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- Introduction to TM Forum's Customer Centricity Program
- What do we have now and what are we working on?
 - Customer Experience Management
 - Data Analytics
 - Metrics
- Collaboration and Catalyst projects in each project

**Customer Experience
Management**

Big Data Analytics

Metrics



Using Customer Experience as a differentiator



Propelling Business Success with Analytics and Metrics



Customer Centricity in the Hyper Connected and Virtual World



A unique virtual
and physical
meeting place
for curious
minds to share
ideas and define
solutions

- Driven by real world challenges to create common languages
 - Guides, Best Practices
 - Reference Models
 - Processes
 - Data architectures
- Tackling the hard challenges together
 - In the age of Open Digital Environments
 - For SmartX applications
 - To move to DevOps & virtualization

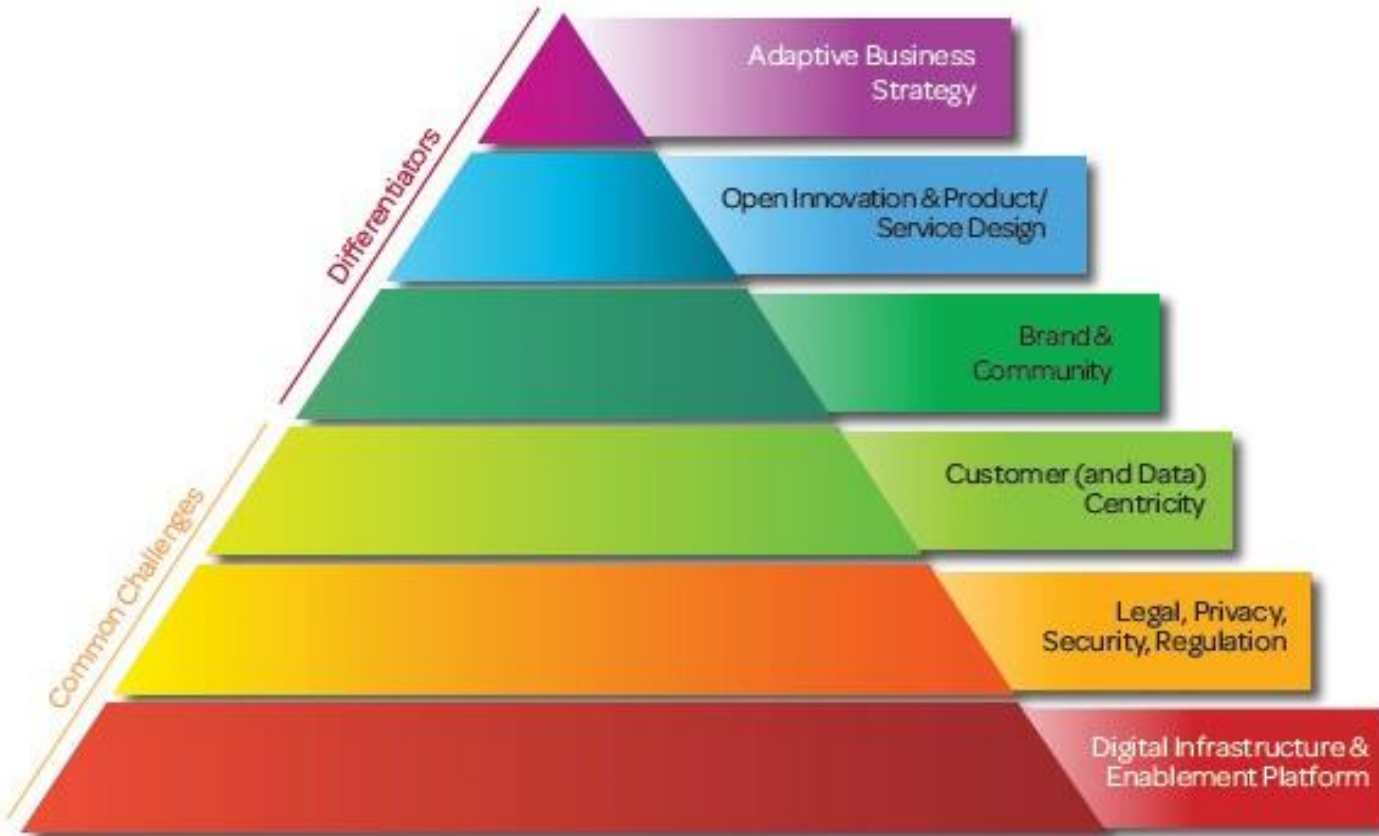
Collaboration:

- Creating best practices and standards
- Publish 2+ times per year
- Working groups open to all members
- Free to participate with membership

Catalysts:

- Short term proof of concept demos
- Teams include end user champions and solutions providers
- Pay to participate (Solution providers)
- Results in a demo at 2+ events per year

1. Omni/right channel experiences: How do I create an Amazon/Uber/Apple type of experience in B2B2X and virtual environments?
2. How can I monitor and track customer sentiment to truly create a market differentiator for my products & services?
3. I know I should be using data analytics more broadly to get value out of my data but how do I do that faster, better, cheaper?
4. I want to create a metrics/data-driven driven culture, how do I do that?
5. I want to be more citizen centric in my smart city. How can I do that in a systematic fashion?





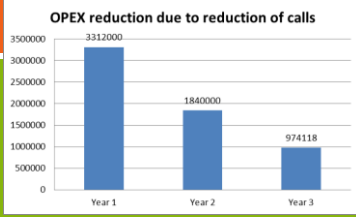
July 11-15; Meetings Monday through Friday midday

- Action Week is interactive, inspiring, intellectually stimulating!
 - Spend a few days or a week with some of the brightest minds in the industry setting a course for the future
 - Be a part of defining the common language for the industry. Meetings are roundtable style working sessions where you think, share and learn
- What the week looks like
 - First half of the week focus on Collaboration projects for developing best practices
 - Second half of the week we will focus on Catalyst projects
 - Collaboration Projects will continue to meet during the second half of the week as well

WE LOVE NEWCOMERS!



