tmforum
connecting digital ecosystems

TRAVEL GUIDE

TO DIGITAL SUCCESS

Your pocket guide to digital transformation with
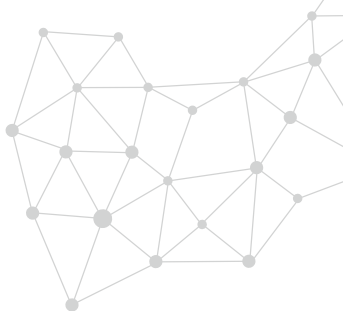**toolkits, training courses, latest research** and more!

www.tmforum.org

Contents

Introduction

This guide is intended to show how TM Forum members can use the work of the Forum for digital success.

TM Forum leads collaboration between CSPs, technology suppliers, consultancies and systems integrators to solve the collective problems of digital transformation:

Managing the journey

Helping CSPs navigate their individual digital transformation journeys with applied, collaboratively-developed assets - such as the only industry-approved digital maturity model, created by the diverse members of the Forum

Solving problems fast

Leveraging the collective intelligence of the industry through our agile, collaborative working groups of CSPs and suppliers to create practical toolkits and widely-adopted frameworks, including Open APIs, that drive the execution of CSP digital transformation

Accelerating innovation

Cutting CSP innovation cycles via our rapid proof-of-concept Catalyst program and providing pragmatic advice on the latest digital business models, technologies and trends through our member-driven research and think tanks

Digital Maturity Model

A new tool to help you navigate the maze of digital transformation

How digital are you? See digital transformation in action

The digital revolution – described by many as 'the fourth industrial revolution' – creates significant opportunities and threats for communications service providers. Impacting every industry, service providers can embrace significant growth opportunities by looking beyond connectivity. At the same time, commoditization and digitalization of connectivity services has created an urgency to dramatically simplify and transform the efficiency of existing business. Following extensive consultation with the world's leading service providers, we identified the need for an industry-agreed Digital Maturity Model , metrics and methodology. To create that model, we've brought together expertise and models from leading service providers, consulting firms and solution providers in order to create a 'living' maturity model and set of metrics that help companies measure their true digital maturity.

Maturity models underpin success in transformation projects by:

- Forcing organizations to analyze and properly structure the problem to be addressed
- Establishing clear, universally understood goals and plans for the short and longer term
- Helping organizations assess where they are in their transformation journey
- Allowing businesses to objectively measure their progress during the journey

There are five dimensions in the Digital Maturity Model to assess against for all the critical capabilities an enterprise needs to be considered digitally mature. These are further divided into sub-dimensions and tied to a set of criteria questions for evaluation.

The dimensions and definitions for the TM Forum Digital Maturity Model are:

- Customer
- Strategy
- Technology
- Operations
- Culture, People and Organization

THREE STEPS IN THE JOURNEY TO DIGITAL TRANSFORMATION:

Plan >
The planning stage is important for setting the future vision for your organization – a time to assess where you are and where you need to go. At the start of this phase, the Digital Maturity Model is used to educate and assess the current state of digital maturity, identify opportunities and define a future-state vision.

Design >
The design phase turns the vision into action, prioritizing the most important objectives. The Digital Maturity Model can be used to assess the impact of the initiatives on the roadmap.

Execute >
At the end of the execution phase, the Digital Maturity Model can be used to validate the value and impact of the completed stage, and evaluate improvements needed in future stages.

A NEW TOOL TO HELP NAVIGATE DIGITAL TRANSFORMATION
The newly launched TM Forum Digital Maturity Model allows you to navigate the complex maze of digital transformation by providing a measure of where you are now and where you would like to get to. As a TM Forum member you can easily get started and register your interest here – www.tmforum.org/dmm

TO HELP YOU ON YOUR JOURNEY
Download a copy of the Digital Maturity Model brochure - **tmforum.org/dmm-brochure**

Keep your finger on the pulse - our newly launched Digital Transformation Tracker captures a snapshot of the industry progress - be a part of it and take the survey - **tmforum.org/DTT**

Get TM Forum training & certification for your team to help improve your digital maturity score. **tmforum.org/training-certification**

Take a tour of Agile Operations
Are you agile enough for digital?

