Standards: M2M/IoT & Smart Cities

SESEI | Seconded European
· Standardisation
Expert in India
Enabling Europe-India Cooperation on Standards

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European Project SESEI in India

Project is a permanent presence in India

SESEI (**S**econded **E**uropean **S**tandardization **E**xpert in **I**ndia) *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

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Standards & Regulation

What is a standard?

It is a document that defines technical or quality requirements with which current or future products, production processes, services or methods may comply
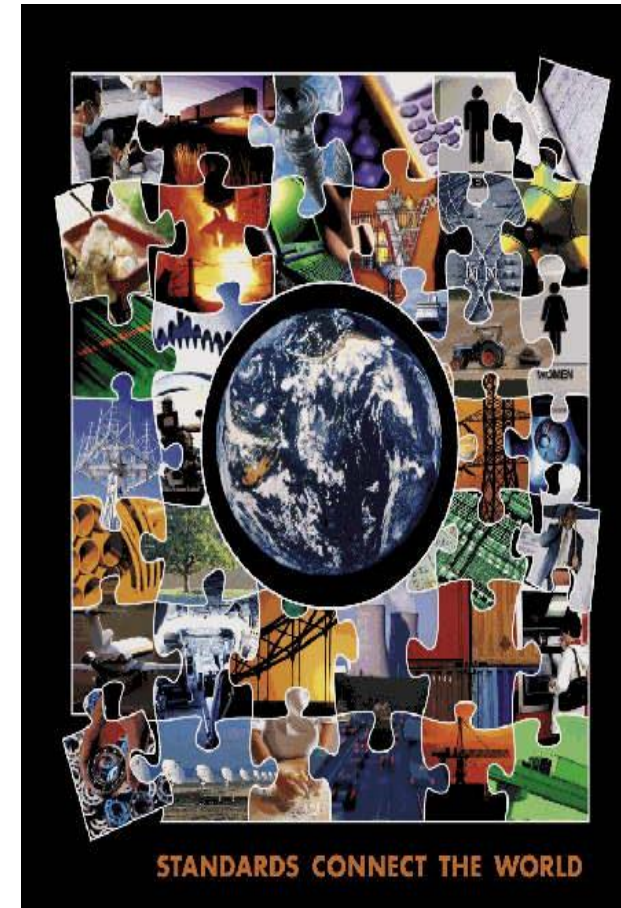
Standards are :

➢ **Always voluntary**

➢ **Consensus based**

➢ **Established by all interested parties**

➢ **Driven mainly by Industry**

➢ **Drafted by technical experts**

➢ **Approved by a recognized, independent standardization body**

Why standards are important?

➢ **Enhance safety of products**

➢ **Promote common understanding**

➢ **Facilitate trade by reducing TBs**

➢ **Promote interoperability of products and services**

➢ **Benefits of economies of scale**

➢ **Support environmental sustainability**

➢ **Facilitate the uptake of innovation and reflect the outcome of research and development**

STANDARDS CONNECT THE WORLD

European Standards & Legislation

ESO's are integrated with International

To avoid duplication of work at International and European levels and to aim for a identical worldwide and European standards

"Vienna Agreement" with

Chemistry, Material, Energy, Environment, Transport, Construction, Services, eMobility etc

CEN: 32% of portfolio identical to ISO

"Frankfurt Agreement" with

Electricity, Electro-technical

CENELEC: **72%** of portfolio identical to
(+ another **6%**based on) IEC standards

MoU for telecommunications sector (ITU-T), Agreement on radio-communication sector (ITU-R)

Information & Communication Technologies (ICT)

Founding Partner to 3GPP & oneM2M

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European Standards

- **The European Commission does not draft European standards! CEN, CENELEC and ETSI do**

  - One European Standard replaces 34 different national standards in Europe, conflicting standards are withdrawn