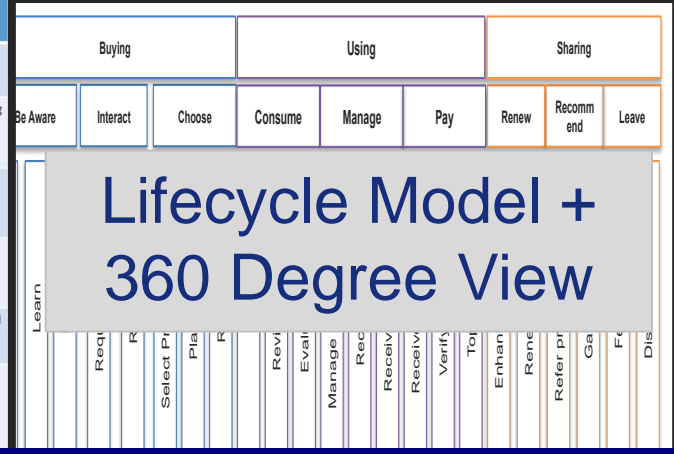
Guidebook



CEM Return on Investment Calculator

Level	Level 1 Initial	Level 2 Repeatable	Level 3 Defined	Level 4 Managed	Level 5 Optimized
Dimension	No Strategy	Generic statement "Customer is King"	Objective CE statement with specifics	Linkage of strategy to operations with specific goals	Forward looking approach based on industry benchmarks
Strategy	No Strategy	Generic statement "Customer is King"	Objective CE statement with specifics	Linkage of strategy to operations with specific goals	Forward looking approach based on industry benchmarks
Organization, Leadership and Influence	Ad Hoc, silo'd organizations	Common organizational CE objectives	X-organizational CE linked to Mgmt. <i>Enhance goals</i>	CE as Mgmt. model including performance recognition and	C-level owners driving lean principles and process centric operations
People	Co-located	Co-located	Co-located	Co-located	Employee participation in continuous improvement
Customer Insightfulness of Process	No process	No process	No process	No process	Continuous improvement based on strategic KPI's
KPI's /Business Metrics	No KPI's or metrics	High level metrics and few KPI's	X-organizational metrics, Customer service KPI's	Metrics and KPI's across all CE processes	Metrics benchmarked to industry standards
Tools and Systems	Silo'd software, data and processes	X-organizational data/interfaces implemented on ad hoc basis	End to end process and shared data requirements identified	End to end processes supported by major systems with shared data	Major systems implemented to support value stream with full access to enterprise data

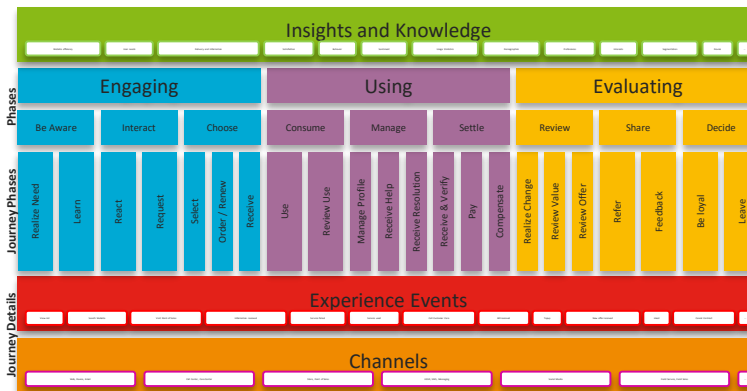
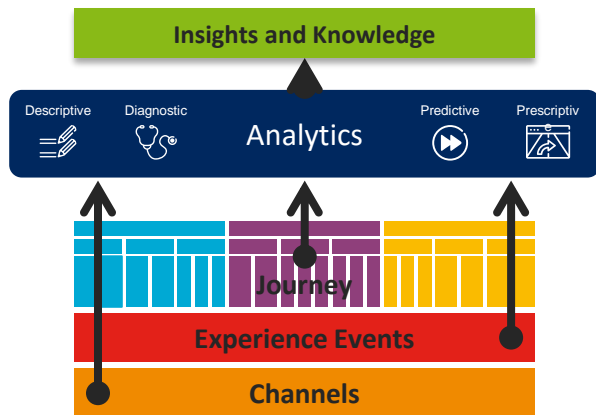
Maturity Model



Use Case Library

New Guidebook GB955: Experience Lifecycle Model, Journey Analytics

- Updated Model covers more general use cases: Smart City, IoT, digital service providers, ...
- Journey Details and Insights/Knowledge Layers:
 - Rich set of journey related data, such as metrics.
 - Location to collect all that is known and learned about the user.



- Journey Analytics:
 - How to derive actionable insights from the experience journey
 - Interrelation of journeys from different users

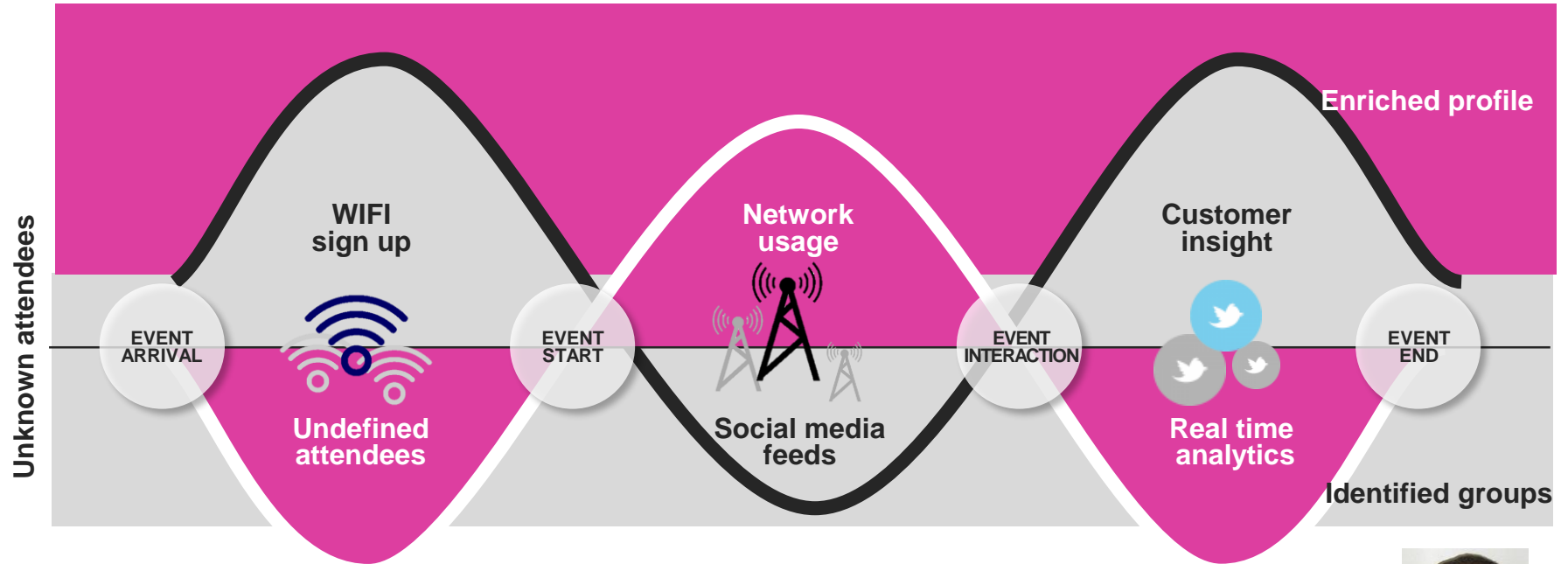
Joerg Niemoeller, Ericsson

Ongoing Work started in IG1134

- Customer Sentiment
The moods, feelings, behaviors, ... of a user and how to measure and utilize the knowledge of them
- Experience Integrator
What if a user has a single point of contact with consistent presentation for all services?
What entity would be needed to provide this?
- CEM scores
What CEM scores are needed to be used directly in decision processes on business level
How can these missing scores be obtained
- Yearning
How does the customer become a customer?
What are the decision taking mechanisms in the early phases of the lifecycle?

