IOT STANDARDISATION ACTIVITIES FOR CURRENT AND FUTURE NEED
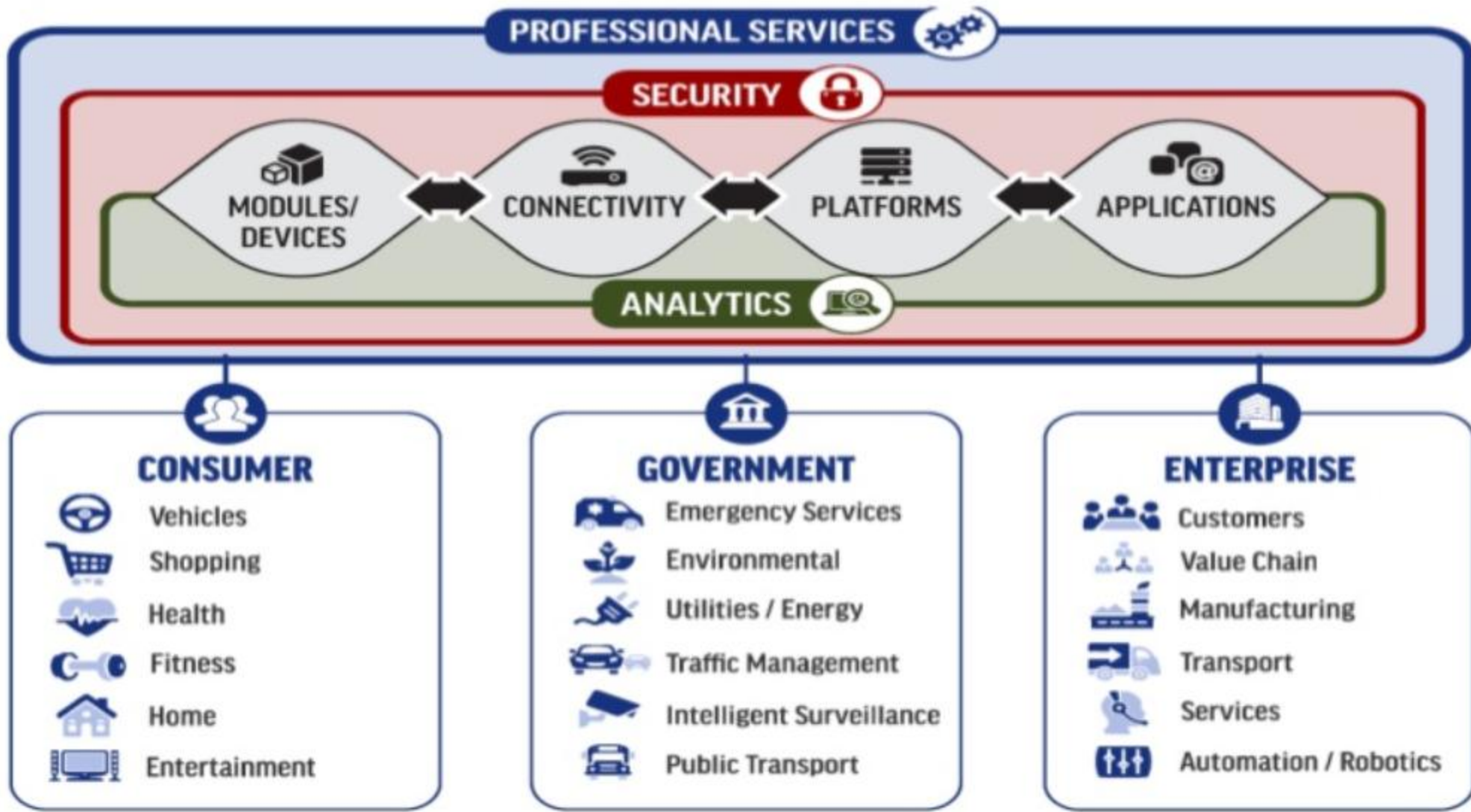
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- Internet of things (IoT) [ITU-T Y.2060]: A global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving, interoperable information and communication technologies.

