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Beyond Connectivity: Project 101

Agenda

Beyond Connectivity Project 101

Joann O' Brien

Vice President, Digital Ecosystems, **TM Forum**

Gadi Solotorevsky

cVidya, **Amdocs**

Loell Wolfries

Head of Agile Design & Facilitation, **TM Forum**

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JOANN O'BRIEN

Vice President, Digital Ecosystems, TM Forum

Agenda

Beyond Connectivity Project 101

- Agenda
- Beyond Connectivity Strategy & Pillars
- Connectivity-as-a-Service
- Zero Touch Partnering
- Software Marketplace
- Business Assurance
- Project Onboarding

Beyond Connectivity Advisory Board

Anthony Rodrgio
GCIO, Axiata
(Chair)

Shankar Arumugavelu
GCIO, Verizon

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Expert VP, Bain

Martin Creaner
Author & Entrepreneur

Anand Swaminathan
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Aloke Kapur
Managing Partner, Telecoms, Media & High Tech, Gartner

Ken Kennedy
COO & President, Revenue Management & Digital, CSG

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Nik Willetts
CEO, TM Forum

George Glass
CTO, TM Forum

Joann O'Brien
VP, Ecosystems
TM Forum

HOW ARE WE MAKING IT HAPPEN?

By taking on the big 3 industry challenges:

1

DELIVER FUTURE-FIT CONNECTIVITY

- Standalone network solutions are becoming unfit for the needs of more and more business customers. Demand is only growing for agile, flexible, on-demand, value-added connectivity solutions.
- So, it's time for Telco's to deliver, by working seamlessly with Cloud, Edge Computing and AI to conveniently package '**connectivity as a service**'.
- And together, **we're creating the architectures and suites of API's necessary, to do just that**. Deliver simple, customized, on-demand business connectivity solutions that are fit for purpose - and all our futures.

2

UNLOCK PARTNERING AT SCALE

- Partnering repeatedly and at the right margins shouldn't be this hard. We need open, agile service creation environments with a growing ecosystem of partners and service providers. **An environment to rapidly create new offers, and a platform for Telco's and partners to work together**.
- We're co-creating the capability to easily partner within an open ecosystem to open the doors of opportunity for all. **Building the architectures and suites of API's necessary to enable partnering at scale**.

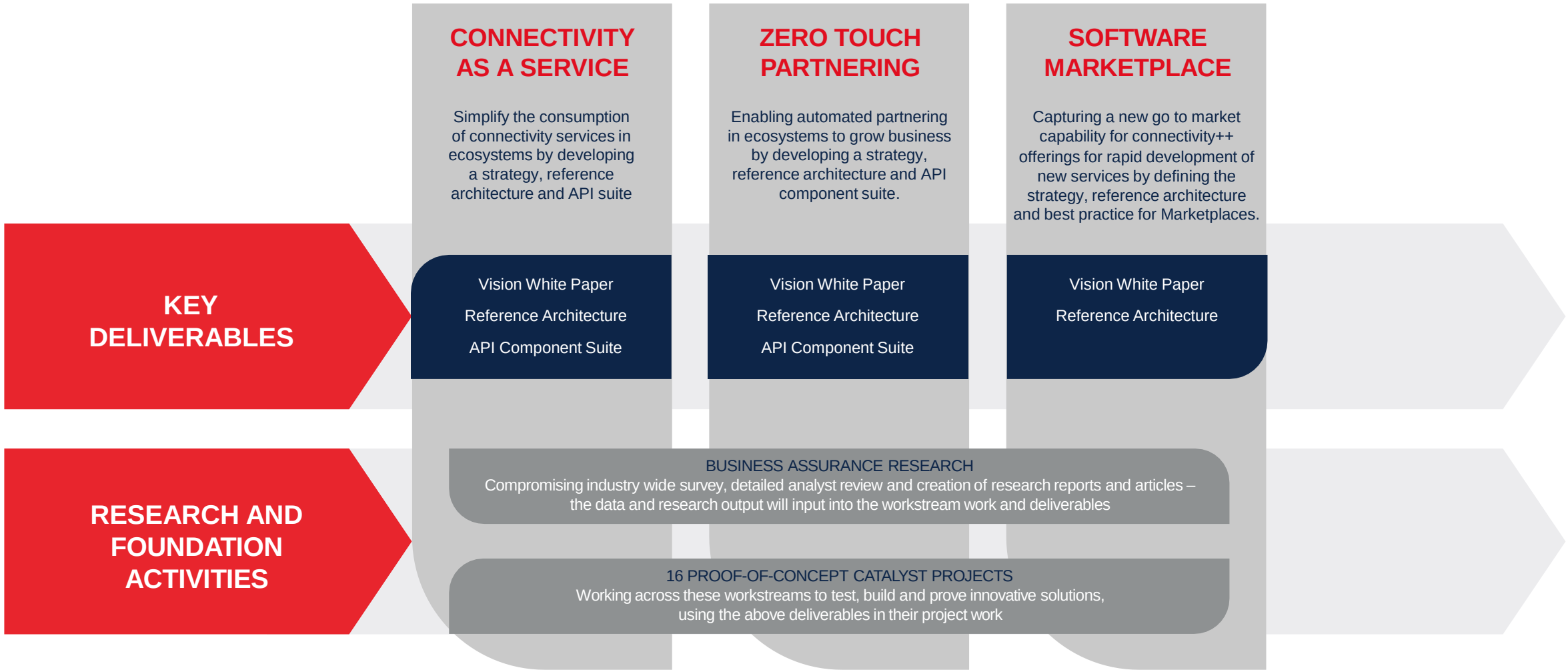
3

OPEN THE CAPABILITIES TO ALL

- New game-changing technology capabilities co-created by us all, for us all, need to be accessed by us all.
- We'll collaborate to understand how to build and use an industry-wide, industry-accessible Software Marketplace, to make the very latest capabilities available. **Enabling Telco's and their technology partners to thrive, innovate and create new products and services in an open partner ecosystem**.

