



NaaS - API Standards

Alignment of Industry bodies for its development

Introduction - What is needed to achieve a successful API?

Customer Experience

- Response to **business needs** (who and what for the APIs are going to be used?).
- Enhance **agility** in the relationship with our customers.
- **Developer-oriented**.



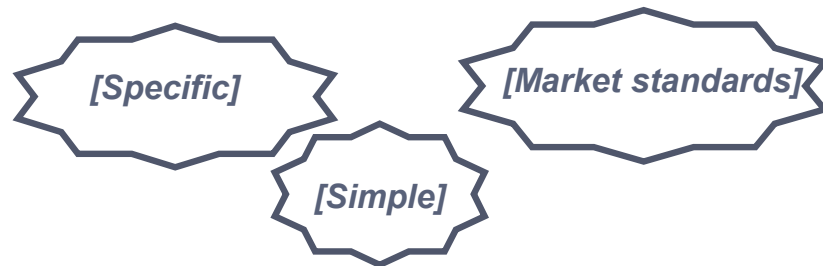
Reliability

- **Tokenization** criteria and **Auth 2.0** authentication.
- End-to-end traceability of all Architecture layers to ensure **performance**.
- **Stability** of back-end systems.
- Implementation and standardization of **error codes**.



Implementation

- **Simple** to implement and **easy to use**.
- Well **documented**
- Developed under market **standards**.
- Specific. **Avoiding free** interpretation



Scalability

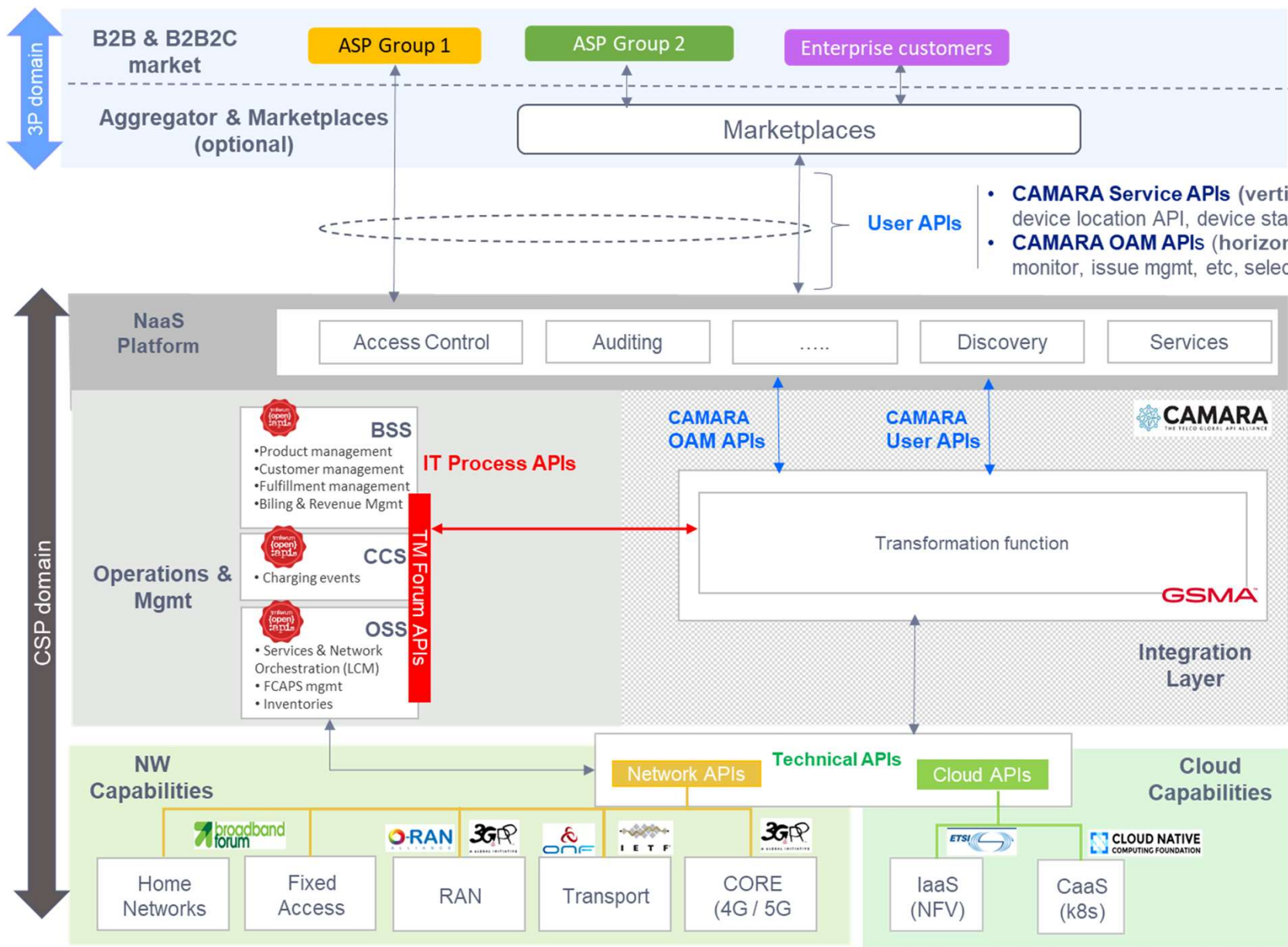
- **Demand** planning.
- Definition of evolution **roadmap**.