  - NOTE 1 – Through the exploitation of identification, data capture, processing and communication capabilities, the IoT makes full use of things to offer services to all kinds of applications, whilst ensuring that security and privacy requirements are fulfilled.
  - NOTE 2 – In a broad perspective, the IoT can be perceived as a vision with technological and societal implications.
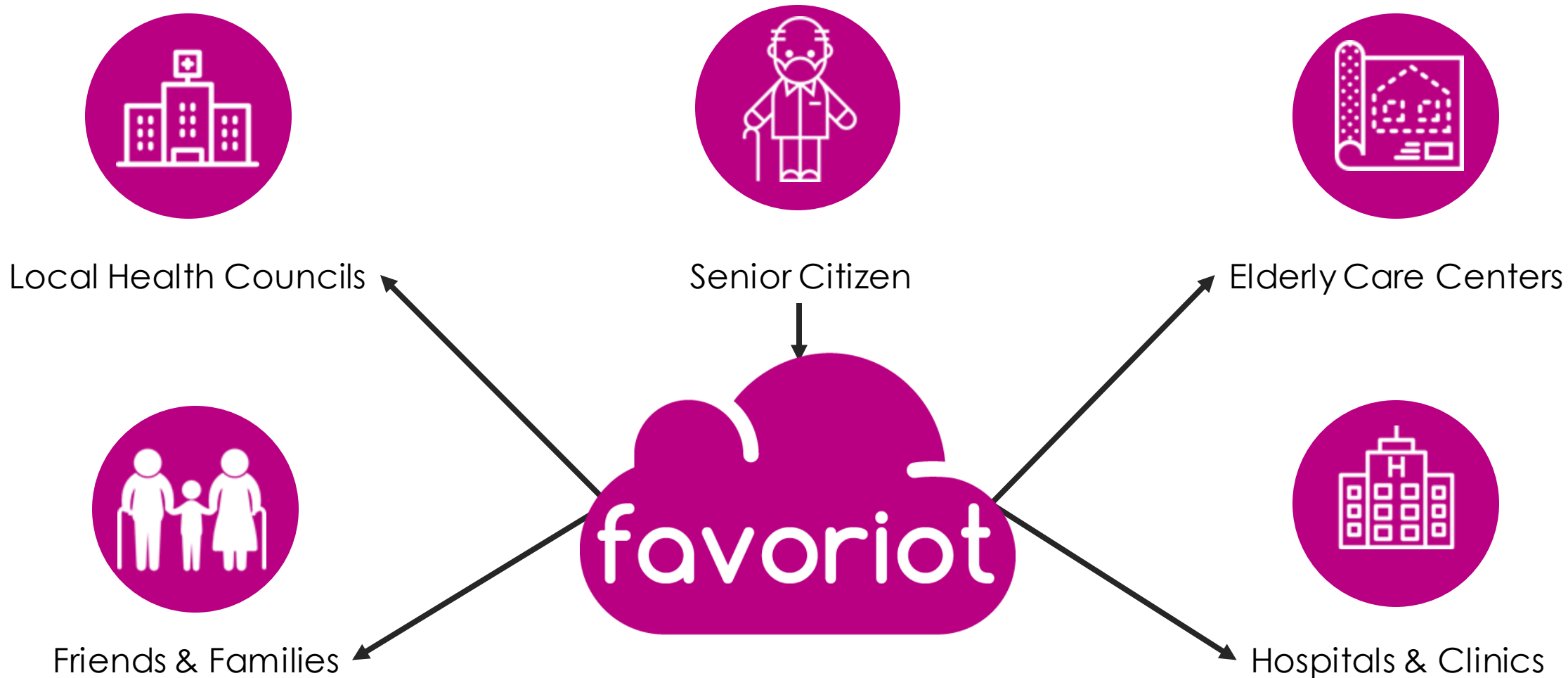 - NOTE 3 – examples such as IIoT (Industry 4.0)

