### **Decoding Tomorrow's Customer Demands**



# oneM2M: Impact of Global Standards in India

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### **Contents**

- ✓ European Project SESEI
- ✓ oneM2M: The Global Standard for Interoperable IoT systems
  - ✓ Organization members
  - ✓ Specifications Release Timeline
  - ✓ Common Services Layer & Toolkit
  - ✓ Feature summary by Release
  - ✓ IoT/M2M Certification
- ✓ IoT standardization activities in India
- ✓ Impact of Global Standards in India
- ✓ Takeaways



# Project is a permanent presence in India

SESEI (Seconded European Standardization Expert in India) is a local face for the European standardization community in India: Dinesh Chand Sharma











Why SESEI: India is a major trade partners for Europe, Increasing role of standards to gain market access and Evolving & complex nature of regulatory and standardization landscapes, Sharing best practices, work together

Sector: 1. ICT: M2M/IoT, Security, 5G, NFV/SDN, e-Accesibility, eHealth, eCALL

2. Electrical equipment including Consumer Electronics: Smart Grid, Smart Meter, LVDC, Micro- Grid, Lift Escalator

3. Automotive: Connected Cars, ITS, e-Mobility,

4. Smart Cities: Mobility, Waste, Energy, ICT

www.sesei.eu , www.sesei.in , www.eustandards.in



### **Decoding Tomorrow's Customer Demands**

### Introduction

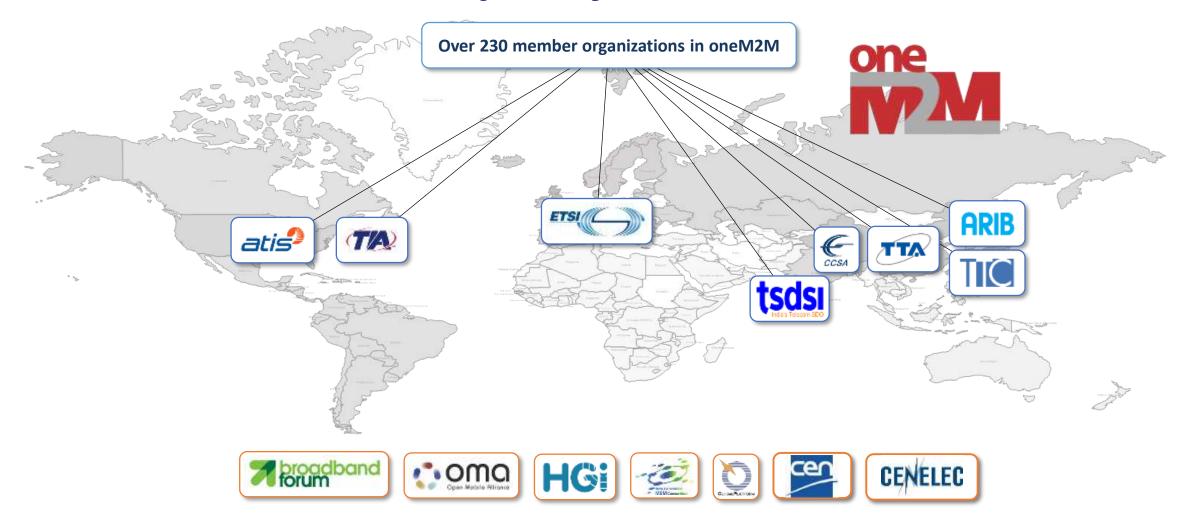
- <u>According to Markets and Market report</u>, Global Digital Transformation Market size is expected to grow at a CAGR of 21.1% to reach USD 1,548.9 billion by 2027 from USD 594.5 billion in 2022.
- Indian digital transformation market is expected to reach \$710.0 billion by 2024 at a CAGR of 74.7%.
  - Market is primarily driven by increasing adoption of IoT and Smartphone and Internet penetration.
  - According to Frost & Sullivan's recent analysis of the Indian IoT market, it is expected to reach US\$9.28 billion by 2025 from US\$4.98 billion in 2020.
- As India is progressing on its Digital transformation journey with the launch of several "SMART Missions" – Smart Cities, Smart Villages, Smart Grid, Smart Meters, Smart Transport etc. – an urgent need for Standards based IoT deployments.
  - India has formally endorsed oneM2M as the National Standard for IoT/M2M applications through TSDSI & TEC/DoT and BIS has adopted oneM2M as part of their IoT RA / Smart Infrastructure Standards and Urban Ministry have asked SPVs\_\_\_\_\_

### oneM2M: The Global Standard for Interoperable IoT systems

- In 2012, eight national standardization bodies launched the oneM2M Partnership Project:
  - To address new requirements to support interoperable and scalable IoT solutions.
  - To promote a global standard in contrast to national variants or proprietary approaches.
- In last 10 years of oneM2M's existence, over 230 member organizations have contributed to defining a technical framework to support end-to-end IoT systems, applications, and services.
  - Indian SDO TSDSI and CDOT is a member of it. CDOT has built a platform based on oneM2M
- oneM2M standards are open, accessible and internationally recognized.