The digital services marketplace continues to change at a relentless pace. The businesses that are having the most success are no longer those with unique services based on the latest technology, they are the ones who are using the technology in an innovative way to create compelling offers to serve their customers needs. Although much of the focus of the wider industry has been around the technology changes, the clear conclusion of research amongst TM Forum members is that business operations changes and even cultural changes are as important to business success.

The Agile Operations toolkit provides a range of assets to support process analysts and other members of the operations community in realizing operations and process models based on the latest best practices which support current and anticipated future requirements of Digital Service Providers.

The toolkit is underpinned by the core TM Forum Frameworx assets, in particular the Business Process Framework and is tightly linked to the Agile OSS toolkit which contains assets to realize the IT systems needed to support Agile Operations. The impact of virtualization and zero touch automated operation has a profound change on operation and sets multiple transformation challenges.

SEE LIVE INNOVATION

Check out the real-life innovation from our Agile Operations proof-of-concept Catalysts, covering topics such as zero-touch orchestration, dynamic asset management, 5G service operations and more. **See projects from:**

For videos, articles, interviews and more visit tmforum.org/agile-catalysts.

YOUR TOOLKIT

To give you a taste of the kind of resources you can find in the Agile Operations toolkit take a look at the Transformation of NetOps to DevOps Exploratory report - which is intended as a guide to carriers and DSPs as to the nature of DevOps, and its impact on incumbent IT and network groups in a carrier setting. TM Forum member? You can download the entire collection of documents by visiting **tmforum.org/agileops-toolkit**

TO HELP YOU ON YOUR JOURNEY

Check out the latest case studies from our members by downloading the Case Study Handbook here – **inform.tmforum.org/casestudy**

Learn how to implement the Frameworx assets into your organization with Business Process Framework (eTOM) training courses from TM Forum **tmforum.org/training-certification/#etom**

Take a tour of Agile OSS
Building the future of OSS/BSS with TM Forum

It is clear that a major transformation is required in the IT systems supporting the operations of today's CSP to ensure their continued success. New capabilities that existing systems simply cannot deliver are needed just to support increased agility in their existing business models, and the desire to explore new ecosystem business models places further requirements.

The OSS/BSS of the future will need more than the right capabilities. It must be designed and implemented in the right way to ensure it can meet operators' business challenges going forward.

The Agile OSS toolkit provides a range of assets to support architects and other members of the IT community in realizing OSS/BSS solutions based on the latest IT practices which support current and anticipated future requirements of Digital Service Providers.

The toolkit is underpinned by the core TM Forum Frameworx assets, as well as the TM Forum Open APIs. The toolkit is divided into a number of sections:

- Integration principles and architectures
- Legacy integration
- REST integration
- Microservices and component architectures
- Information and data modelling
- Virtualization
- Catalog and orchestration
- Automation policy and security
- Charging and billing

SEE LIVE INNOVATION

Check out the real-life innovation from our Agile Business proof-of-concept Catalysts, covering topics such as smart BPM, NFV Management and more. **See projects from:**

at&t Globe orange TELECOM ITALIA Telefónica

telenor salesforce verizon✓ vodafone

For videos, articles, interviews and more visit tmforum.org/agile-catalysts.

YOUR TOOLKIT

A great example of one of the documents within the Agile OSS toolkits is the Hybrid Network Management Platform Blueprint Technical report which covers two of the main challenges; management of the OSS/BSS transformation and participating as a partner in platform business models. TM Forum member? You can download the entire collection of documents by visiting **tmforum.org/agileoss-toolkit**

TO HELP YOU ON YOUR JOURNEY

Download the OSS futures document - **tmforum.org/future-ossbss**

Download Cloud BSS: The migration begins research report – **inform.tmforum.org/cloud-bss**

Learn how Frameworx enables future OSS/BSS by taking the Frameworx Fundamentals bundle of training courses from TM Forum - **tmforum.org/training-certification/#fx**

Use Open APIs for Interoperability

TM Forum is working to enable end to end seamless connectivity, interoperability and portability across complex ecosystem-based services.