INTERNET OF THINGS ECOSYSTEM

EXAMPLE OF USE CASE

FAVORHEALTH SERVICES

Local Health Councils

Senior Citizen

Elderly Care Centers

favoriot

Friends & Families

Hospitals & Clinics

Notify their whereabouts

Connect with their loved ones

Alert when detect fall or emergency cases

Monitor their vital signs

IDENTIFYING IOT STANDARD GAPS

Technology

- Communication paradigms
- Data models or ontologies
- Software availability

Societal

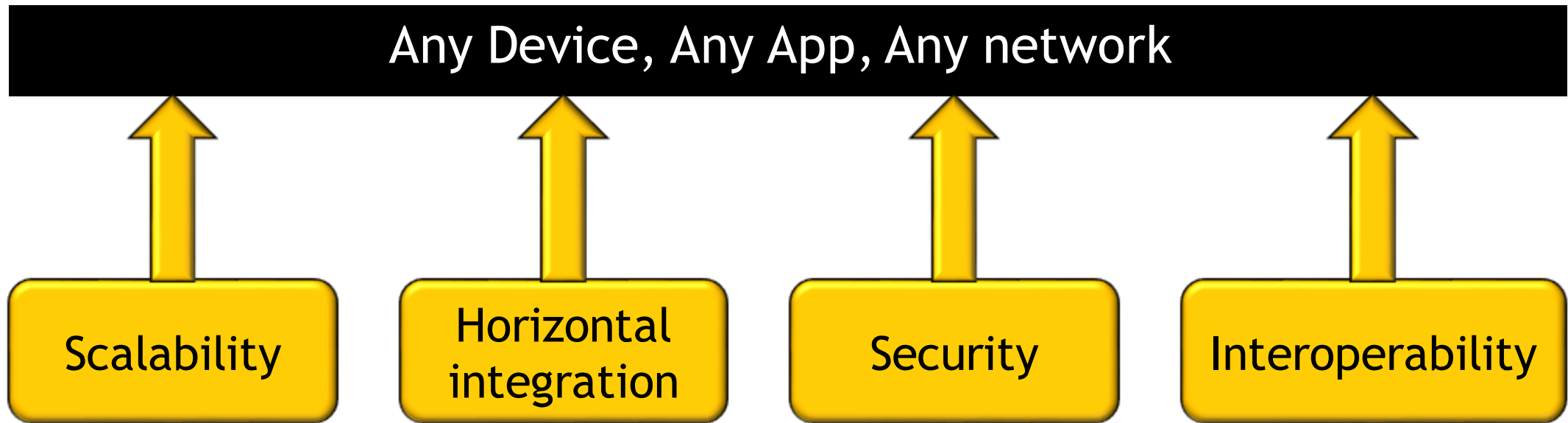- Privacy
- Energy consumption
- Ease of use

Business

- Silo-ed application
- Incomplete value chain
- Missing investment

SOME STANDARD GAPS

Gap	Type	Criticality	Impact
Competing communications and networking technologies	Technical	Medium	Network layer
Easy standard translation mechanisms for data interoperability	Technical	Medium	IoT and application layers
Standards to interpret the sensor data in an identical manner across heterogeneous platforms	Technical	High	IoT layer
APIs to support application portability among devices/terminals	Technical	Medium	IoT layer
Fragmentation due to competitive platforms	Business	Medium	Not specific to HLA
Tools to enable ease of installation, configuration, maintenance, operation of devices, technologies and platforms	Technical	High	Mostly IoT layer, also App and Network
Easy accessibility and usage to a large non-technical public	Societal	High	Not specific to HlA
Standardized methods to distribute software components to devices across a network	Technical	Medium	IoT and network layers

IOT STANDARD FOCUS AREAS

Any Device, Any App, Any network

Standards

| Scalability | Horizontal integration | Security | Interoperability |

IOT ALLIANCES AND CONSORTIUMS

INTERNET OF THINGS ALLIANCES AND CONSORTIUMS

IOT ALLIANCES & CONSORTIUMS

Founded by Intel, IBM, GE, Cisco and AT&T in 2014.	Launched in 2014 by IEEE Future Directions and aims to help engineering and technology professionals learn, share knowledge and collaborate around IoT	Allseen Alliance was founded by a variety of vendors, including Qualcomm, Microsoft, Panasonic, Sony and LG. This nonprofit consortium aims to enable the adoption of products, systems and services supporting IoT with an open development framework

IOT ALLIANCES & CONSORTIUMS

The Open Connectivity Foundation, which originally started in 2014 as the Open Interconnect Consortium, strives to deliver a framework enabling the "Internet of Everything." OIC was founded by Intel, Samsung, Dell, Atmel and Wind River, and in February the group changed its name to OCF and added some Premier members of Allseen, including Microsoft, Qualcomm and Electrolux, to its membership.