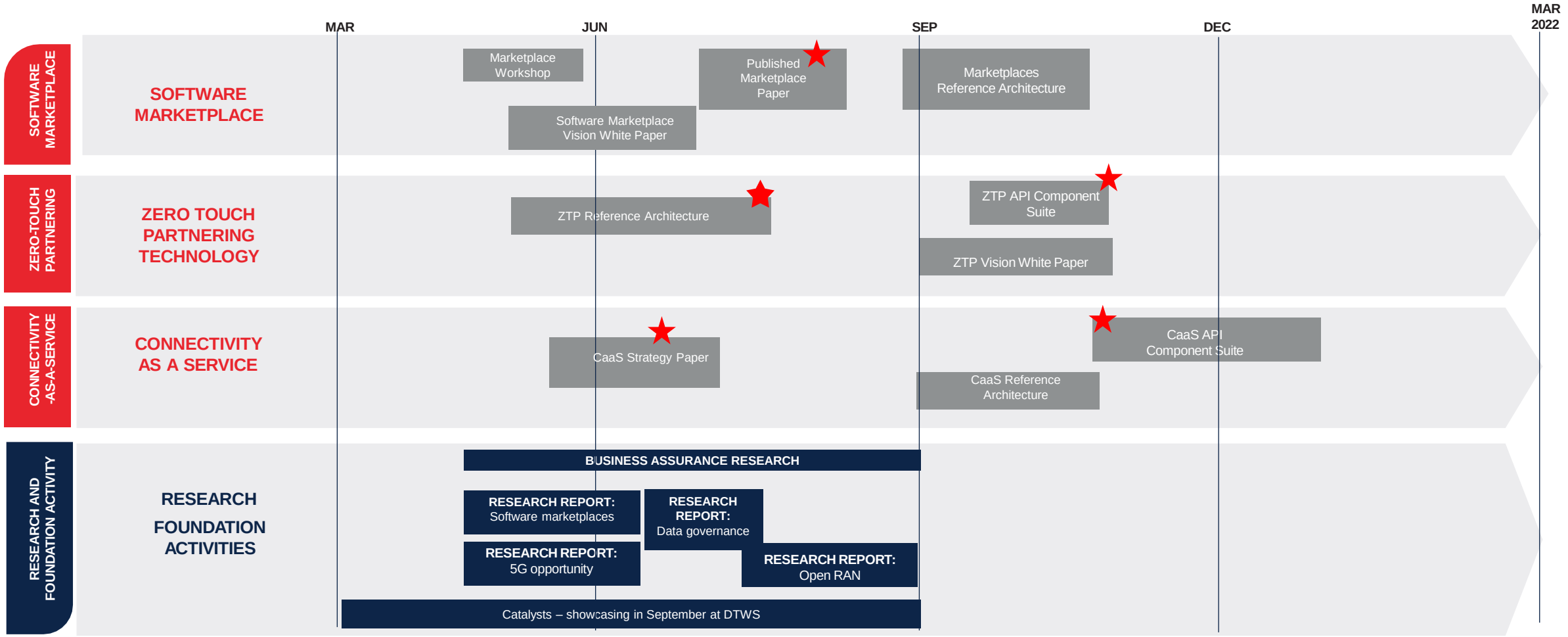
PROGRAM FOR BEYOND CONNECTIVITY

Building the critical foundations required to unleash growth beyond connectivity



OUR ROADMAP

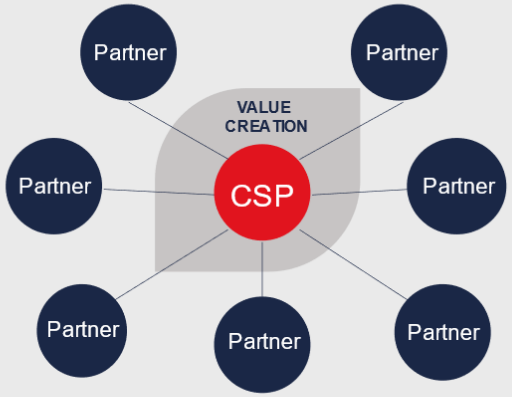
To launch business growth beyond connectivity we're co-creating the necessary reference architectures, suites of APIs and industry research



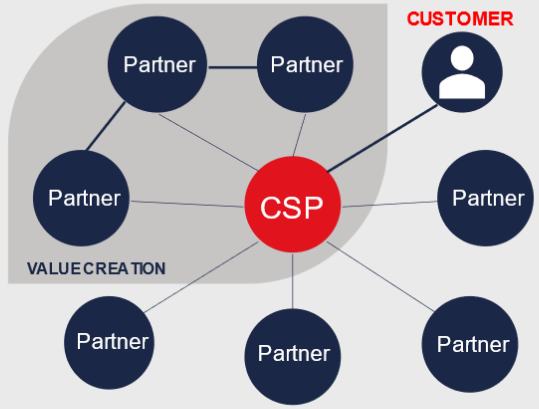
★ Key deliverables

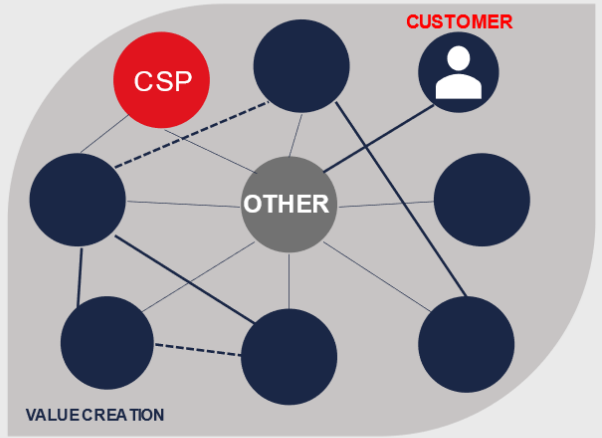
The evolution to ecosystems

CURRENT MODEL - BILATERAL



EVOLUTION TO DYNAMIC ECOSYSTEMS





1 TRADITIONAL VALUE CHAIN

- Bilateral agreements
- Original Equipment Manufacturers/ Reselling models
- Workflows not scalable
- Limited customer value creation

2 CLOSED MODEL

- Multi-party agreements
- Trusted, closed & discrete ecosystems
- Orchestration more dynamic
- Value creation across the strategic network.

3 ECOSYSTEM MODEL

- Collaboration & Co-creation across a complete open ecosystem
- Dynamic orchestration– speed, scale & resilience
- Unlocking highest level of customer value creation & product/service innovation

Where are we now with CaaS?

Contributing Companies

ETIYA
stc
T
BT
verizon
amdocs
Beyond by BearingPoint

Connectivity-as-a-Service (CaaS)
CaaS definition and principles agreed
CaaS Lifecycle agreed
CaaS Use cases & business model opportunities captured

CaaS COMPONENT API Definition: A unified interface for the consumption of connectivity
Aligning the industry around a consistent common open API suite is critical to the growth of connectivity consumption in the digital economy, across all markets B2C, B2B & B2B2X

CaaS Definition & Strategy ✓

Reference architecture In Progress

Component Definition Future

Component Test & Integration Platform Future

DTWS Masterclass ✓

Where are we now with ZTP?