Our suite of collaboratively developed Open APIs is a set of standard REST-based APIs enabling rapid, repeatable, and flexible integration among operations and management systems, making it easier to create, build and operate complex innovative services. But also, these Open APIs enable innovation and monetization of new services and business models, particularly in the world of platform and data-driven businesses.
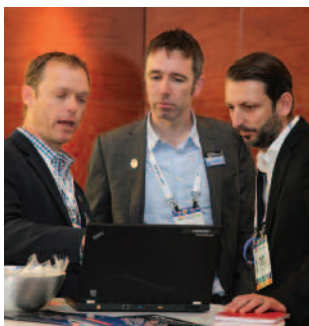
SEE LIVE INNOVATION

Check out the real-life innovation from our API proof-of-concept Catalysts, covering topics such as partnering platform for MEF services, data anonymizing APIs and more. **See projects from:**

AT&T · Bell · BT · airtel · MEF · NTT · orange · PCCW · Telefónica · telenor · TELUS · verizon · vodafone

For videos, articles, interviews and more visit tmforum.org/agile-catalysts.

YOUR TOOLKIT

We have a suite of 31 Open APIs available for use in a variety of scenarios. From customer management to trouble ticketing, privacy, onboarding, loyalty management and many more. For the entire collection of Open APIs, visit **tmforum.org/open-api-table**

WE RECOMMEND

Join 20+ of the world's leading CSPs and technology ecosystem participants who have signed the Open API Manifesto, publicly endorsing the TM Forum's suite of Open APIs – **tmforum.org/open-apis**

Sign up for our Open API training courses & career certification – **tmforum.org/training**

Join the discussion in the vibrant Open APIs community **engage.tmforum.org/communities/openapis**

TM Forum member? You can get involved with developing our Open APIs portfolio by joining the project – **tmforum.org/open-apis-project**

Explore Digital Customer Centricity

Do you know what your customers want?

Explore how to use TM Forum standards and best practices to transform the business processes that optimize customer experience. As well as finding new ways of measuring customer experience in the IoE environment.

TM Forum has developed a set of tools and best practices including a maturity model, lifecycle model and over 450 metrics that guide members to improve customer experience and achieve their customer-oriented goals.

Use TM Forum's Customer Centricity best practices to:

- Assess current CEM capabilities and set goals for improvement with our six dimension maturity model - Evaluate maturity of strategy, organization, people, process, KPIs, and tools
- Use the CEM Lifecycle Model to establish a common language around customer touch points and provide a standardized approach for mapping customer journeys
- Use the 450+ CEM Metrics to enable measurement of each part of the customer lifecycle in detail
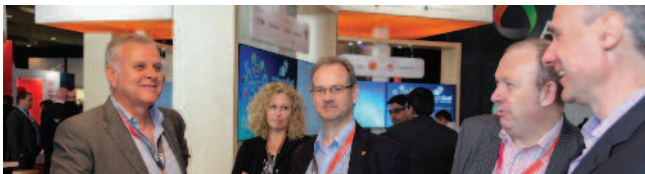
SEE LIVE INNOVATION

Check out the real-life innovation from our Customer Centricity proof-of-concept Catalysts, covering topics such as omnichannel, predictive customer journeys, predictive analytics and more. **See projects from:**

Bell | airtel | BT | 中国移动 China Mobile | Telia | Deutsche Telekom

KDDI | Ncell an axiata company | | PCCW 電訊盈科 | verizon | vodafone

For videos, articles, interviews and more visit tmforum.org/agile-catalysts.

YOUR TOOLKIT

To give you a taste of the kind of resources you can find in the Customer Centricity toolkit take a look at the Omnichannel Guidebook which maps the omnichannel requirements to the data analytics needs and provides updated KPIs from the Omnichannel Maturity Model. TM Forum Member? You can download the entire collection of documents in this toolkit by visiting **tmforum.org/customer-toolkit**

TO HELP YOU ON YOUR JOURNEY

Learn how to implement a Customer Centric strategy with the Fundamentals of Customer Centricity and Customer Centricity Practitioner training courses **tmforum.org/training-certification/#Customer**

Download the latest research report 'Customer experience: Why the quest never ends' – **inform.tmforum.org/customer-quest**

Find out how to get involved in the project by visiting: **tmforum.org/customer-centricity**

Unleash Data Analytics

How valuable is your data?