Thread Group was founded by a variety of vendors, including ARM, Nest, Samsung and Silicon Labs

The LoRa Alliance aims to standardize Low Power Wide Area Networks (LPWAN) to enable Internet of Things, machine-to-machine and smart city applications. This alliance was founded by a variety of vendors, including IBM, Actility, Cisco and Semtech.

Open Trust Protocol

A conglomerate of technology vendors, including ARM, Symantec and Sprint, in July said they are developing a protocol to address security challenges in the Internet of Things. The Open Trust Protocol aims to enable an open standard for trusted software to provide a system root-level of trust with customers who are concerned about IoT security.

IPSO Alliance

The IPSO Alliance promotes the Internet Protocol for "smart object" communications, advocating for IP networked devices in health care, industrial and energy applications. IPSO was founded by companies including SAP, Cisco, Ericsson and Silber Spring Networks. This group is not a standards organization, but an alliance that manages an IPSO Smart Object Registry that includes libraries and icons open to OEMs

oneM2M

The purpose and goal of oneM2M is to develop technical specifications which address the need for a common M2M Service Layer that can be readily embedded within various hardware and software, and relied upon to connect the myriad of devices in the field with M2M application servers worldwide
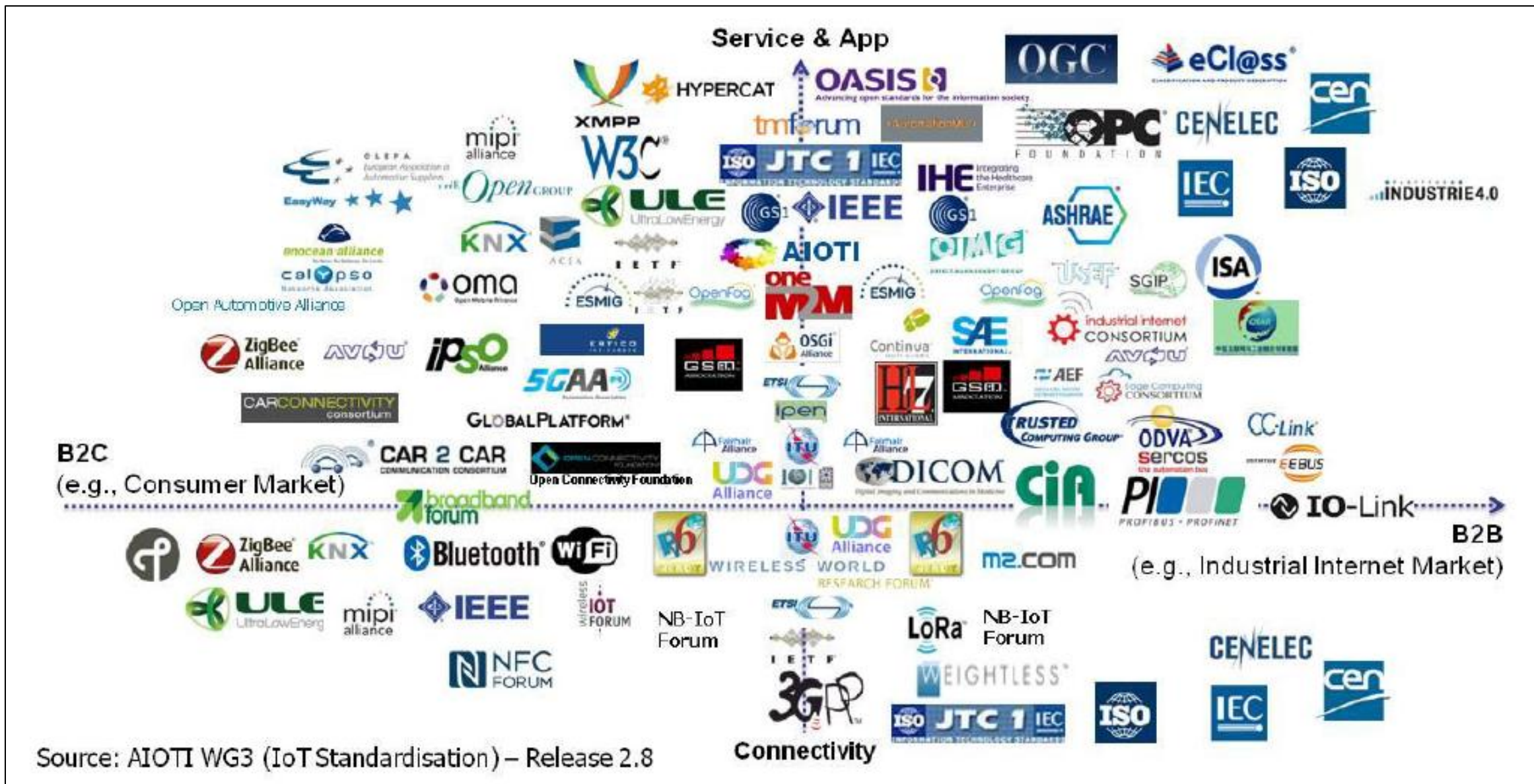
Source: AIOTI WG3 (IoT Standardisation) – Release 2.8

