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# Customer Engagement and Big Data Analytics in TM Forum

Presented by Team Leaders

May 21, 2015





## Customer Experience Management Overview – Rebecca Sendel , Sr Director, TM Forum

- CEM ROI Calculator – Quantifying the benefits of CEM projects – Rebecca Sendel, Sr Director, TM Forum
- 360 Degree View of the Customer– Jeorg Niemoller, Ericsson
- CEM Use Cases: Implementing CEM Solutions – Dharmendra Misra, Cognizant
- Omni Channel: Maturity Model and Requirements – Anand Mohan, Infosys
- Small and Medium Business Customer Sentiment – Chris Bauschka, Salesforce

## Data Analytics Overview – Peter Livaudais, Parstream

- Data Analytics Guidebook on standards, reference architecture – Larry Chesal, Spirent
- Data Analytics Use Cases – Extracting the Value – Matti Aksela, Comptel
- Data Management Processes – Applejuan Li, Huawei
- Data Analytics Repository – Amir Gefen, cVidya

## Metrics – Paul Ousterhout, KPI Guy & Robert Bratulic, IBM

## How to get involved and Q&A



The screenshot shows the tmforum.org website interface. At the top, there is a navigation bar with links for 'About TM Forum', 'Membership', 'Help', 'News & Insights', 'Events', and a 'Log In / Register' dropdown menu which is circled in orange. Below this is a secondary navigation bar with 'Solutions', 'Collaborative R&D', 'Standards & Adoption', and 'Research & Analysis'. The main content area is divided into three columns: 'Overview', 'Development Projects', and 'Catalyst Projects'. The 'Development Projects' column lists several projects, with 'Customer Engagement Group' circled in orange. The 'Catalyst Projects' column lists projects like 'SDN & NFV (ZOOM)', 'Internet of Things', 'Customer Centricity', and 'Security & Privacy'. On the left side, there are sections for 'Collaborative R&D' and 'Catalyst Program', each with a 'Get involved' button. The browser's address bar shows 'https://www.tmforum.org' and the taskbar at the bottom displays various application icons and system information like '10:17 AM 5/5/2015'.



Commitment at a level that works for you and your company



T- 4 Months

Delivery  
In May for  
Framework 15.0





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# Customer Engagement Project

Rebecca Sendel, Sr Director, TM Forum

[rsendel@tmforum.org](mailto:rsendel@tmforum.org)



## Guidebook: Approach and Tools Overview

- Guidance for Customer Experience Management in a Service Provider

## Maturity Model

- 6 Dimensions across the enterprise

## Lifecycle Model

- Definitions of stages in customer lifecycle

## 525+ Metrics

- Measure every stage of the customer lifecycle

## Implementation Guide

- Use Cases for CEM implementation

## Omni Channel Best Practice

- Definitions and requirements

New

360 degree view of the customer

New

CEM ROI Calculator

New

Additional Metrics

New

7 new Use Cases

New

Omni channel Maturity Model + 77 reqts



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# CEM ROI Calculator – Quantifying the benefits of CEM projects

Rebecca Sendel, Sr Director, TM Forum  
[rsendel@tmforum.org](mailto:rsendel@tmforum.org)

On behalf of Jonathan Hopkinson, Huawei

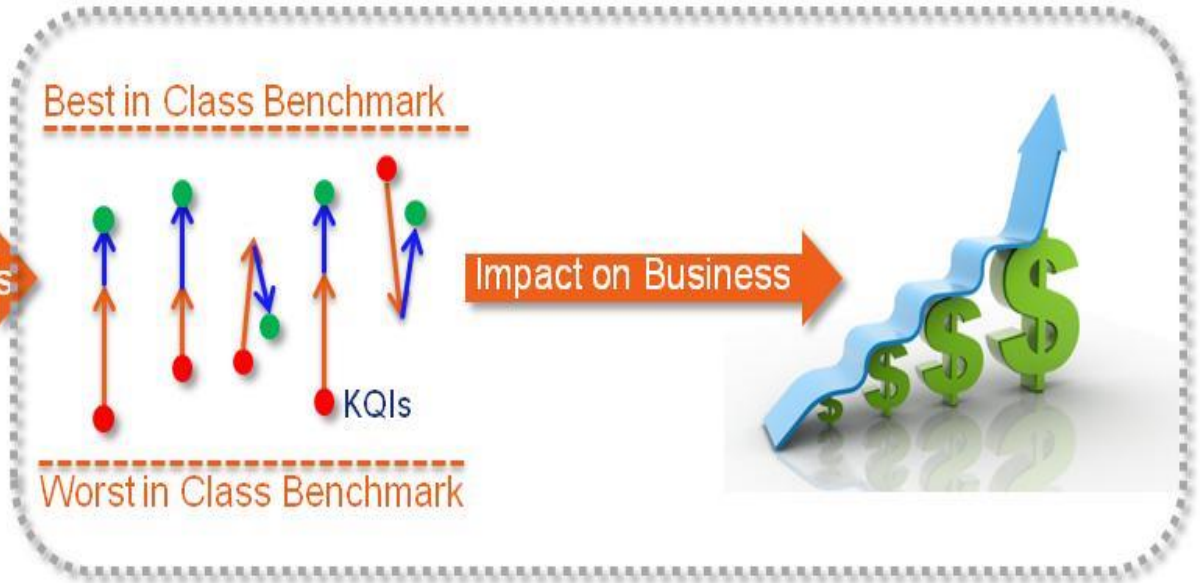




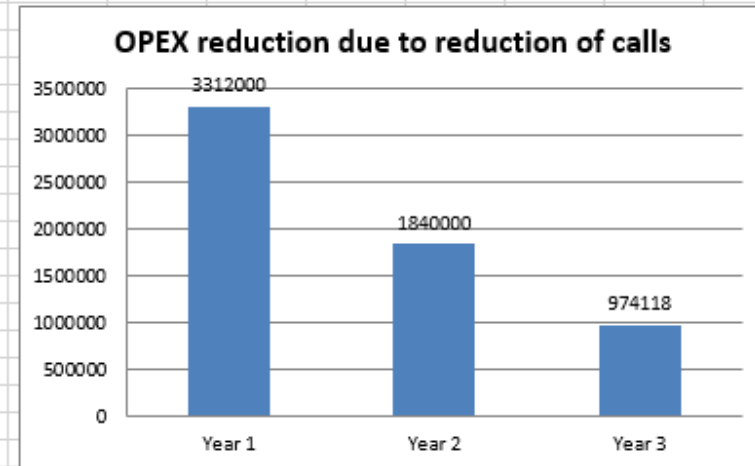


Use Case n  
Use Case 1

Impact on KQIs



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	% of calls where refund is given	10.00%	rc											
2	Amount refund	\$0	ar											
3	% of Revenue Spent on Managing Customer Complaints(L1)	0.8%	a											
4	% of Revenue Spent on resolving customer complaints (L2)	2.0%	b											
5	% of Rev spent on Service Quality Problem Investigation (L3)	1.8%	c											
6	% of calls resolved at L1	60.0%	aa											
7	% of calls resolved at L2	70.0%	bb											
8				Year 1	Year 2	Year 3								
9	PTC (Network)	1.0	0.9	0.85	0.825									
10	% of calls resolved at L1	60%	60%	60%	60%									
11	Calls landing at L2		0.36	0.34	0.33									
12	% resolved at L2	70%	70%	70%	70%									
13	Calls landing at L3		0.1	0.1	0.1									
14			Year 1	Year 2	Year 3									
15	Cost reduction at L1 due to PTC		576000	320000	169412									
16	Cost reduction at L2 due to PTC		1440000	800000	423529									
17	Cost reduction at L3 due to PTC		1296000	720000	381176									
18														
19	Additional cost reduction at L2 due to L1 resolution		0	0	0									
20	Additional cost reduction at L3 due to improved L1 and L2 resolution		0	0	0									
21														
22														
23	Original Refund before PTC	0												
24	Refund after PTC	0												
25	Total Refund Reduction	0												
26			Year 1	Year 2	Year 3									
27	Total PTC Reduction		3312000	1840000	974118									
28	Total Reduction due to improved resolution		0	0	0									
29														
30														
31	Original Cost		3.3E+07	29808000	27968000									
32	New Cost		#####	27968000	26993882									
33	Total Impact of OPEX/SALES		0.3%											