Contributing Companies

ETIYA
verizon
amdocs
telenor
Beyond by BearingPoint

Zero Touch Partnering (ZTP)
ZTP Business Capabilities agreed
ZTP Technical Capabilities agreed
ZTP Use Cases agreed
ZTP Reference Architecture in progress

ZTP COMPONENT API Definition: A unified interface for the onboarding and management of partner relationships
Aligning the industry around a consistent common API suite is key to repeatability and efficiency of partnering to deliver new products and services, across all markets B2C, B2B & B2B2X

ZTP Definition & Strategy — In Progress

Reference architecture — ✓

Component Definition — Future

Component Test & Integration Platform — Future

Where are we now with Software Marketplaces?

Contributing Companies

Software Marketplaces

Software Marketplace governance & operational requirements
Software Marketplace Customer & Market strategy
Software Marketplace Business & Monetization Models
Software Marketplace High Level Reference Architecture
Strategy for Launching a Marketplace
External validation with marketplace partners in progress
Copy / Content editing in progress

Software Marketplace: A platform for partnering and growth beyond connectivity

Aligning the industry around a consistent common open API suite is critical to the growth of connectivity consumption in the digital economy, across all markets B2C, B2B & B2B2X

SW Marketplaces Definition & Strategy ✓

Reference architecture — In Progress

DTWS Masterclass ✓

Beyond Connectivity Catalysts

DTW 2021 Ecosystem Catalysts 13 Catalysts for DTWS. Most projects open to new participants / champions.

introducing CaaS

Connectivity-as-a-Service (CaaS) is intent driven dynamic realisation of connectivity solution based on customer expectations.

CaaS ensures the right connectivity at the right time for the right service, every time.

CaaS is revolutionizing the ease with which connectivity is embedded in products, services & applications.

Previously no industry alignment on CaaS

Responses from recent survey published by TM Forum

Today's connectivity services do not meet emerging B2B customer needs – capabilities & experience must evolve urgently to avoid disintermediation

		Traditional connectivity	Connectivity-as-a-Service (CaaS)	Standalone cloud	Connectivity+ & cloud/edge
NON-NEGOTIABLE	Scalable	✗	✓	✓	✓
	Resilient	PARTIAL	✓	✓	✓
	Secure	✓	✓	PARTIAL	✓
	Compliant	✓	✓	PARTIAL?	✓
	Self-configurable (Open APIs)	✗	✓	✓	✓
PREFERENTIAL	Global	✗	POSSIBLE	✓	POSSIBLE
	Self-discoverable	✗	✓	✓	✓
	Transparent	✗	✓	✓	✓
	Intent-driven	✗	✓	✓	✓

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Definition of CaaS
Connectivity-as-a-Service

Key characteristics of CaaS are:

•**Intent Driven:** Customer expectations is captured or developed and can be human, machine, explicit or implicit.

•**Dynamic Discovery of Customer Facing Service:** CaaS is a framework to enable composite services from multiple CFSs.

•**Intelligent Selection:** The intelligent selection of the appropriate CFS for a given service from the composite customer facing service based on the customer intent.

•**Includes Partnered Services**: Where CFS from third parties are exposed in the composite customer facing service, an agreement needs to be in place with the respective partner. The partner arrangement will be covered by the Zero Touch Partnering component. Partner management / onboarding as well as product onboarding is covered in the ZTP component.

•**Relationship to Autonomous Network:** CaaS will use the intent management of autonomous network to achieve the customer intent of CaaS.

•**Relationship to ODA:** "As a service" CaaS lives at the Production Level of ODA and interfaces appropriately with other parts of ODA.

- **Relationship to Core Commerce:** Core Commerce provides the appropriate pricing, quote and possible recommendation where options exist, for the Connectivity CFS.
- **Relationship to Network-as-a-Service (NaaS):**An underlying assumption is that CaaS builds upon the existence and presence of NaaS [IG1224]
- **Relationship to Network Slicing:** A network slice provides a guaranteed service through a dedicated virtualized infrastructure from radio network to core network. 5G network slice can be part of connectivity CFS together with other network services. [Ref IG1194]

introducing

Software Marketplaces

What is a marketplace?