Today's competitive market demands that service providers and global enterprises maximize their business potential at all times, and making data-based decisions is the key to this success. Fortunately, service providers have a multitude of data, yet gaining value from this data is complex. Data Analytics is all about getting value from this data to:

- Gain business advantage by improving margins on services
- Increase revenue per customer
- Improve customer experience across the lifecycle of the relationship

TM Forum provides a suite of Data Analytics best practices to monetize and derive business value from pragmatic data solutions, enabling resultant improvements in customer satisfaction and net promoter scores. TM Forum helps you to:

- Assess data systems readiness with the Reference Model
- Map business drivers to 69 key use cases in the best practice guide
- Utilize the Business Value Roadmap and Big Data Analytics Guidebook and Building Blocks to guide implementation of data use cases
- Leverage our library of over 2900 pre-defined metrics for business operations, cable, fraud management, cyber security and customer experience management to set up measurements for your business

SEE LIVE INNOVATION

Check out the real-life innovation from our Data Analytics proof-of-concept Catalysts, covering topics such as predictive analytics, data anonymizing and more. **See projects from:**

For videos, articles, interviews and more visit **tmforum.org/agile-catalysts.**

YOUR TOOLKIT

A great example of one of the documents in the Data Analytics toolkit is the Big Data Analytics Use Cases guide – containing 70+ use cases for data analytics applications in service providers, such as real-time personalized offers, proactive care, network optimization and churn prediction. TM Forum member? You can download the entire collection of documents in this toolkit by visiting **tmforum.org/analytics-toolkit**

TO HELP YOU ON YOUR JOURNEY

Download the latest research report "Data analytics and AI: Key to end-to-end management"– **inform.tmforum.org/AI**

Find out how to get involved in the project by visiting **tmforum.org/data-analytics**

Connect and monetize digital ecosystems

Get the tools and guidance for effective ecosystem partnering

If you are delivering digital services in an ecosystem environment, with all the complexity of multiple partners, suppliers, stakeholders and customers you need repeatable and consistent processes and approaches to setting up partnering arrangements, on-boarding new partners, sharing information between partners, and evolving partner relationships. Now more than ever, communications service providers need to explore and find revenue from partnerships and by exploiting the "snowball" effects seen in ecosystems and platform-based businesses.

TM Forum provides how-to guidance to both business and technical audiences who need to rapidly design, implement, operate and monetize digital services with partners in extended value chains. The toolkit for ecosystem partnering is CurateFx, a powerful, innovative new automated tool to enable you to make faster, more confident business decisions about complex business scenarios and ecosystems.
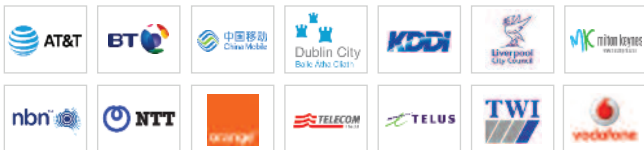
SEE LIVE INNOVATION

Check out the real-life innovation from our IoE/Ecosystem Partnering proof-of-concept Catalysts, covering topics such as smart cities, IoT management, open platforms, smart manufacturing and more. **See projects from:**

AT&T • BT • China Mobile • Dublin City Baile Átha Cliath • KDDI • Liverpool City Council • milton keynes

nbn • NTT • orange • TELECOM • TELUS • TWI • vodafone

For videos, articles, interviews and more visit tmforum.org/agile-catalysts.

DISCOVER CURATE FX

See how to map and visualize complex digital ecosystems with all your stakeholders. Register for a free trial by visiting **tmforum.org/curatefx**

CurateFx
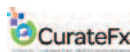
TO HELP YOU ON YOUR JOURNEY

Download the latest eBook: Navigating the Roadmap of Challenges: Insights and opinions for digital business - **inform.tmforum.org/ebook-ioe**

Download the TM Forum Smart City Benchmarking app – allowing you to set your Smart City strategy - **tmforum.org/smart-city**

Join the discussion in our vibrant IoE Community **engage.tmforum.org/communities/ioe**

TM Forum member? Get involved in shaping the future of IoE Management, Monetization and Trust by joining the Internet of Everything Project – **tmforum.org/ioe-project**

Tackle Trust, Security & Privacy

In the context of connected services and partnerships, the management of digital trust means a shared responsibility for security and privacy.

TM Forum's Trust, Security & Privacy projects are working to enable trusted complex digital ecosystems where new services can be delivered quickly, easily and securely using a wide range of business models and partners.

