ITU-T

The Telecommunication Standardization Sector

Bilel Jamoussi

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About ITU

- ❑ The United Nations Specialized Agency for Information and Communication Technologies (ICTs)

- ❑ Founded in Paris in 1865 as the International Telegraph Union

- ❑ 150 years of experience and innovation

International Telecommunication Union

Global presence

MOSCOW

GENEVA
Global Headquarters

5 regional offices

8 area offices

1 UN office

NEW YORK

BRIDGETOWN

BANGKOK

JAKARTA

DAKAR

CAIRO

TEGUCIGALPA

YAOUNDE

ADDIS ABABA

SANTIAGO

BRASILIA

HARARE

ITU members

193 **Member States** and Regulatory Bodies

700+ **Companies**, Business Associations, NGOs

150+ **Universities** & Research Establishments
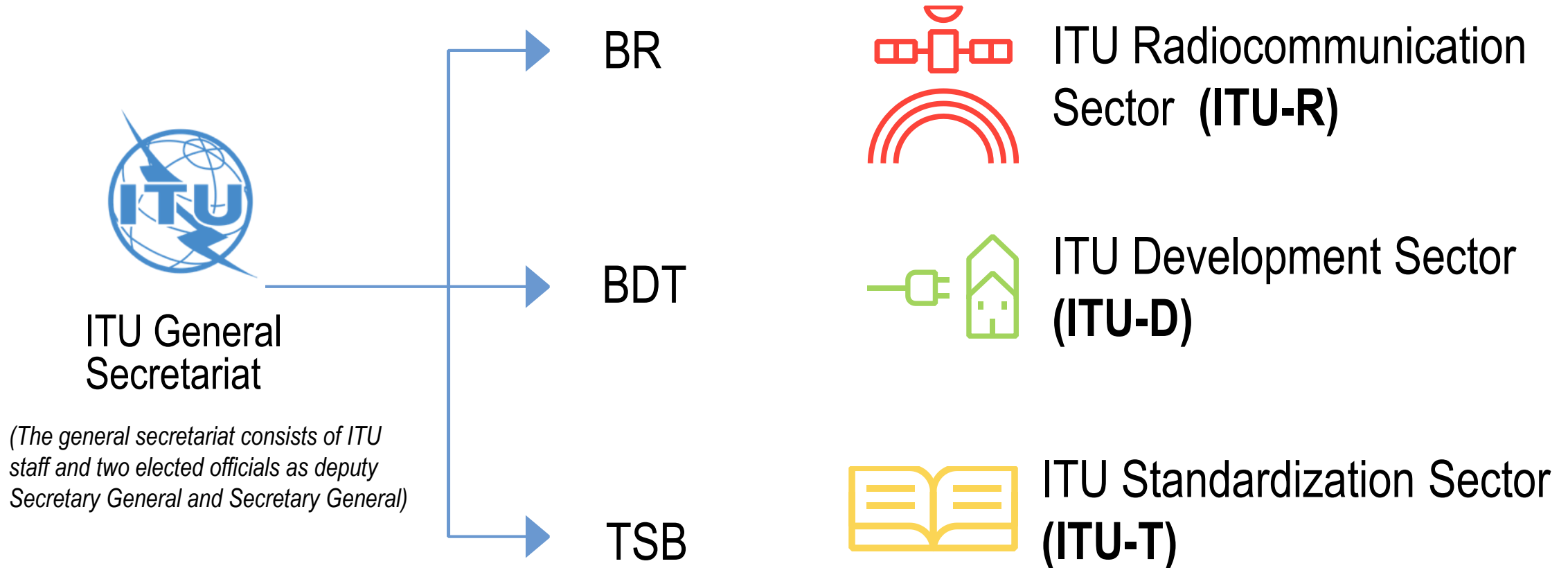
Organizational structure