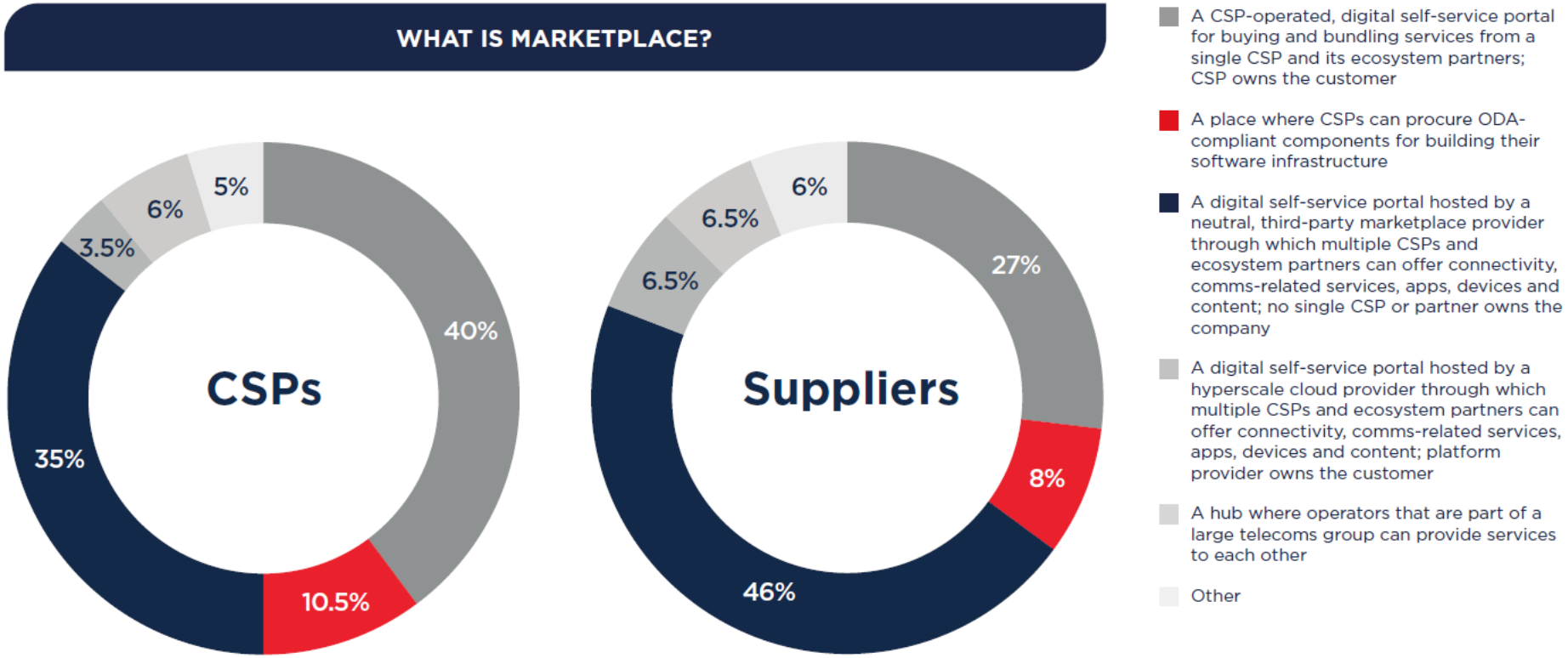
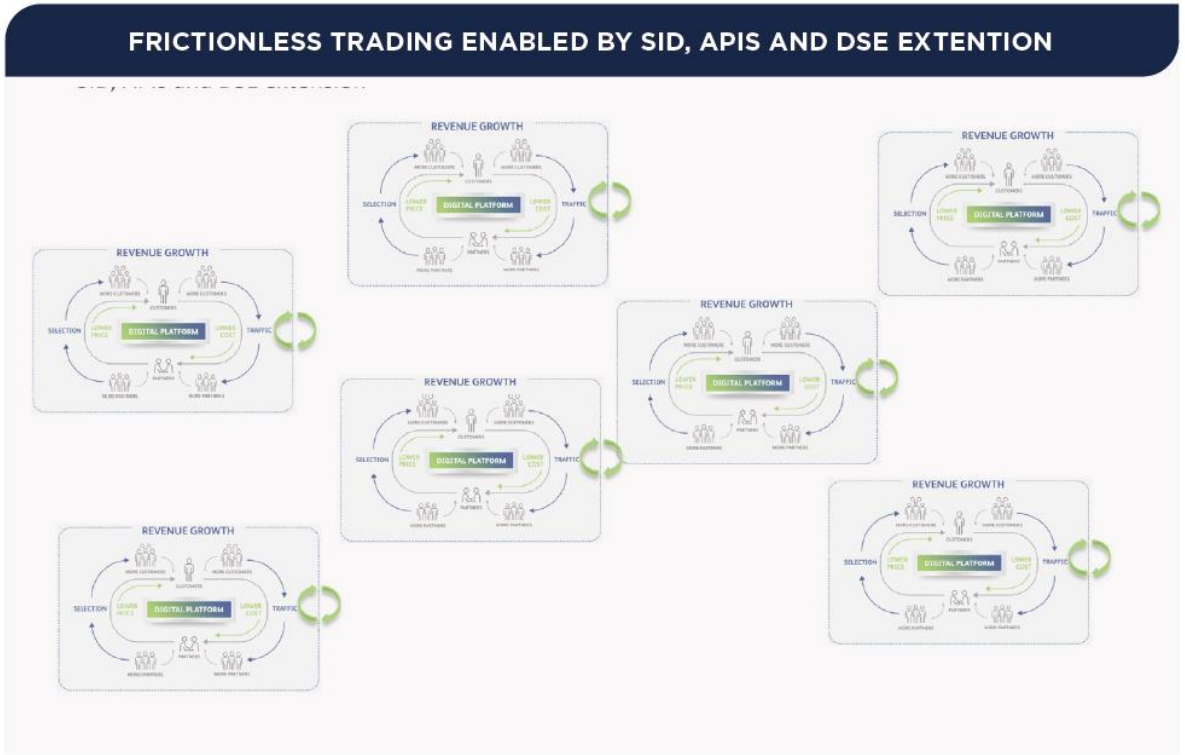


Figure: 3 TM Forum survey response

Marketplace Types

Type 1 Marketplace



Type 2 Marketplace

THE OPPORTUNITY FOR TELCO'S IS EXPLOSIVE

IF WE ACT NOW AND ACT TOGETHER.

"80% OF OPERATORS AGREE THAT 'CONNECTIVITY AS A SERVICE' IS THEIR GREATEST OPPORTUNITY FOR GROWTH. BUT **60.3% HAVE NOT BEGUN** THEIR TRANSFORMATION PROJECTS **OR ARE JUST GETTING STARTED."**

(Source TM Forum DTT5 survey 2021)

Today, connectivity is not geared to specific requirements from enterprises or applications, but with CaaS companies and innovators will be able to design the kind of connectivity they need and manage it dynamically from their own portals as well as embed it more easily in new products, services and applications. Delivering this kind of flexibility will help CSPs demonstrate their value and ability to deliver future-fit connectivity.

ETIYA

stc

BT

verizon

amdocs

Beyond by BearingPoint.

IT'S TIME TO GO BEYOND CONNECTIVITY.