- **Standardisation is a form of self regulation**

  - Interested parties come together and agree voluntarily on technical matters

  - Compete more efficiently by ensuring the interoperability of their products

- **EU legislation makes reference to Standards**

  - Direct reference: mandatory but mandatory for specific use

  - Indirect reference => New Approach

CE MARKING

Declaration of Conformity

Facilitate free movement of goods

in the Internal Market whilst ensuring a

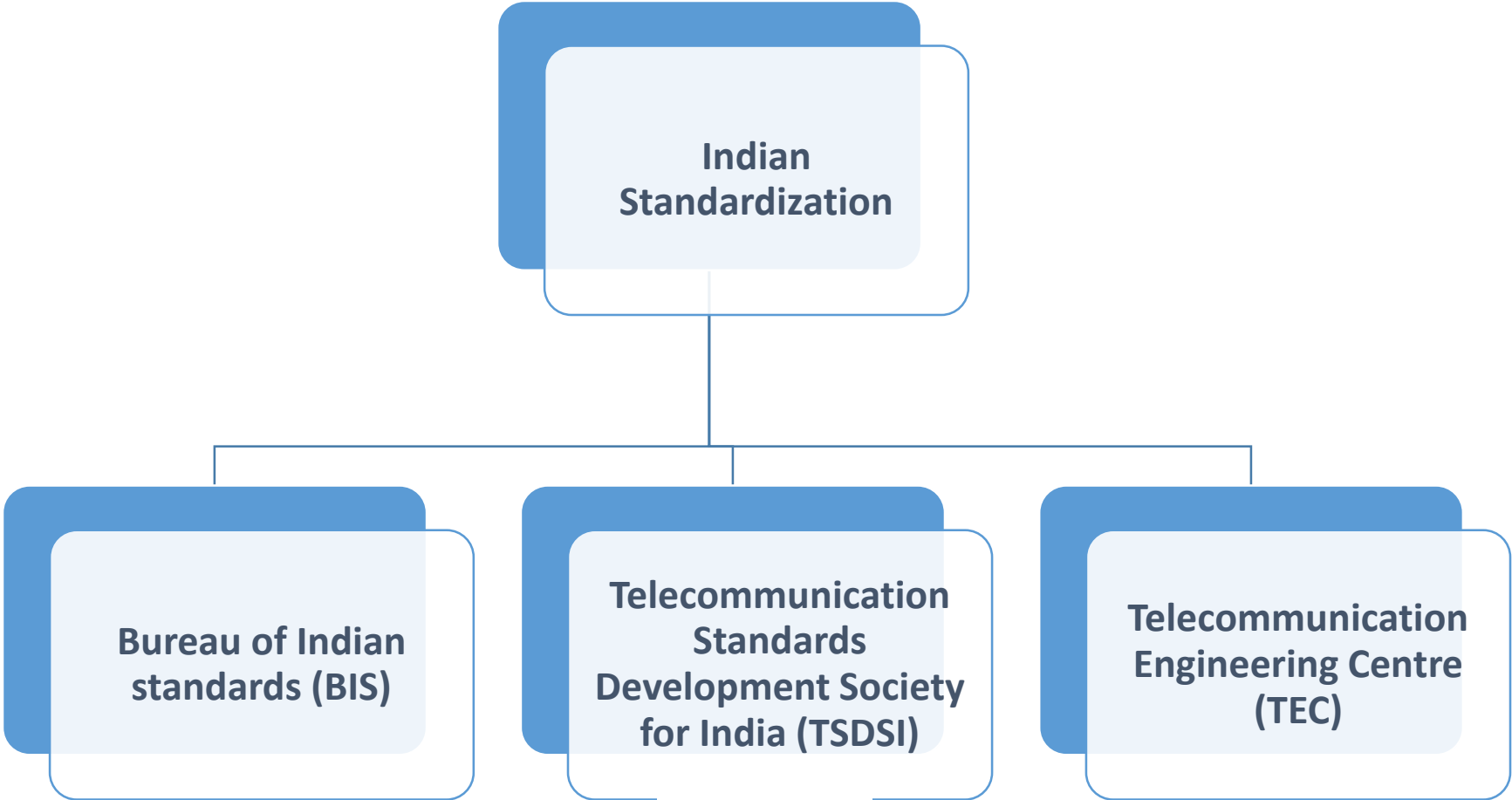**high level of protection for consumers**
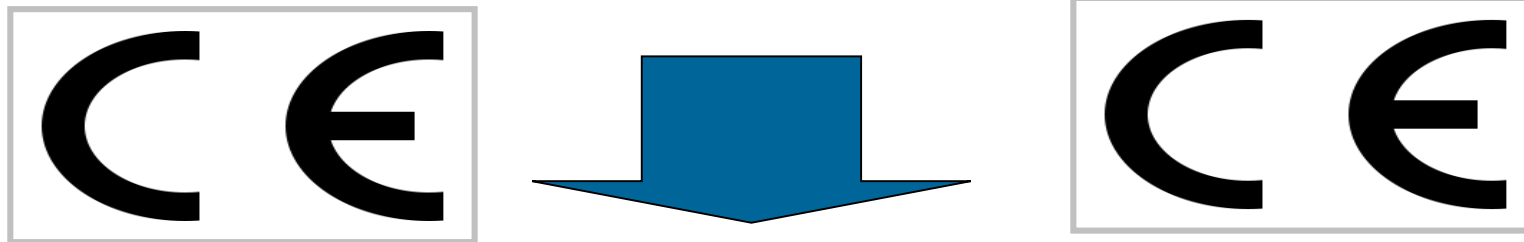
Elimination of barriers to trade through technical harmonisation

Manufacturers can Self-Declare Compliance by adding CE MARKS by signing a Declaration of Conformity

