



## **19<sup>th</sup> Global Symposium for Regulators (Port Vila, 2019)**

*Inclusive connectivity: The future of regulation*

### **Presentations: GSR Sessions**

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UNDER THE GLOBAL LEADERSHIP OF



World Food Programme

# The Role of the Regulator in Disaster Management Tabletop Simulation Exercise



*Hlekiwe Kachali & Ria Sen*

# *What is a Simulation Exercise (SimEx)?*



<http://etc.ch/3eDD>

**To connect to Direct Poll and vote online: <http://etc.ch/3eDD>**

# *Goal of this SIMEX*

*To demonstrate the role of  
telecommunications regulators in  
different parts of the disaster  
management cycle*

*Luscious*

*Luxurious*

*Lovely!*



# *The situation*

- We are currently in declared tropical cyclone (TC) season.
- The Lovely Weather Service (LoWS) has been monitoring an area of low pressure located several hundred kilometres off the Lovely group of Islands.
- This morning, LoWS has officially classified the system as *Tropical Cyclone Uti*.
- TC Uti is tracking eastward at about 25 km/h.
- Lovely has *2 mobile network operators*, i) *Lovely Link* and ii) *Lokal Telekom*

# *Your role: regulator*

1. Connect to the voting app/site
  - use QR code or website link provided
2. Read the question and multiple choice responses
3. Answer the question based on the scenario and on your own perspective and understanding
  - there are no wrong answers
4. We'll have a brief discussion following each question & answer
5. Need clarification? Ask the exercise controller!

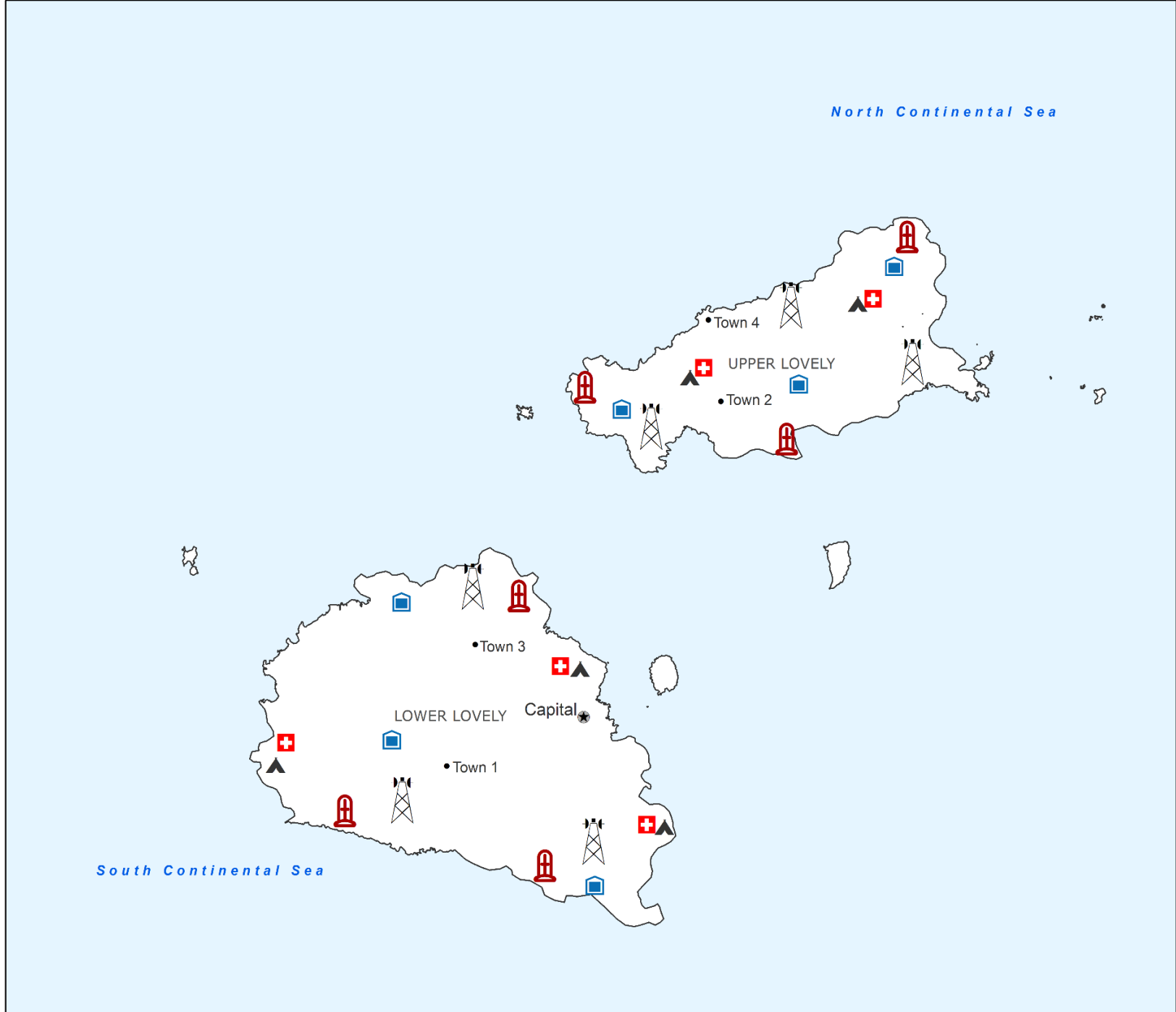


# Supporting information



- ICT country profile
- Telecommunications features map
- Connectivity maps
- SOP for emergency telecommunications disaster response








\*\*\*SIMULATION EXERCISE ONLY\*\*\*








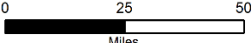


## Lovely Islands

### Country Overview

#### Humanitarian Features

- ★ National Capital
- Major Town
-  Mobile network operator
-  Siren Systems
-  Warehouse
-  Clinic
-  Shelter



0 25 50  
Miles

\*\*\*SIMULATION EXERCISE ONLY\*\*\*

# Telecommunications and humanitarian features

# *Lovely Weather Service (LoWS) advisories*

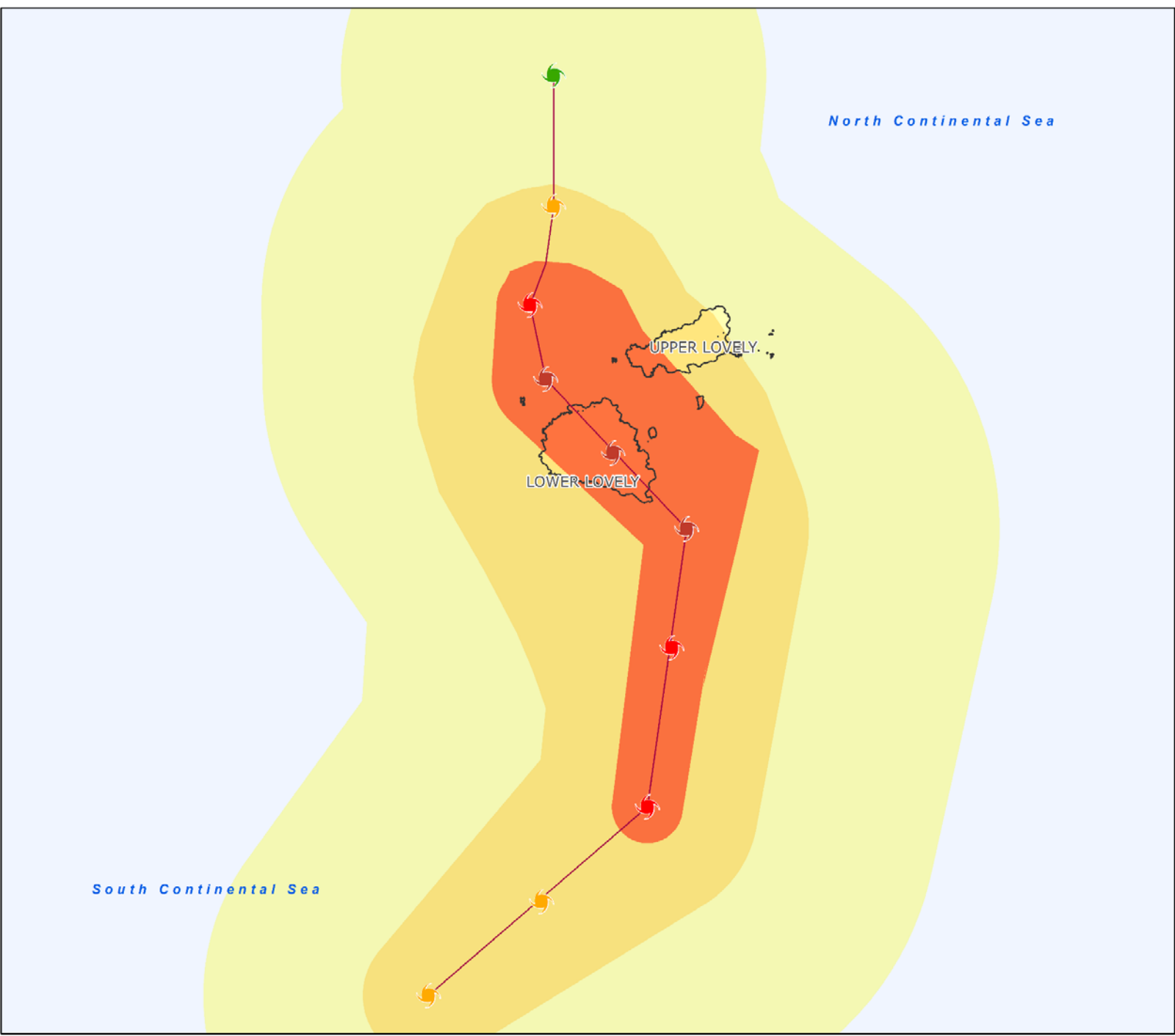


## ➤ LoWS advisory 1

- TC Uti rapidly strengthened over past 24 hours and has grown into a Category 4 cyclone with 225 km/h winds.