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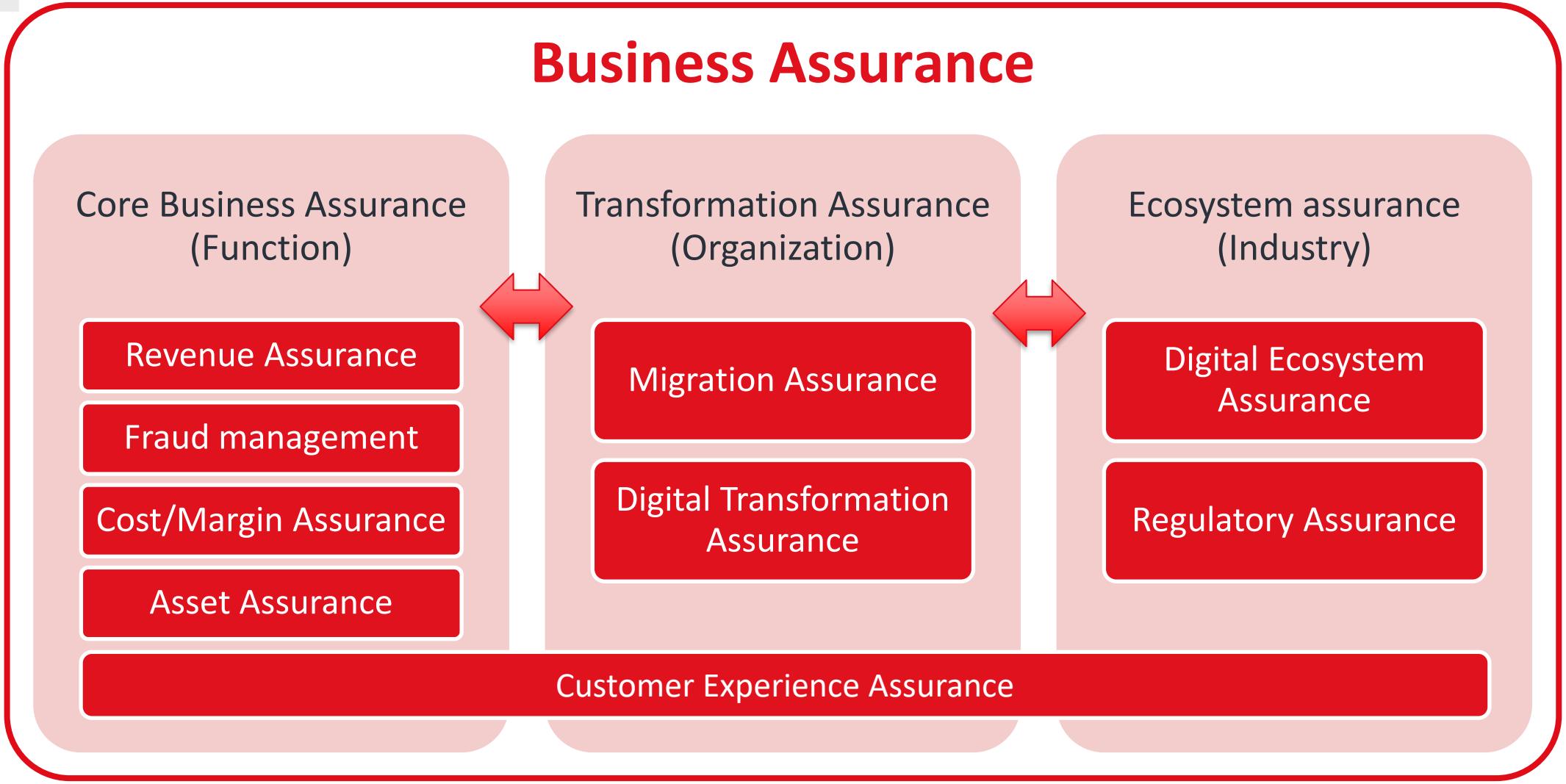
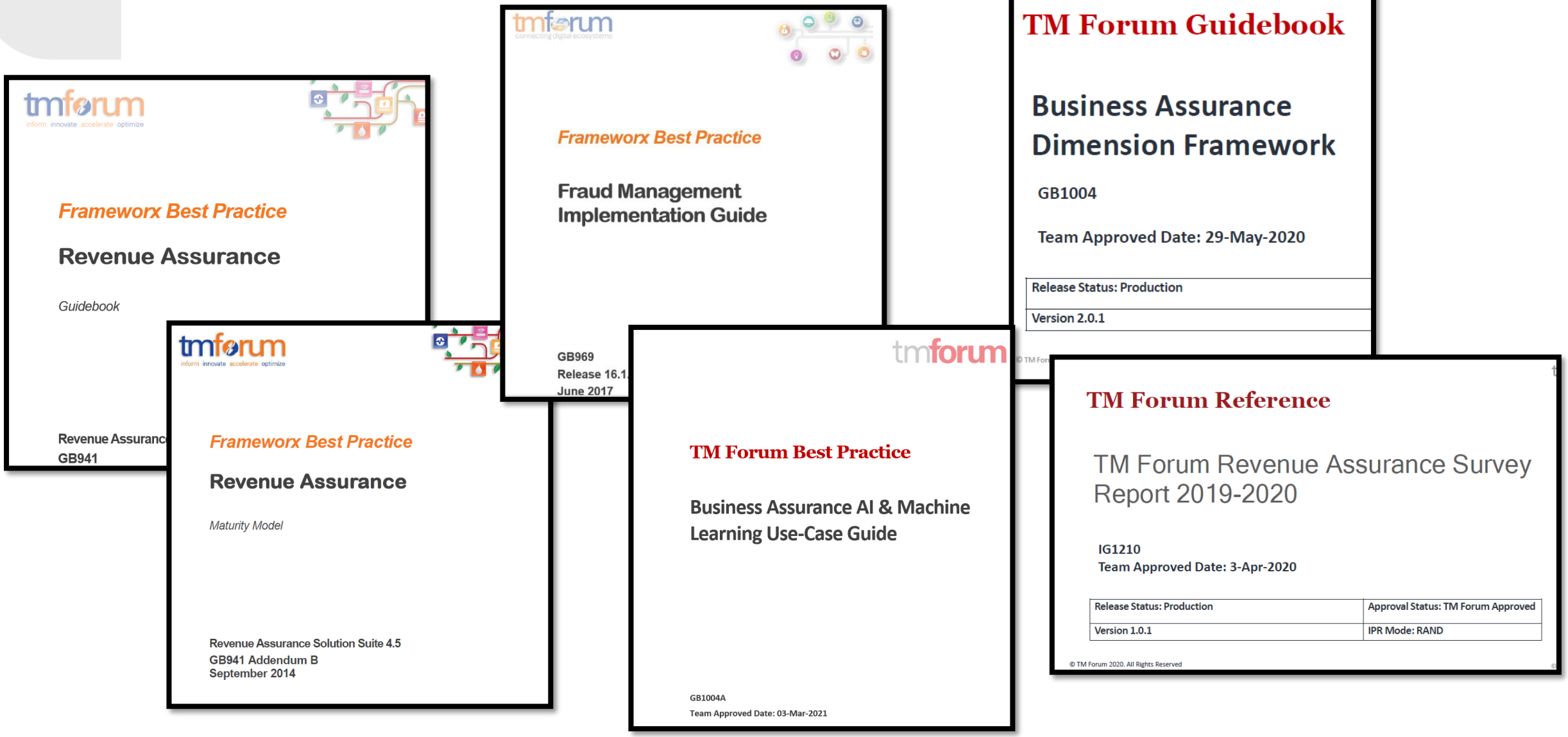
Business Assurance

Business assurance integrates assurance and risk management disciplines into an overall proactive data-centric assurance framework, with the goal of continuously protecting and improving financial integrity, while also enhancing business value and customer experience.