Indian Standardisation System
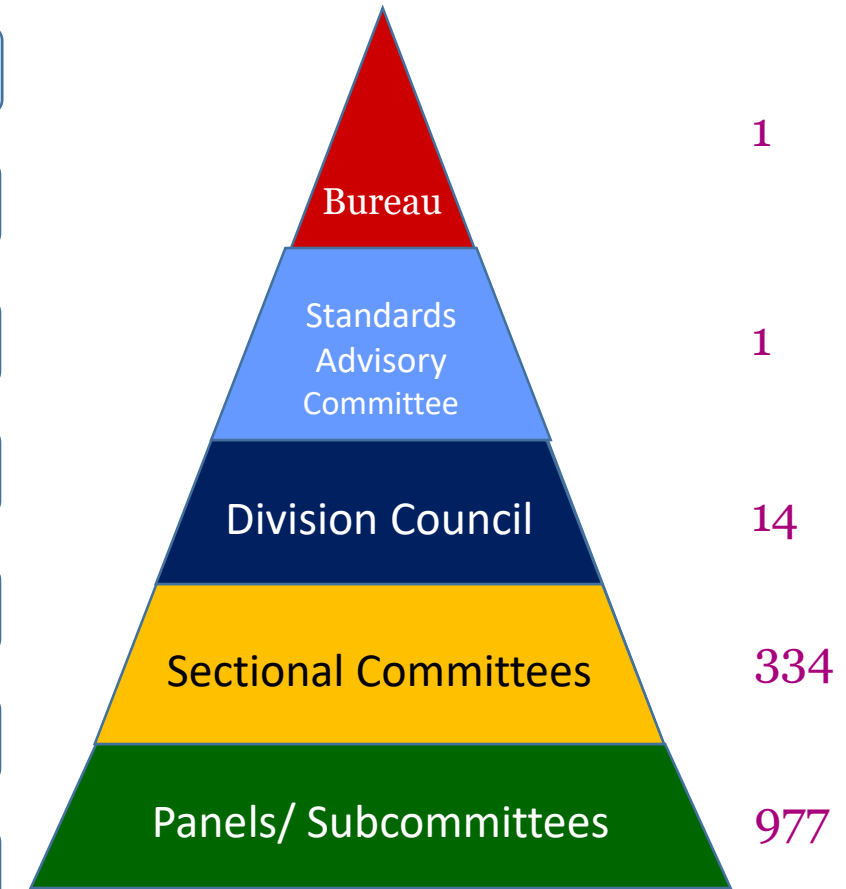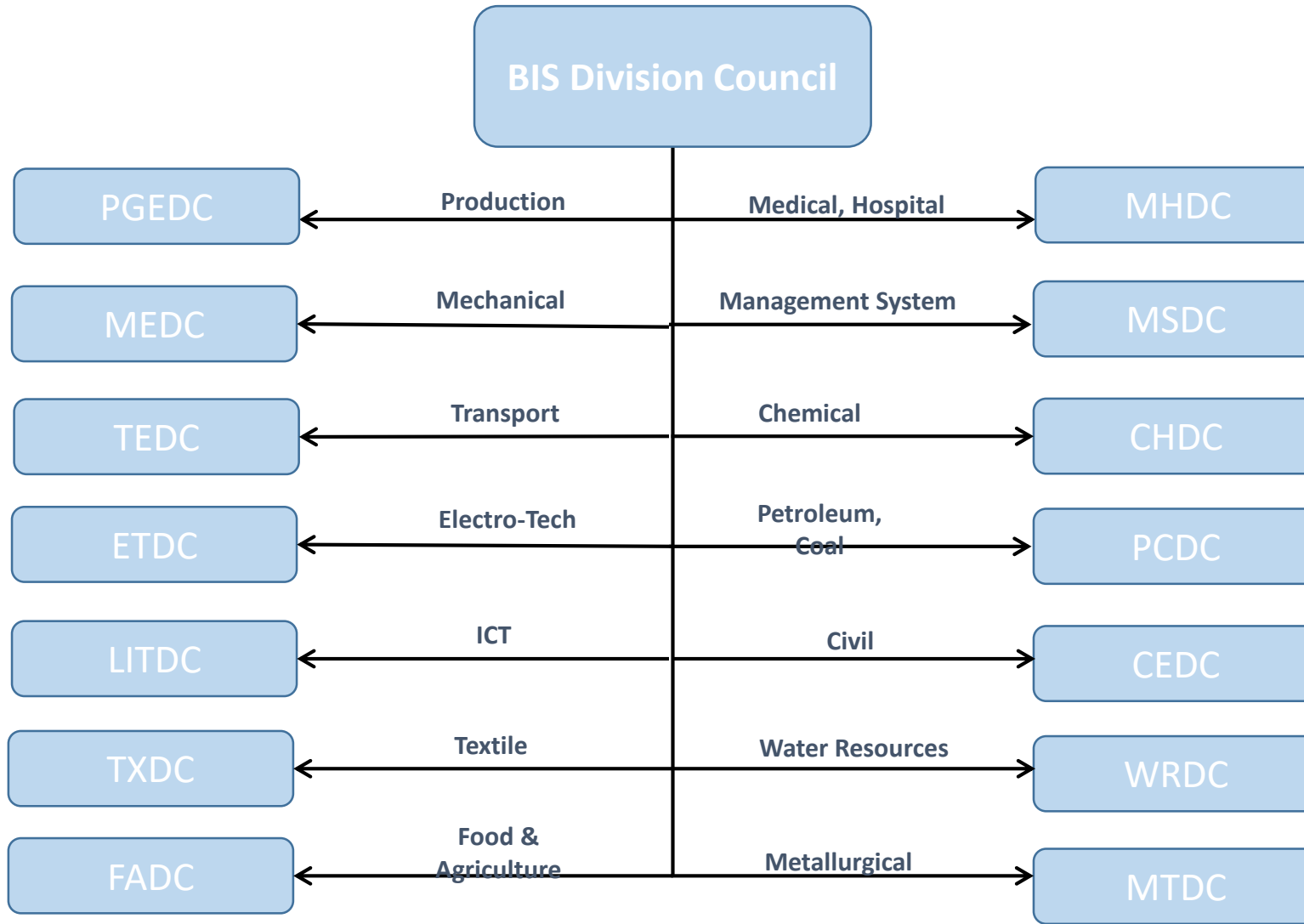
Main Standardization bodies in India

Indian regulatory & standardization landscape

- ❑ The National Standards Body of India

- ❑ Bureau of Indian Standards (BIS) took over work of Indian Standards Institution (ISI) through enactment of BIS Act (1986) by the Indian Parliament
    - ❑ ISI was set up in 1947 as a registered society, under a Government of India resolution.