## ➤ LoWS advisory 2

- TC Uti will soon make landfall on Lower Lovely and is headed for Upper Lovely.



\*\*\*SIMULATION EXERCISE ONLY\*\*\*



## Lovely Islands

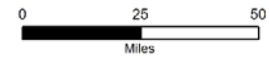
### Tropical Cyclone Uti

#### Wind speed

- < 110 km/h
- 110 - 185 km/h
- 185 - 240 km/h
- > 240 km/h

#### Wind buffers

- 120 km/h
- 90 km/h
- 60 km/h



\*\*\*SIMULATION EXERCISE ONLY\*\*\*

*Tropical Cyclone Uti*

Tracking Map

# PREPAREDNESS PHASE

The international NGO Border Telecommunications has been tracking TC Uti. They called the Ministry of Development and would like to donate 2-way radio equipment to be used by the community.

The 2-way radio equipment uses the frequency band allocated for emergency telecommunications.

You:

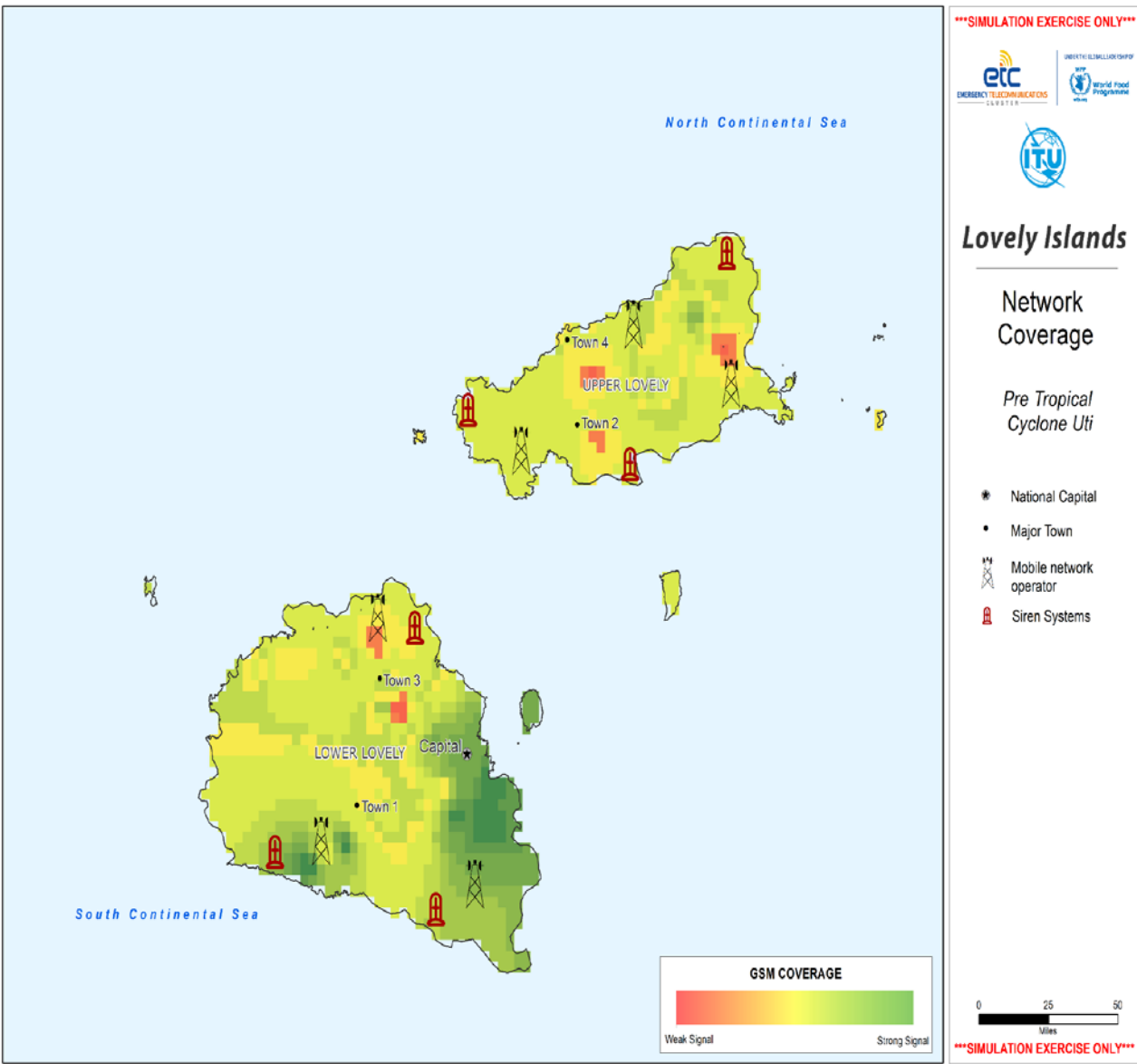
- a) allow the donation/use of the equipment as is
- b) request for the equipment to be re-programmed before donation to use a different frequency
- c) ask Border Telecommunications to donate the equipment to the regulator instead
- d) ask Border Telecommunications to donate other equipment



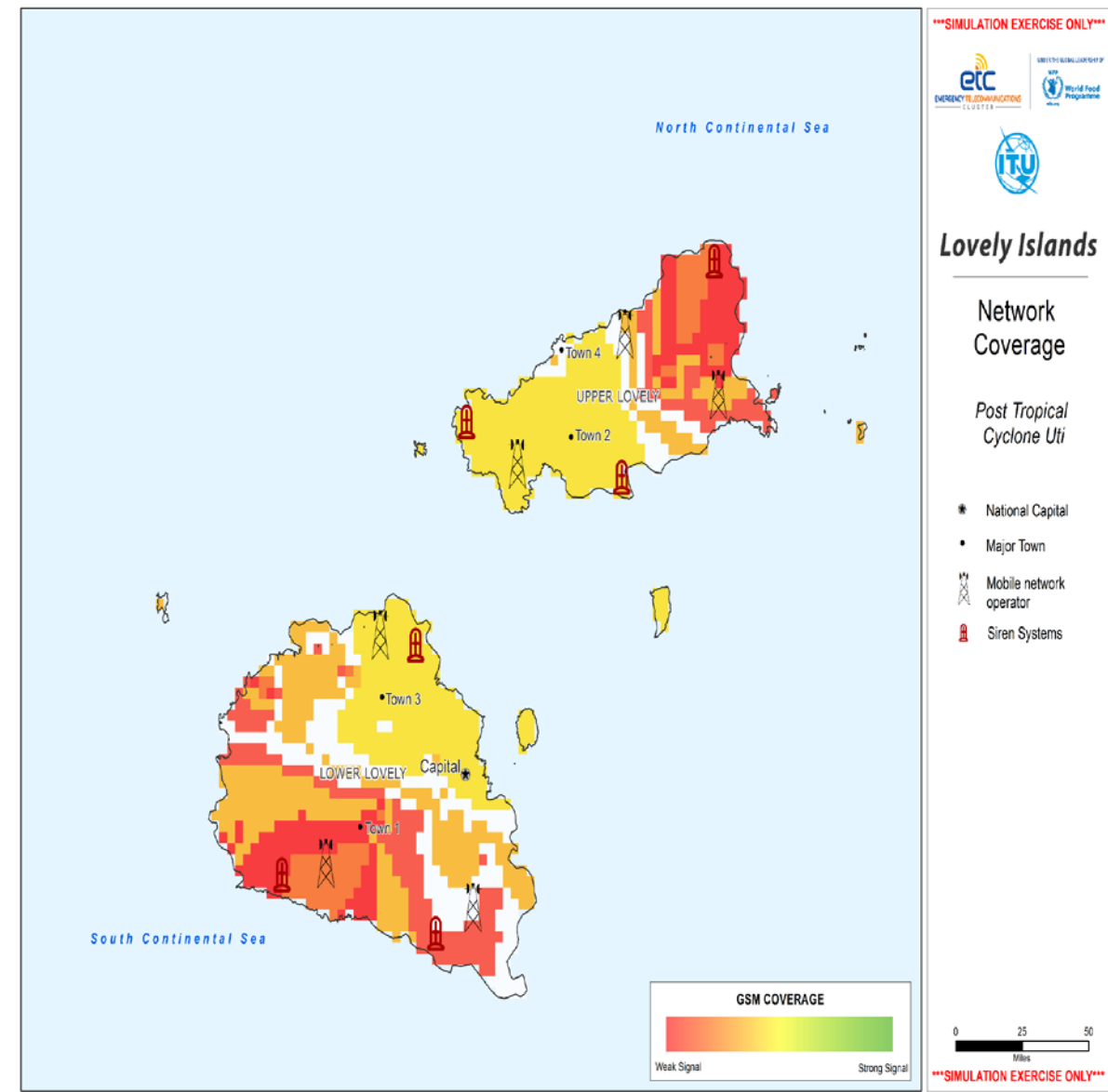
<http://etc.ch/3eDD>



# *Results*



Before



After

*Tropical Cyclone Uti*  
Network Coverage

# IMPACT PHASE

Based on the infrastructure damage assessment information, you have decided to use satellite communications to restore service.