ITU Staff Bureaus
(Each Bureau below consists of ITU Staff
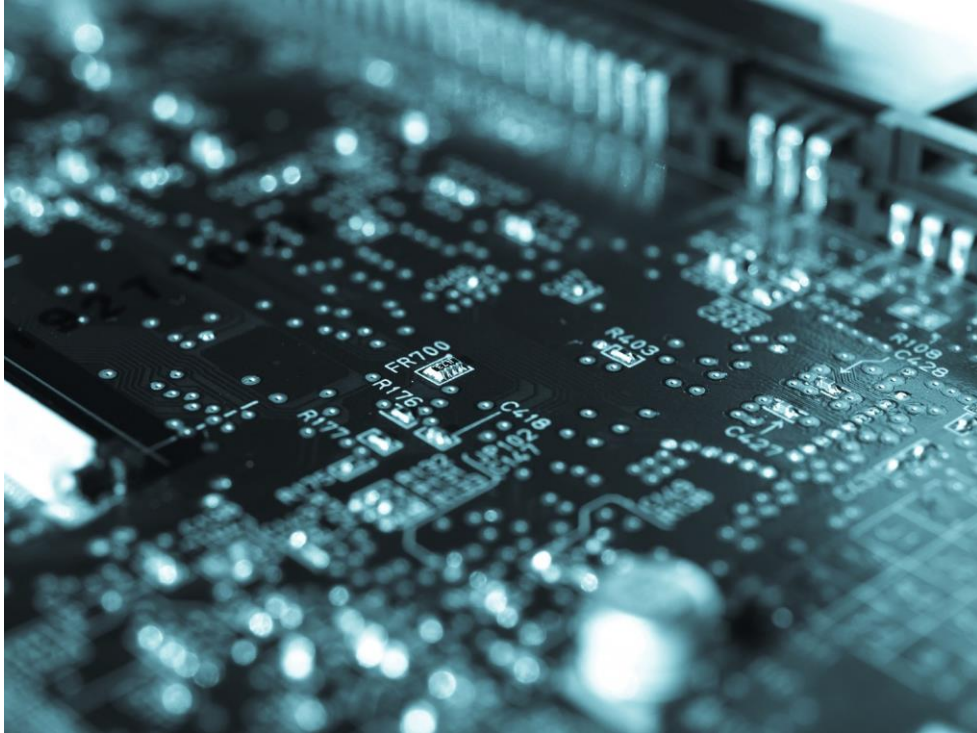*and one elected official as a Director)*

Membership sectors

ITU General Secretariat

(The general secretariat consists of ITU staff and two elected officials as deputy Secretary General and Secretary General)

BR

BDT

TSB

ITU Radiocommunication Sector **(ITU-R)**

ITU Development Sector **(ITU-D)**

ITU Standardization Sector **(ITU-T)**

ITU-T: The Standardization Sector

❑ Plays a crucial role in defining the operation and interoperability of technologies that underpin global communications network

❑ 200 - 300 new global standards approved every year, with over 4,000 in use today

❑ Standards enable global communications by ensuring ICT networks and devices speak the same language globally

ITU-T Study Groups

ITU-T standardization work is carried out by the technical Study Groups (SGs) in which representatives of the ITU-T membership develop consensus based Recommendations (standards) for the various fields of international telecommunications.

- **SG2** - Operational aspects

- **SG3** – Tariff and accounting principles and ICT economic and policy issues

- **SG5** – Environment, climate change and circular economy

- **SG9** - Broadband cable and TV

- **SG11** - Protocols and test specifications

- **SG12** - Performance, QoS and QoE

- **SG13** – Future networks with a focus on IMT-2020, Cloud & Big Data

- **SG15** – Transport, Access and Home

- **SG16** – Multimedia

- **SG17** – Security

- **SG20** – IoT and its applications including smart cities and Communities

Focus Groups

Focus Groups are formed in response to immediate ICT standardization demands; open to organizations outside ITU's membership, and afforded great flexibility in their chosen deliverables and working methods.