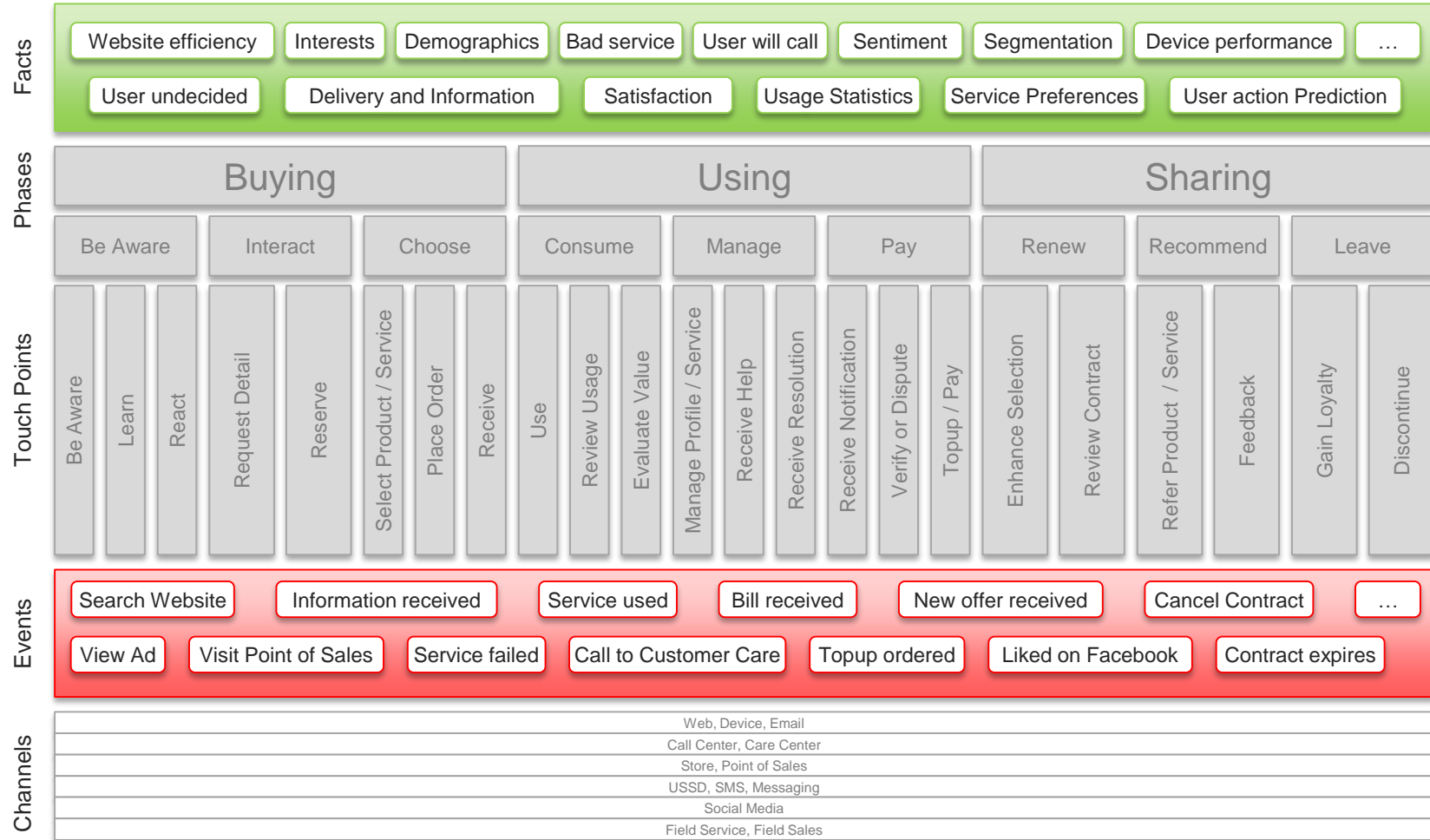
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# 360 Degree view of the Customer

Jörg Niemöller, Ericsson  
[joerg.niemoeller@ericsson.com](mailto:joerg.niemoeller@ericsson.com)

May 21<sup>st</sup>, 2014





## Summarizing Aspects of Customer Sentiment

- Definition of customer sentiment
- Importance of customer sentiment with example use cases
- Aspects of Sentiment:  
Satisfaction, Customer Effort Score, Feelings / Moods, Behavior patterns and prediction, Customer intention, Customer Expectation
- Persona: Different Types of persons involved with specific roles  
Value-Chaser, Never-Changer, Early Adopter, Head of Family, Contract main contact, Ordinary User





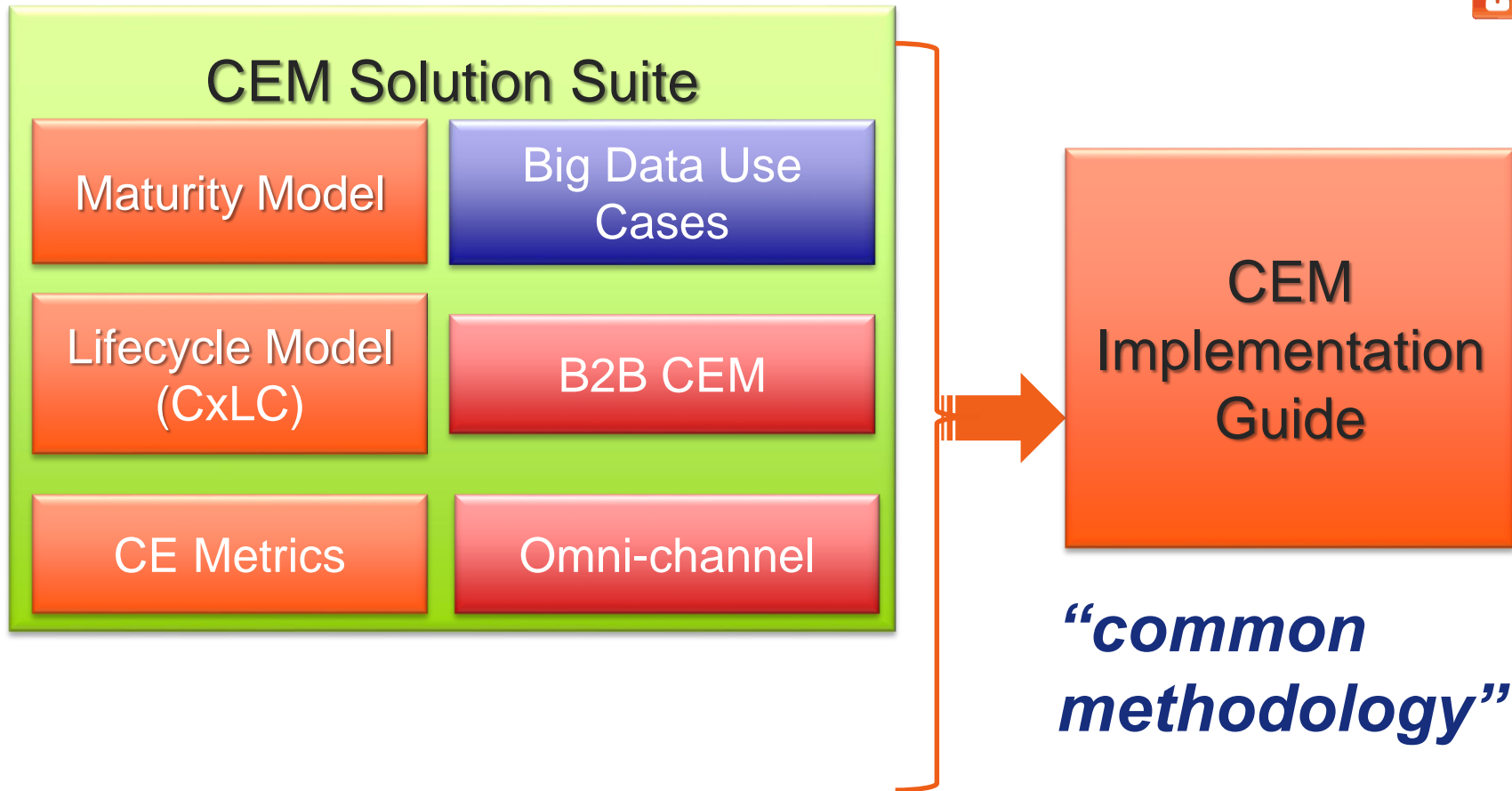
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# CEM Use Cases and Implementing CEM Solutions

Dharmendra Misra, Cognizant  
Dharmendra.misra@cognizant.com

May 21<sup>st</sup>, 2014





*This team has focused on defining a methodology for using all of the TM Forum's best practices and tools for CEM that we have today (maturity model, metrics, lifecycle model, big data use cases) in a defined, repeatable and extensible manner.*



## Identification and Description

- Name and generic description
- Purpose and business value
- References to other models like eTOM
- Entry conditions (e.g. maturity level)