- ❑ BIS is functioning under the ministry of Consumer Affairs and food & Public Distribution.

- ❑ The key activities of BIS are as follows:
    - ❑ Standards Formulation, Conformity Assessment (ISI Mark), Hallmarking of Jewelry, Management System Certification, Laboratory Services and Training

- ❑ Founding member of ISO and IEC member since 1911

Bureau of Indian Standards (BIS)

BIS Division Council

PGEDC	Production — Medical, Hospital	MHDC
MEDC	Mechanical — Management System	MSDC
TEDC	Transport — Chemical	CHDC
ETDC	Electro-Tech — Petroleum, Coal	PCDC
LITDC	ICT — Civil	CEDC
TXDC	Textile — Water Resources	WRDC
FADC	Food & Agriculture — Metallurgical	MTDC

Pyramid:
- Bureau — 1
- Standards Advisory Committee — 1
- Division Council — 14
- Sectional Committees — 334
- Panels/ Subcommittees — 977

Indian regulatory & standardization landscape

❑ BIS is engaged in formulation of Indian Standards through following 14 divisional councils:

   ❑ Production & General Engineering, Chemicals, **Civil Engineering, Electronics and Information Technology, Electro technical (ETD),** Food and Agriculture , Mechanical Engineering, Management and Systems, Medical Equipment and Hospital Planning, Metallurgical Engineering, Petroleum Coal and Related Products, Transport Engineering , Textile and Water Resources

❑ Over 19,000+ standards have been formulated in different technical areas and categories covering Product Specifications, Codes of Practices, Guidelines, Terminologies etc.

❑ WTO-TBT: BIS is an enquiry point and Dept. of Commerce the notification authority

   ❑ 53 TBTs and 133 items are under mandatory certiication and 49 are Under CRO

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- ISI mark is a certification mark for industrial products in India.

- The mark certifies that a product conforms to the Indian Standard, mentioned as IS:xxxx on top of the mark, developed by the Bureau of Indian Standards (BIS), the national standards body of India.

- The name ISI is an abbreviation of Indian Standards Institute, the former name of the Bureau of Indian Standards.

- The ISI mark is mandatory for certifying products to be sold in India, like many of the electrical appliances viz; switches, electric motors, wiring cables, heaters, kitchen appliances etc., and other products like portland cement, LPG valves, LPG cylinders, automotive tyres, Water etc.

IS ----------

R - XXXXXXX

❑ Compulsory Registration Order (CRO)

❑ The registered user shall display the 'Standard Mark' or the words 'Self Declaration-Conforming to IS……….' along with Registration number on the article and/or the packaging, as the case may be, in a manner so as to be easily visible. It shall be legible, indelible and non-removable.

TSDSI & its Charter

www.tsdsi.org

- Align with national priorities and Promote India specific requirements and standardizing solutions for the same

- Help to create an eco-system for telecom equipment/device manufacturing in India

- Contribute to various international telecom standards forums towards the development of global standards

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# Telecommunication Engineering Centre (TEC)

TEC is the engineering wing of DoT under Ministry of Communication

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                    ┌──────────────────┐
                    │  Divisions of TEC │
                    └──────────────────┘
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- Fixed Access (FA)
- Information Technology IT
- Terrestrial Wireless Access (TWA)
- Future Networks (FN)
- Telecom Security Assurance (TSA)

- Radio (R)
- Next Generation Switching (NGS)
- Transmission (T)
- Internet of Things (IoT)
- Green Passport

TEC Functions:

- Specification of common standards with regard to Telecom network equipment, services and interoperability.

- Prepare and Publish Generic Requirements (GRs), Interface Requirements (IRs).

- Issuing Interface Approvals, Certificate of Approvals, Service Approvals & Type Approvals.

- Formulation of Standards and Fundamental Technical Plans.

- Interact with multilateral agencies like APT, ETSI and ITU etc. for standardization.

- Provide technical support to DOT and technical advice to TRAI & TDSAT.