❑ [Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM)](#)

❑ [Focus Group on Application of Distributed Ledger Technology (FG DLT)](#)

❑ [Focus Group on Digital Currency including Digital Fiat Currency (FG DFC)](#)

❑ [Focus Group on Machine Learning for 5G (FG ML5G)](#)

Key ITU-T topics

5G (Network aspects of IMT-2020)

Cloud computing

Big data
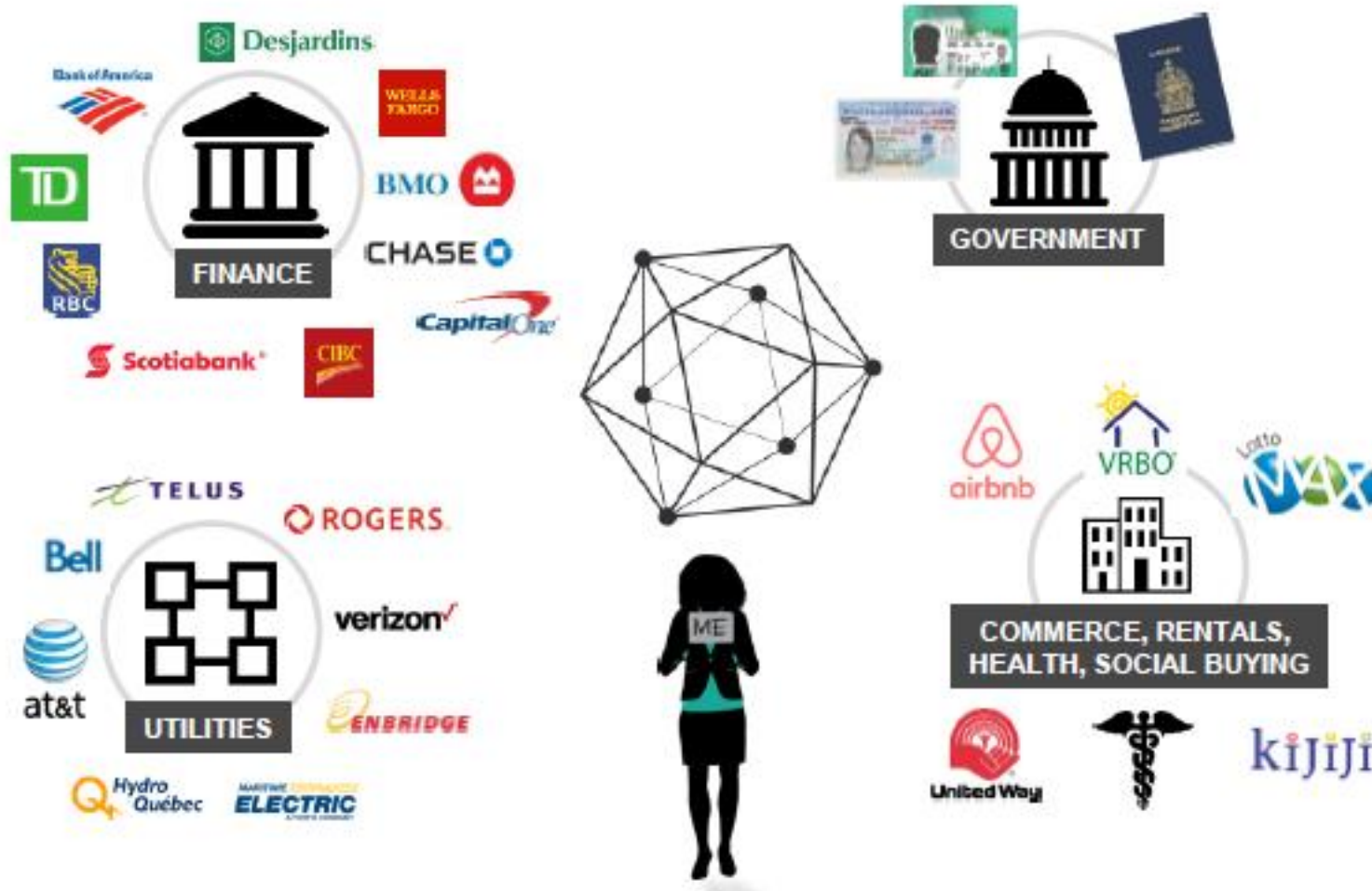
Trust and Security

Distributed Ledger Technology

Digital identity

Why Blockchain??