Satellite operators have donated capacity.

However, Lovely's telecommunications regulations do not allow for uplink transmission.

Should you:

- a) relax the regulations in this instance
- b) decline the capacity donation
- c) accept the donation but only under current regulations
- d) propose another solution



<http://etc.ch/3eDD>





# *Results*

# RESPONSE PHASE

The affected population has moved to an area with 95% Lovely Link mobile coverage.

The national disaster management office wants to send urgent SMS messages to the affected population.

You realise that Lokal Telekom customers will not receive the SMS broadcast.

You:

- a) ask Lokal Telekom to build new towers faster
- b) regulate/allow local roaming
- c) regulate tower and site-sharing
- d) advise Lovely Telekom to increase their market share by selling new SIM cards to Lokal Telekom customers



<http://etc.ch/3eDD>

A dark blue, irregular ink splatter shape is centered on a white background. The splatter has a rough, textured edge with many small droplets and dots radiating outwards. The word "Results" is written in a white, italicized serif font across the middle of the blue shape.

# *Results*

# RESPONSE PHASE

Among the affected population are those who are deaf, blind or cannot read.

To ensure access to information for all, you advise authorities to:

- a) send relief messages by SMS only;
- b) send relief information via multiple channels;
- c) rely on the community to relay relief notifications to deaf and/or blind people;
- d) use multiple channels and send notifications in written, audio and visual formats



<http://etc.ch/3eDD>

A dark blue, irregular ink splatter shape is centered on a white background. The splatter has a rough, textured edge with many small droplets and dots radiating outwards. The word "Results" is written in a white, italicized serif font across the middle of the blue shape.

# *Results*

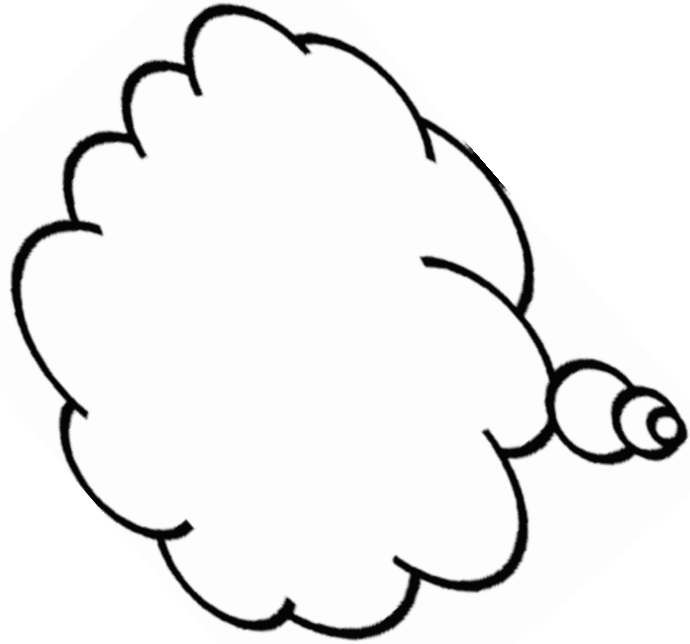
# *Bonus*

Does your country have a National Emergency Telecommunication Plan (NETP)?

- a) yes
- b) no



<http://etc.ch/3eDD>



- Considering the scenario, make one suggestion from a regulatory perspective, to improve emergency telecommunications.
- Which phase(s) does the suggestion apply to?