Business Assurance Dimensions



Business Assurance Resources



Business Assurance Surveys

2017

Executive Summary - Top 10 facts

1,9%
The estimated average revenue leakage is 1,9% (stable)

51%
The measured average revenue recovery rate is 51% (10% increase)

Automation
Limited automation: Capability score 2.6 out of 4

52%
Half of the companies' revenues are covered

Prevention
Four out of ten incidents prevented

RA in Finance
Three out of four RA organizations are in Finance

0.2 maturity increase
Maturity gains by 0.2 points (3.3 out of 5) based on RAMM

Dedicated RA departments
Over 90% have dedicated RA departments

50%
Fraud management roles by 50% of the RA organizations.
Strong increase of Risk management

143 contributors
143 survey contributors, global footprint

2019

Executive Summary

0.8% detected leakage % out of total revenues – increasing

1.5% Estimated revenue leakage - decreasing

33% already created a separated Business assurance function

40% are using or planning to use in the next year, AI/ML to support RA/BA activities.

54% are measuring their revenue leakages – alarming decrease from 84% in 2018

69% coverage % out of total revenues - increasing

90% consider business assurance a natural extension of RA

0 out of 89 RA departments doing only pure RA activities

3.2 Revenue Assurance maturity score, RAMM2 - stable

2021

Executive Summary

You can still participate
(until October 15, 2021)

https://tmforum.research.net/r/CDRCDVG

What's next

- Business Assurance Maturity Model
- Updates to Business Assurance in Frameworks
- Margin Assurance
- Assets Assurance
- Tooling & Capabilities
- Definition of Operating Model for Business Assurance, RACI, Training
- 5G impact on Business Assurance
- Business Assurance survey 2021

How to join member projects

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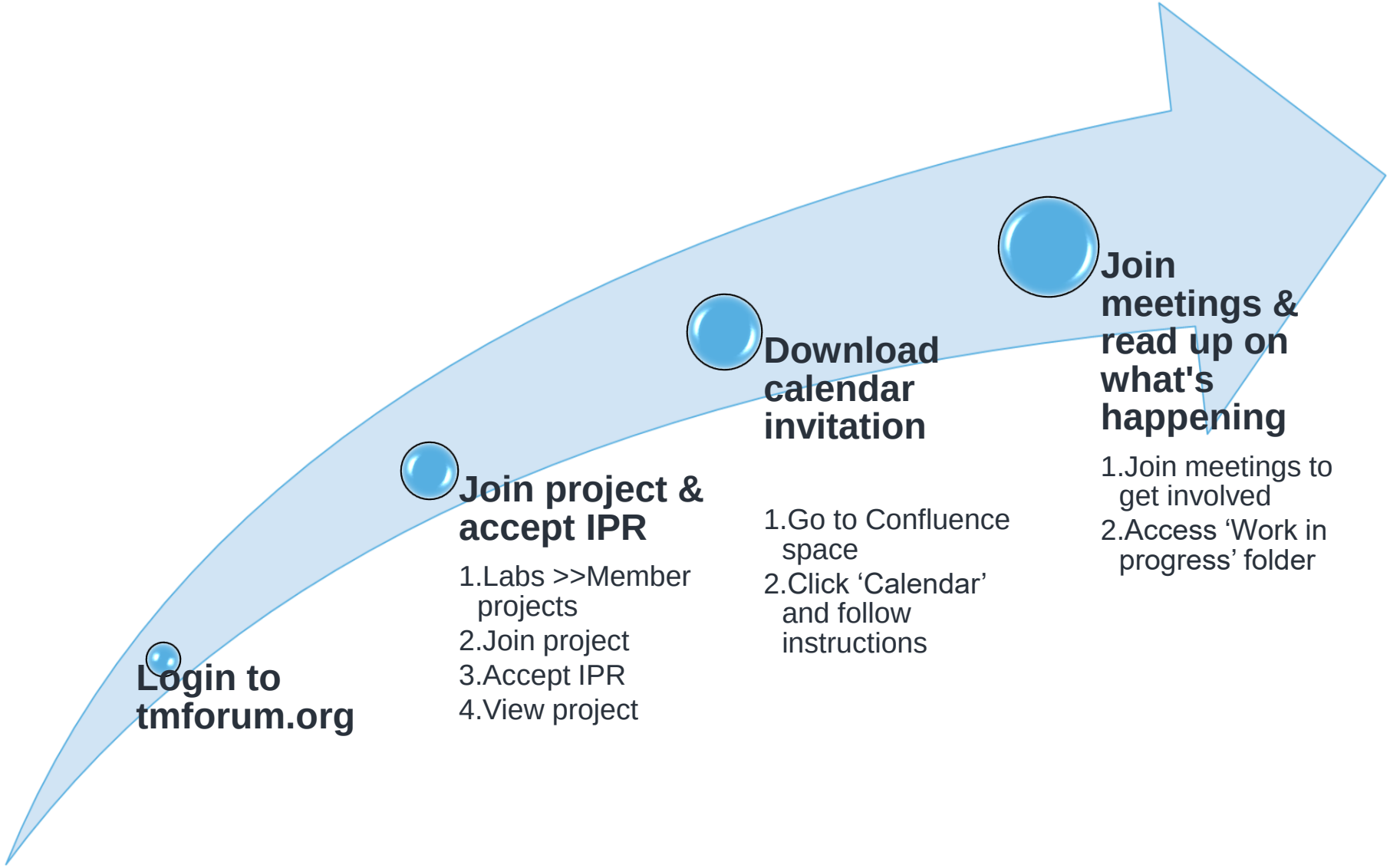
Instructions for joining projects (members only)