The Service and OAM APIs that Operators expose to customers are all open-sourced in CAMARA, developed in collaboration with the developer communities and standardized by adoption (not dictated by a certain body).

NaaS APIs

TMForum acts on the interface to IT systems



CAMARA covers the interface to Customers

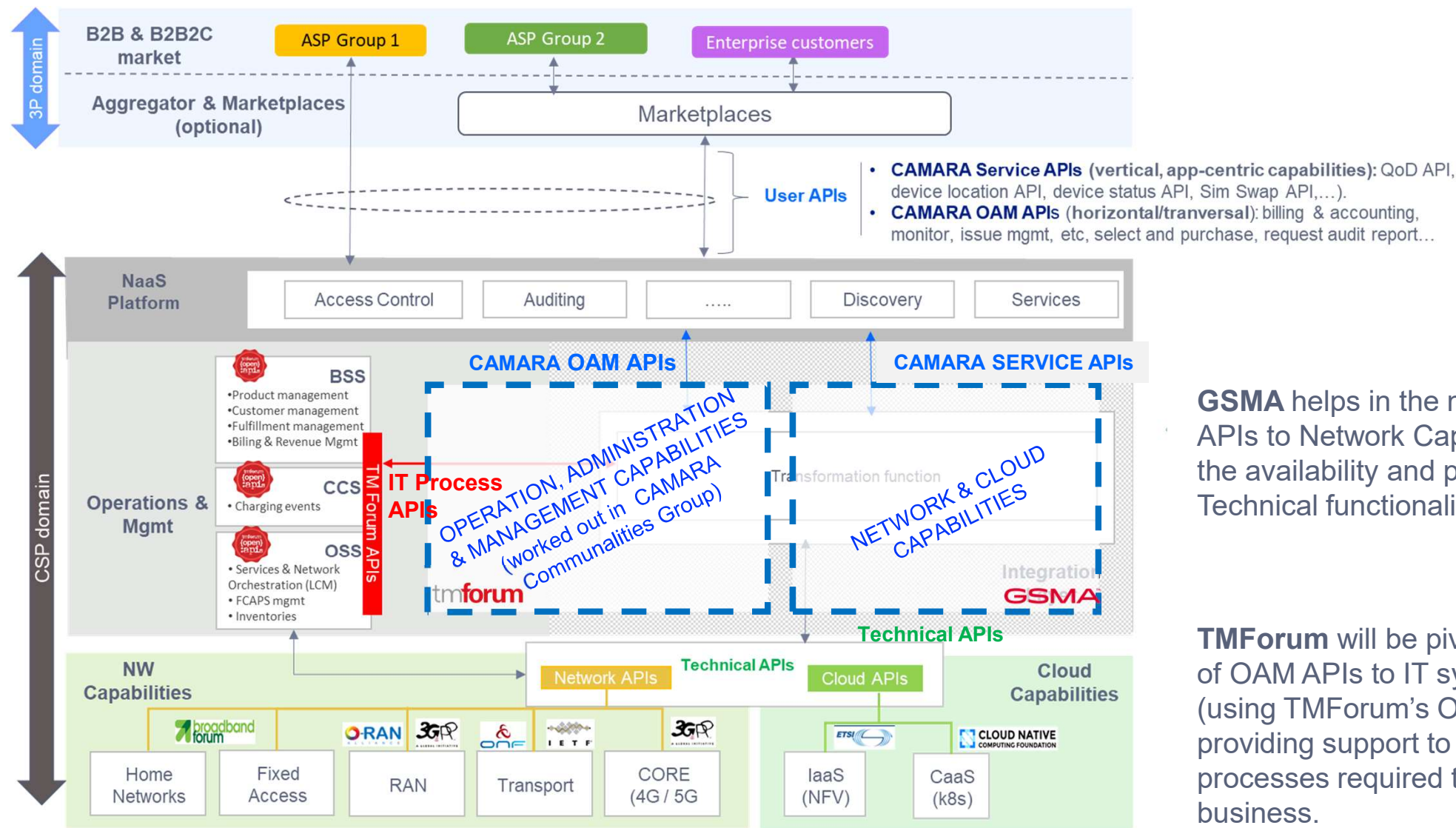
- **CAMARA Service APIs** (vertical, app-centric capabilities): QoD API, device location API, device status API, Sim Swap API,...).
- **CAMARA OAM APIs** (horizontal/transversal): billing & accounting, monitor, issue mgmt, etc, select and purchase, request audit report...