- Coordinate with C-DOT on the technological developments in the Telecom Sector for policy planning
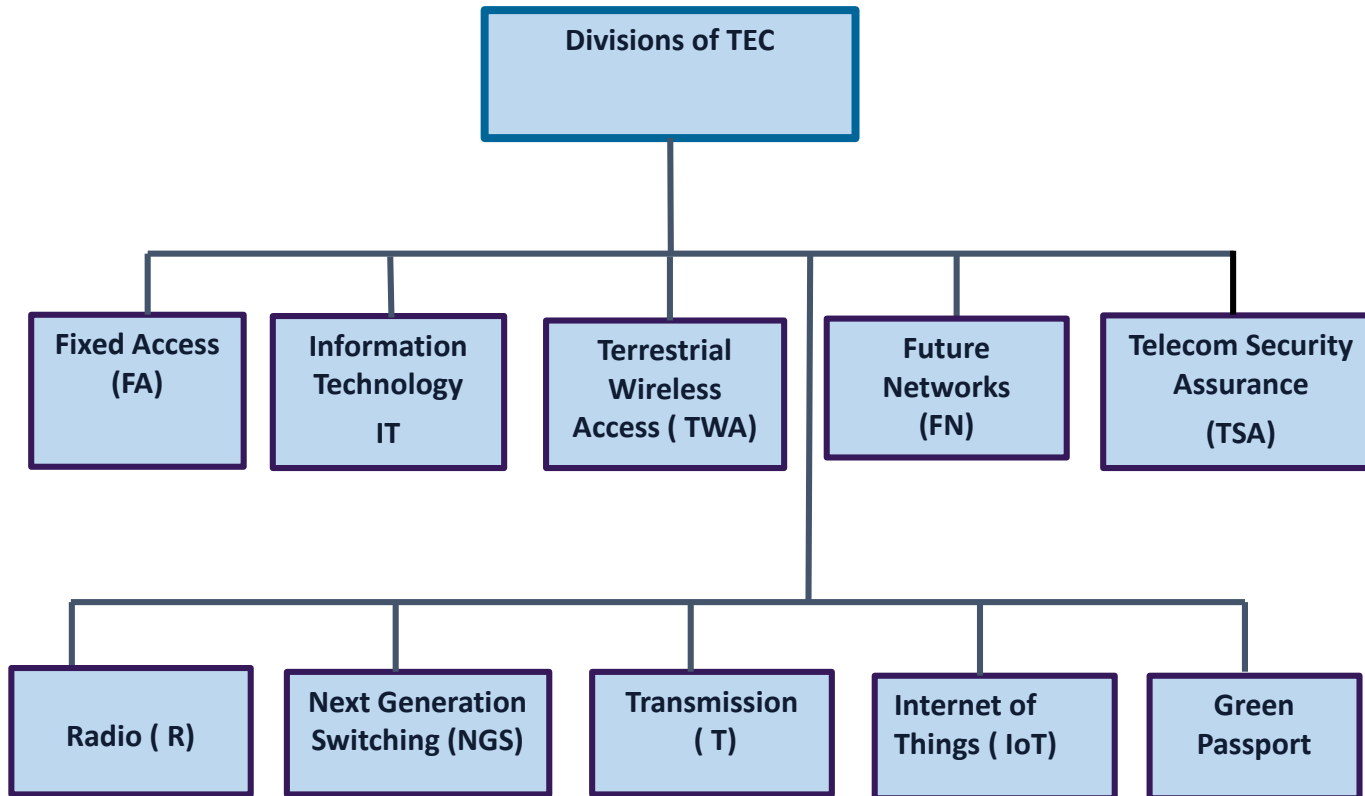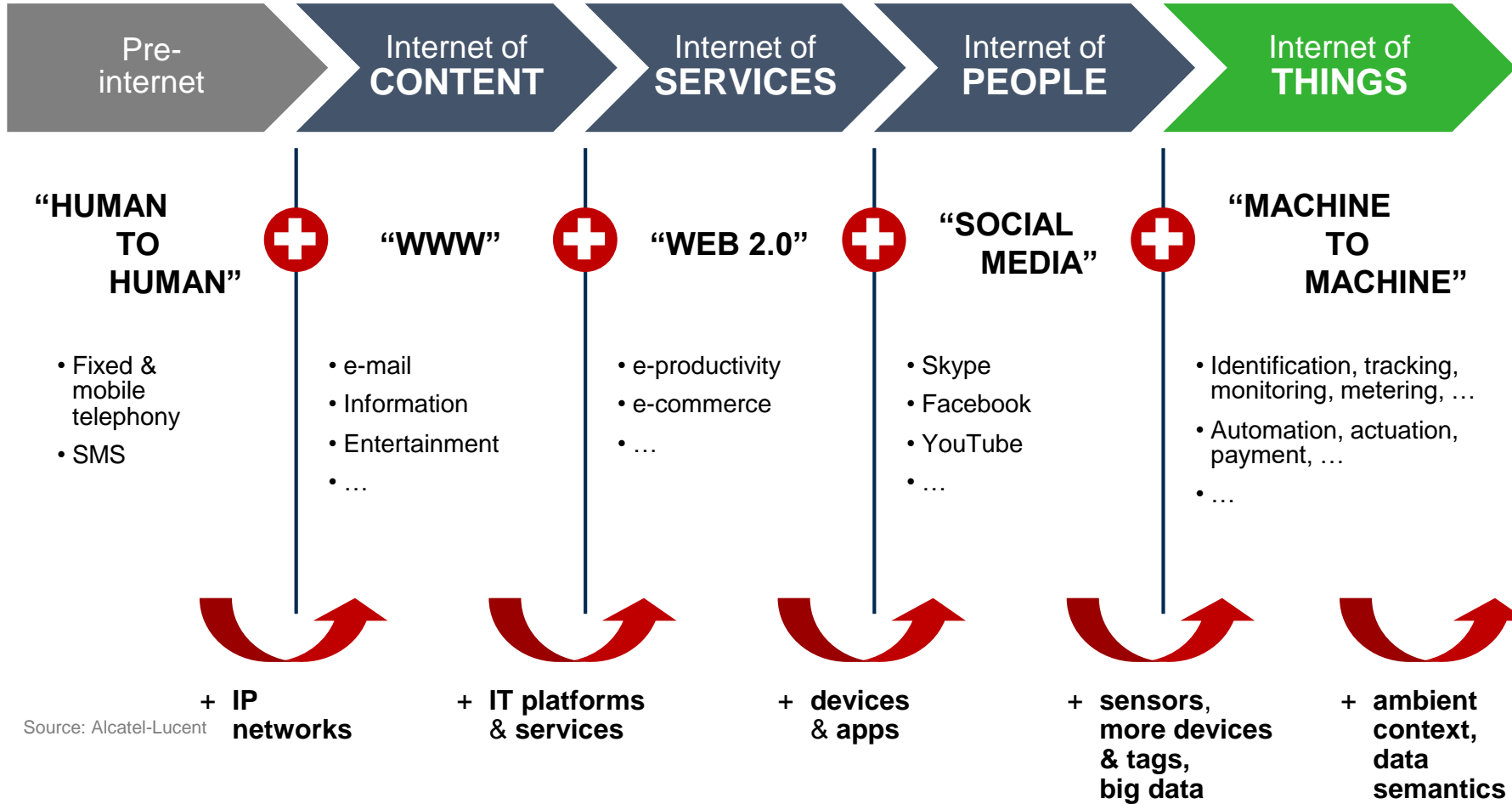
M2M/IoT & Smart Cities