# oneM2M Partnership Project



Source: oneM2M

www.oneM2M.org



# 230+ members organizations

Some of the 230+ active members of oneM2M









Giesecke & Devrient





















































HUAWEI







Standards and Technology



















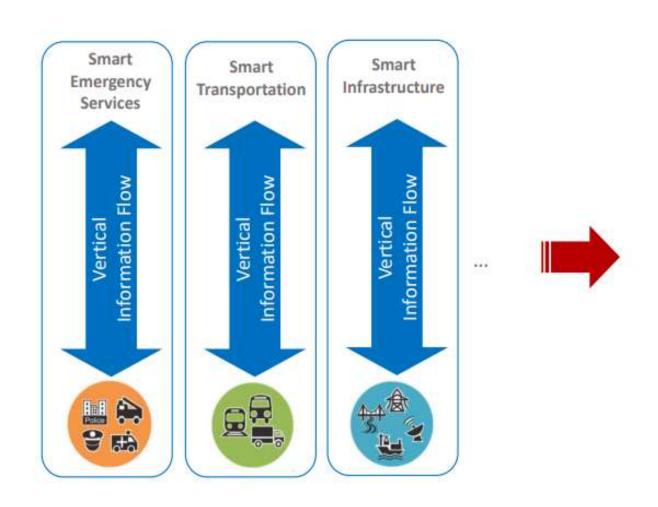


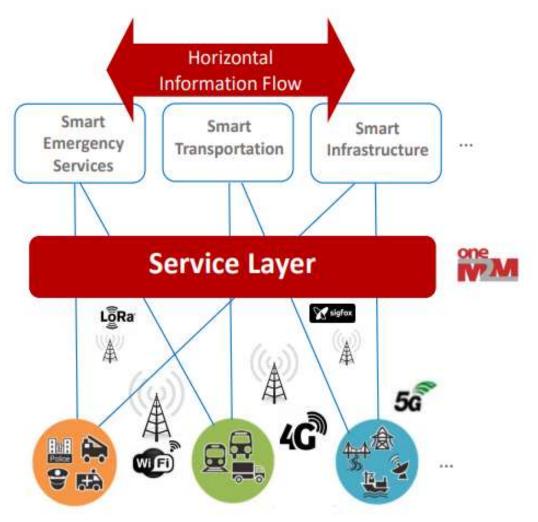
# oneM2M Specifications Release Timeline





### oneM2M Breaks Down the Silos







# oneM2M Feature Summary by Release

### Release 1

- Discovery
- Group Management
- Data Mgmt. & Repository
- Subscription & Notification
- Device Management
- Communication Mgmt
- Service Charging
- Network Service Exposure
- App & Service Mgmt
- HTTP/CoAP/MQTT Bindings

#### Release 2

- + Time Series Data
- Flexible Resources that can be customized by app developers (flex container)
- Semantics Description & Discovery
- Security Enhancements

  - EZE Security
- WebSocket Binding
- Ontology for Home Area Information Model
- oneM2M App-ID Registry
- oneM2M Interworking

  - Alljoyn
    3GPP Triggering

### Release 3

- Semantic Querying/Mashup
- 3GPP SCEF Interworking
  - Non-IP Data Delivery
  - · UE reachability Monitoring
- Transaction Management
- Service Layer routing
- Common oneM2M Interworking Framework
  - OCF
- oneM2M Conformance Tests and Profiles
- Security Enhancements
- Ontology Based Interworking

### Release 4

- + SDT 4.0 and the Information Models for Multiple Domains
- + oneM2M Conformance Tests
- + Geo Query
- + Process Management
- + Message Primitive Profiles
- + Semantic Reasoning
- + Time Management
- + Enhanced 3GPP Interworking
  - Session OoS
  - · Congestion Monitoring
- + Fog/Edge Computing
  - Software Campaigning
  - · Resource Synchronization
- + Service Subscriber Management
- + Security Enhancements
- + Group Anycast/Somecast
- + Modbus Interworking
- + Discovery Based Operations
- + Semantic OntologyMapping

2018 2022 2015 2016



# oneM2M Future Feature development

### Release 5

Studies, Use Case and Requirements development

- · Al enablement
- Information Model enhancements SDT4.0
- Support of Data Protection Regulations
- Support of Data License Management
- Smart City and Enterprise domain enablement enhancement
- Advanced Semantic Discovery
- Additional Interworkings (e.g. OGC's Sensor Thing API)
- Effective IoT Communication to Protect 3GPP Networks (cont'd)

TECHNICAL REPORTS

REQUIREMENTS TS-0002

**TECHNICAL SPECS** 



# oneM2M IoT/M2M Certification

- oneM2M Certification Program was officially launched on Feb. 9, 2017, to create an ecosystem of certified products that ensures interoperability between them.
  - Provide global confidence of oneM2M standard
  - oneM2M Certification is a LOGO program, NOT a compulsory program.
- TTA (Korea) was authorized as the first regional oneM2M certification body, since 2019, Global Certification Forum (GCF) has been operating Certification program
  - GCF serves mobile/IoT industry with certification initiatives that verify the quality of interoperability between mobile phones, wireless and IoT devices across different network elements and diverse vendor infrastructure.
- Details about the certification program and procedures involved are accessible at this link.





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