Joerg Niemoeller, Ericsson

Catalyst Customer Journey



Vision

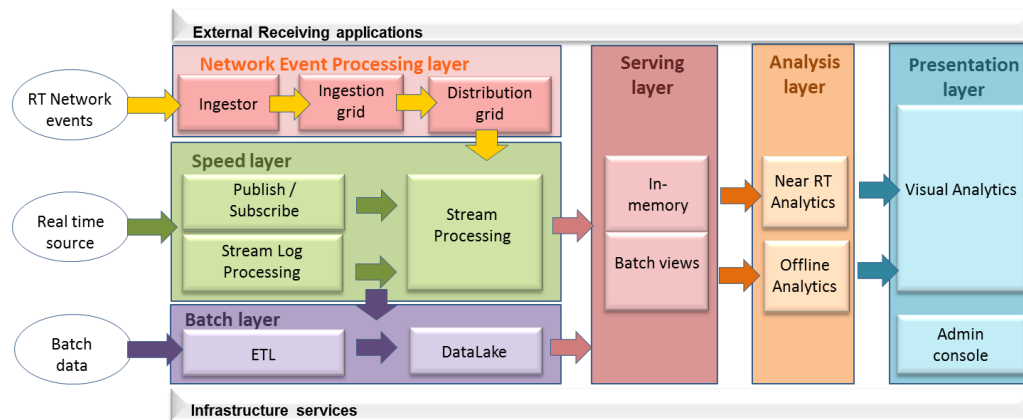
- Combining location with emotion to bring value and engagement
- Getting connected to customer sentiment... in real-time
- Focus on discrete locations as a micro-segment to respond to transient events with an emotional impact
- Improve business by providing the right insight at the right time with advanced analytics



... T ... Mobile

Atos

EMC²



- Challenges - SMC Challenge during an incident is balancing following activities:
 - Provision of impact assessment of an incident to Market Units, Wholesale Customers and end customers in real time.
 - While also working on key activities to restore service.
- Objectives



Improve **time taken** to identify and collate **impact** assessment during a fault



Improve **time taken** to **inform customers** of service interruption



Improve **communications** provided to **customers** prior to and during a service interruption



Improve **speed of Restoration**



Effective use of **resources** within SMC, Field teams and Market Units

Dave Cunningham, Galileo Software

- **Zero Touch Customer Service Impact Assessment**
 - Utilised Weather Feeds to Provide Predictive Fault Analysis (Rain Fade and Flooding)
 - Prioritised Faults based on Customer Impact not Device Severity
 - Improving Customer Satisfaction, Where it Matters
- **Provided Real Time and Regular Customer Communications**
 - Individualised to Suit Customer Type and Service Profile
 - Updated through out Incident Management Process up to Closure, Reducing the Need for Customer Calls, Freeing Up Resources Whilst Improving Customer Satisfaction
- **Automated Intelligent Fault Responses, Reducing MTTR**
 - Integrated with Run Book Automation solutions to attempt 'Known Fixes'
 - Integrated with Work Force Management solution to Despatch Appropriate Field Staff based on Suitability, Availability and Time to Site
- **Catalyst Unified Service Provider Data Domains To Improve Incident Visibility and Manageability**
 - Customer Services
 - Network Operations
 - Workforce and Inventory Management
- **Catalyst Solution Can be Easily Applied to Smart Cities**



Dave Cunningham, Galileo Software

Accomplishments to date (v16.0)

Omni Channel Imperatives	Functional Capabilities	Omni Channel Maturity Model v2
POV on Channels and Touch Points	Requirements v2	Architecture and Patterns
Reference Architecture		

Planned in coming releases

Reference Architecture V2	Maturity Model V3	Single View of Customer - POV
Using Data to plan Omni Channel	Requirements v3	Analytics for Omni



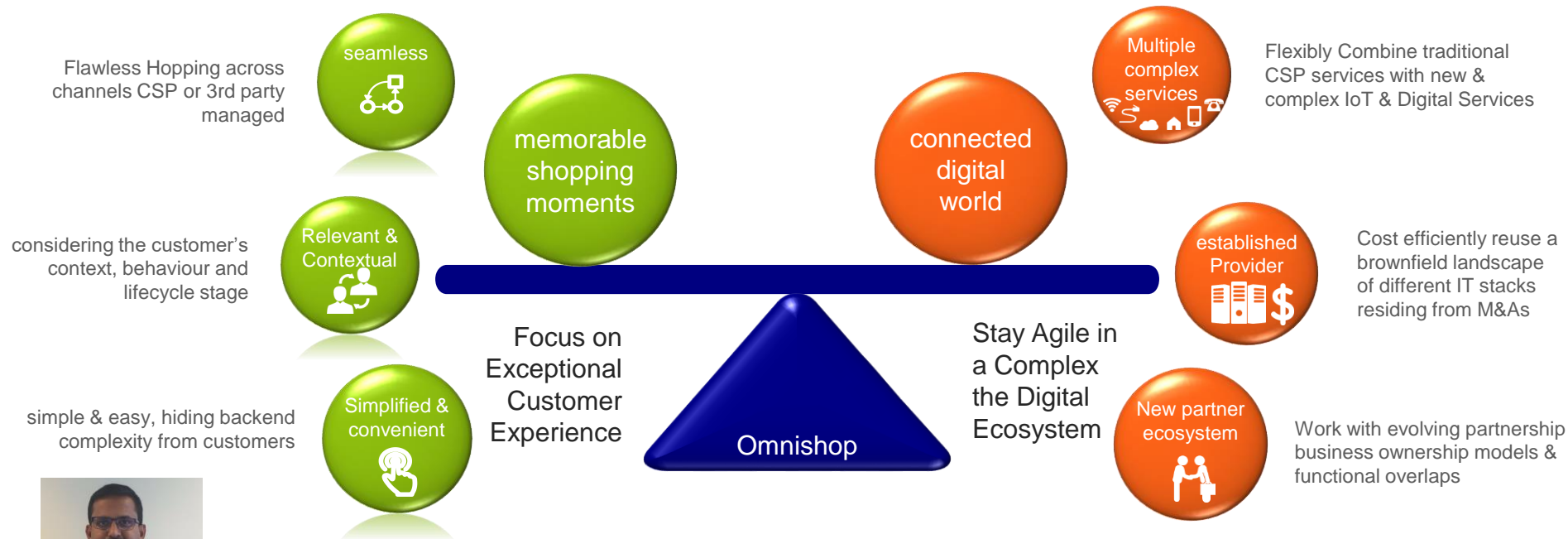
- ❑ Objective is creation of an Omnichannel solution creation framework for Service Providers for rapid implementation of Omnichannel Use Cases
- ❑ Part of Customer Experience improvement initiative in Vodafone focused on Customer Experience (NPS) as a key differentiator
- ❑ APPEX Omnichannel Catalyst addresses end to end customer journey, including Engage, Use and Evaluate phases
- ❑ APPEX Omnichannel optimizes Customer Experience and puts customers in control of their interactions with the Service Provider to maximize CSAT, services uptake, improve revenues and loyalty and reduce churn.
- ❑ APPEX Omnichannel customers receive a consistent experience regardless of channel utilized, with near real time personalized responses that meet and exceed customer expectations.
- ❑ Use of policy driven intelligent systems (inference and analytics) enables greater automation of communication with the customer without losing the personal touch when appropriate. This reduces response times and operational costs as well as improving first call resolutions and customer satisfaction.
- ❑ Data persistence across channels enables customers to choose their preferred channel and then change channel as they wish, and to be able to interrupt and resume a transaction at any point.
- ❑ Omnichannel capabilities will be applied to many transaction types such as purchase of new product or service, getting help and customer retention