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ITU-T SG20
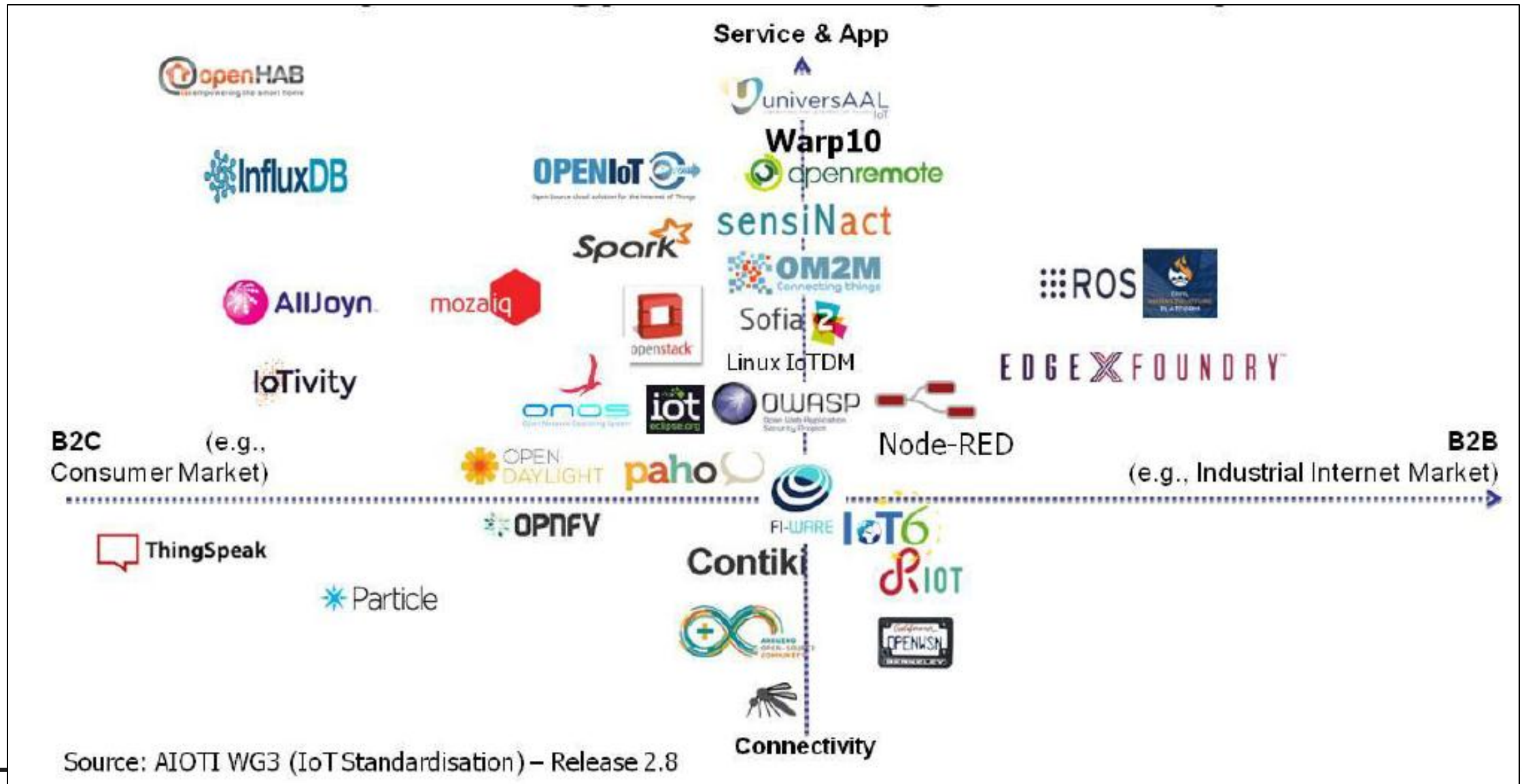
	TITLE
PLEN	
Q1/20	Research and emerging technologies including terminology and definitions
WP1/20	Internet of Things (IoT)
Q2/20	Requirements and use cases for IoT
Q3/20	IoT functional architecture including signalling requirements and protocols
Q4/20	IoT applications and services including end user networks and interworking
WP2/20	Smart cities and Communities (SC&C)
Q5/20	SC&C requirements, applications and services
Q6/20	SC&C infrastructure and framework