## Metrics and Benchmarks

- Key metrics of the use case
- Condition for success
- Expected Cost

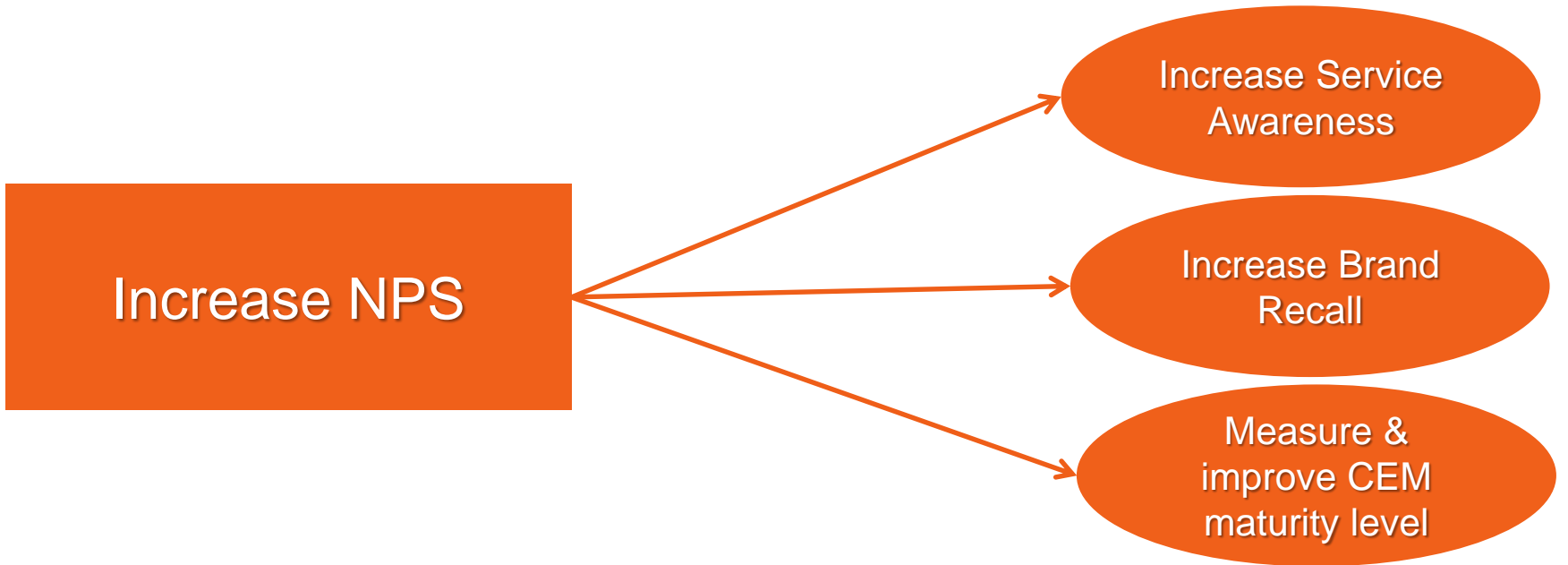
## Actions and Processes

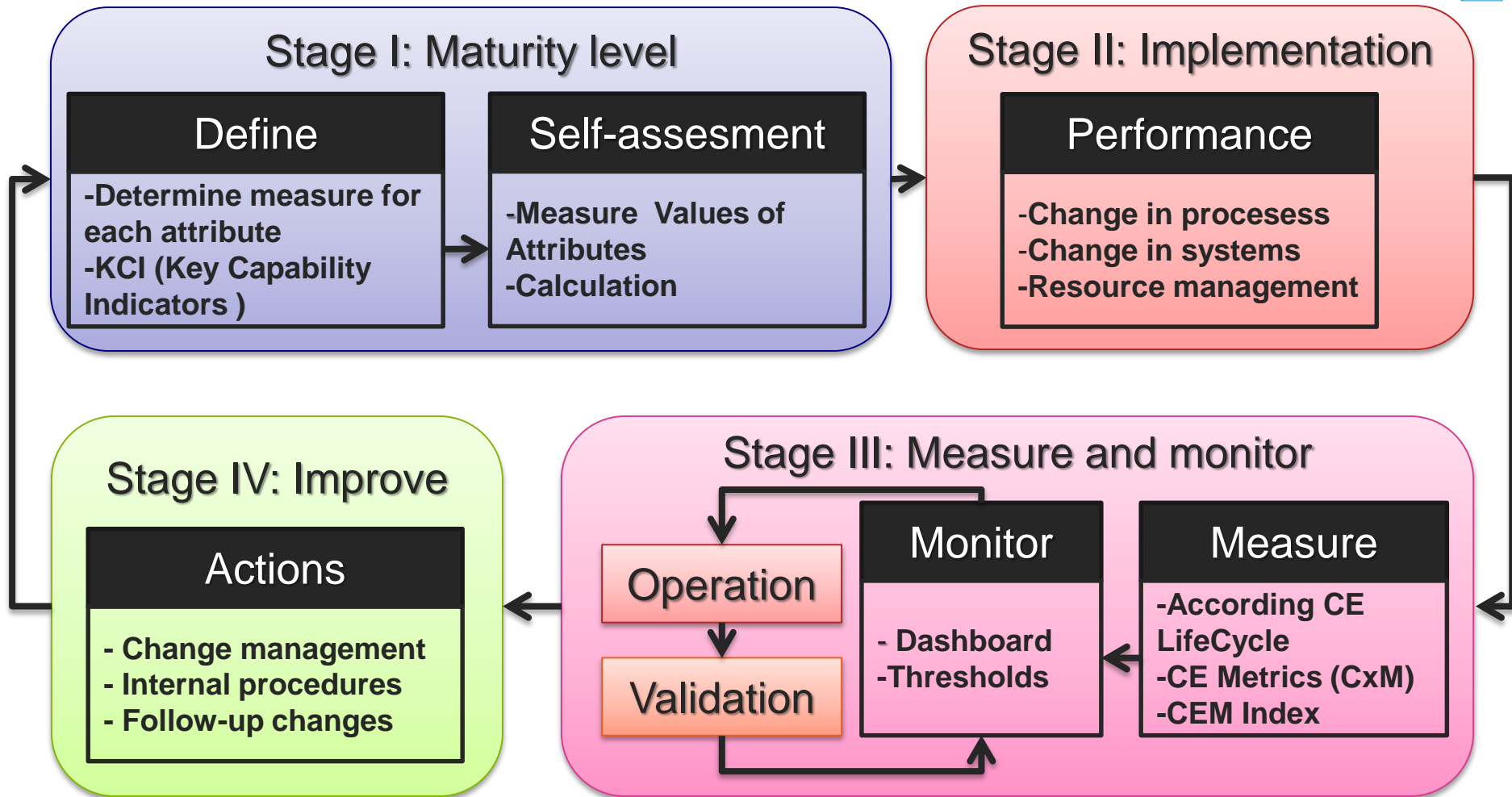
- A flow of actions to be taken
- Alternative flows with their entry conditions
- Links to external sources to be used
- Explanation of how to use other standards

## Stories

- Experience of organization when following this guide
- Budget spent vs. reached result









- Meetings: Weekly each Wednesday at 10AM EDT/ 4PM CEST



Day long workshops



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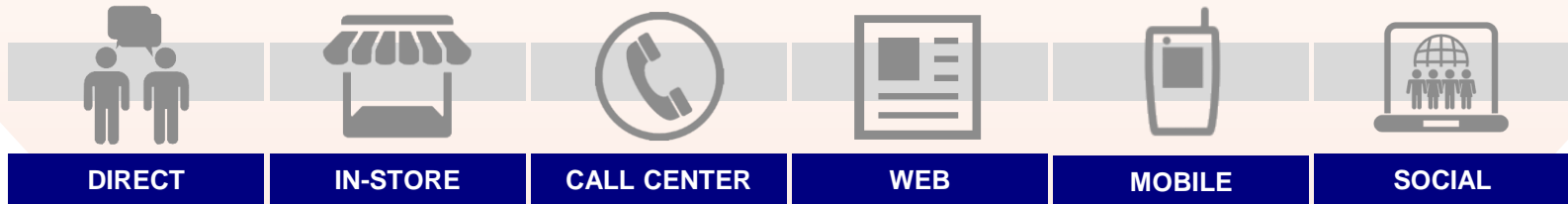
# Omni Channel – Maturity Model and Requirements

Anand Mohan, Infosys

[anand\\_mohan@infosys.com](mailto:anand_mohan@infosys.com)



# Defining Omni Channel: Integration of interactions across all channels





Customer **chooses** the channel of interaction



Right **data**, right **channel**



Channel hopping is a reality, **be prepared**



Deliver in **“context”**



Its about the **“individual”**



Identify and **prioritize** your **journeys**



**Customer  
Identity**

**Customer  
Data  
Integration**

**Digital  
Content  
Management**

**Sales  
Catalog  
Management**

**Personalization**

**Recommendation**

**Knowledge  
Management**

**Privacy**



Buying

Using

Sharing

OMNI CHANNEL USER JOURNEYS

Ref.	Description	Lifecycle Stage	Key Partners	Key Activities	Key Resources	Must Have : M/ Want: W	Channels								Service Types	Value Propositions
							Online	Retail	CC	Email	Device	Social	Field Svc.	NR/ SMS		
1	Customers should be able to find and explore details (including process to buy) about services, device or accessory in person or through remote channel.	Buying	Device manufacturers Dealers Distributors Retailers	Marketing (Digital & Traditional) Supply chain Mgmt	Content Catalogs Sales Catalog Pricing & Eligibility Engines	M	Y	Y	Y	Y	Y	Y			Wireline Wireless Cable Broadband	Self Service Rate
2	Customer should be able to reserve a device or accessory in person or through remote channel	Buying	Device manufacturers Dealers Distributors Retailers	Marketing Sales Operations Retail Store Operations	Content Catalogs Sales Catalog Pricing & Eligibility Engines	M	Y	Y	Y	Y			Y		Wireless	Inventory Optimization
3	Customer should be able to show interest or request for future recommendations based on preferences through channel.	Buying	Dealers Distributors Retailers Contact Center Agents	Interest Registration Next Best Action	Customer Management Platforms	M	Y	Y	Y	Y	Y		Y		Wireline Wireless Cable Broadband	Lead conversion

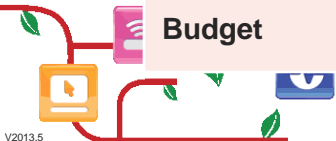
Use the guidebook to help you identify journeys that your customer will like and prioritize them

