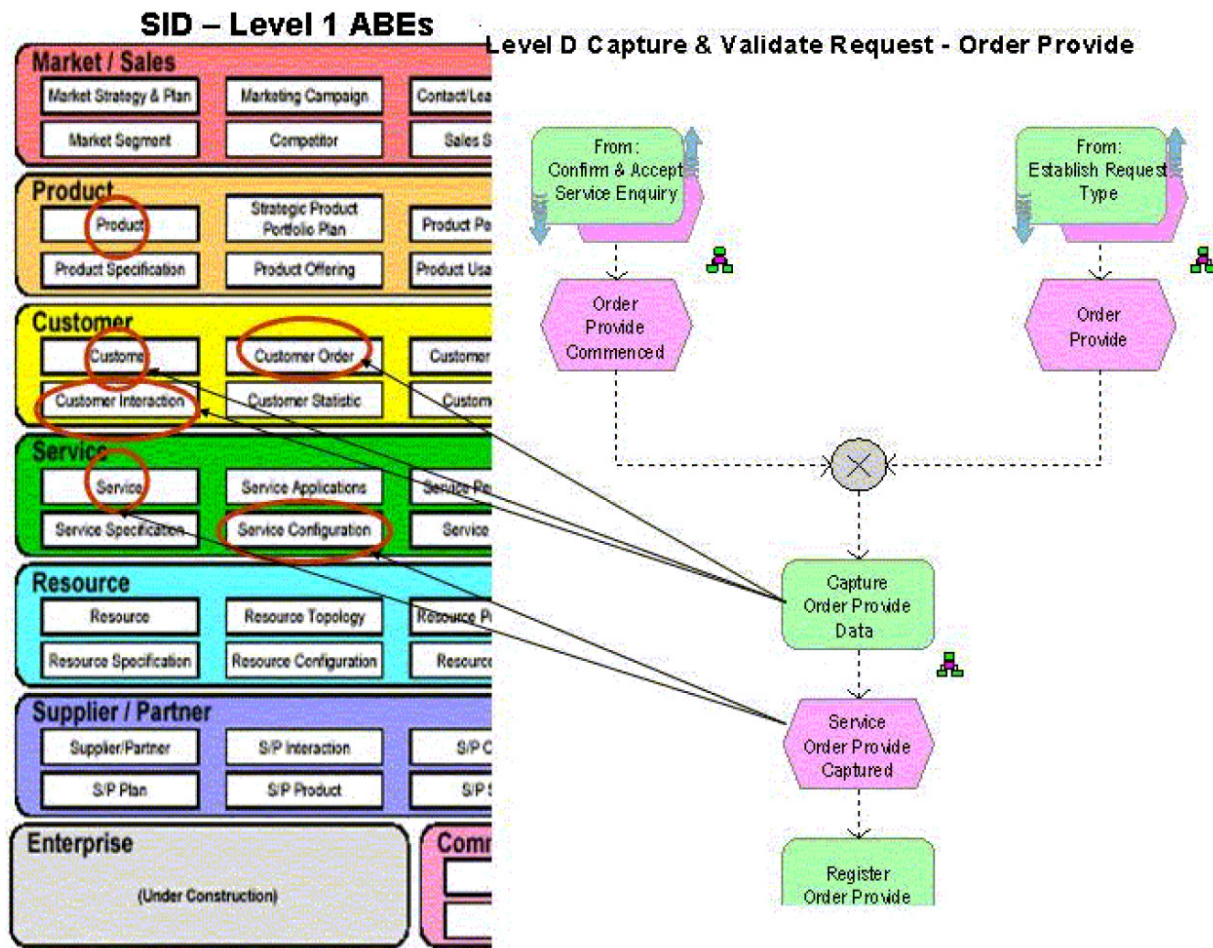


Figure 4: Example of SID mapping to a specific business process ¹

¹ This Business Function is mapped onto level 1 ABEs of the SID model as shown in the figure. The level 2 & 3 ABEs are similarly identified and mapped to some of the level D and/or level E process/ sub-process functions.

4. Made the Enterprise Data Model “Process Aligned”.

There still was one major area to be addressed – an interface between the existing systems, COTS and the proposed Next Generation OSS / processes. For this, an online web-based Data Dictionary was designed and implemented. This dictionary provides the following major functions:

- a. Maps the SID attributes to existing Data labels in various OSS applications, thus providing a cross reference between Master (SID) Data and Operational/ Real life Data
- b. Provides a search utility, so that any Data Modeller can easily find a Data Label in existing system for a SID data term while reading the Processes
- c. Also provides a standard and universal definition (description) of all Data Items being used in processes, transport and systems
- d. Ensures standard and universal naming conventions (nomenclature) for all Data Items.

Results

Benefits

This approach adopted by Infosys will benefit all major stakeholders involved:

- Business Analysts
- OSS Designers
- Process Design Communities
- Operations Teams

SID was essential to align the multiple databases in the complex system environment of the Service Provider. This key benefit was realised by:

1. Adapting a [scalable approach](#) so that the data dictionary can be extended to other domains (Infrastructure/Supplier-Partner)
2. Enabling the [cross-mapping of data](#) used under various names in different systems
3. Providing a [common language](#) across various data structures
4. Serious [data de-duplication](#) across the multiple systems and within systems as well
5. Preparing a [multi-user shared repository](#)
6. [Enabling efficient and reliable data exchange](#) between systems through consistent data formats
7. [Easy-to-implement](#) processes because of proximity to real-world data



For more information, contact askus@infosys.com

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