Key Policy Initiative & Standardisation

The next step in internet evolution

Pre-internet	Internet of CONTENT	Internet of SERVICES	Internet of PEOPLE	Internet of THINGS

"HUMAN TO HUMAN" ✚ **"WWW"** ✚ **"WEB 2.0"** ✚ **"SOCIAL MEDIA"** ✚ **"MACHINE TO MACHINE"**

• Fixed & mobile telephony • SMS	• e-mail • Information • Entertainment • …	• e-productivity • e-commerce • …	• Skype • Facebook • YouTube • …	• Identification, tracking, monitoring, metering, … • Automation, actuation, payment, … • …

Source: Alcatel-Lucent

+ IP networks   **+ IT platforms & services**   **+ devices & apps**   **+ sensors, more devices & tags, big data**   **+ ambient context, data semantics**

The **Internet** gave us the opportunity to connect in ways we could never have dreamed possible.
The **Internet of Things** will take us beyond connection to become part of a living, moving, **global nervous system**

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What is M2M?

- **Machine to Machine :** Ubiquitous or Pervasive Computing

- **Four Step Process:**
  - Data Generated, Transmitted, Analyzed and Acted Upon

- **Other related terms**
  - Internet of Things (IoT), Connected Devices, Smart Computing, Smart Metering and Extended Internet etc.

- Leveraging Innovation in **Micro Computing and Wireless Technology** allowing devices to collect distribute real time data

- **Potential to connect Millions** of Machines in near future

- It's a **technology that enables electronics and mechanical devices to communicate** with each other **seamlessly and perform actions without human intervention.**

M2M Use Cases
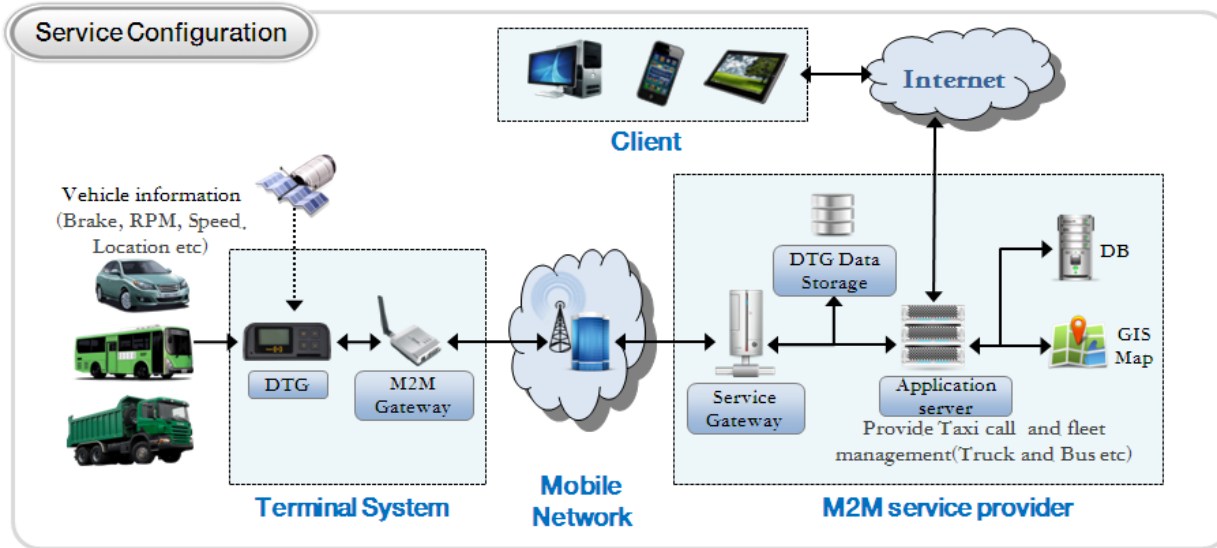
❖ Fleet Management
❖ Home Energy Management
❖ Smart Parking