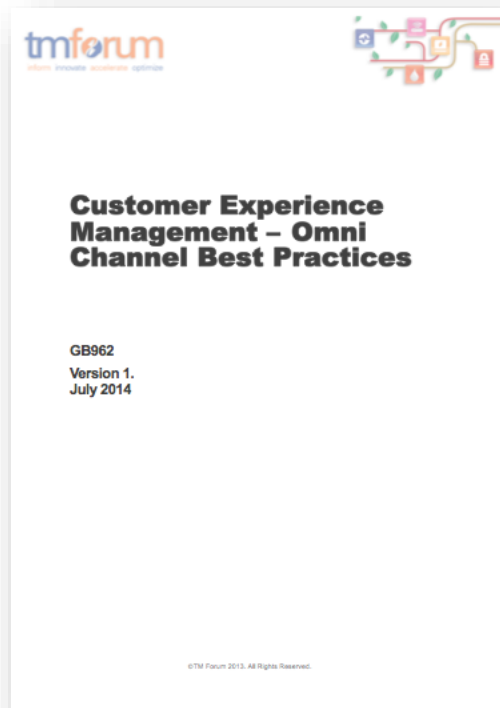




Function	Level 1: Siloed	Level 2: Fragmented	Level 3: Selected	Level 4: Consistent	Level 5: Seamless
Definition					
Business strategy					
Data Driven approach					
Technology					
Process					
Governance and organization					
Roadmap, Plan and Timeline					
Functional Capabilities - Customer, Inventory, Product and Order					
Organizational Change Management					
Budget					

Team work, Collaboration, Advise from Industry leaders, reviews by CSPs to come up with an Omni Channel Maturity Model





## Table of Contents (Draft Only)

- Executive Summary
- Principles of Omni Channel
- Key Requirements from CSP's
- Functional Capabilities for Delivering Omni Channel
- Prioritized User Journeys
  - Across Geographies, Service Lines, Channels
- Relationship with Metrics and Implementation Guide
- Summary





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# Pulse Catalyst: Small and Medium Business Customer Sentiment

Chris Bauschka, Salesforce

[cbauschka@salesforce.com](mailto:cbauschka@salesforce.com)



## *Pulse Catalyst: Creating and Building a Deeper Connection with the Small/Medium Business Customer*



Filling the  
gaps in what  
is captured

Sentiment  
Emotion  
Journeys  
360 view



- CSPs are embracing customer intelligence, understanding and metrics (such as NPS and Customer Effort Score) to Improve Customer Experience (CX)
  - NPS is a simple, consistent metrics which can indicate customer satisfaction and loyalty (via surveys), but doesn't account for the customer sentiment and its impact on NPS responses
  - Our goal is to provides understanding of customer behavior and sentiment from the customer's interactions
  - Additional information can help to drive continuous refinement to the customer experience
- **Critical Success Factors**
  - Systematically capture additional customer sentiment with each interaction
  - Continuously update customer profile and journey history with sentiment score and additional feedback
  - Manage each interaction based on context of recent sentiment score and feedback
  - Leverage big data to evaluate customer experience holistically and recommend best next action.

Salesforce - leader  
 AT&T  
 Orange  
 Telstra  
 Vodafone  
 BAE Systems  
 cVidya  
 Ericsson  
 Intense  
 Vlocity

# Catalyst Storyboard



## Scenario 1: Chief Customer Officer

- Review SMB business dashboard, position that Quadstar can improve NPS and other success measures (e.g. revenue, churn, profitability) if it can manage each customer interaction based on customer's sentiment.



## Scenario 2: Field Sales Interaction Customer 1

- Show how sales person prepares for visit with an SMB customer. Show how he captures updated sentiment & profile information.



## Scenario 3: Contact Center Interaction Customer 1

- Show how contact center agent manages interaction with customer 1, with whom Quadstar has had rocky relationship. Show how she manages the transaction to positive outcome based on visibility to customer profile & sentiment.



## Scenario 4: Chief Customer Officer

- Review SMB business dashboard 6 months later, show how managing customer interactions based on enhanced view of customer profile and sentiment has translated into improved NPS and other success measures (e.g. revenue, churn, profitability).



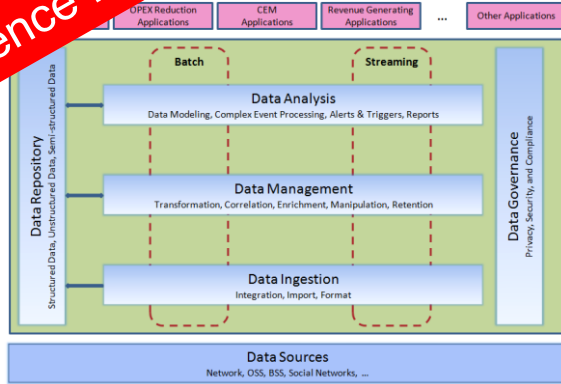
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# Getting started with Data Analytics

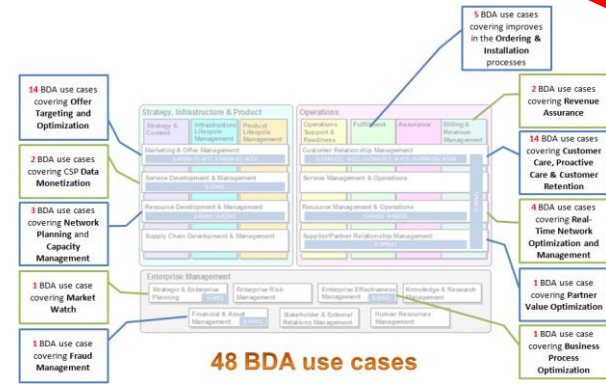
Peter Livaudais, Parstream  
[peter.livaudais@parstream.com](mailto:peter.livaudais@parstream.com)



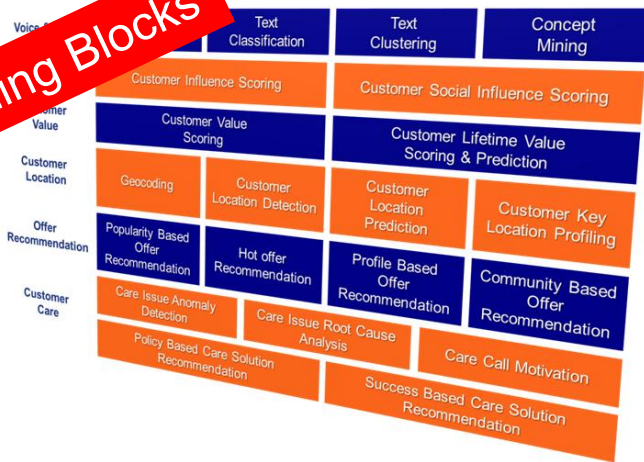
**Reference Model**



**51 Use Cases**

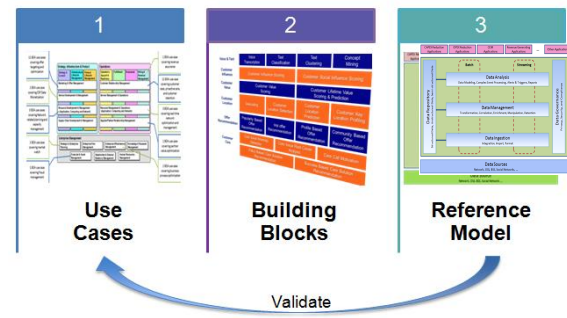


**Building Blocks**



**Business Value Roadmap**

A step-by-step process to enable a CSP to implement use case that delivers real business value







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# Data Analytics Guidebook on standards, reference architecture

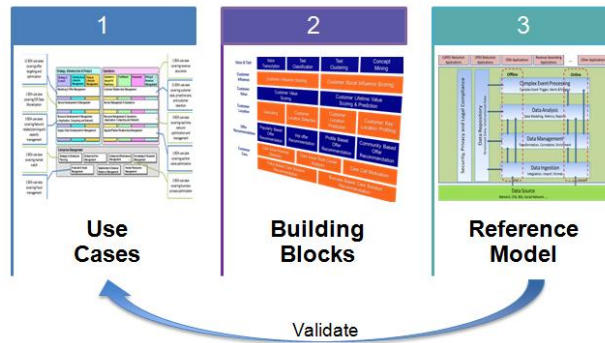
Larry Chesal, Spirent  
Larry.chesal@spirent.com





## Business Value Roadmap

A step-by-step process to enable a CSP to implement a BDA use case that delivers real business value