Engage with us to see how our best practices can ensure that your processes and systems comply not only with relevant legislation but also meet the standards expected to be able to gain the trust of customers and other engaged parties, and prevent brand damage.

SEE LIVE INNOVATION

Check out the real-life innovation from our Security & Privacy proof-of-concept Catalysts, covering topics such as enabling GDPR compliance and more.
See projects from:

at&t

LIBERTY GLOBAL

Telefónica

orange

vodafone

Telia

OR EVEN BETTER...
For videos, articles, interviews and more visit tmforum.org/agile-catalysts.

WE RECOMMEND

TM Forum members have collaboratively developed security, privacy and revenue management best practices and guidance for the communications industry. TM Forum member? You can download the entire collection of Trust, Security & Privacy documents by visiting **tmforum.org/security-toolkit**

TO HELP YOU ON YOUR JOURNEY

Download the latest research report 'Perspectives: Digital transformation opens new markets' –
inform.tmforum.org/perspectives

TM Forum member? Join us in the important work of our project to address the critical elements that enable trusted digital ecosystems. Visit **tmforum.org/trust**

Phrase Guide

TM Forum is known for creating a common language in the communications industry. To avoid the ambiguity of buzz words, here is a guide to some key phrases you may come across on your transformation journey:

API: A set of functions, protocols and procedures that allow the creation of applications which interact with the features or data of external software components. Although the term API has been around for years, at the moment there is a major trend towards connecting ecosystem partners with REST APIs. Check out the TM Forum Open APIs and see how widely they are being adopted as a standard.

CEM: Customer experience management (CEM) is the collection of processes a company uses to track, oversee and organize every interaction between a customer and the organization throughout the customer lifecycle. This is an area that has grown enormously in recent years and with customers getting ever more sophisticated, its importance is not going away.

DevOps: DevOps (development and operations) is a term used to describe an operating philosophy where development teams and operations teams collaborate and communicate much more closely and small incremental changes are regularly applied to systems. It looks like DevOps will be key to the agile operations of the future, check out the TM Forum member work on this in the Agile Operations toolkit.

Digital Maturity Model (DMM): Is a tool used to assess and benchmark the digital maturity level of an organization. The TM Forum's Digital Maturity Model & Metrics tool adds a set of specific digital metrics in which a more detailed view of digital capability in the organization can be measured. A transformational set of priorities and plans can then be established to uplift the existing capability to the desired target level of maturity. Check out the work being done on the Digital Maturity Model and find out how digitally mature you are.

DSP: Digital Service Provider (DSP) is a company that provides an outlet to distribute media or services in a virtualized environment. Traditional examples are iTunes and Amazon, but as communications becomes just one component of an end to end service, most communication service providers are transitioning to becoming broader digital service providers. That journey is at the heart of this travel guide.

E2E: End to End (E2E), is a term used to refer to the consideration of the entire service. Up until recently it meant considering all domains of a service provider (like the core and access networks), but today it is being used more and more to mean a service across domains and across different ecosystem partners as well. Check out the Forum's work in end to end management and monetization in an IoE context.

IoE: The Internet of Everything (IoE) is a broad term that refers to devices and consumer products connected to the Internet and outfitted with expanded digital features. It is a philosophy in which technology's future is comprised of many different types of appliances, devices and items connected to the global Internet. Check out the Forum's work on how we manage, monetize and build trust across this complex world.

Frameworx: TM Forum Frameworx is a suite of best practices and standards that provides a common vocabulary and the blueprint for effective, efficient business operations. It enables you to assess and optimize performance using a proven, service-oriented approach to operations and integration. The practical tools available in Frameworx help improve end-to-end management of services across complex, multi-partner environments.

NetOps: NetOps (network and operations) network changes are made in a small number of large, infrequent, upgrades in significant contrast to DevOps methods where changes are small and frequent. Although many see NetOps methods as the 'old way', we must recognize that they have helped us build a multi trillion dollar industry, and so migration in a thoughtful way is important. Check out the Forum's work in this area in the Agile Operations toolkit.