User APIs	IT Process APIs	Technical APIs
Developer oriented	IT systems oriented	Telco oriented
User-friendly	Flexible, extensible	Standardized, (FRAND) deterministic

GSMA supports on the interface to Network systems

* GSMA Operator Platform Group provides Support in mapping CAMARA Service APIs into specific Network APIs in liaison with SDOs

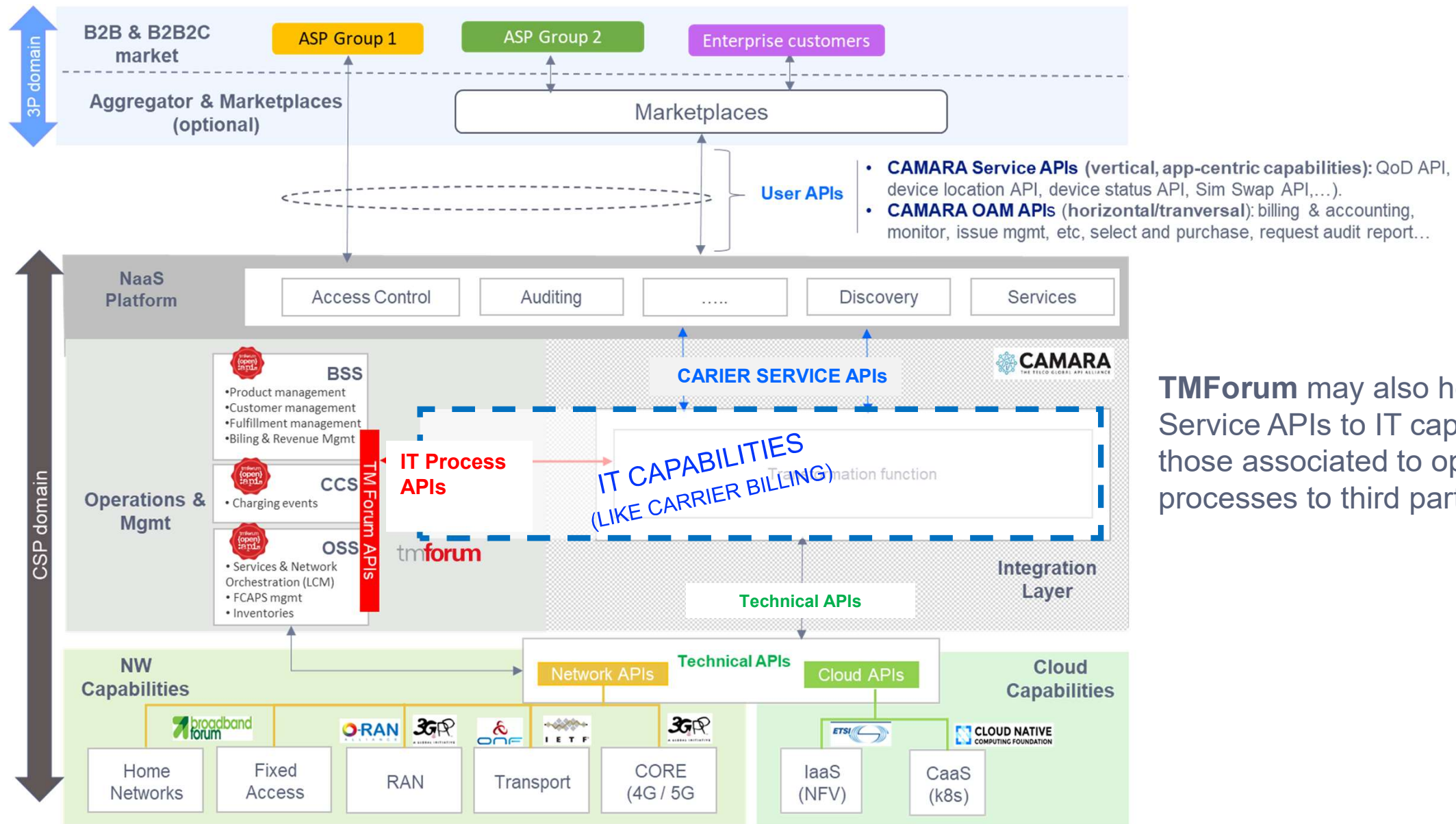
A good part of the work is now on 3GPP capabilities...



GSMA helps in the mapping of Service APIs to Network Capabilities, ensuring the availability and performance of the Technical functionality

TMForum will be pivotal in the mapping of OAM APIs to IT system functionality (using TMForum's Open APIs), providing support to all the OAM processes required to run the API business.

..but CAMARA also exposes IT capabilities like Carrier Billing



TMForum may also help in mapping Service APIs to IT capabilities, for those associated to opening telco processes to third parties.

Summary

#1 CAMARA **set the standard that will be used to expose APIs to our consumers** for service network capabilities and for its management and administration. They will be consumer-oriented APIs.

#2 **User APIs** are defined and developed in **CAMARA**, as they need to be **simple, easy-to-use** and **developer-oriented**

#3 GSMA helps to **integrate CAMARA Service APIs to Technical APIs**, allowing to **abstract the complexity of the network to the developers and customers**

#4 TMForum Open APIs help to **integrate internal systems with the NaaS Platform** to deliver horizontal/transversal capabilities for administration and management of the Service APIs (CAMARA commonalities)