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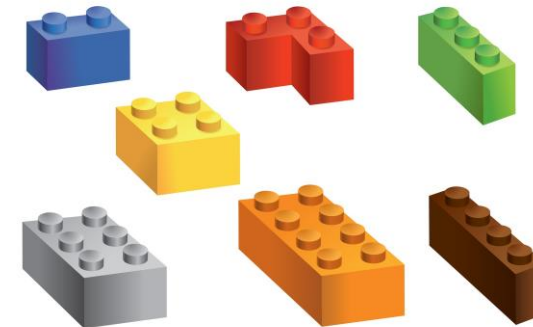
25
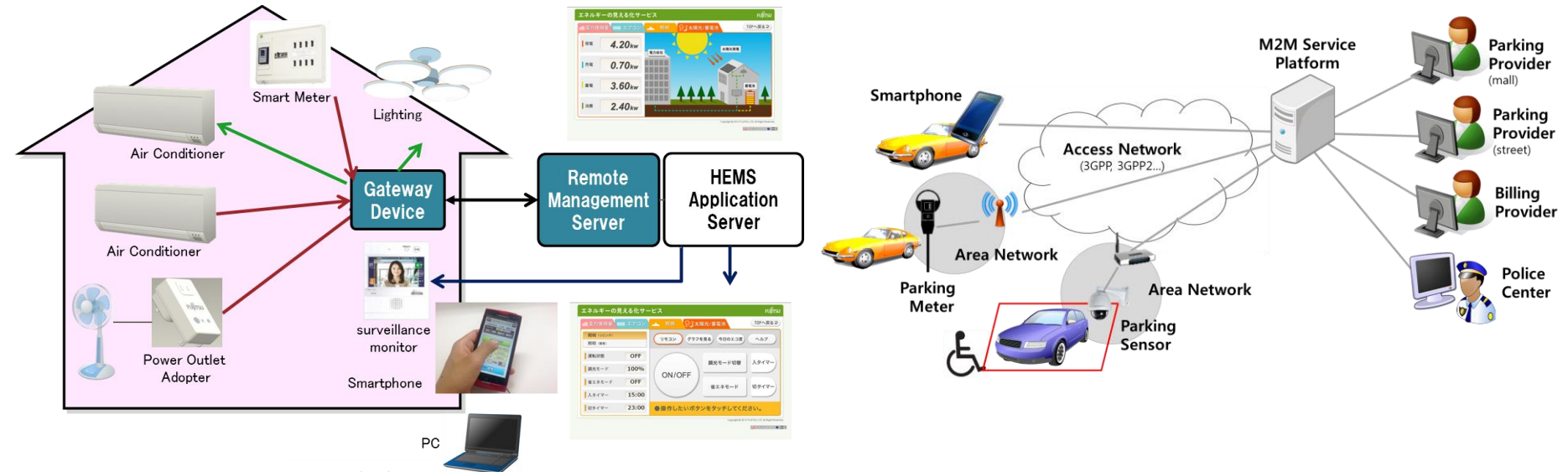
What is a Smart City?

How we make sure that we have...