**EMERGENCY TELECOMMUNICATIONS**

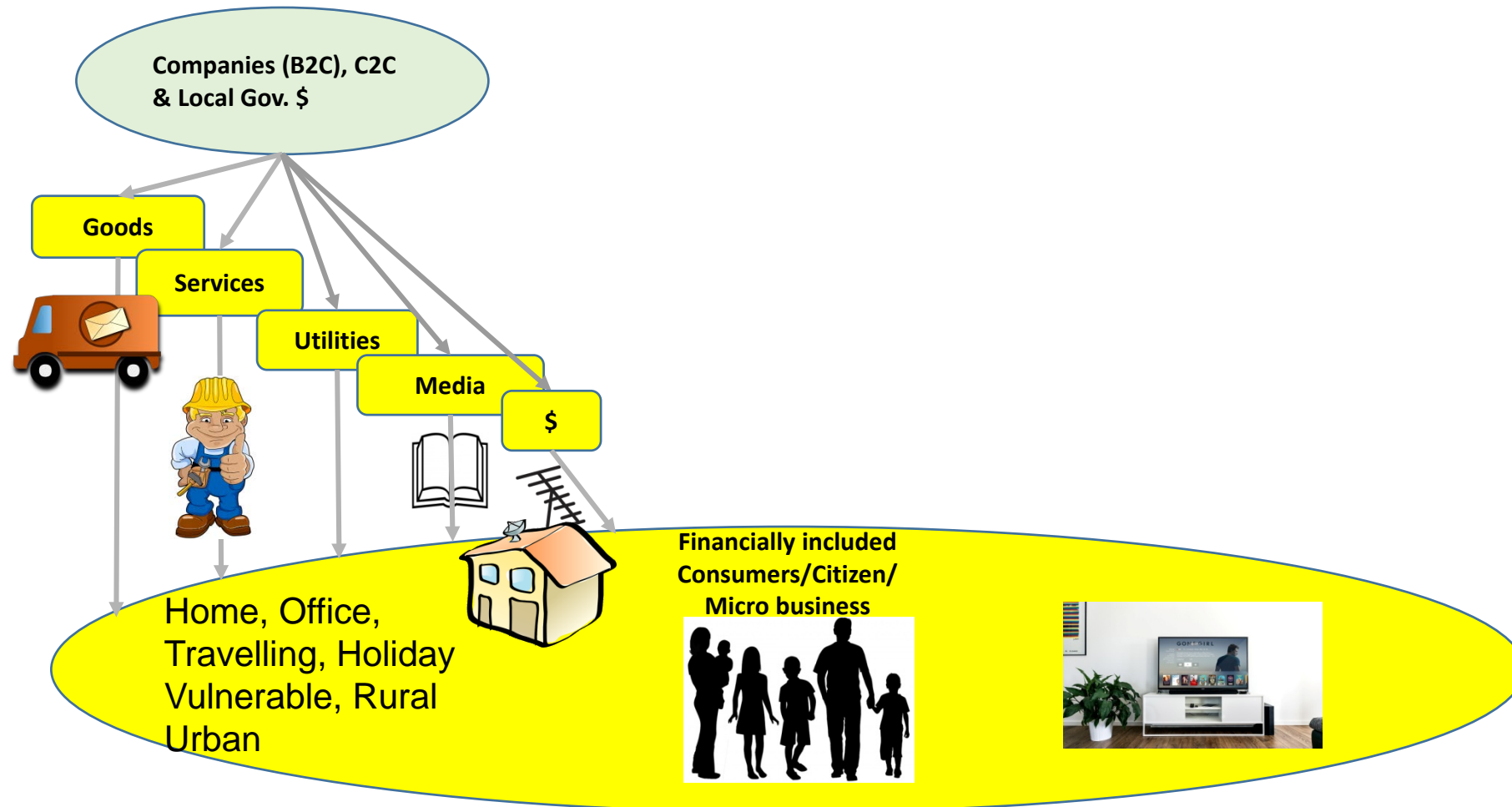
— C L U S T E R —

# Building confidence in a data driven economy by assuring consumer redress

Alan Horne  
ITU Consultant

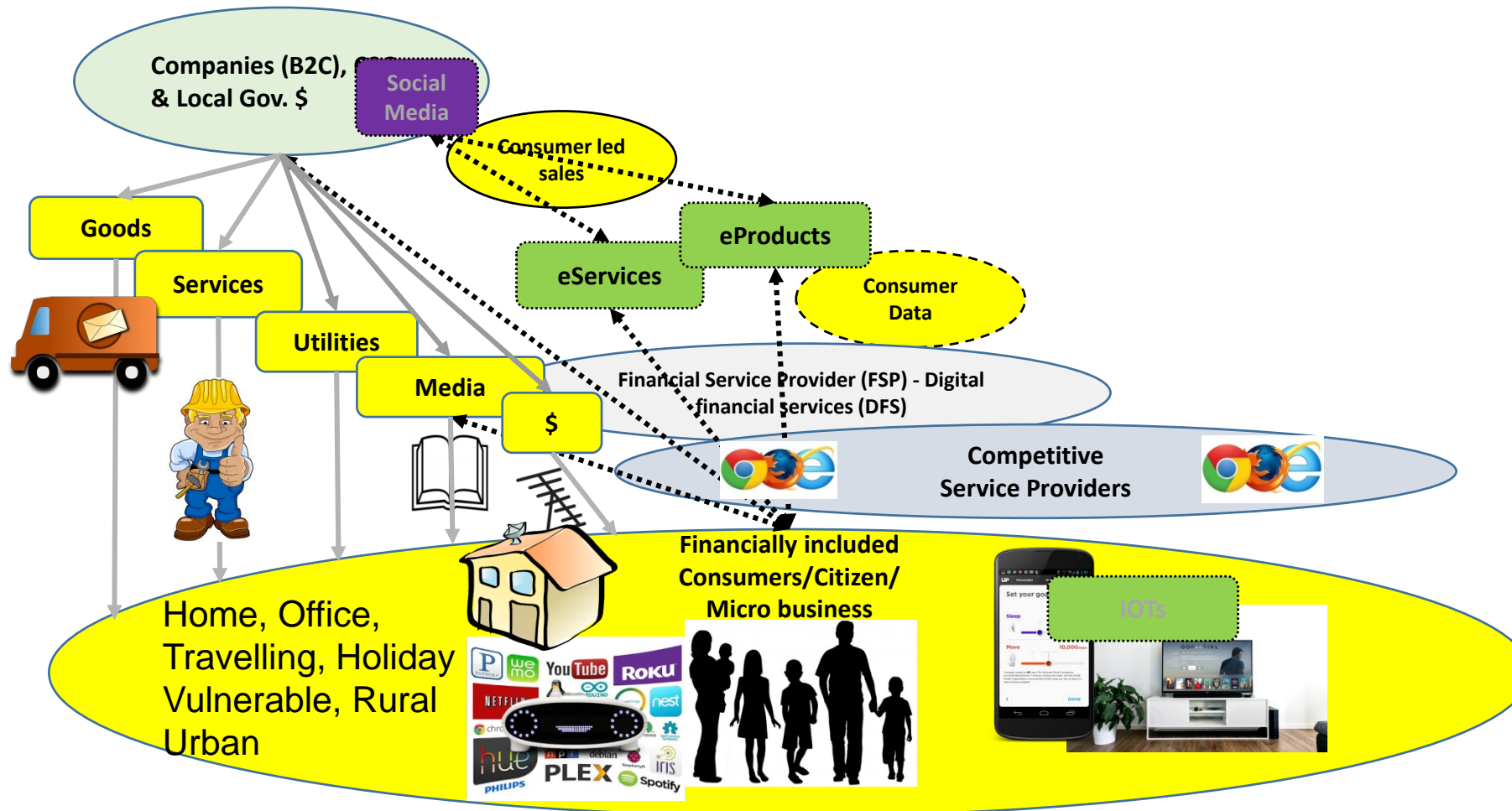
**19<sup>th</sup> Global Symposium for Regulators**  
"Managing the consumer communications  
process"  
Port Villa, Vanuatu, July 2019