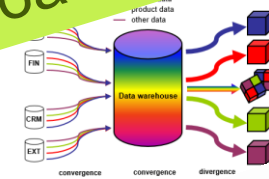
## NEW! Maturity Level Matrix

Level / Dimension	Level 1 Investigating	Level 2 Experimentation	Level 3 Implementation and learning process	Level 4 Mature Capabilities
Strategy	No Strategy	BDA strategy consolidation process	Linkage of strategy to operations with specific goals	Forward looking approach based on industry benchmarks
People	Coincidental knowledge about BDA, no training or measurement	Development of awareness skills, knowledge, proficiency	Measurement of skills, knowledge and proficiency	Employee participation in continuous improvement
Business Objectives	Reviewing BDA business use cases and their added-value, costs and impact	Choosing and prioritizing relevant business use cases	Use cases' implementation, including developing relevant building blocks, KPIs, models etc.	Analyzing use cases' impact and ROI. Reviewing and prioritizing new use cases to implement
Tools and Systems	No BDA tools and services. Reviewing different solutions (DB, ETL, analytics solution, etc.) and their ROI	Choosing the right platforms, vendors and analytics infrastructure to implement the selected use cases	Implementation of vendors' chosen solutions: DB, platforms, models and analytics capabilities	Maintenance activity. If needed, acquiring advanced analytics capabilities by infrastructure improvement, new platforms, services and models
Relevant Roadmap Steps	1-4	3-4	4-6	4-6

## NEW! Identify Business Challenges



## NEW! Choose Repository Approach



Row Store v. Column Store

Rowstore #	Name	Address	City	State
000001	ABC	1234 Main	Omaha	NE
000002	DEF	5678 Main	Omaha	NE
000003	GHI	9101 Main	Omaha	NE
000004	JKL	2345 Main	Omaha	NE
000005	MNO	6789 Main	Omaha	NE





## GB979C – ABDR Analytics Big Data Repository

1. Introduction
2. Motivation: Why Use ABDR?
3. Anatomy of an ABDR
4. Conclusion: Guidelines, SID and Perspectives





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# Data Analytics Use Cases – Extracting the Value

Matti Aksela, Comptel

[Matti.Aksela@comptel.com](mailto:Matti.Aksela@comptel.com)



# About 50 Big Data Analytics Use Cases



**14** BDA use cases covering **Offer Targeting and Optimization**

**2** BDA use cases covering **CSP Data Monetization**

**3** BDA use cases covering **Network Planning and Capacity Management**

**1** BDA use case covering **Market Watch**

**1** BDA use case covering **Fraud Management**

**5** BDA use cases covering improves in the **Ordering & Installation** processes

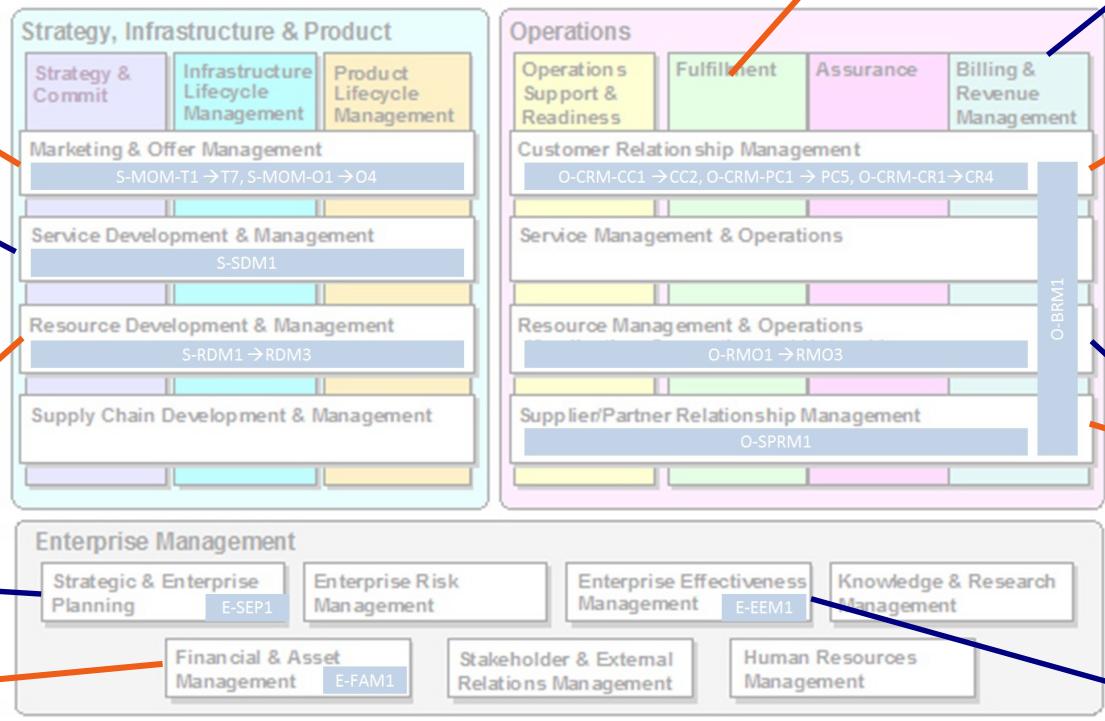
**2** BDA use cases covering **Revenue Assurance**

**14** BDA use cases covering **Customer Care, Proactive Care & Customer Retention**

**4** BDA use cases covering **Real-Time Network Optimization and Management**

**1** BDA use case covering **Partner Value Optimization**

**1** BDA use case covering **Business Process Optimization**



**... but we are constantly looking for more!**



## We need your help!

- New use cases are solutions the business problems you see
- Current operator use cases as well as new fields like Internet of Things, NFV/SDN, ...

## Have a new use case idea?

- We are using a confluence template to fill in the key parts of a use case, to be complemented with an Osterwalder canvas. Some of the key things include
  - The name of the use case
  - A short description of the core value and why a communication operator would implement this use case
  - A description of the flow of the use case, what steps and actors are involved
  - Key data sources that are expected to be needed to enable the use case
- Please contact me ([matti.aksela@comptel.com](mailto:matti.aksela@comptel.com)) to discuss further or with any questions you might have – and if you are not sure if the use case you have in mind is new and interesting, please just ask – all contributions are greatly valued!



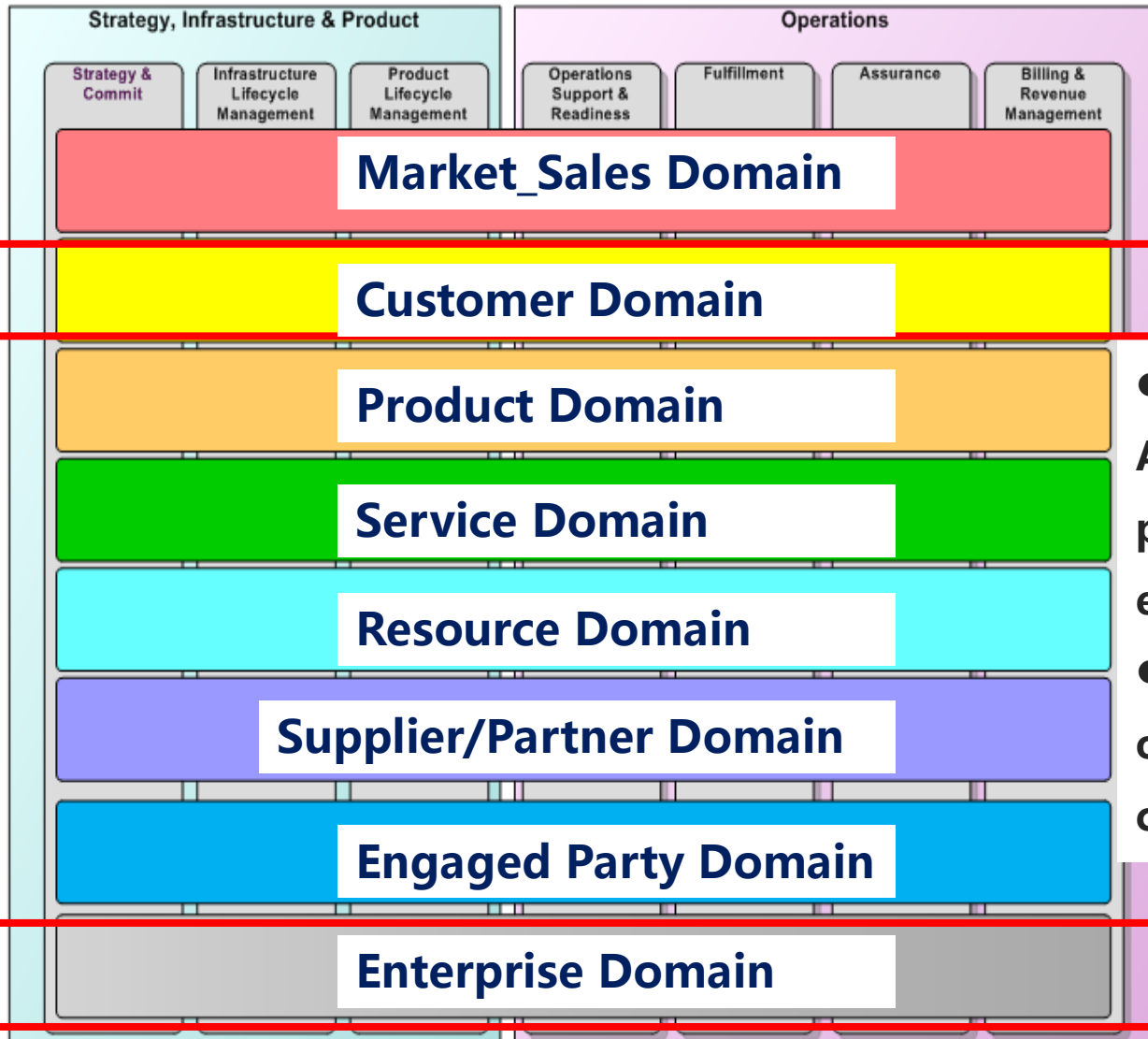
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# Data Management Processes

Apple Juan Li, Huawei

[applejuan.li@huawei.com](mailto:applejuan.li@huawei.com)





← **Customer Domain**

- Framework 15.0: Adding Data Analysis processes in CRM & EM to enhance eTOM
- Analysis of use cases in other domains will be coming soon.