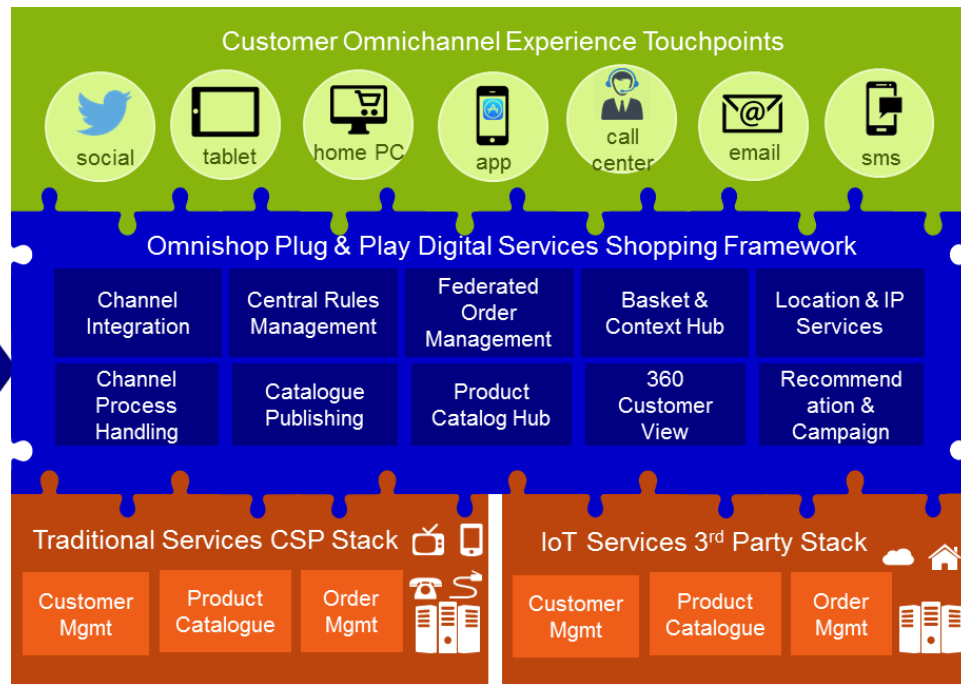
- ❑ Revisit and refine Business objectives, business and operational requirements and perform value chain analysis
- ❑ Perform Capabilities analysis
- ❑ Target business operation models definition
- ❑ New Use Cases for end to end customer journey and new customer segments, NPS focus
- ❑ Solution framework design
- ❑ Contributions to TMF e.g. Personas, APIs, eTOM updates, Metrics and Processes
- ❑ Maturity level assessment tool contribution