# Consumers in the non-digital economy

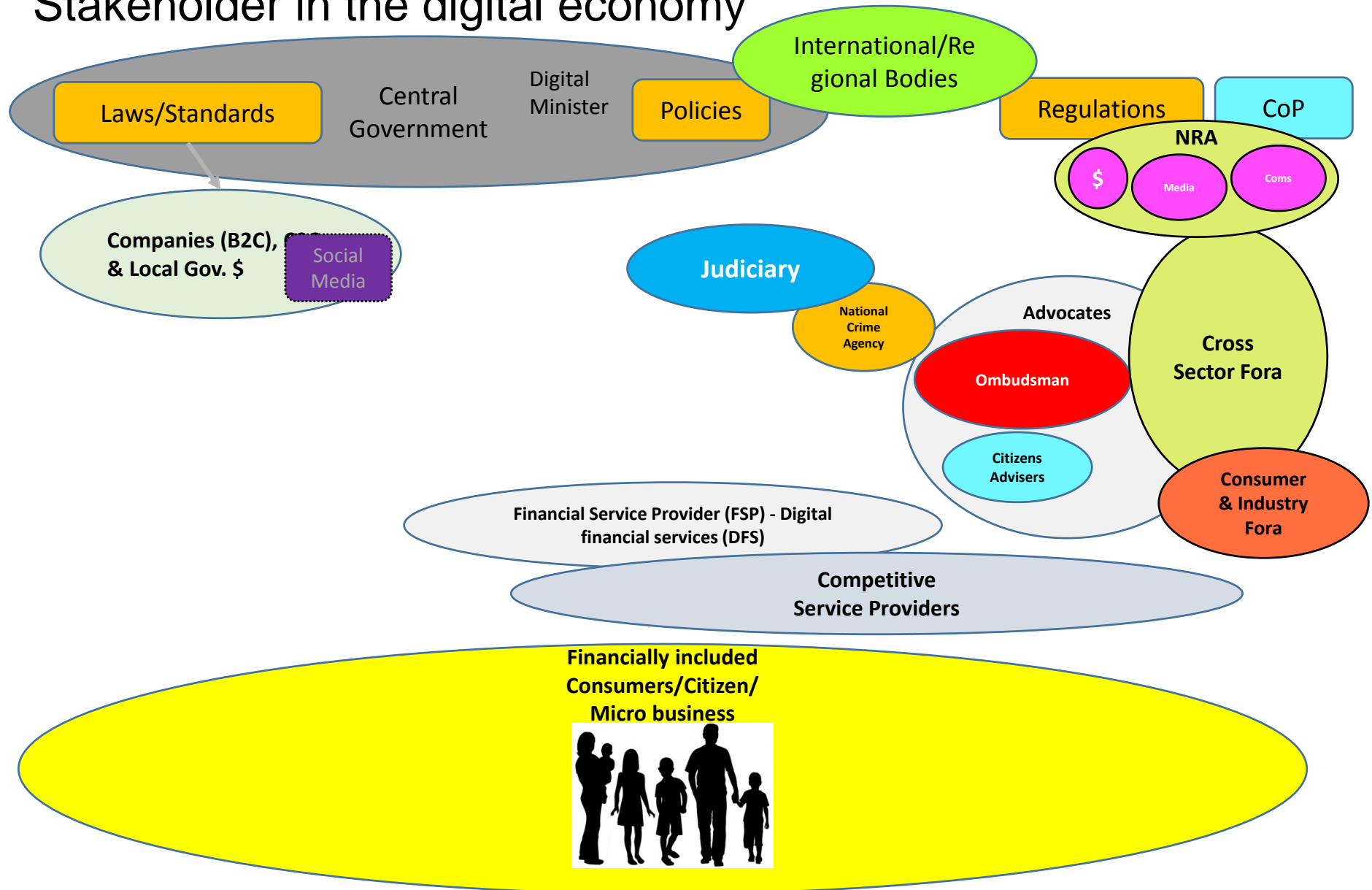


# Consumers in the digital economy

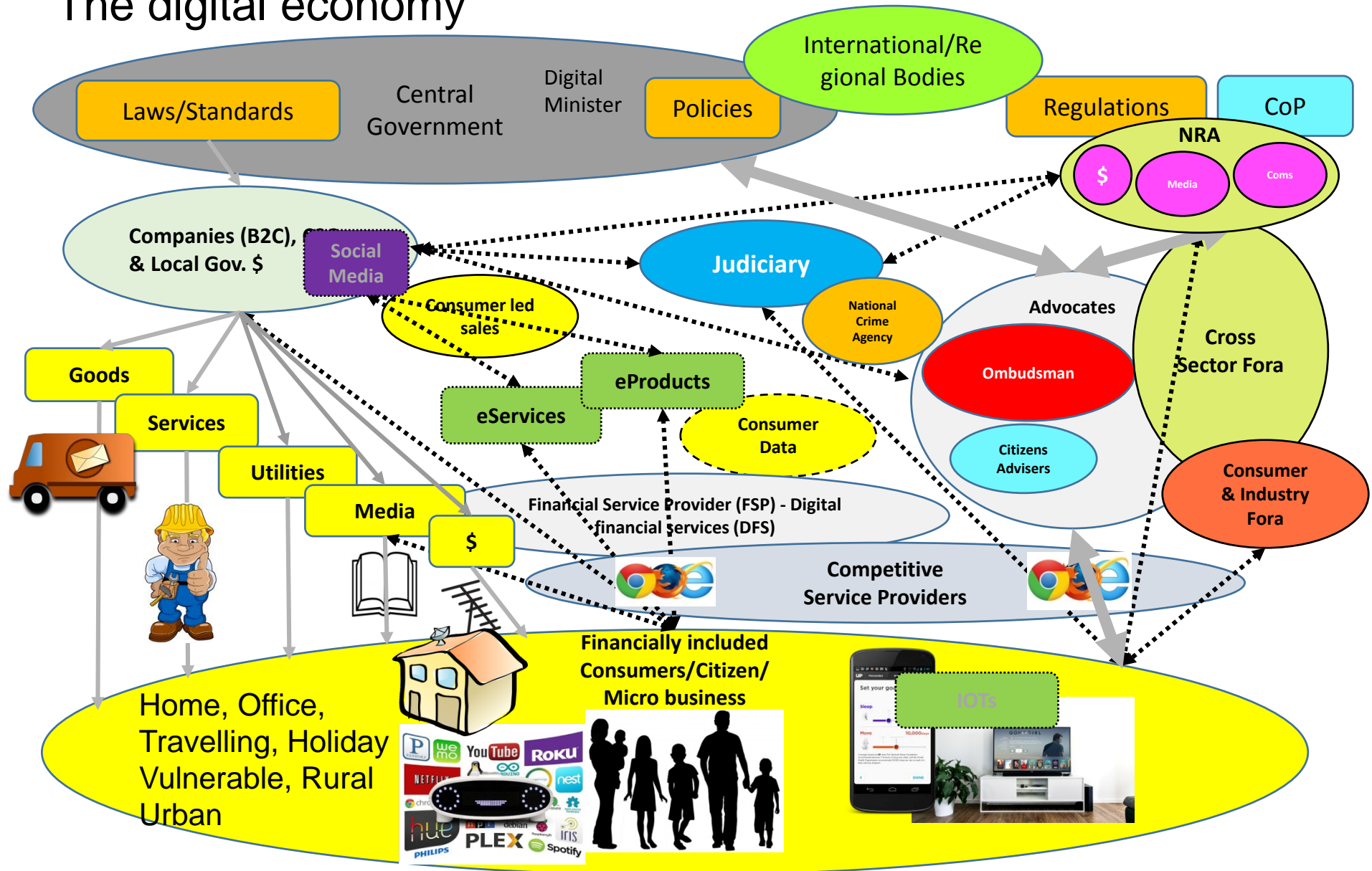
eCommerce  
\$4 Trillion



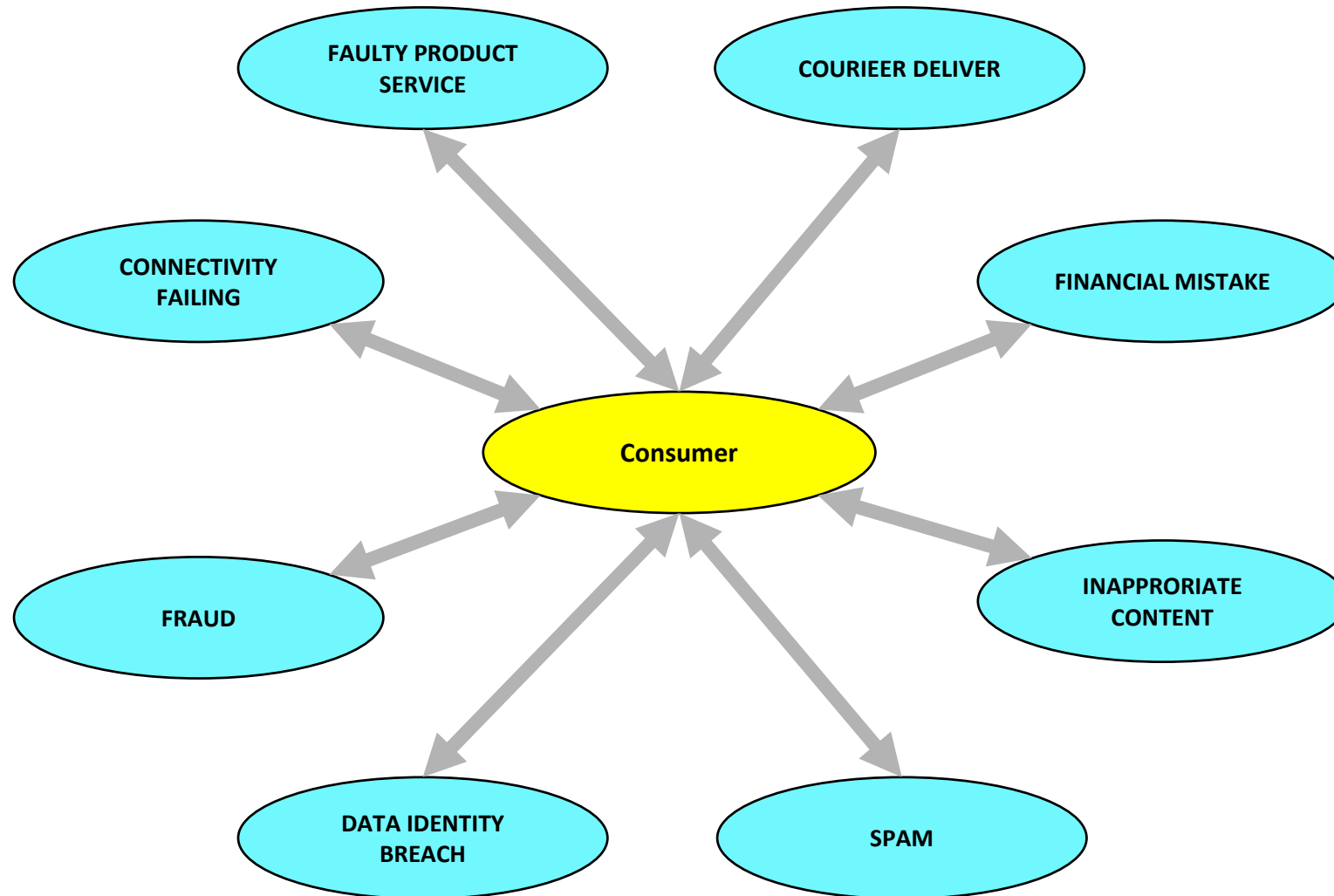
# Stakeholder in the digital economy



# The digital economy

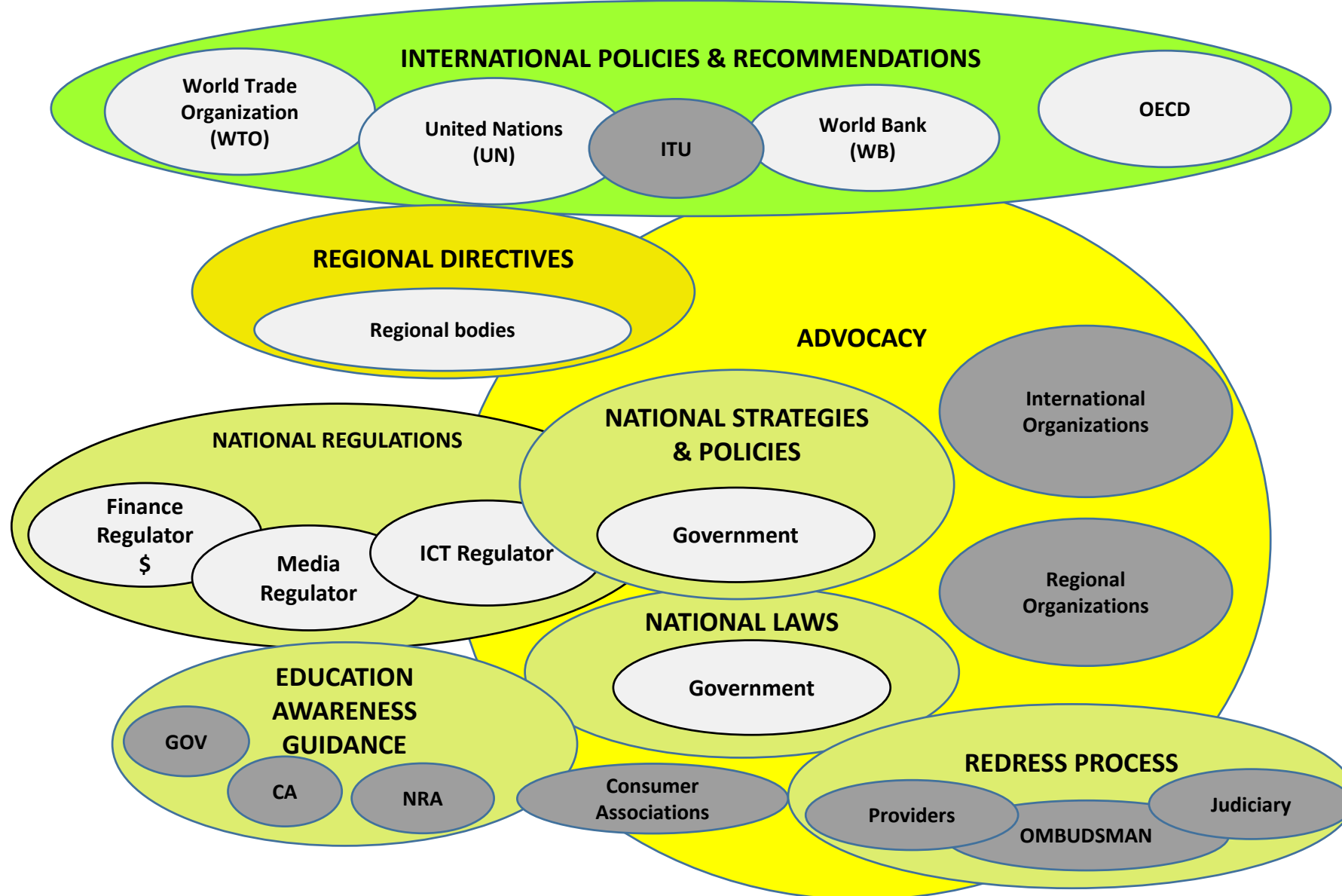


# Key Harms in the digital economy

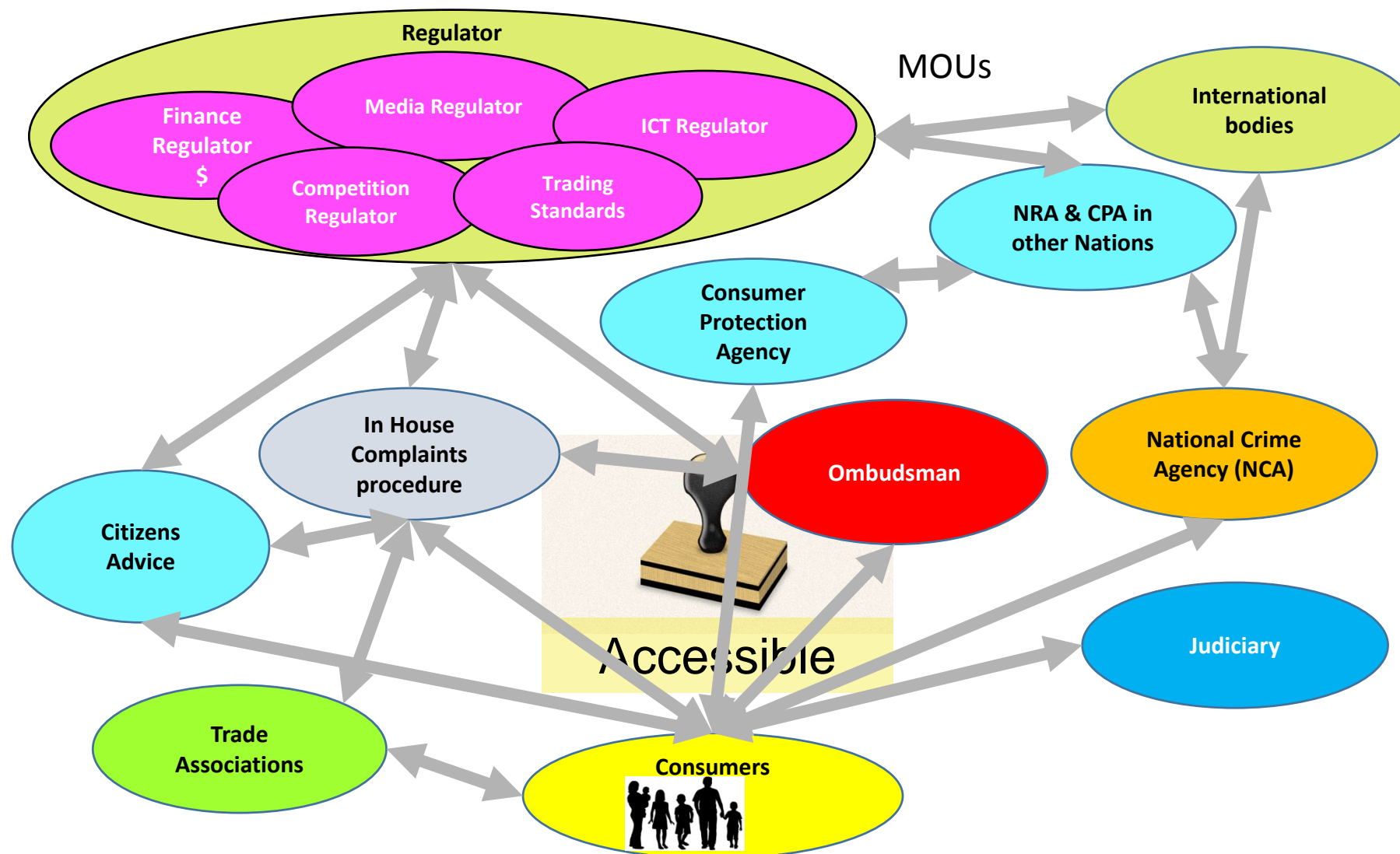




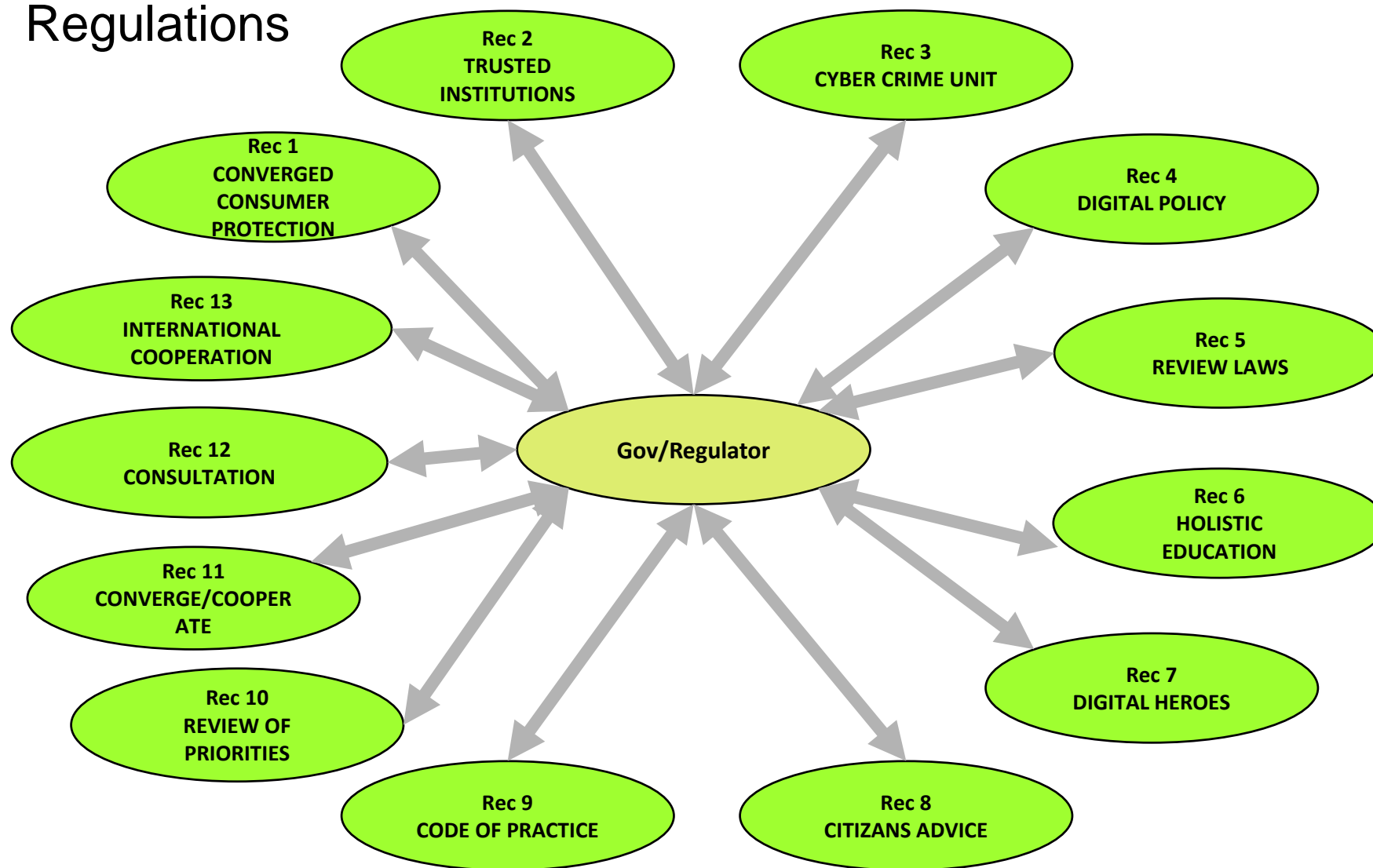
# Policies & Laws in the digital economy



# Redress in the digital economy



# Recommendations – Collaborative Regulations



# Conclusions

- Digital economy international - complex
- Significant benefits, significant harms
- Consumer protection/redress - complex
- International harmonised standards, policies, laws, processes - essential
- National collaborative regulation
- Consumer trusted advisor
- NRA at the centre of complex web



# Spectrum Management & WRC-19

Mario Maniewicz  
2019

Radio frequencies and any associated orbits, including the geostationary-satellite orbit are **limited natural resources** and they must **be used rationally, efficiently and economically**, in **conformity with** the provisions of these **Regulations**, so that countries or groups of countries may have **equitable access** to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.

# Radio Regulations (RR)

- ITU Radio Regulations (RR) is an International Treaty, elaborated and revised by administrations and membership, during World Radio Conferences (WRC)
- The Radio Regulations has a binding nature for ITU Member states
- Includes Resolutions, Recommendations and ITU-R Recommendations incorporated by reference
- Stable and predictable global framework
- Basis for a sustainable ecosystem
- Long-term protection of public and private sector investments