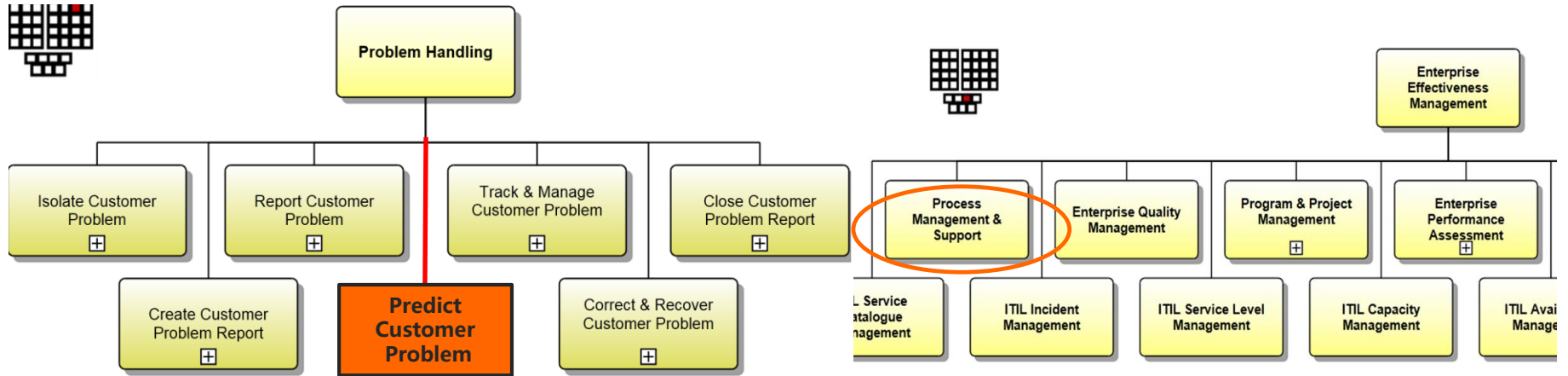
← **Enterprise Domain**





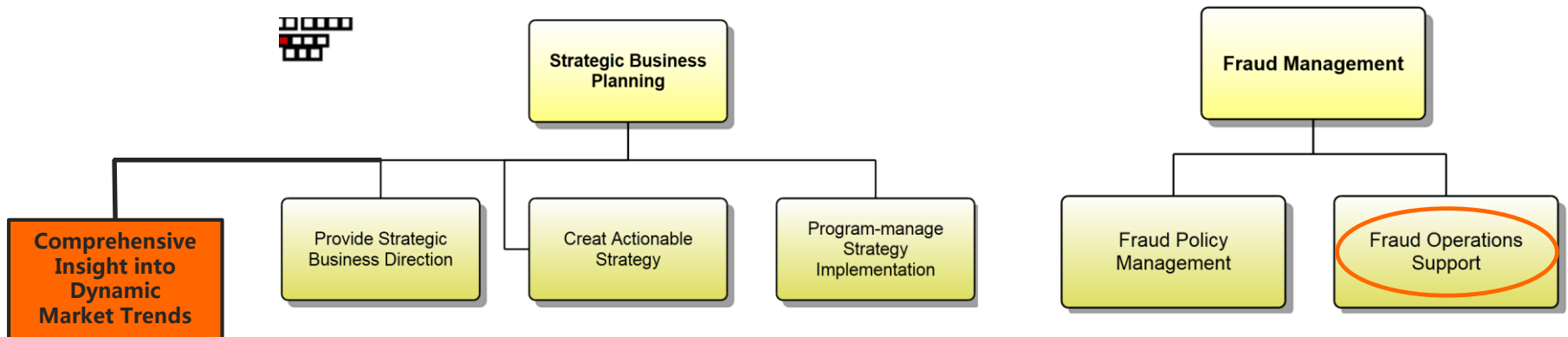
- Add “Analyze Customer Problem” as level 3 process under “Problem Handling”.

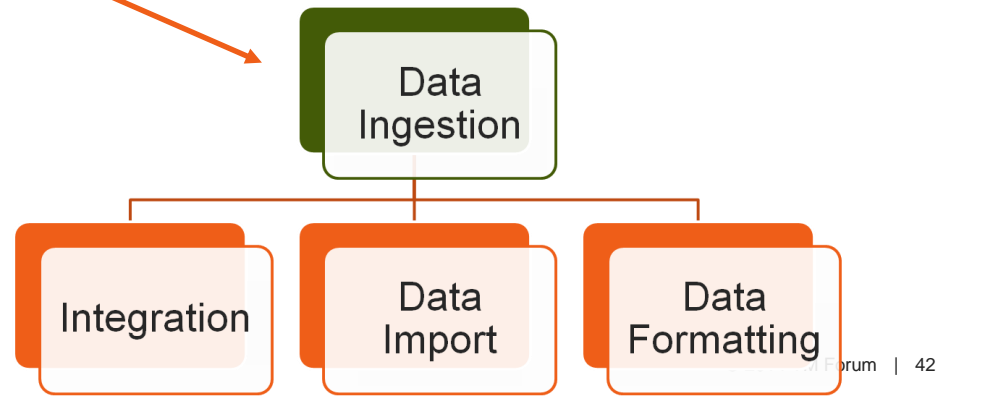
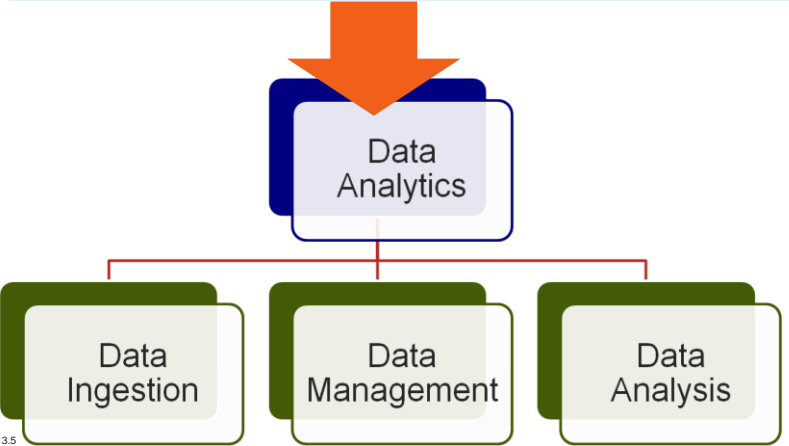
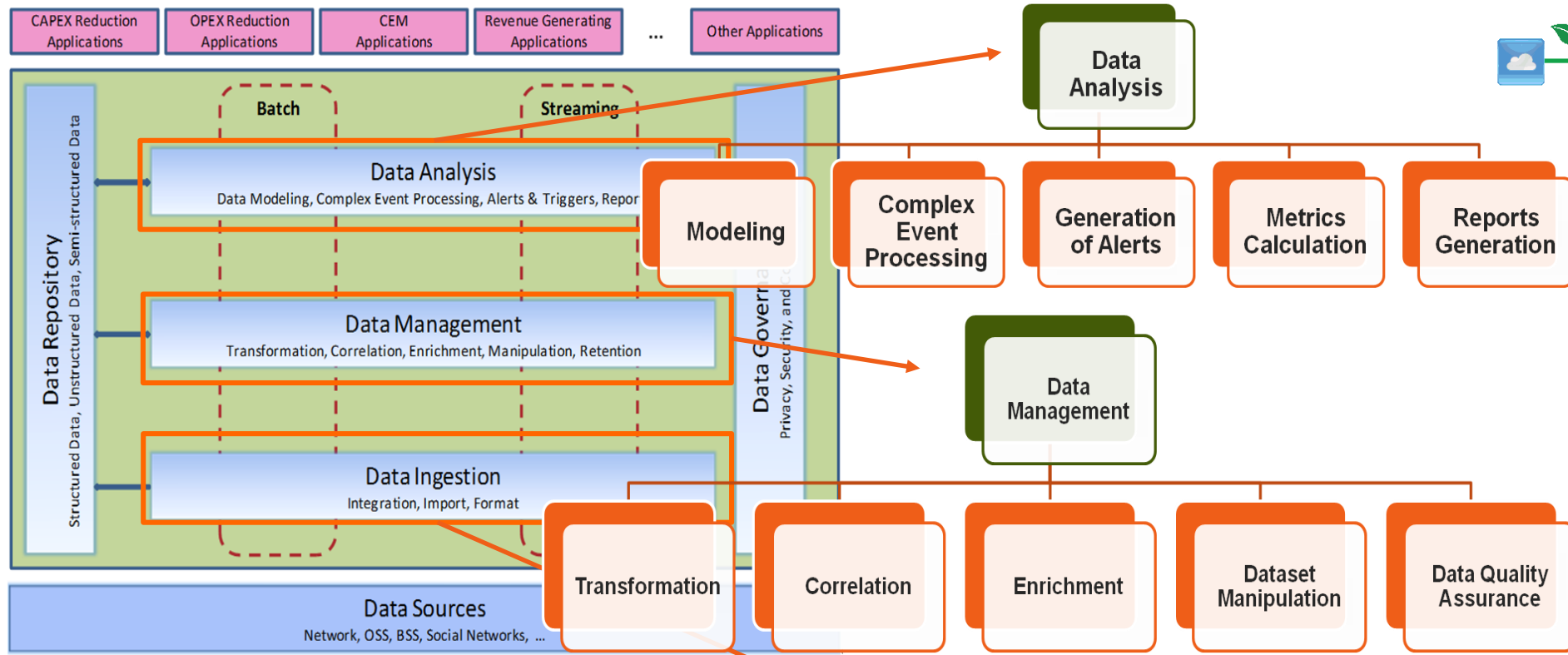
- Add data analytics related texts to description of “Process management & support”



- Add “Analyze Market Trend” as level 4 process under “Strategies & Enterprise Planning”.