Balance the needs of exceptional experience against complex digital ecosystem



Plug and Play Digital Services Shopping Framework

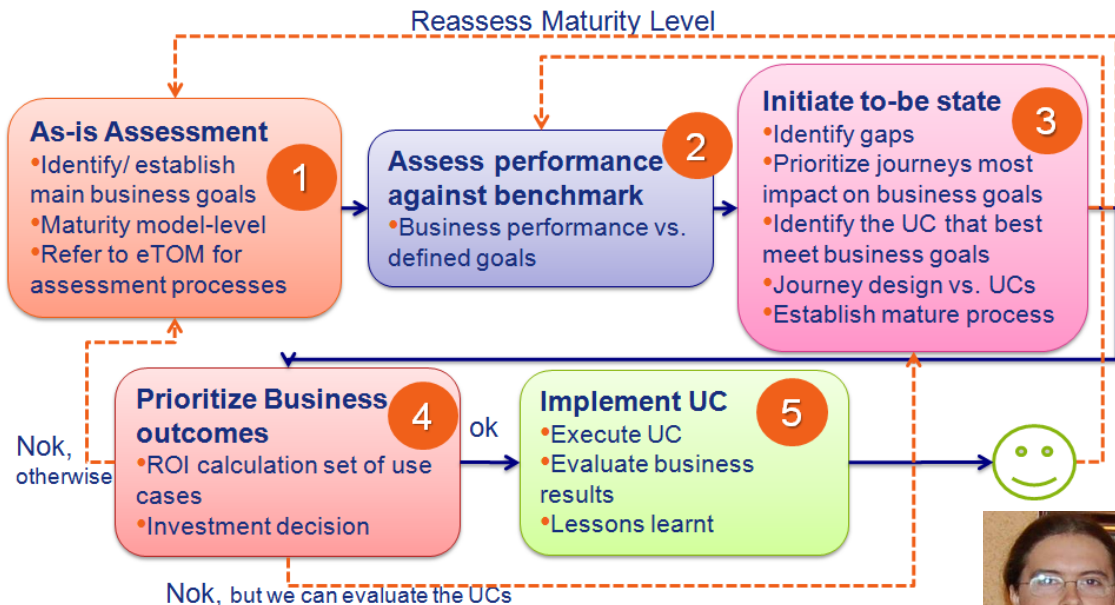


40 CEM Use Cases

Fx 16.0

CEM Business Value Roadmap

- C-CEM-30 Improve Real-time Proactive Contextual Marketing of Product-Offer based on Customer Need R16.0
- C-CEM-31 Improving proactive upselling / cross-selling through all channels R16.0
- C-CEM-32 Improve effectiveness in LEAD Conversion into Customer Order R16.0
- C-CEM-33 Unified Customer Profile R16.0
- C-CEM-34 Customer Score R16.0
- C-CEM-35 Improve Customer Loyalty Metric
- C-CEM-36 Increase New Order Revenue through Customer Referral
- C-CEM-37 Reducing In-progress Order Cancellation
- C-CEM-38 Improve Order Processing Efficiency
- C-CEM-39 Improve Effectiveness in Customer Call Handling
- C-CEM-40 Proactive Care during Planned Service Outage



Tags for UCs

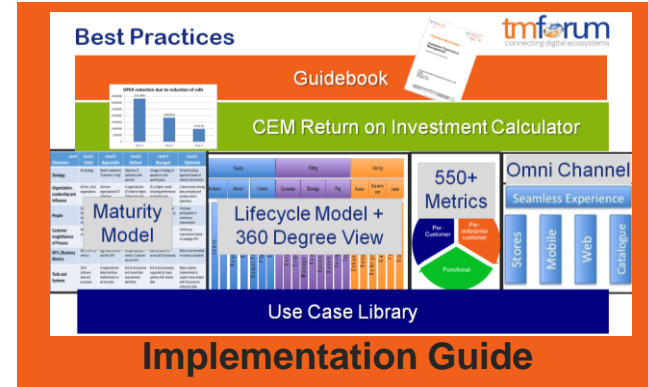
- Customer care
- Personalization
- Interaction
- Revenue
- Understanding
- Business optimization
- Retention
- Cost reduction

Tasks proposal

Fx 16.5

1) New Use Cases

- CEM Catalyst
- Smart Cities / IoT
- Action weeks Vancouver / Lisbon
- Action days / Local Workshops
- Project meetings (Mondays at 10 AM ET/ 4PM CET)

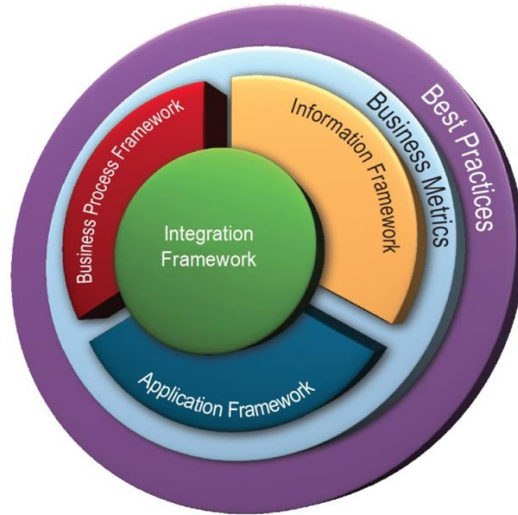


2) CEM Implementation guide

- Self-contained Guide Book
- Interactive Interactive TMF CEM Maturity Model



What we did for 16.0



- Enhancement of:
- Maturity assessment processes
- Mapping and Analysis of experience lifecycle processes

Objective of Project: To develop/enhance all the processes in the ETOM that are related to CEM so that any organization can carry out these processes to become more customer centric.



Future Planned Work

- Developing the Customer Experience Management Strategy and Planning Process

- Incorporate 16.0 CEM Processes into CEM Guidebook – Business Value Roadmap

- Further Enhancing the CEM Processes inline with CEM Streams/concepts



The Concept:



Current Use Cases:

- Propensity-to-Call Reduction
- 2G>3G>4G Migration
- eCommerce Conversion Rate
- Churn Reduction

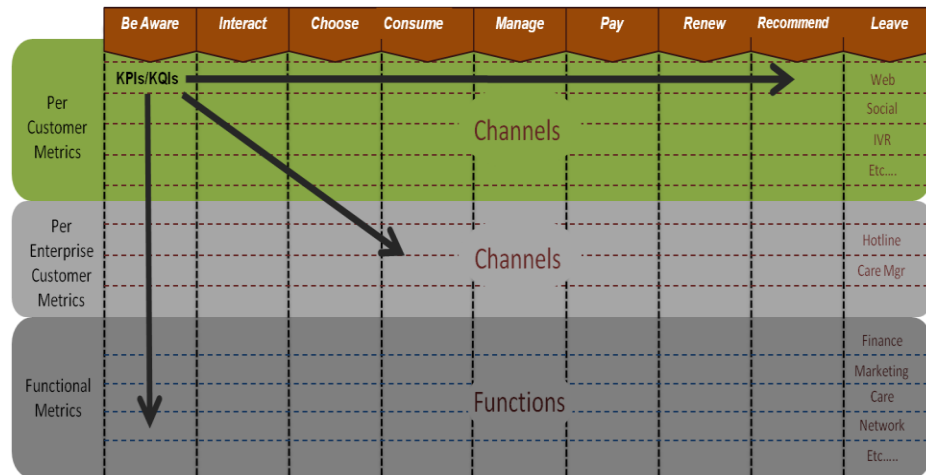
Next Steps (Framework 16.5):

- Critique and improve existing cases
- Add new use cases

Jonathan Hopkinson, Huawei

A reference book of customer experience (outside-in) metrics

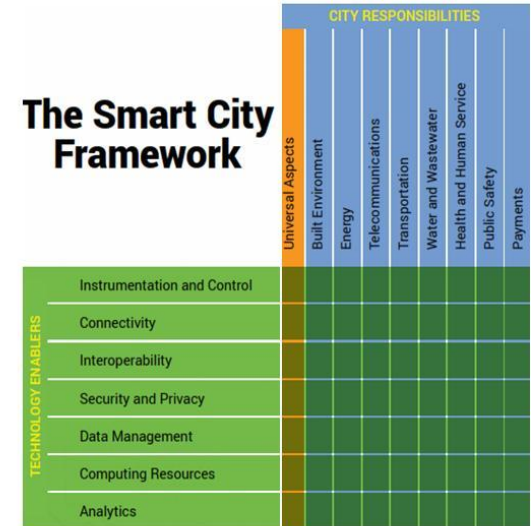
- Latest version has 572 metrics
- Covers the entire CE lifecycle
- Next Steps (Framework 16.5)
 - Add metrics to assess omni-channel performance
 - Leveraging Catalyst activity
 - Improve selected definitions to support inter-operator benchmarking



Jonathan Hopkinson, Huawei

Example: Enabling Telcos to become the Smart City Experience Integrator

- The instrumentation in Smart Cities allows unprecedented views of each citizen's experience
- Telco's are well positioned to capture and create value for all stakeholders from this data
- This new project will seek to create the frameworks and collateral to enable Telco's to exploit this opportunity.