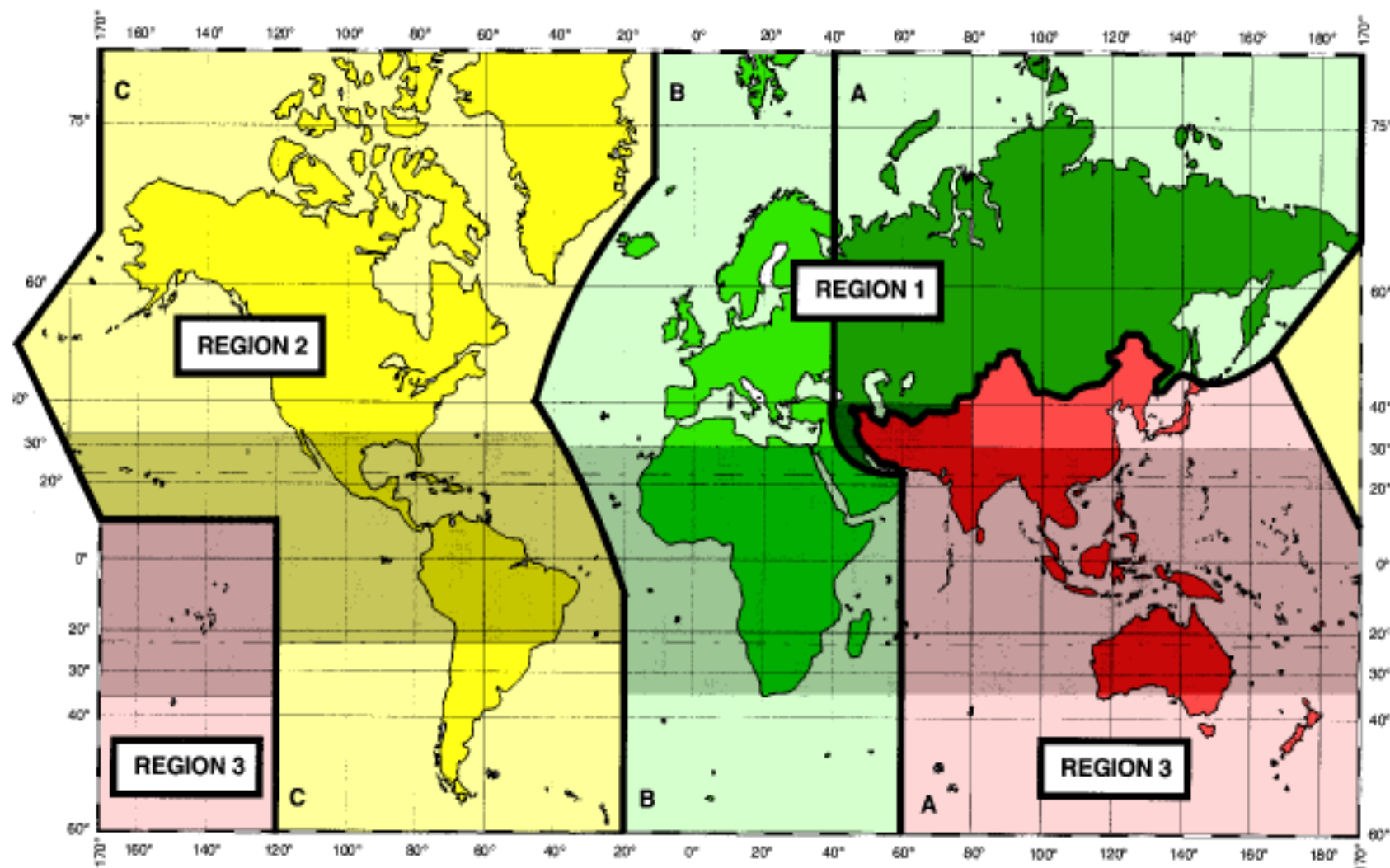


# Spectrum Harmonization

- Why harmonize spectrum?
  - Ensure systems are interoperable
  - Minimize cross boarder interference (since electromagnetic radiation cannot be limited to a given territory)
  - Support emergency communications
  - Support global roaming (citizens can use the same devices across the globe)
  - Ensure the ecosystem is in place with available devices and network equipment
  - Provide affordable devices and services (due to the economies of scale)

Ultimate goal is to achieve Global Harmonization

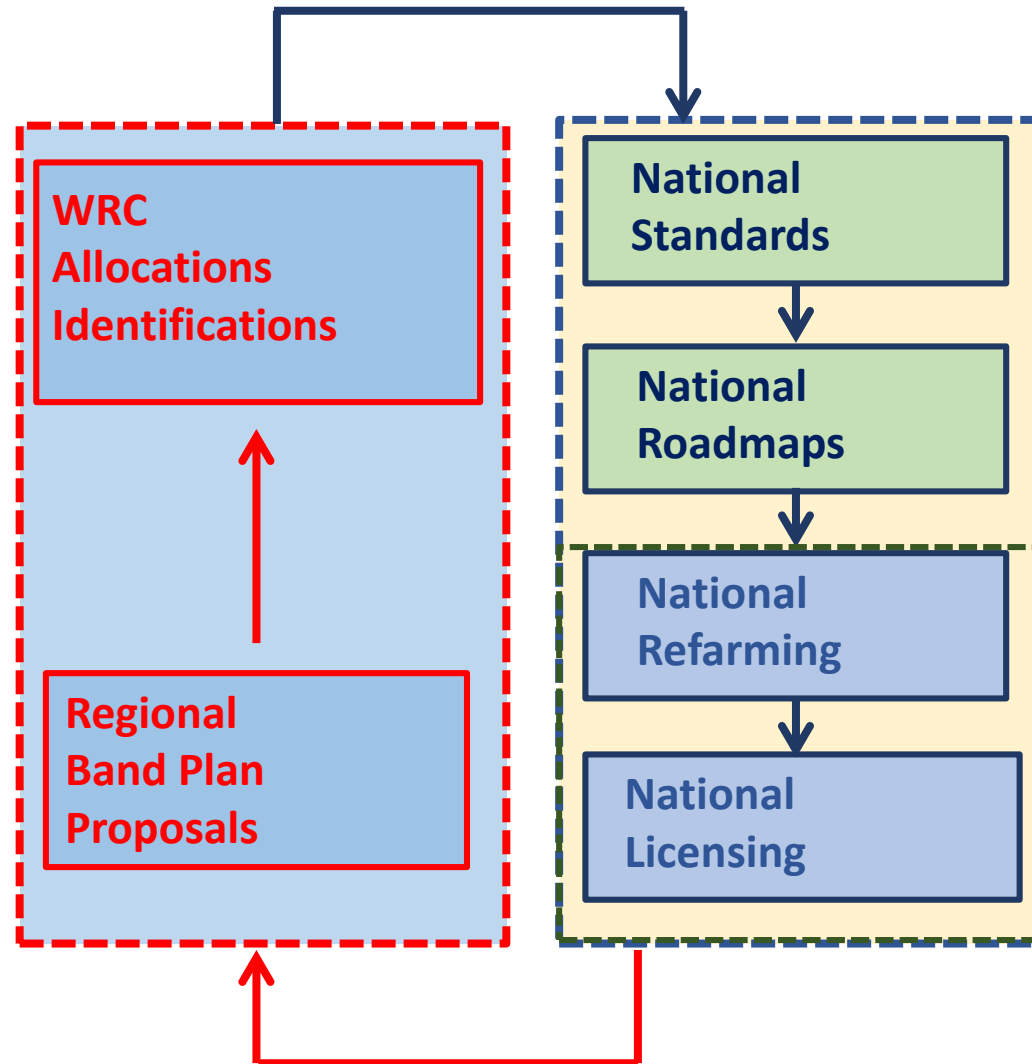
# RR - Regions



# Spectrum Management

	International	National
<b>1 - Legal Framework</b>	ITU Radio Regulations, RR	National Spectrum Laws
<b>2 - Planning</b>	International Table of Frequency Allocations, ITFA (RR, Art. 5)	National Table of Frequency Allocations, NFAT
<b>3 - Licensing</b>	Master International Frequency Register, MIFR (RR, Art. 8)	National Spectrum Database
<b>4 - Monitoring</b>	International Monitoring System (RR, Art. 16)	National Monitoring System
<b>5 - Enforcing</b>	ITU Radiocommunication Bureau, BR ITU Radio Regulations Board, RRB	National Regulators National Courts

# Spectrum Management



Handbook on National  
Spectrum Management:  
[http://web.itu.int/dms\\_pay/itu-r/opb/hdb/R-HDB-21-2015-PDF-E.pdf](http://web.itu.int/dms_pay/itu-r/opb/hdb/R-HDB-21-2015-PDF-E.pdf)

# Spectrum Sharing

## Licensed model

- Large and long-term investments
- Wide geographic areas, with quality obligations
- Security of tenure
- E.g. Fixed, mobile and satellite services



## Unlicensed model

- Small, short-term investments
- Short range services, with no guaranteed quality
- Do not require security of tenure
- Very last meters of the connection, heavily rely on the existing networks
- E.g. Wi-Fi



# Spectrum Licensing

- Administrative fees support spectrum management infrastructure
- Encourages spectrum efficiency by providing appropriate incentive
- Relinquishes spectrum that is not being used efficiently or effectively
- Assess fees according to the amount of spectrum used
- Considers economic principles (e.g. takes into account the benefits that occupants derive from the spectrum)

**Not too low to be negligible in the eyes of spectrum users nor too high to exceed what market would set, in which case spectrum will sit idle and generate no benefits**