- ... all the building blocks that we need?
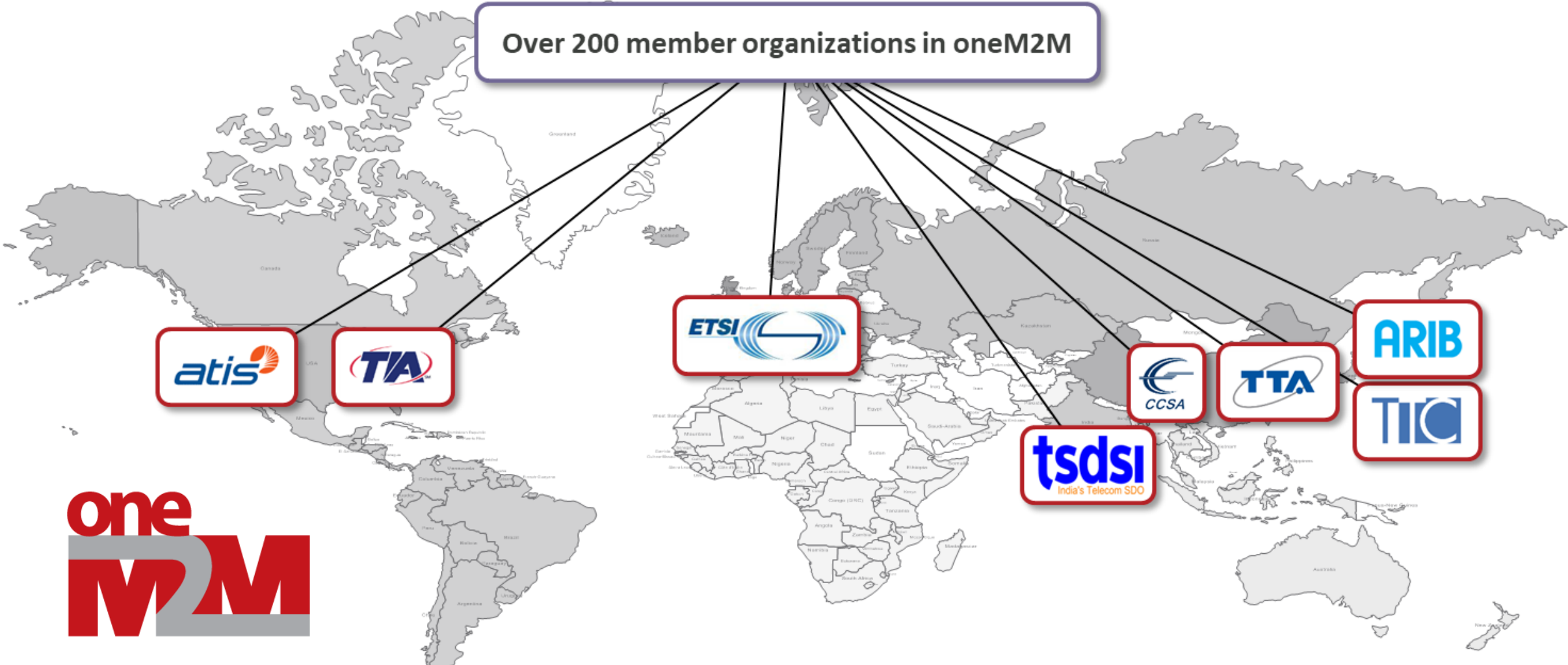
- ... all the block shapes that we need?
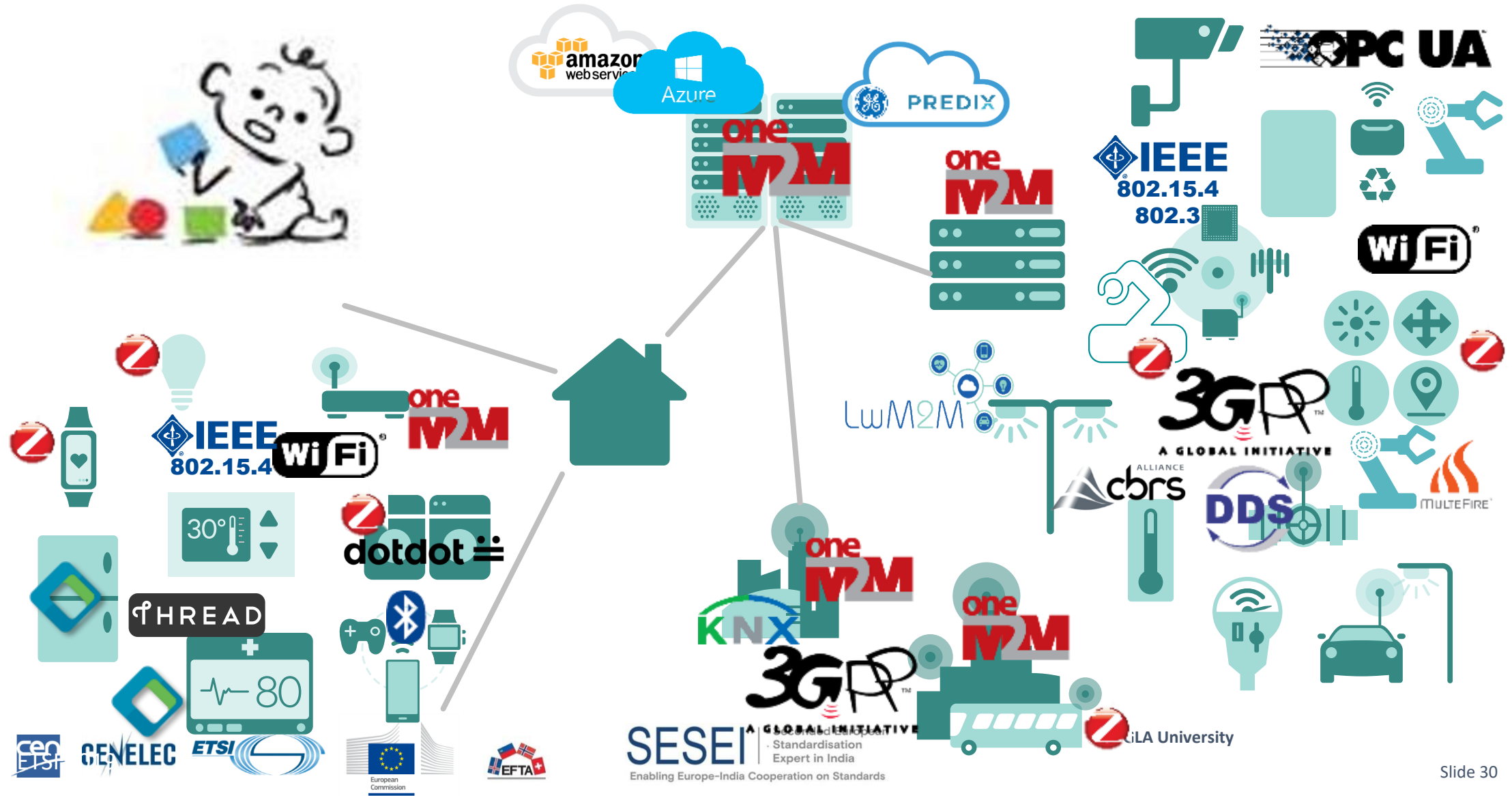
- ... the means to put these blocks together?

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With a little help from our friends…

Over 200 member organizations in oneM2M

Putting all pieces together: the glue to connect

Conclusion

Conclusions

➢ Harmonized Standards are valuable tools that can help business to:

    ➢ ensure the quality and safety of products / services

    ➢ achieve compatibility between products / components

    ➢ access markets and sell to customers in other countries

    ➢ satisfy customers' expectations and requirements

    ➢ reduce costs, eliminate waste and improve efficiency (economies of scale)

    ➢ comply with relevant national / international legislation and regulations

    ➢ gain knowledge about new technologies and innovation

Finally - Success Mantra

❑ There is no substitute to hard work

❑ Surround yourself with diverse people with unique different skill sets, work together and be open to learn from others always

❑ Don't focus on results but on the actions that will produce the results

❑ 3 tips are for success.

— Read something no one else is reading,

— Think something no one else is thinking, and

— Do something no one else is doing

❑ Success is when you look back at life and the memories make you smile

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