Login to tmforum.org

Join project & accept IPR

1. Labs >>Member projects
2. Join project
3. Accept IPR
4. View project

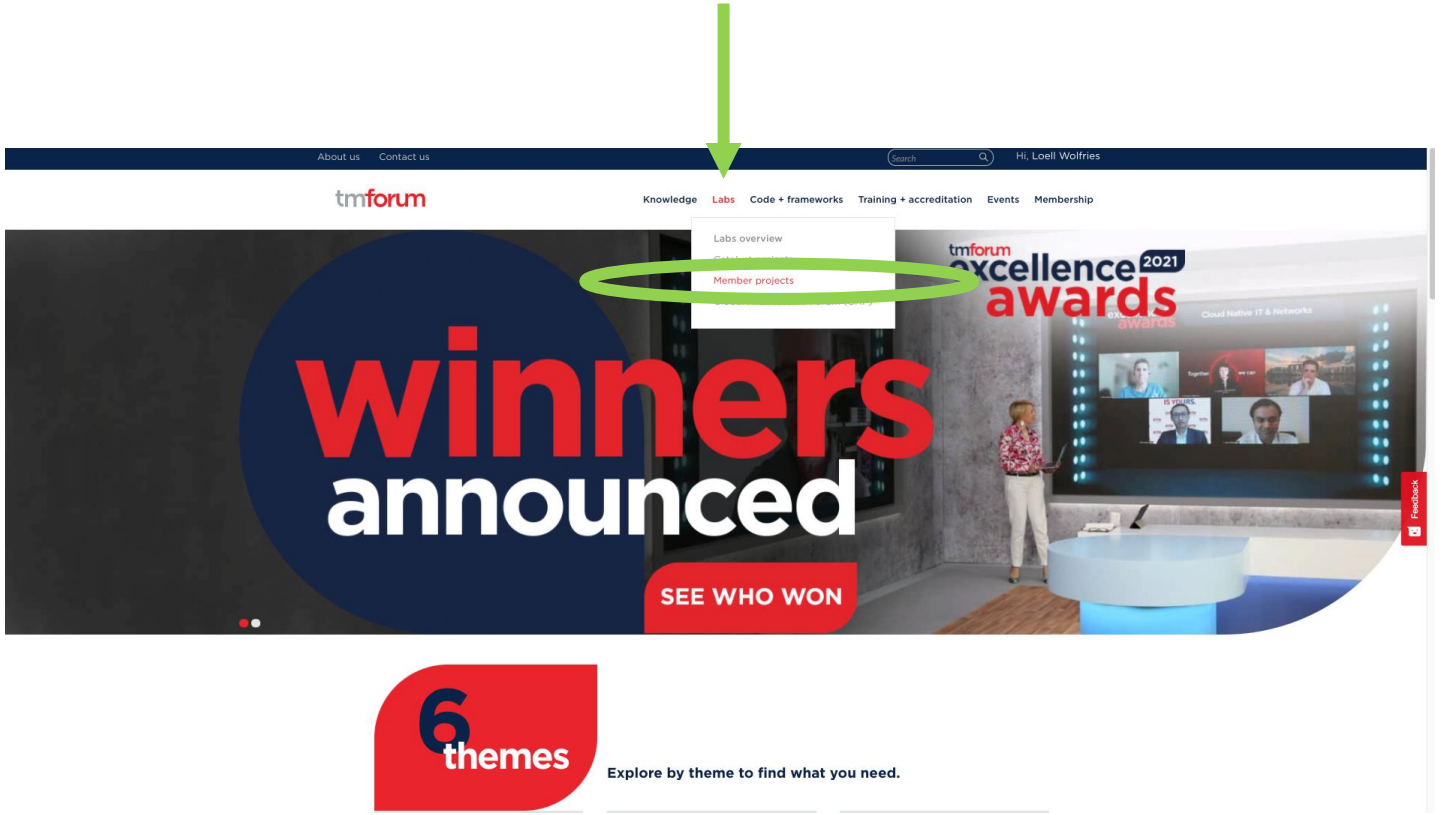
Download calendar invitation

1. Go to Confluence space
2. Click ‘Calendar’ and follow instructions

Join meetings & read up on what's happening

1. Join meetings to get involved
2. Access ‘Work in progress’ folder

1. Click on ‘Labs’
2. Click on ‘Member projects’



Projects

AI closed loop automation
Join your peers to define a reference architecture and related collateral to enable CSP's to transform network operations by using AI driven closed-loop automation to detect anomalies, determine resolution and implement the required changes to the network within a continuous highly automated framework.

VIEW PROJECT
Learn More

AI governance
Be a part of a team that is deploying & governing AI operations at scale and to reduce risk.

VIEW PROJECT
Learn More

AI operations
Make sure your operations are fit for AI and automated era. Join this project so you can redesign and reengineer your operations processes to support AI and contribute to the use cases where AIOps is having the largest impact.

JOIN THE PROJECT
Learn More

Autonomous networks
Join this project to help define fully automated zero wait, zero touch, zero trouble innovative network infrastructure and ICT services for CSPs, vertical industries' users and consumers.