Working Groups

- WG1: Sensors
- WG2: IoT
- WG3: IoT Architecture
- WG4: IoT Interoperability
- WG5: IoT Applications

Ad-Hoc Groups

- AHG 7: Study Group on Wireless
- AHG 8: Study Group on Trustworthiness
- AHG 9: Study group on Industrial IoT
- AHG 10: Study group on Edge Computing
- AHG 11: Study group on Real-Time IoT
- AHG 12: Study group on Aspects of Internet of Things Use Cases including Classification and Verification

MTSFB IOT WG

MTSFB IOT WG ROLE IN SUPPORTING IOT

Research Institutions		IoT WG		Industries	
Other: NGOs, etc				Government	

Functional Architecture	Requirement and Use Cases for IoT	Communications in IoT	Security and Privacy	IoT Applications and Services
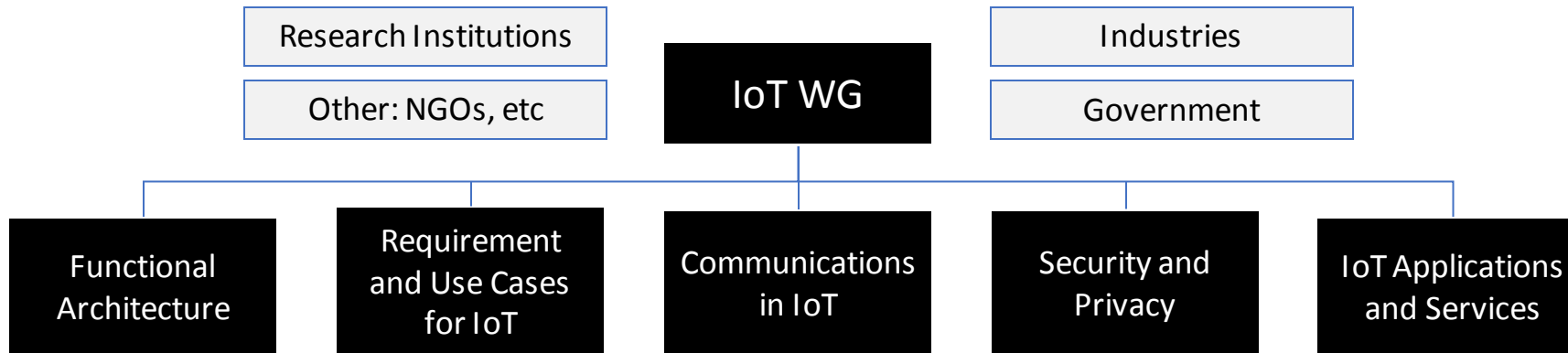
- The identification and presentation of the major activities undertaken in the SDOs that have a focus on IoT and IoT technologies