- Solves the Honest but Curious Broker - No Data visible to network operator
- No central database or honeypots
- No central point of failure
- Triple Blind – PRIVACY
- Cannot track user across relying parties
- Scalable
- Resiliency to DDOS
- Immutable Audit Trails (Tx, User Consent)

Source: SecureKey (DLT-I-027)

IoT & Smart Cities

Data Processing and Management to support IoT and Smart Cities

Digital Financial Services

DIGITAL FINANCIAL SERVICES FOR FINANCIAL INCLUSION

2 billion adults do not have access to a bank account, but 1.6 billion of them have a mobile phone.

FINANCIAL INCLUSION

#DigitalFinanceITU

Digital Currency

Digital Fiat Currency

Gold → *Bifurcate* → **Private Banknotes** → *Unify* → **Central Bank Currency** → *Bifurcate* → **Private e-money** → *Unify* → **DFC**

DFC
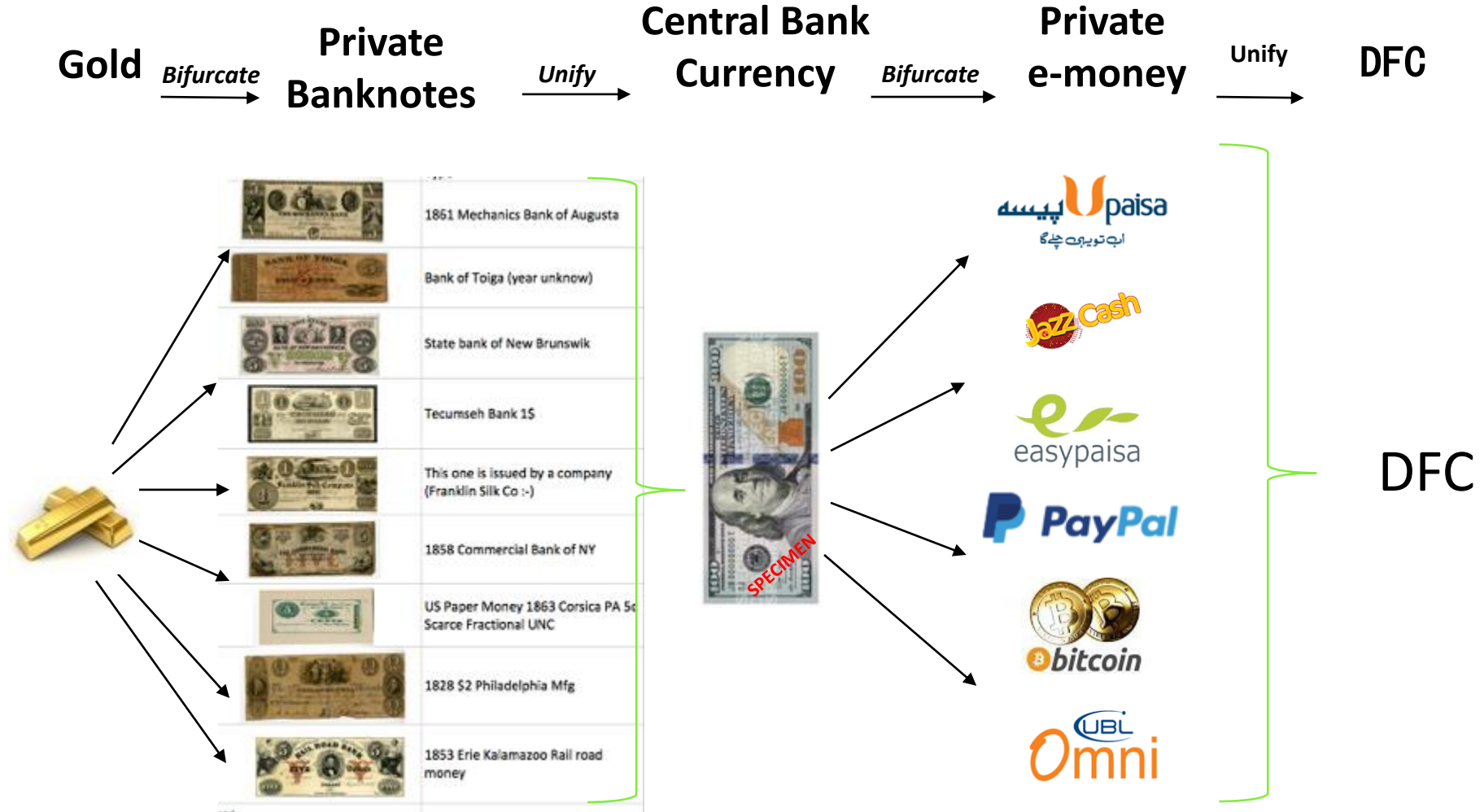
Economic and policy issues

Automatic voice recognition

Visual coding

ITU-T developed the Emmy award winning video compression standard H.264

Artificial Intelligence (AI)

Machine Learning for 5G

"Machine learning and artificial intelligence are finding promising applications in communications networking," says the Focus Group's Chairman, Slawomir Stanczak of Germany's Fraunhofer Heinrich-Hertz-Institut.

"This Focus Group will establish a basis for ITU standards experts to capitalize on machine learning in their preparations for the 5G era."
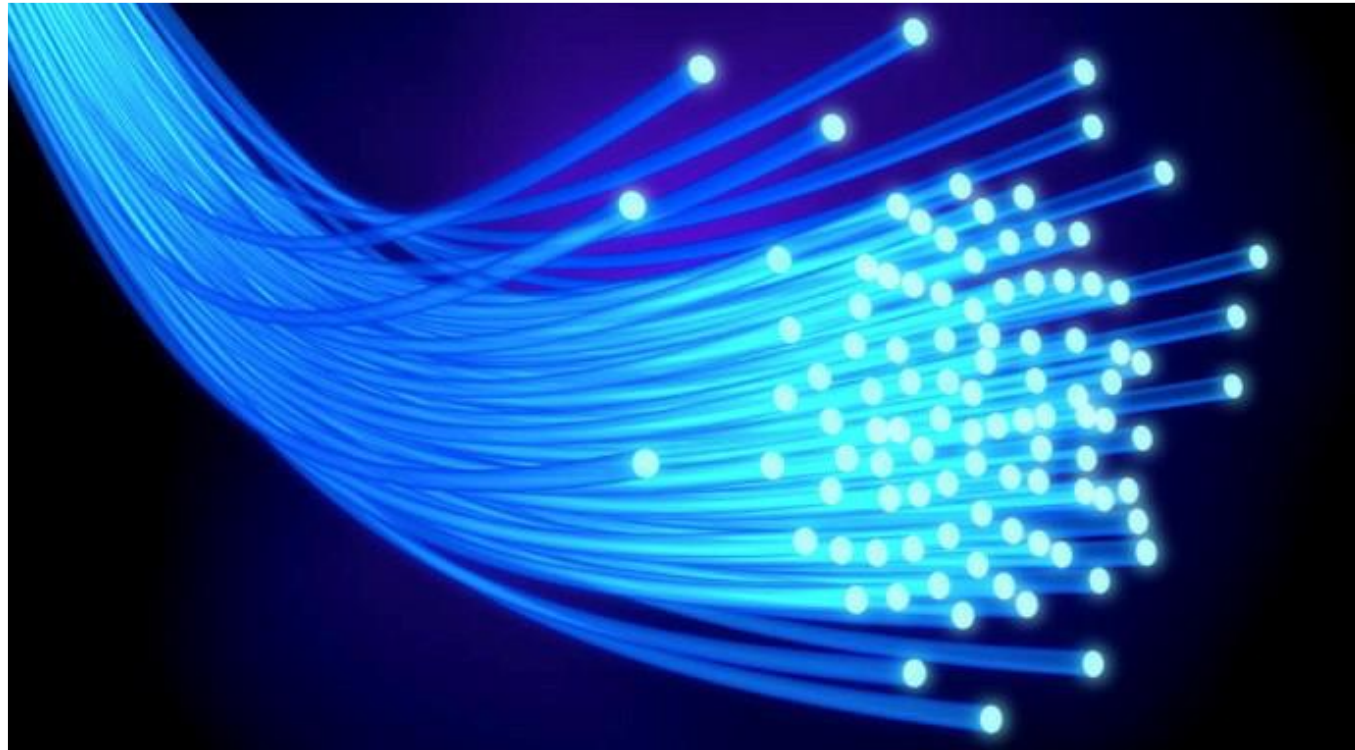
Intelligent Transport Systems (ITS)