Jonathan Hopkinson, Huawei

Metrics



- The Metrics team manages a repository of 2100+ metric definitions, many published in the Balanced Scorecard Poster at TM Forum events
- Metrics are submitted from TM Forum members, working groups, and catalysts, and cover CRM, Billing, Ordering, and newer areas like NFV
- The Metrics team then shepherds the metric through 5 maturity levels: 1-Proposed, 2-Defined, 3-Validated, 4-Normalized, and 5-Benchmarked
- Help grow our metrics by contributing what your team measures!

TID: 33	Name: % Customer Calls Abandoned
Group: BMS	
EGID: CM-CE-5	
Maturity: 5-Benchmarked	
Category1: Customer Experience	
Category2: Customer Management	
Category3: Availability	
MetricType: Ratio	
TxtFormula: # Customer Calls Abandoned / # Customer Calls Inbound	
XlsFormula: Number.Customer_Calls.Abandoned / Number.Customer_Calls.Inbound	
ntid: 164	
dtid: 238	
Description: customer experience of effectiveness in receiving service by assessing customer contacts abandoned while awaiting service relative to overall number of contacts	
Units: Percent	
Preferred: Low	
BusinessValue: decrease waiting time -> increase customer satisfaction	
eTOMMapping: 1.1.2. Customer Interface Management [L2]	
EntryDate: 9/30/2012	

Sample Metric Definition

TID: 164	Name: # Customer Calls Abandoned
---------------------------	---

TID: 238	Name: # Customer Calls Inbound
---------------------------	---------------------------------------



In FX16, Added Over 400 New Metrics

Change	Count	Group Name
	242	Business Metrics Scorecard Team
New	41	BSS Metrics
	51	Cable Team
	551	Customer Experience Management Team
Matured	904	Craig Farrell Book Metrics
	71	Cyberops Team
	22	Fraud Team
New	8	Margin Assurance
	78	SLA Management
New	18	Virtual CPE
New	9	Smart BPM enabling Digital Transformation – Wave II
New	6	Workforce
New	20	NFV ZOOM - ZOMP - ETSI
New	132	NFV ZOOM - ZOMP - QUEST
	2153	

VCPE

A	B	E
tid	group	name
1907	VCPE	% Virtual_Network.Faults Auto-Resolved (Auto-resolution success rate)
1908	VCPE	# Virtual_Network.Faults Auto-Resolved
1909	VCPE	# Virtual_Network.Faults
1910	VCPE	% Virtual_Network.Faults Avoided
1911	VCPE	# Virtual_Network.Faults Avoided
1912	VCPE	# Virtual_Network.Faults
1913	VCPE	# Predictive_Corrective_Actions Applied
1914	VCPE	# Predictive_Corrective_Actions, Per Fault
1915	VCPE	Mean Opinion Score (MOS)

QUEST

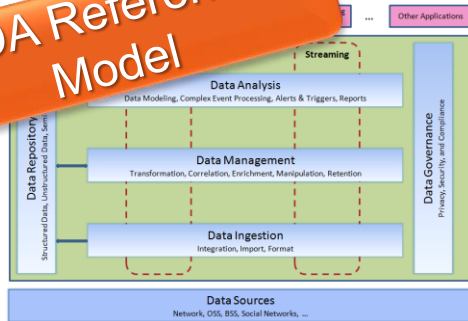
tid	group	name
1787	ZOMPQ	Fix Response Time
1788	ZOMPQ	Major problem report fix response time (% on-time resolution)
1789	ZOMPQ	Minor problem report fix response time (% on-time resolution)
1790	ZOMPQ	Problem report fix response time (% on-time resolution)
1791	ZOMPQ	Number of major problem reports closed on time
1792	ZOMPQ	Number of major problem reports due to be closed
1793	ZOMPQ	Number of minor problem reports closed on time
1794	ZOMPQ	Number of minor problem reports due to be closed

BSS

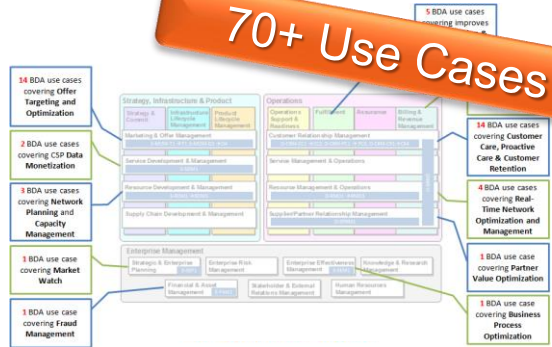
tid	group	name	category3
2379	BSS	# Opportunities to Share	
2380	BSS	% Social Share rate	Social
2381	BSS	Total Response Time	
2382	BSS	# Pages Visited	
2383	BSS	Average GUI Response Time	Fast Response
2384	BSS	Total Response Time First Page	
2385	BSS	# Sessions	
2386	BSS	Average App Start-Up Time	Mobile
2387	BSS	Total Order Time	
2388	BSS	# Orders	



BDA Reference Model



70+ Use Cases



External Data Monetization

Framework Exploratory Report

Introductory Guide to External Data Monetization

IG1138
Release 15.5.0
December 2015

Building Blocks

	Text Classification	Text Clustering	Concept Mining
Customer Value	Customer Influence Scoring	Customer Social Influence Scoring	
Customer Location	Customer Value Scoring	Customer Lifetime Value Scoring & Prediction	
Offer Recommendation	Geocoding	Customer Location Prediction	Customer Key Location Profiling
Customer Care	Popularity Based Offer Recommendation	Hot offer Recommendation	Profile Based Offer Recommendation
	Care Issue Anomaly Detection	Care Issue Root Cause Analysis	Community Based Offer Recommendation
	Policy Based Care Solution Recommendation		Care Call Motivation
			Success Based Care Solution Recommendation

Maturity Model

Dimension	Level 1	Level 2	Level 3	Level 4	Level 5
Strategy	Business Strategy	Operational Strategy	Product Strategy	Service Strategy	Customer Strategy
Organization, Leadership and Influence	Executive Leadership	Senior Management	Business Unit Management	Operational Management	Customer Management
People	Executive Leadership	Senior Management	Business Unit Management	Operational Management	Customer Management
Customer Insightfulness of Process	Executive Leadership	Senior Management	Business Unit Management	Operational Management	Customer Management
KPI's/Business Metrics	Executive Leadership	Senior Management	Business Unit Management	Operational Management	Customer Management
Tools and Systems	Executive Leadership	Senior Management	Business Unit Management	Operational Management	Customer Management