- Map out the most significant IoT standardization initiatives from the SDOs

- Initial Focus on Smart City (Including Transportation under Malaysia IoT Strategic Roadmap)

- Smart City solution deployment

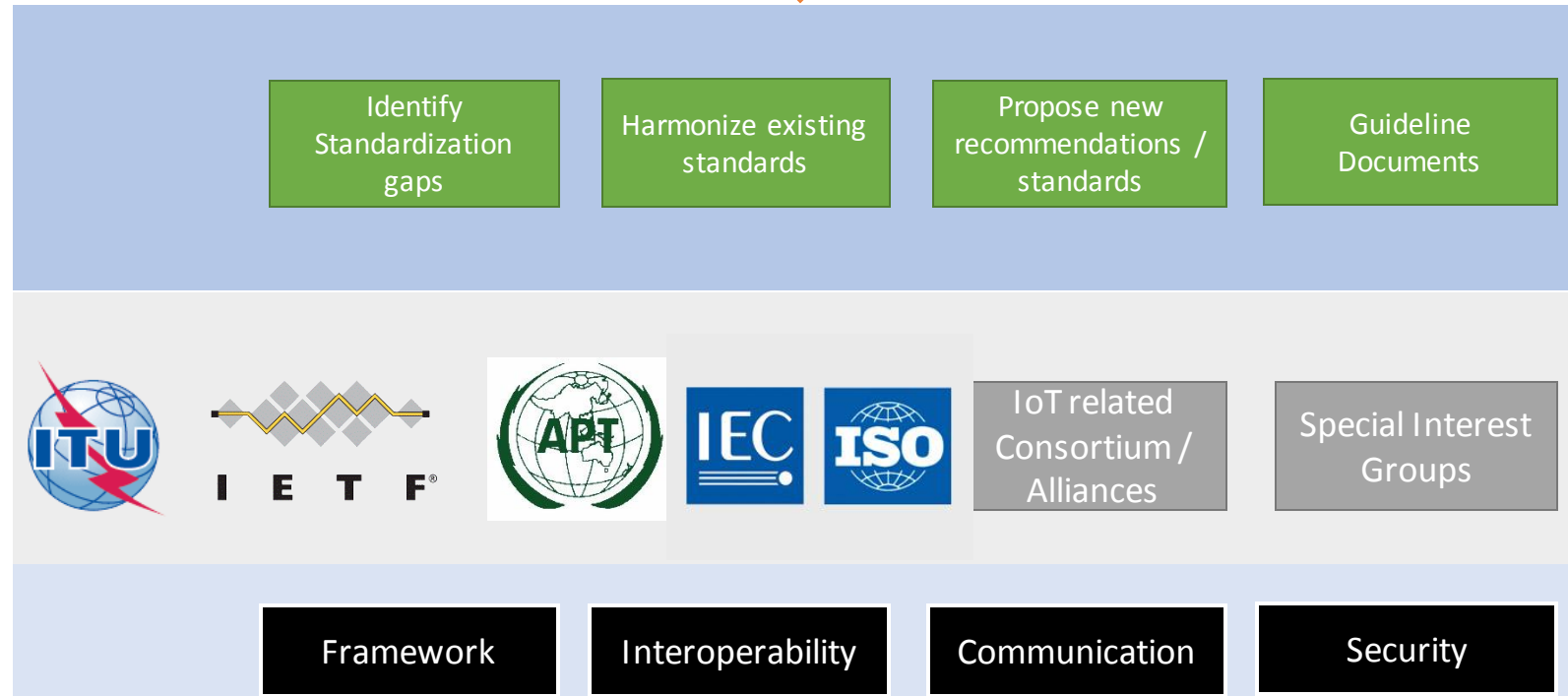# STANDARD ECOSYSTEM FOR THE GROWTH OF IOT & SMART CITIES

| Economy (RM million)		Job		IoT-based SMEs		Efficiency improvement
2014	2020	2014	2020	2014	2020	2020
771	9,500	1,169	14,270	225	425	20%