- Add data analytics related texts to description of “Fraud Operations Support”.







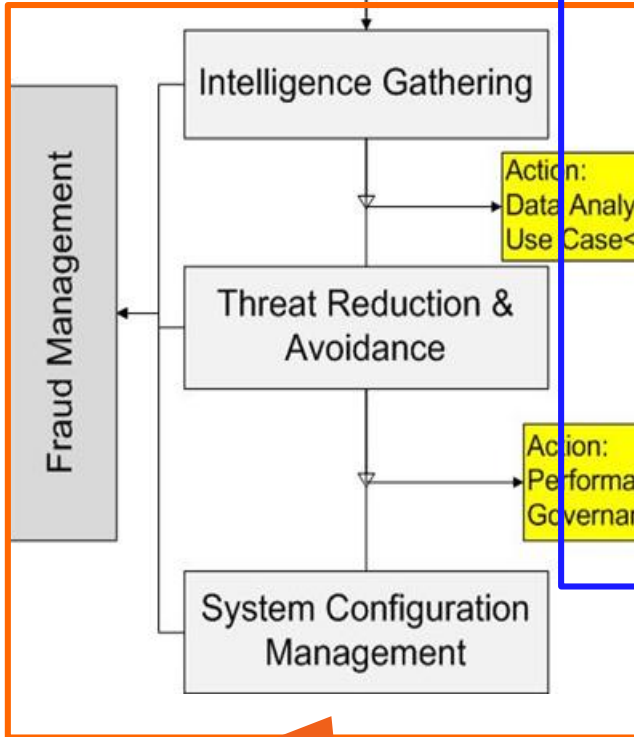
## Use Case: Input data



E.g. Implement Use Case into business:  
Use case <E-FAM1: Fraud Management> impacts eTOM process performance <Enterprise Domain: Enterprise Risk Management → Fraud Management>

It aims to integrate Use case into eTOM Business Processes.

To verify the value of utilizing Data Analytics by comparing the performance of business process with Data Analytics and without Data Analytics



Action:  
Data Analytics  
Use Case<E-FAM1>

- Learn fraud patterns from existing fraud cases;
- Identify and report on anomalies for new fraud pattern detection;
- Predict fraud on an event-by-event basis;
- Take appropriate action to prevent fraud (block, alert, etc.)

Action:  
Performance  
Governance

- Compare Performance:
  - AS-IS performance <without Data Analytics>
  - TO-BE performance <Add Data Analytics Actions>

## eTOM Business Processes

## Use Case: Data Analytics Actions



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# Analytics Big Data Repository (ABDR) Phase-3

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[Gadi.Soloterevsky@cvidya.com](mailto:Gadi.Soloterevsky@cvidya.com)

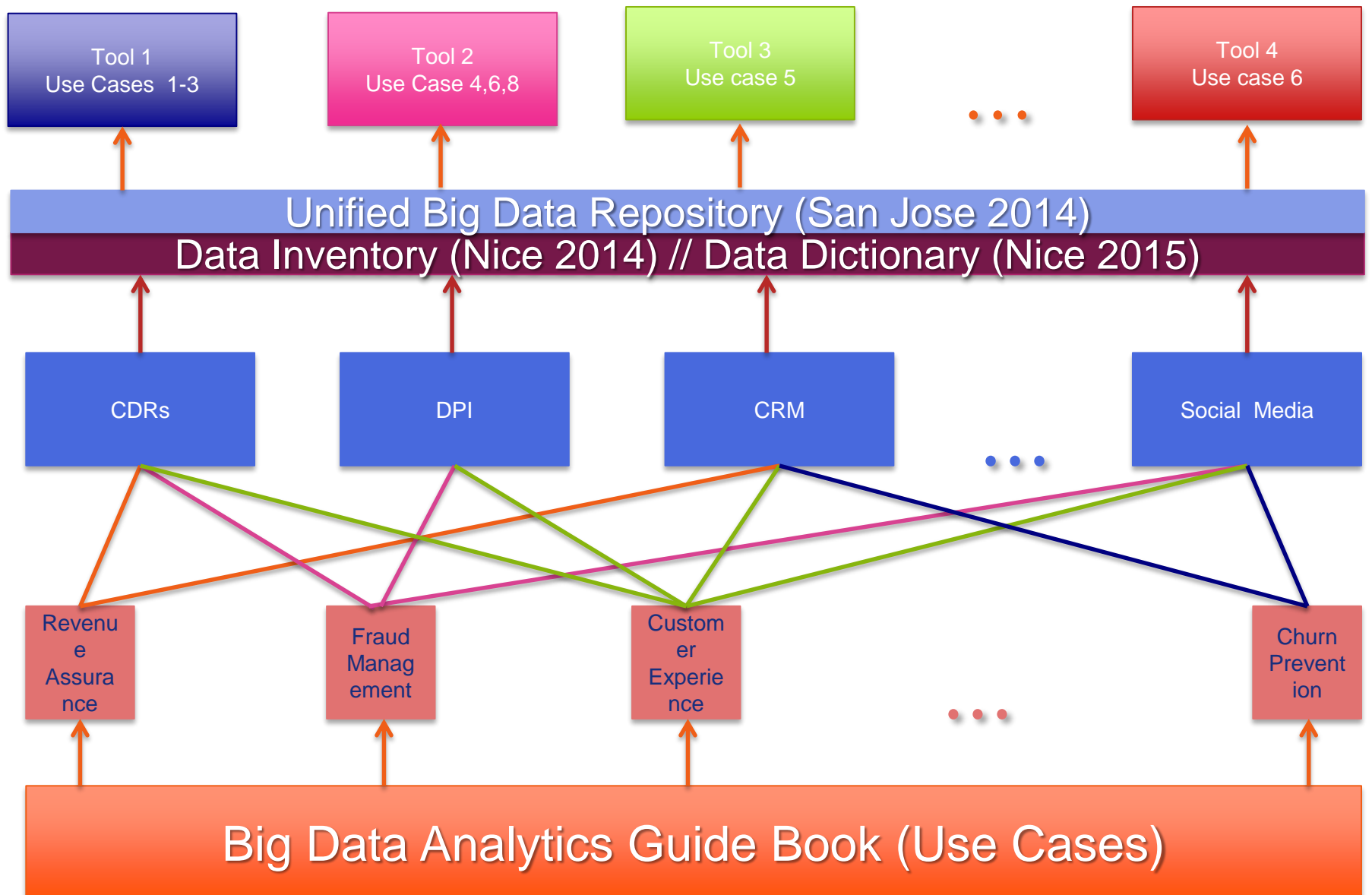
Amir Gefen, cVidya

[Amir.Gefen@cvidya.com](mailto:Amir.Gefen@cvidya.com)



## Catalyst Goals

- **Using Big Data Analytics to improve customer experience and achieve business growth**
- **Creating Analytics Big Data Repository (ABDR)**
  - **A unified big data layer and data dictionary**
  - **Supporting multiple use cases and multiple analytics systems**
  - **Avoiding data replication, reducing ETL costs and time, saving in hardware costs (storage and processing power), and shortening the time to implement new use cases**
- **Phase 1 (Nice 2014): Developed and demonstrated selected real-life telecom analytics use cases as defined in the Big Data Guide Book**
- **Phase 2 (San Jose 2014): Use cases will share a common Analytics Big Data Repository (ABDR)**
- **Phase 3 (Nice 2015): Creating and using a Big Data Analytics Dictionary as a best practice for mapping the required data for each use-case**
- **Phase 4 (San Jose 2015): TBA**



## Project Champions

- China Mobile
- MTS Allstream
- Orange
- Telus
- Verizon



- BAE Systems
- cVidya
- NetCracker
- ParStream

The logo for BAE Systems, featuring the text 'BAE SYSTEMS' in white on a red rectangular background.The logo for cVidya, featuring a blue square with a white checkmark and the text 'cVidya' in grey.The logo for NetCracker, featuring the text 'NetCracker' in blue with a registered trademark symbol.The logo for ParStream, featuring a stylized orange and grey icon followed by the text 'ParStream' in orange.