Analytics Big Data Repository



Data Analytics

- It started 3 years ago
- New deliverables each semester
- eTOM added business processes related to data
- Standards for procurement, for definition of use cases (75 already defined) and methodology, for reference architecture model, for data taxonomy (standardized data containers, data dictionary of data entities)

Business Benefits

- The right collaborative platform to bring business value with data – the new goldmine
- Best practices sharing amongst a network of CSP, DSP, technology providers, partners
- Enabling digital transformation in the open economy
- To leverage on standards for procurement, for definition of use cases (75 already defined), for reference architecture model, for data taxonomy

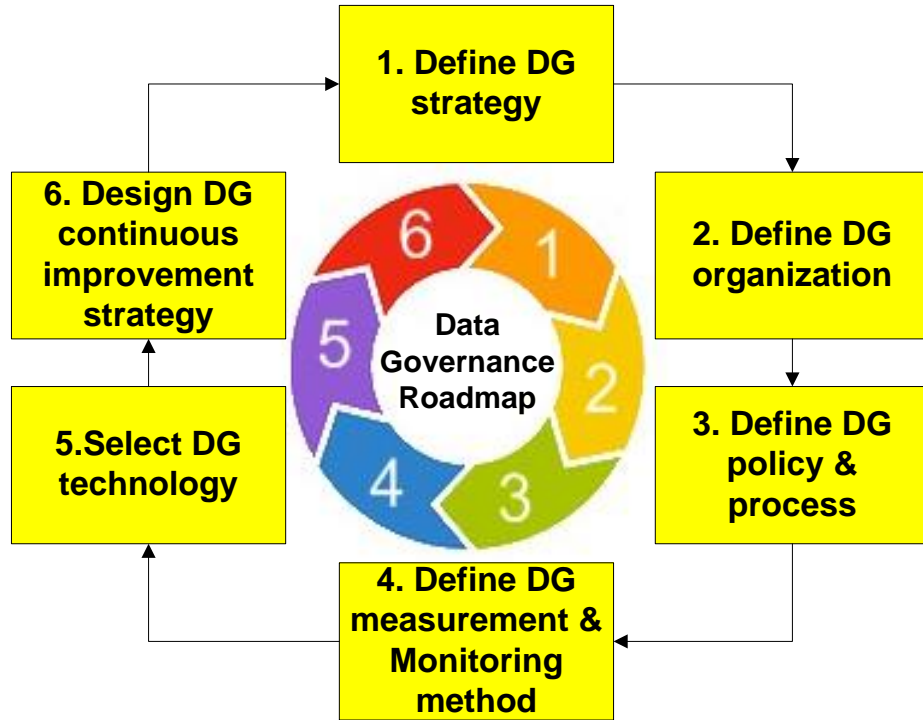
Sophie Nachman, Orange

- ❑ You are welcome to participate in the data analytics working group and to contribute to Framework 16.5
- ❑ A catalyst proof-of-concept that demonstrates real life use cases
- ❑ Let's go analytics!



Sophie Nachman, Orange

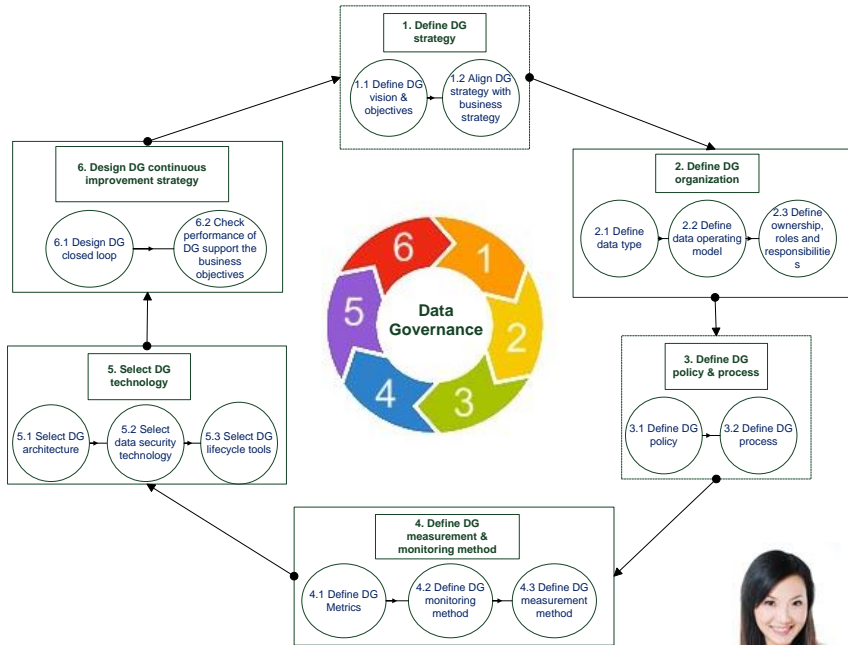
Data Governance Roadmap



- We define a 6-step data governance implementation roadmap as a best practice on how to leverage data governance to achieve business objectives.
- It is a guideline for organizations to execute data governance procedures. Each step, we defined sub-steps which can be decomposed to fit customized data governance requirements.