Optical fiber

# The ENUM Issue

Current ENUM Model

Only a few countries implemented ENUM

Different architecture of ENUM is used at the national/international levels (Tier 0+1+2, Tier 1+2, etc.)

Interworking of ENUM (signaling) with other numbering/resolution approaches used for VoLTE
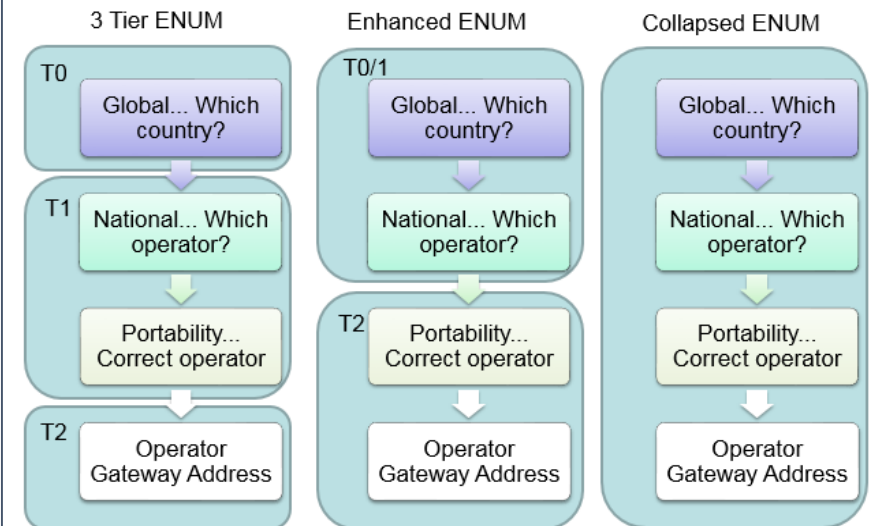

GSMA IP Interconnect Recommendations

- **Standard, scalable, designed for purpose, all IP technology**
- IPX, see GSMA IR28
- Number Resolution, see GSMA IR67
  - Classic and Enhanced ENUM Number Registry Architecture
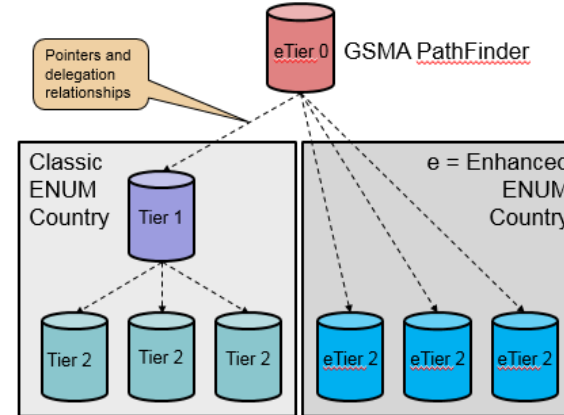
Address discovery... ENUM models