NFV: Network functions virtualization (NFV) is an initiative to virtualize the network services that are now being carried out by proprietary, dedicated hardware appliances. If successful, NFV will decouple the software service from the hardware and decrease the amount of proprietary hardware that's needed to launch and operate network services. NFV brings with it enormous flexibility, but with flexibility comes complexity which must be managed. Check out the Forum's work on realizing the business benefits of NFV in our ZOOM project and in our Agile OSS and Agile Operations toolkits.

Omnichannel: Omnichannel uses a variety of channels during a customer's experience including research before a purchase. Such channels include stores, online stores/website, mobile stores, mobile app stores, telephone sales and any other method of transacting with a customer. Understanding this new way of interacting with customers will be critical to business success going forward. Check out work being done in this area in our Customer Centricity toolkit.

Orchestration: The arrangement, sequencing and automated implementation of tasks, rules and policies to coordinate logical and physical resources to meet a customer or on-demand request to create, modify or remove network or service resources. It is fundamental to the architecture of the OSS of the future, but quite a mis-understood concept. Check out the TM Forum's guides in the Agile OSS toolkit.

REST based API: REST (Representational State Transfer) relies on a stateless, client-server, cacheable communications protocol -- and in virtually all cases, the HTTP protocol is used. REST is an architecture style for designing networked applications. Check out our Open API portal to understand the importance of this area.

VNF: A virtual implementation of a Network Function that can be deployed on a Network Function Virtualization Infrastructure (NFVI). Managing VNFs is something that the TM Forum ZOOM project has been studying for some years. An area of particular interest at the moment is how a DSP can select, procure and then automatically onboard new VNFs into their infrastructure. Check out the TM Forum Enabling Digital Marketplaces catalyst for the latest developments in this area.

Collaboration Projects

We count on our members to contribute to the collaborative projects that build the thought leadership, guide books, best practices and standards that shape the future for digital business in any industry. Here are all the projects you can join – scan the QR codes to learn more or join.

Not a TM Forum member? Find out how you can join by visiting **tmforum.org/member**

Project	Description	Join the project
API Project	Creating a set of standard interfaces to enable rapid, repeatable and flexible integration among operations and management systems. **tmforum.org/fx-project**	
Catalog Management Project	Supporting the information modeling and business processes to enable an open digital ecosystem. **tmforum.org/catalog-project**	
Customer Experience Management Project	Collaboratively developing best practices, tools and blueprints that define customer experience management strategy. **tmforum.org/cem-project**	
Data Analytics Project	Delivering business value through a range of best practices, user stories and thought-leading collaboration activities. **tmforum.org/data-project**	
Digital Maturity Model & Metrics Project	Delivering a digital maturity model and metrics that will immediately benefit the communications industry, providing the common vocabulary and an objective way to assess a company's current state on the journey to becoming a digitally mature organization. **tmforum.org/dmm-project**	
DSRA Project	Developing a standard reference architecture blueprint for digital services. **tmforum.org/dsra-project**	

Frameworx Project	Working on enhancing and developing the Application, Business Process and Information Frameworx, as well as the Frameworx Architecture. **tmforum.org/fx-project**	
Internet of Everything Project	Includes workstreams on Business Scenarios & Ecosystem Partnerships and Monetization, Trust (Security & Privacy) and Revenue Management, IOE Innovation Center (Internet of Things). **tmforum.org/ioe-project**	
Metrics Project	Adding to the repository of metrics defining the measures and KPIs to run a business. Providing the mechanism for the standardization of the overall metrics lifecycle process used by other projects across TM Forum. **tmforum.org/metrics-project**	
Revenue Management Project	Addressing Asset Management, Fraud Management, Revenue Assurance and Enterprise Risk Management, as well as the Billing, Rating and Charging subject in the Operations area. **tmforum.org/rm-project**	
Security & Privacy Project	Providing a security and privacy strategy to support the enablement of digital ecosystems. Producing a coherent and practical set of best practices and guidance to underpin all activities in the Forum. **tmforum.org/security-project**	
Smart City Project	Driving sustainability, liveability and workability in cities – with special attention to creating horizontally integrated city information hubs and enabling digital ecosystems on top of these information hubs while driving citizen engagement and social equity. **tmforum.org/smart-city-project**	
ZOOM NFV/SDN Project	Developing Virtualization and NFV & SDN best practices and standards to create a living blueprint for a new generation of service provider support systems. **tmforum.org/zoom-project**	

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