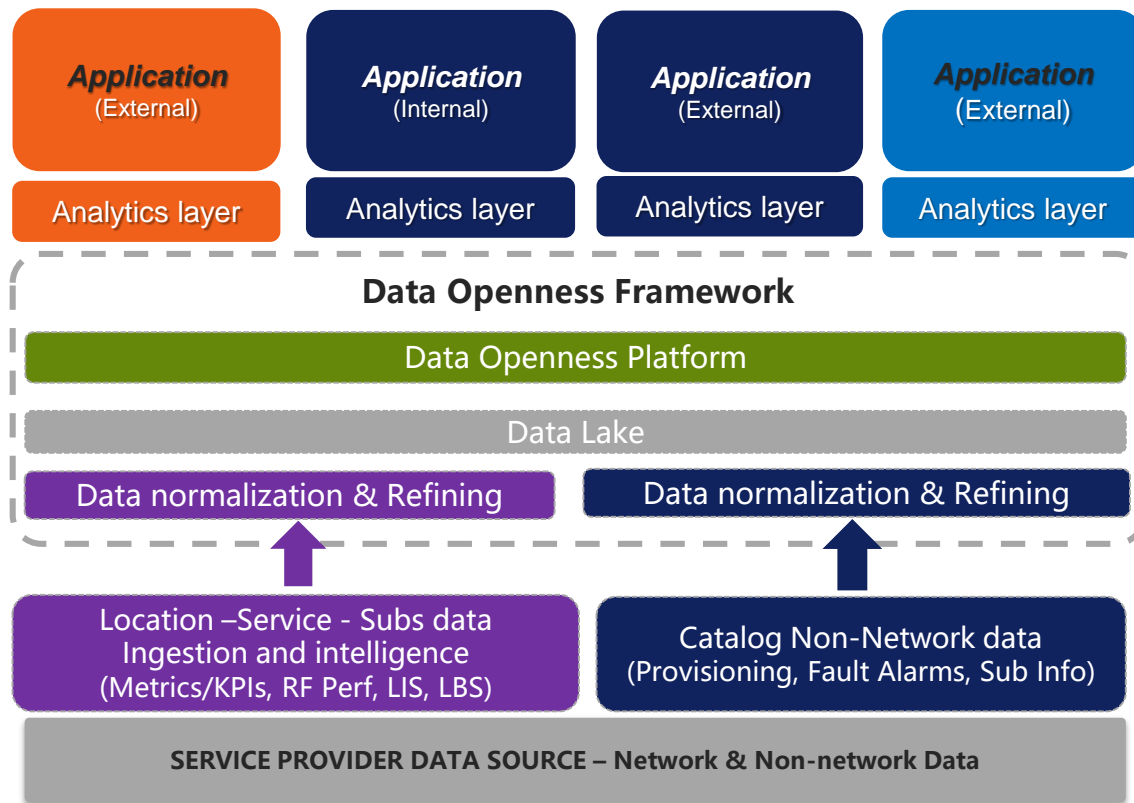


Data Governance Roadmap



Step (Level 1)	Sub-steps (Level 2)
1. Define DG strategy	1.1 Define DG vision & objectives
	1.2 Align DG strategy with business strategy
2. Define DG Organization	2.1 Define data type
	2.2 Define data operating model
	2.3 Define ownership, roles and responsibilities
3. Define DG Policy & Process	3.1 Define DG policy
	3.2 Define DG process
4. Define DG measurement & monitoring method	4.1 Define DG metrics
	4.2 Define DG monitoring method
	4.3 Define DG measurement method
5. Select DG Technology	5.1 Select DG architecture
	5.2 Select data security technology
	5.3 Select DG lifecycle tools
6. Design DG Continuous Improvement Strategy	6.1 Design DG closed loop
	6.2 Check performance of DG support the business objectives

Big Data Openness for Application Development Ecosystem



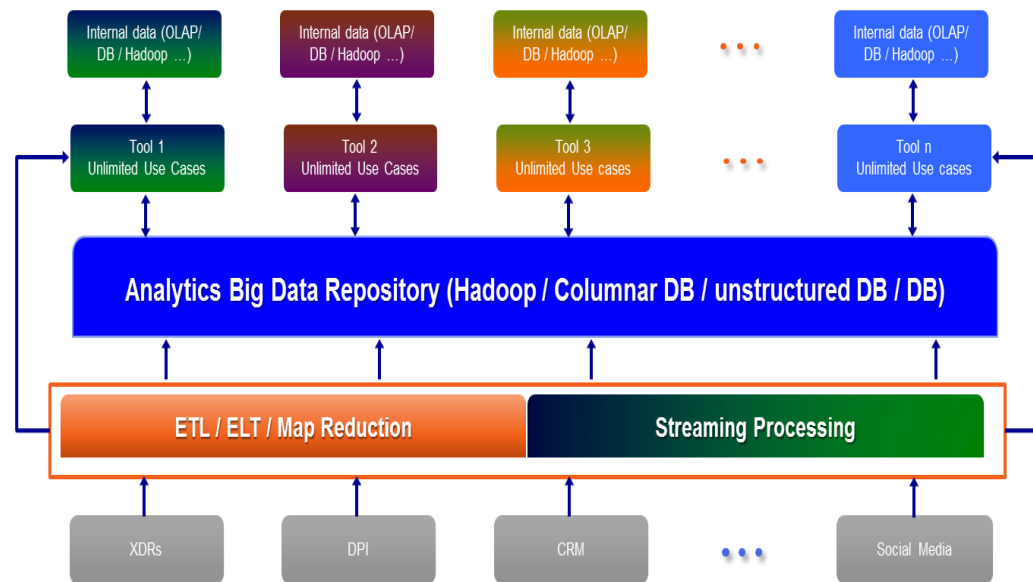
Data should be shared in & out to leverage value by multiple usage.

- Data Analyzer
- Data Enricher
- Data Enabler
- Data Owner/Sponsor



The ABDR is a unified layer that provides standard data definitions in order to support multiple use cases and multiple analytics systems (defined in GB979-D)

- Boosts innovation by ensuring that the data is highly available
- Faster time to implement new use cases and test new concepts
- Avoiding data replication by organizing data in a way that you can reuse it efficiently
- Saving in ETL costs & time
- Savings in hardware costs (storage & processing power)



Plans and needs for Fx16.5

- Enrich the ABDR data dictionary with more data entities
- Request all the Big Data Analytics related Catalysts to contribute data entities to the ABDR
- We need help of data modelers, and subject experts to enlarge and improve the data entities in the ABDR



- **B2B Sales & CPQ Experience** : How operators provide B2B Buying experience for SME customers
- **Digitally Connected World** : The digital world has fundamentally transformed the way we communicate, and behave in the society. Consumer's expectations have changed. This calls for a customer experience designed to offer digital customer experience proactively.
- **Experience Journey Shaping** : Build a dashboard for CRM that is showing the momentary journey of the user and the real-time analytics results. In particular sentiment and satisfaction in sights in relation to the user experience is key
- **Cognitive Digital Agent** : Creating the next generation of customer care services through artificial intelligence
- **APPEX Omnichannel** : To promote APPEX Omnichannel adoption in the telecoms sector and enhance Customer Experience incorporating new digital channels and product offerings.
- **Offline Channel Customer Experience Enhancement and Retailer Efficiency** : An integrated solution for enhanced in-store customer experience intelligently help consumer to decide the best product based on his/her usage as well as simplifies owned/third-party retail store simpler.
- **Cognitive Analytics for Omni-channel Commerce** : To explore the application of Cognitive computing in Omni channel commerce to improve the customer experience
- **Machine Learning Optimized Omnichannel (MLOOc)** : Explore the possibilities of optimizing engagement of Customers and Others Users (IoT) through a Machine Learning/AI approach to Knowledge Base asset use.

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