Malaysia IOT Market

MCMC/MTSFB

Standard Bodies

Identify Standardization gaps

Harmonize existing standards

Propose new recommendations / standards

Guideline Documents

ITU

IETF

APT

IEC

ISO

IoT related Consortium / Alliances

Special Interest Groups

Framework

Interoperability

Communication

Security

MTSFB IOT STANDARD DOCUMENTS

No.	Activity/Documents
1.	IOT Standardisation Dialogue Session & Hands-on Workshop
2.	Document: IoT Definitions &Terminologies
3.	Document: IoT Use cases
4.	Document: IoT Functional Architecture
5.	Document: Common Communication Criteria
6.	Document: Smart City Framework in relation with ICT aspect (Focus Group)
7.	Document: IoT Security Requirements
9.	Document: Smart City – Use cases and ICT Requirements (ASTAP)

IOT FUNCTIONAL ARCHITECTURE
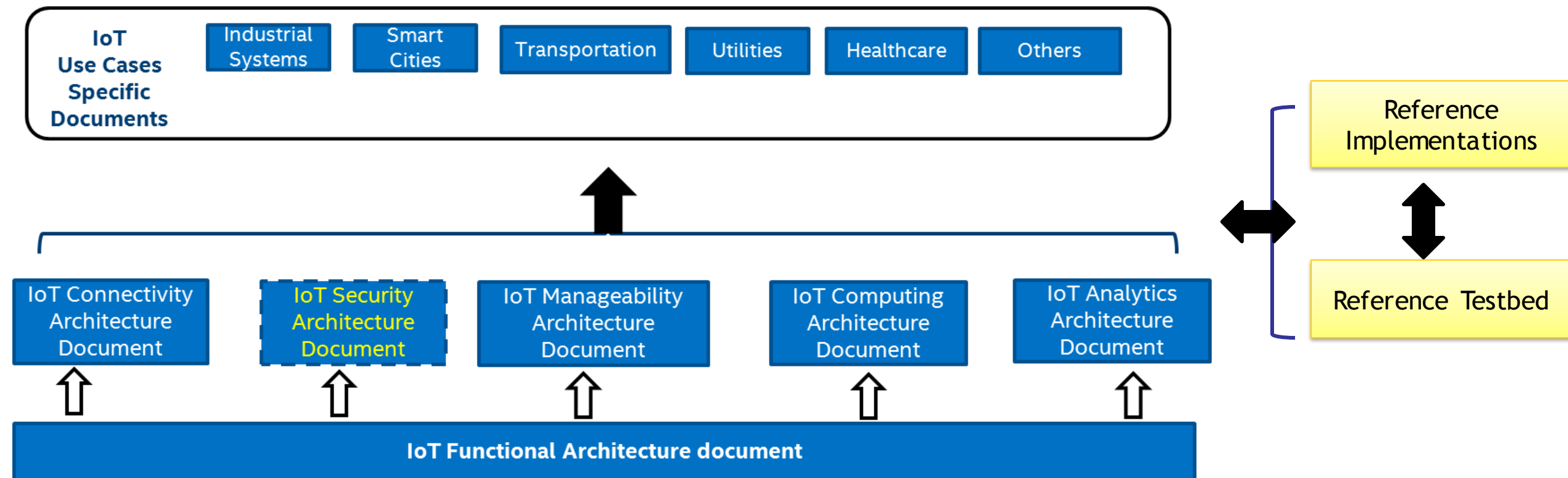
CONCLUSION

- There are many alliances, consortiums and SDO established to ensure IoT will be deployed effectively

- It is good that the all different organisations to collaborate instead of competing

Thank you