## What Service Providers are saying...

- “Service providers preside over a goldmine of data, and big data analytics is becoming an important asset and competence. Yet how to fully extract its value is still a challenge. We are pleased to support the TM Forum's Big Data Guidebook and Catalyst project, which will help us to make a leap forward in extracting the value of big data analytics.”

- - Lifan Zhao, Project Manager, China Mobile



中国移动  
China Mobile

## What CSPs are saying...

“Big Data is a big challenge. The ever increasing pressure from competition alongside all the industry hype make for a very confusing, complex environment to navigate thru. The TM Forum’s Big Data Analytics Guidebook, alongside the Big Data Analytics Catalyst, provide a valuable, practical jumpstart to helping service providers navigate thru the hype and focus on real tactics to extract the value out of data. I am pleased to support this catalyst project and the Big Data Guidebook initiative.”

- Loreen Edkins, Director IT Architecture & Common Services, MTS Allstream





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# Metrics

Paul Ousterhout, KPI Guy

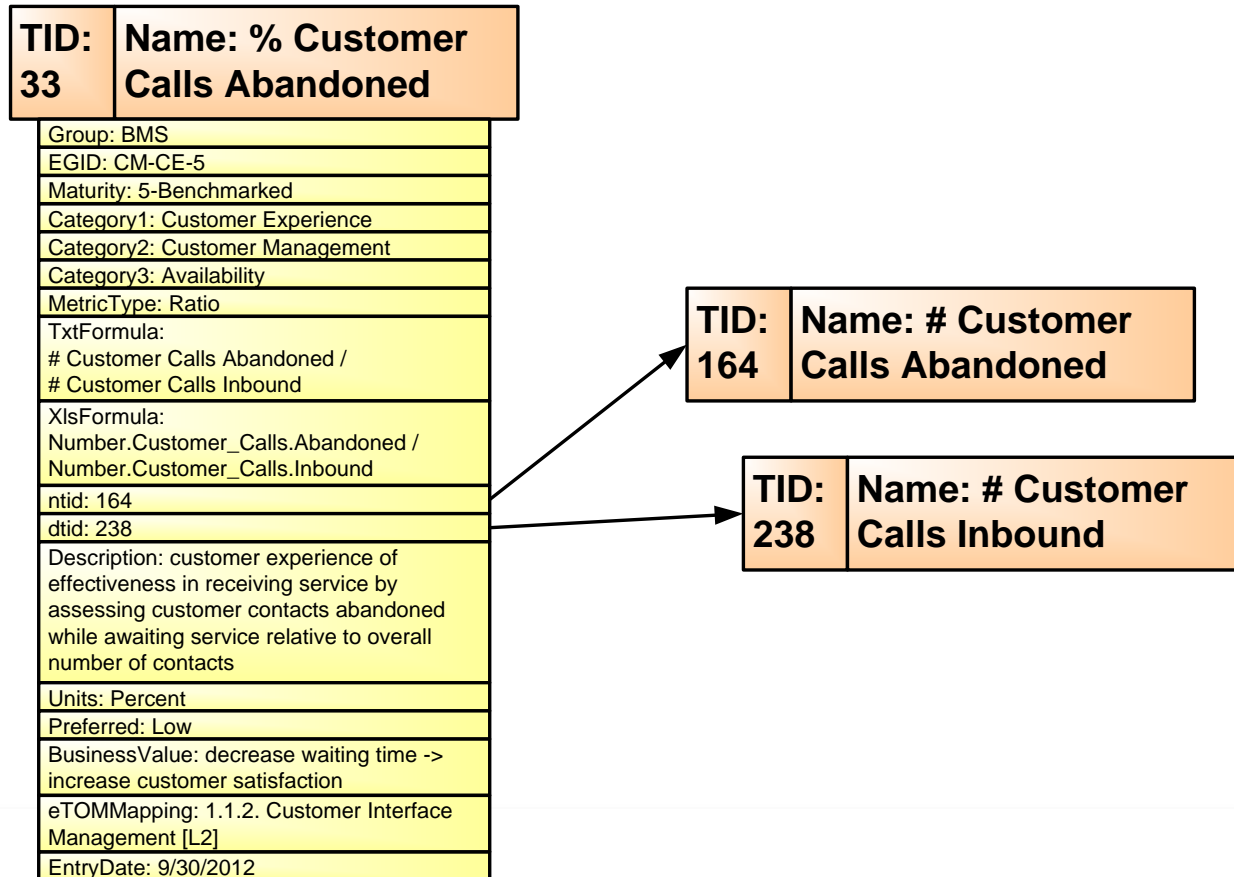
[paul@kipguy.com](mailto:paul@kipguy.com)

Robert Bratulic, IBM

[Bratulic@ca.ibm.com](mailto:Bratulic@ca.ibm.com)



- 1000 metric definitions available today
- Use this list as a quick start guide in your projects
- There will not be metrics for everything you need
- We will help you fill the gaps

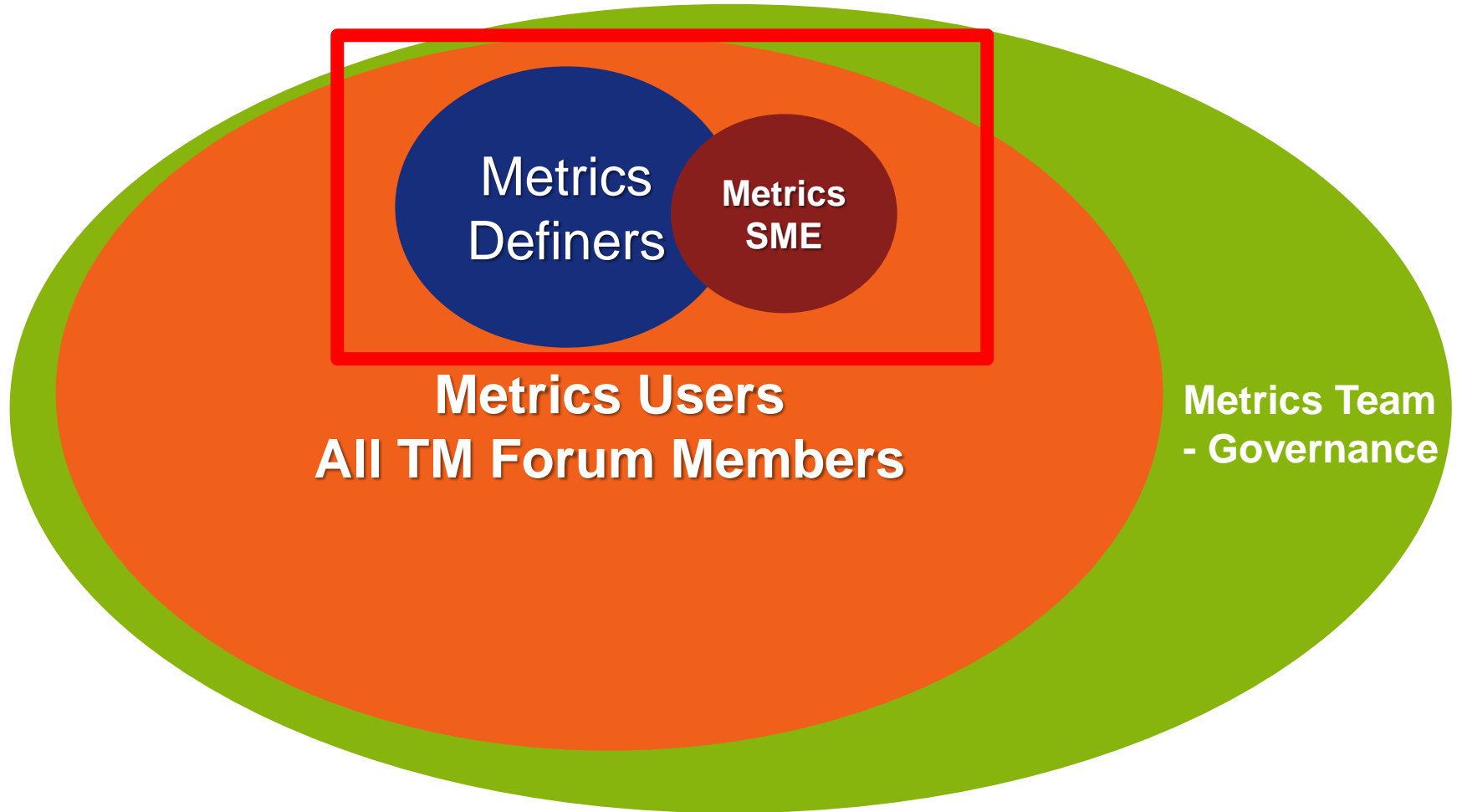


# New Metrics and Repository

Business	CEM
Fraud	Cable
CyberOps	IoT (eHealth, Smart Grid...)
Virtualization/ NFV/ ZOOM	B2B2X



We need you!



### *The Metrics Team is here to support YOU!*

- We give you a spreadsheet of all of today's metrics and/or a link to the online repository
- We 'right size' the support model based on the individual needs of each team
- We give you a template for creating new metrics
- You create metrics and submit them to the Metrics Team
- We normalize to ensure consistency
- We publish the new/updated metrics to the Online Repository
- Repeat!





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# Any Questions?

Contact:

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# Thank You!