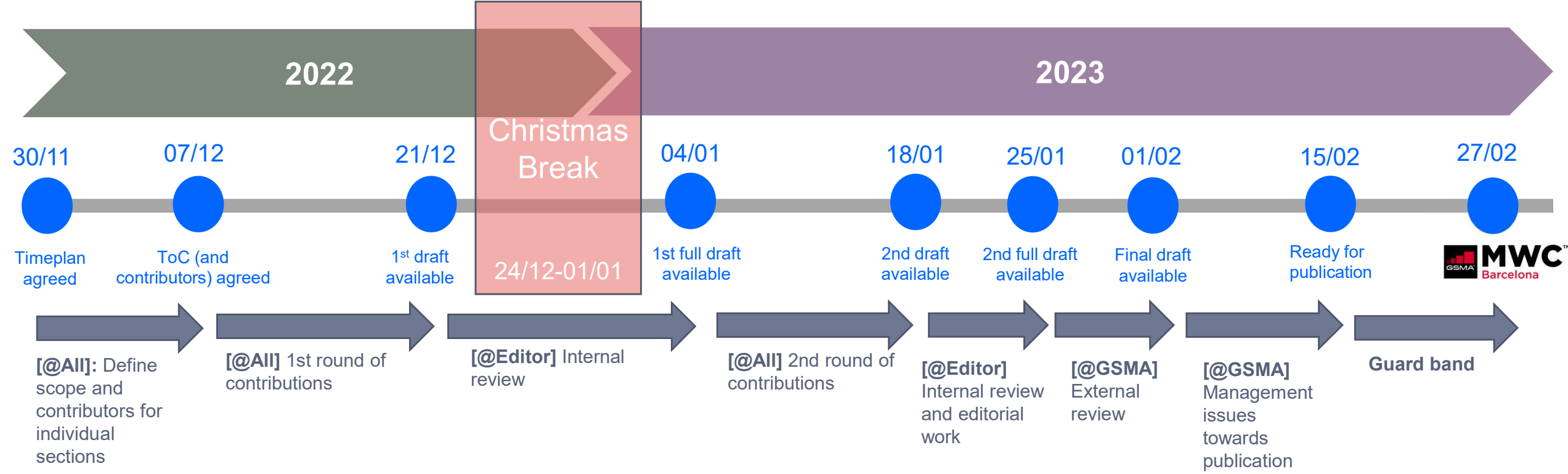
#5 TMForum Open APIs would need to become **more specific and self-contained** to be used as **IT Process APIs** to IT Systems, becoming a real de facto IT API standard

Next Steps – Publication of a White Paper

- **Goal is to provide the full picture on NaaS ecosystem**
 - How:
 - Identifying the on-going industry initiatives (CAMARA, GSMA, TM Forum, SDOs,...)...
 - ... clarifying their touchpoints (message is that there is no overlapping in their scope) and their respective contribution to the NaaS system map
 - while reinforcing the messages noted in the previous slides
 - Why:
 - Fostering collaboration across these initiatives
 - Sending a message to the industry that we have all pieces (and know how to combine them) to roll-out NaaS in the market.
- **Operator-led**
 - Ideally to have most (if not all) MoU signatories onboard
- **With GSMA Openverse coordinating activity**
 - Proposal is to allocate this activity into the Openverse Technical track, but open to hear other suggestions.
 - GSMA ensuring that the messages captured in this White Paper do not conflict and reinforce the ones ongoing in Communications rack
- **Publication targeting MWCB23**
 - Need for an action plan (see next slide)

Next Steps – Publication of a White Paper (cnt'd)

Time plan



Next Steps – Publication of a White Paper (cnt'd)

ToC

1. Introduction

- NaaS: concept, rationale and motivation
- Initiatives in the past (OMA, ...) and why they failed
- Why industry is now better positioned to make NaaS a reality, and what is needed to make it happen (here refer to slide 2).
- Ambition of this paper

2. NaaS landscape

- SDOs (3GPP, ETSI, IETF,...), telco industry fora (TM Forum, GSMA), Cloud industry fora (k8s) and open-source initiatives (CAMARA)
- Brief SoTA on their activity regarding exposure (e.g. 3GPP usage of NEF, GSMA on using OPAG, TM Forum referring to multiple position papers around NaaS, etc)

3. Putting all together

- Consistent storytelling of slides 4-7.

4. Conclusions and next steps