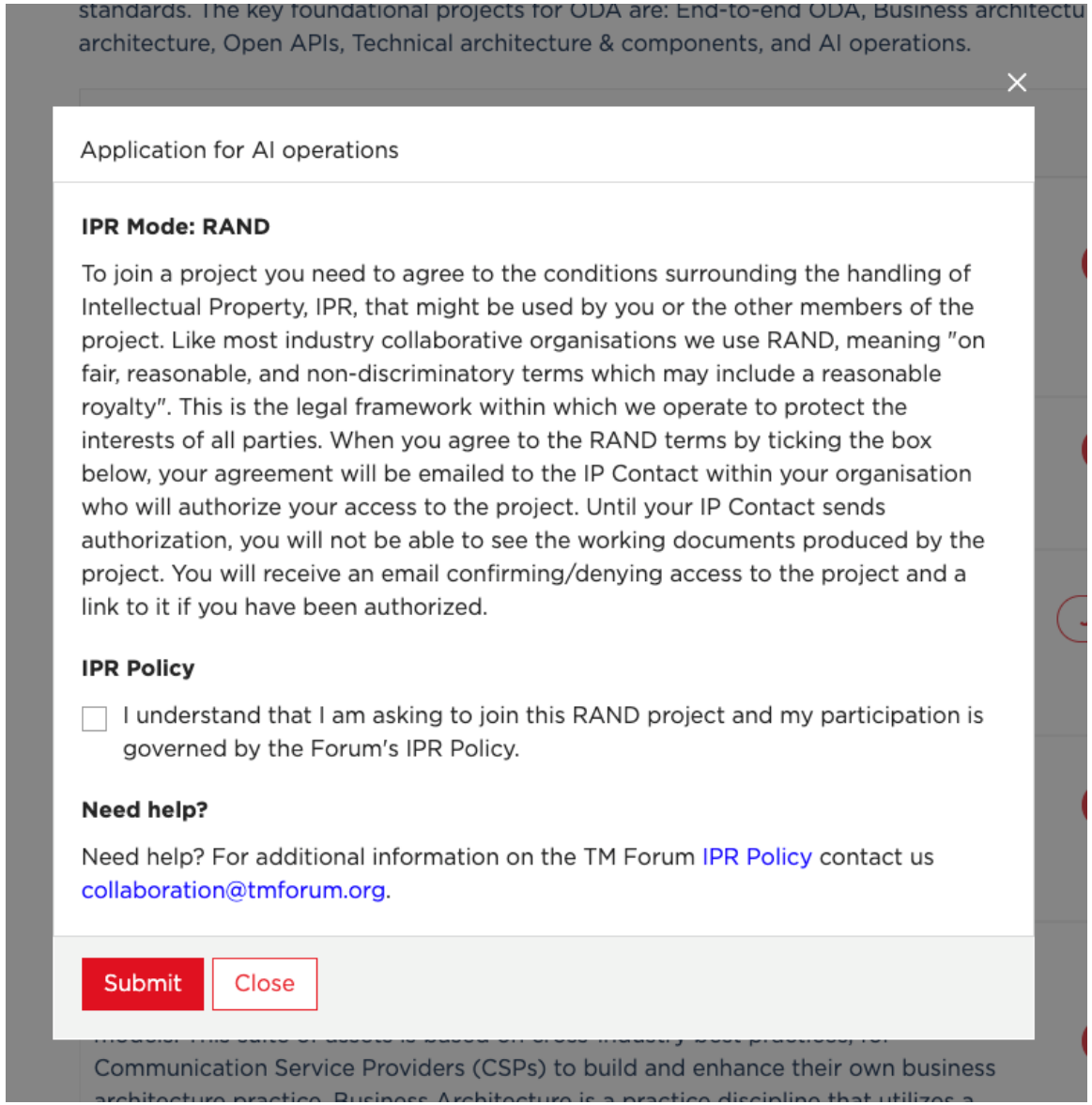
VIEW PROJECT
Learn More

Business architecture
Join your peers in creating a set of TM Forum-approved business architecture models. This suite of assets is based on cross-industry best practices, for Communication Service Providers (CSPs) to build and enhance their own business architecture practice. Business Architecture is a practice discipline that utilizes a knowledge base to provide clarity of changes to the business so that strategic changes can be easily and efficiently implemented.

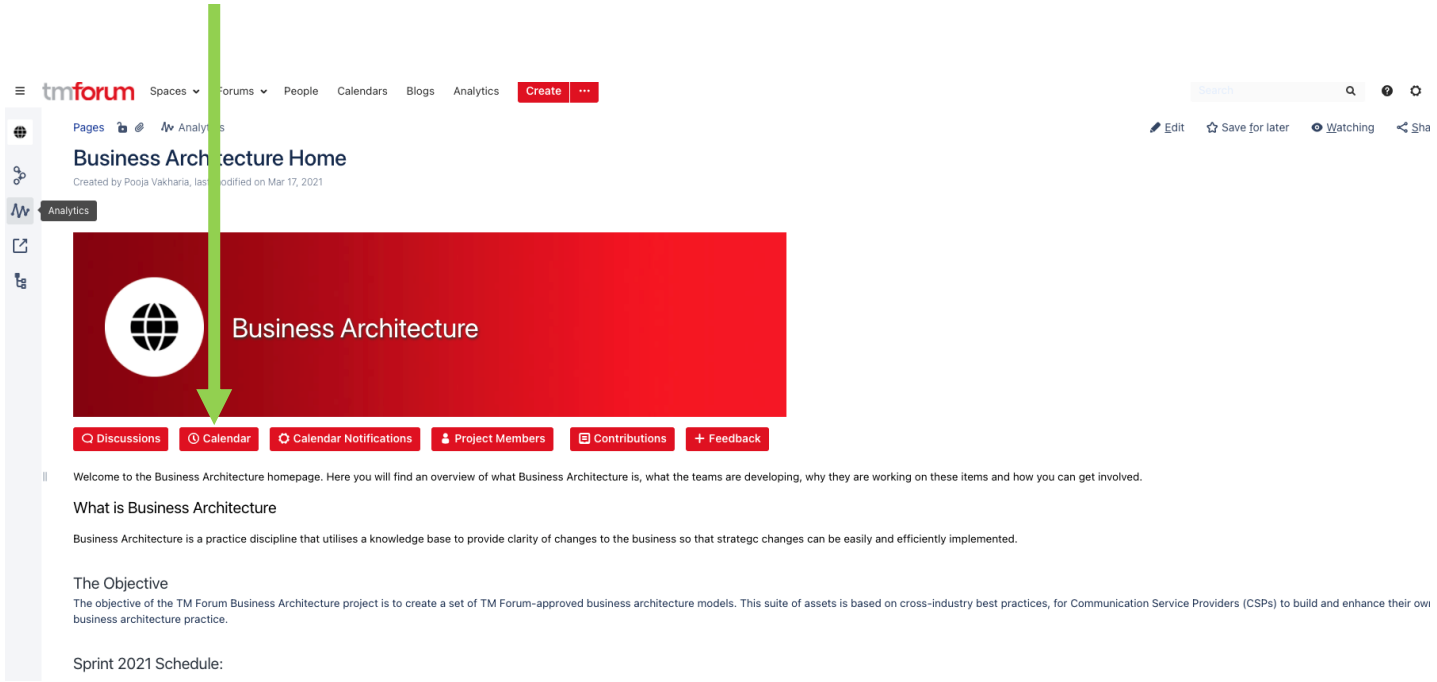
VIEW PROJECT
Learn More

Business assurance
Be part of a key project focused on integrating assurance and risk management into a proactive data-centric assurance framework that is continuously protecting and improving financial integrity while enhancing business value and customer experience.

VIEW PROJECT
Learn More


standards. The key foundational projects for ODA are: End-to-end ODA, Business architectu
architecture, Open APIs, Technical architecture & components, and AI operations.
Application for AI operations
IPR Mode: RAND
To join a project you need to agree to the conditions surrounding the handling of Intellectual Property, IPR, that might be used by you or the other members of the project. Like most industry collaborative organisations we use RAND, meaning "on fair, reasonable, and non-discriminatory terms which may include a reasonable royalty". This is the legal framework within which we operate to protect the interests of all parties. When you agree to the RAND terms by ticking the box below, your agreement will be emailed to the IP Contact within your organisation who will authorize your access to the project. Until your IP Contact sends authorization, you will not be able to see the working documents produced by the project. You will receive an email confirming/denying access to the project and a link to it if you have been authorized.
IPR Policy
I understand that I am asking to join this RAND project and my participation is governed by the Forum's IPR Policy.
Need help?
Need help? For additional information on the TM Forum IPR Policy contact us collaboration@tmforum.org.
Submit
Close
Communication Service Providers (CSPs) to build and enhance their own business

1. Click on ‘Calendar’
2. Please follow instructions



Snapshot of Beyond Connectivity Meeting Schedule

Project	Workstream	Day	Time
Business Assurance		Wednesdays	17:00-18:00 CET
Business Architecture		Thursdays	17:00-18:00 CET
Digital Ecosystem Management	Software Marketplaces	Tuesdays	14:00-15:00 CET
	Ecosystem Modeling	Tuesdays	15:00-16:00 CET
	Zero-Touch Partnering Business	Thursdays	13:00-14:00 CET
	Connectivity-as-a-Service	Thursdays	14:00-15:00 CET
	Zero-Touch Partnering Technical	Thursdays	16:00-17:00 CET

thank you
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