GSMA presentation delivered at the ITU-T SG2 meeting in 2016

The way forward

ITU-T SG11 agreed on a new work item:

ITU-T Q.DEN_IMS "Signalling architecture of distributed ENUM networking for IMS"

With the scope to determine the signalling architecture of distributed ENUM networking in support of IMS interconnection. This recommendation will specify the signalling requirements for the functional entities, signalling procedures and protocols to be applied for interfaces, security consideration, etc.
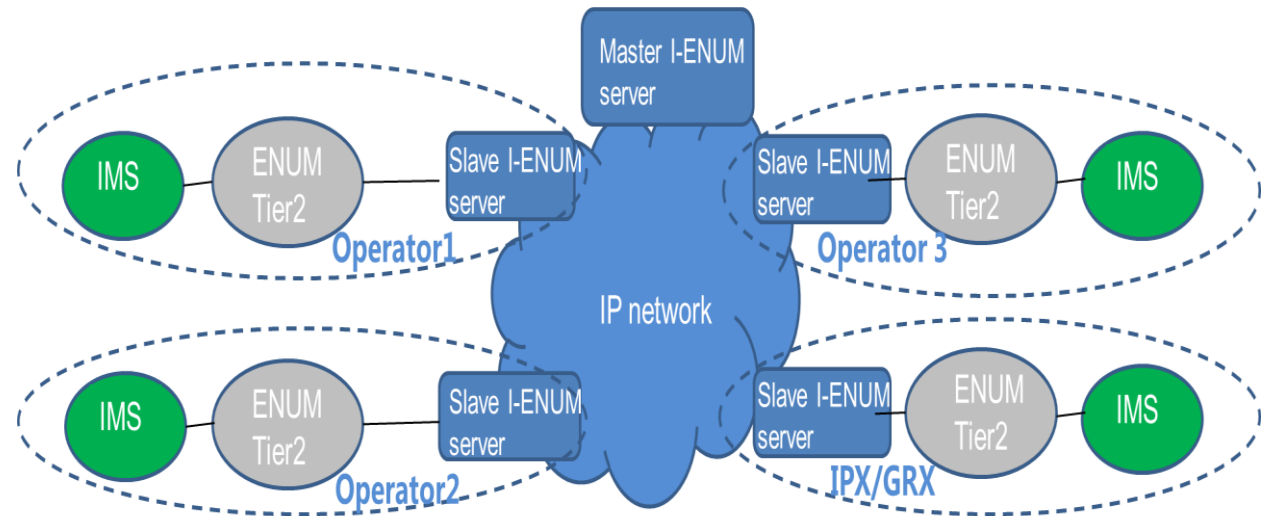
Other ITU-T topics

❑ Identity Management, Child Online Protection

❑ Software-defined Networking (SDN)

❑ Conformance and Interoperability Testing

❑ E-Health

❑ ICT Accessibility and Human factors

❑ Performance, QoS & QoE

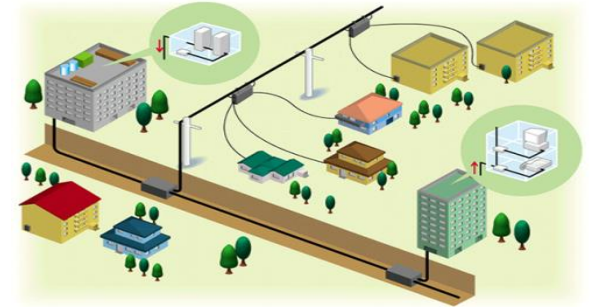# Other ITU-T topics (continued)

❑ IPTV, Smart Cable Television

❑ Bridging the Standardization Gap

❑ ICT and Climate Change, Smart Water Management

❑ Emergency Communications, Disaster Relief Systems, Network

Resilience and Recovery

❑ Smart Grid

Thank you