# RA-19 & WRC-19

## Radiocommunication Assembly 2019 (RA-19)

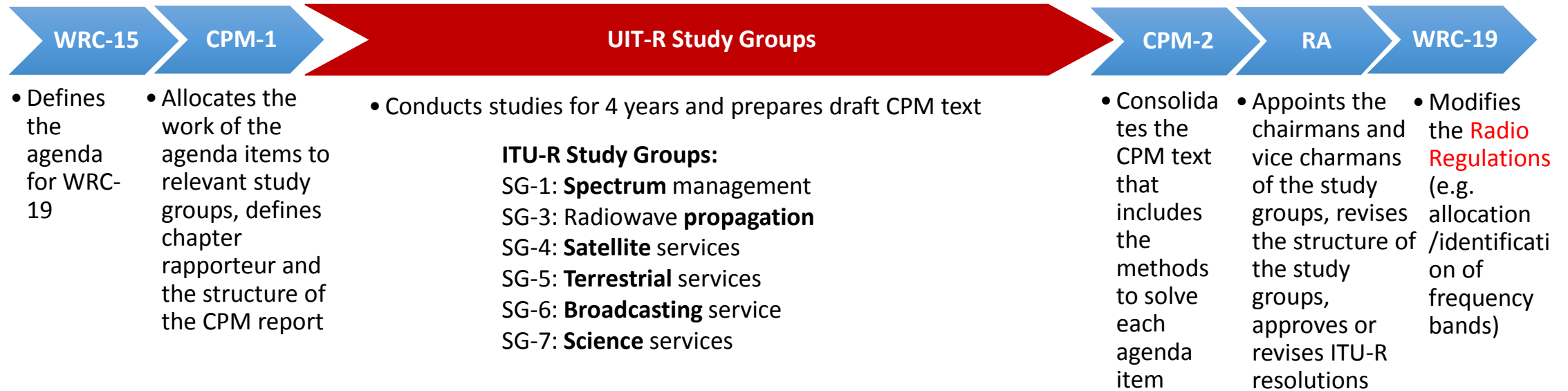
- 21-25 October 2019

## World Radiocommunication Conference 2019 (WRC-19)

- 28 October to 22 November 2019



# WRC-19

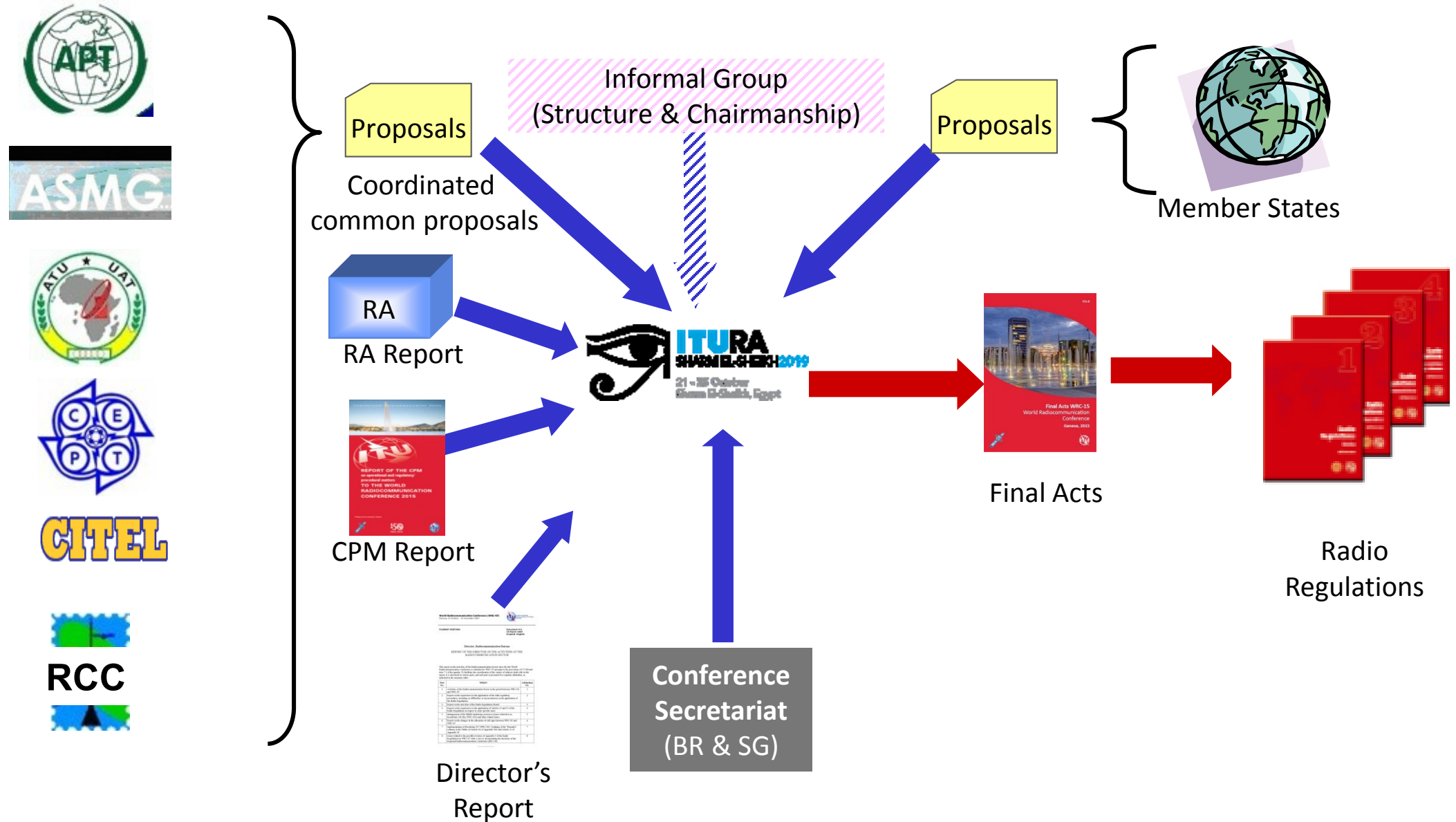


- Consolidates Regional and Multicountry proposals





# WRC-19



# WRC-19

<https://www.itu.int/en/ITU-R/conferences/wrc/2019/Pages/default.aspx>

## Information on:

- Visa
- Transportation
- Accommodation
- Venue

## Proposals for WRC

- Guidelines
- Conference Preparatory Interface

[WRC-19 Homepage](#)

[ITU Inter-regional Workshops on WRC-19 Preparation](#)

[Regional preparation for WRC-19](#)

[Registration to RA-19 and WRC-19](#)

[WRC-19 Documents and Proposals](#)

[Preparation of proposals for the work of WRC-19](#)

[Network of Women for WRC-19 \(NOW4WRC19\)](#)

[WRC-19 Logos](#)

## About the World Radiocommunication Conference

World radiocommunication conferences (WRC) are held every three to four years. It is the job of WRC to review, and, if necessary, revise the [Radio Regulations](#), the international treaty governing the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits. [More >](#)

## Registration to RA-19/WRC-19

**NEW** RA-19 and WRC-19 registration will open on 22 May. [More >](#)

## Host Country website

**NEW** The [Host Country website](#) containing practical information for WRC-19 participants (accommodations, visa matters, etc.) is now available.

## Preparatory Process

- ▶ [Conference Preparatory Meeting \(CPM\) for WRC-19](#)
- ▶ [ITU Inter-regional Workshops on WRC-19 Preparation](#)
- ▶ [Regional preparation for WRC-19](#)
- ▶ [Informal Group \(Chairman: Mr. T. Al Awadhi, \[tariq.alawadhi@tra.gov.ae\]\(mailto:tariq.alawadhi@tra.gov.ae\)\)](#)

[Invitation Letters and Credentials](#)

[Contacts](#)

[CL-18/48](#) - Letter sent on behalf of the Government of Egypt (16-11-2018)

[CL-18/49](#) - Invitation letter to WRC-19 to ITU Member States (16-11-2018)

[DM-18/1005](#) - Invitation letter to WRC-19 to the State of Palestine (16-11-2018)

[DM-18/1006](#) - Invitation letter to WRC-19 to Observers (16-11-2018)

[BR Administrative Circular CA/245](#) (13-02-2019)

**Credentials:**

[CL-19/13](#) (02-04-2019)

[Model instrument of credentials](#)

# Report of the CPM-19

<https://www.itu.int/en/ITU-R/study-groups/rcpm/Pages/cpm-19.aspx>

- The Report of the CPM to WRC-19 contains, for each WRC-19 agenda Item:
  - Summary of the results of technical studies
  - Regulatory text with examples of actions (i.e. ADD, MOD, SUP, NOC etc) to the Radio Regulations
- These can be considered in the preparation of proposals to WRC-19

**REPORT** of the Conference Preparatory Meeting to WRC-19

<https://www.itu.int/md/R15-CPM19.02-R-0001/en>

# Agenda Item 1.13 – IMT

# 5G

1.13 to consider **identification** of frequency bands for the future development of **International Mobile Telecommunications (IMT)**, including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution **238 [COM6/20] (WRC-15)**

Bands which have allocations to the mobile service on a primary basis:

- 24.25-27.5 GHz
- 37-40.5 GHz, 42.5-43.5 GHz, 45.5-47 GHz, 47.2-50.2 GHz, 50.4-52.6 GHz,
- 66-76 GHz, 81-86 GHz

Bands that may require additional allocations to the mobile service on a primary basis:

- 31.8-33.4 GHz
- 40.5-42.5 GHz, 47-47.2 GHz

► [Res. 238 \(WRC-15\)](#)



# Agenda Item 1.13 – IMT

*By some countries of the following Region	Frequency bands (GHz) mentioned in Resolution 238 (WRC-15) in which identification is being considered*											
	24.25-27.5	31.8-33.4	37-40.5	40.5-42.5	42.5-43.5	45.5-47	47-47.2	47.2-50.2	50.4-52.6	66-71	71-76	81-86
CEPT	MOD	NOC		MOD	MOD					MOD	NOC	NOC
ASMG	X	X		X	X							
RCC	MOD	NOC			NOC	NOC				NOC	NOC	NOC
APT	MOD	NOC	MOD	MOD	MOD	MOD M-C	MOD M-C	MOD M-C	MOD M-C	MOD M-C	MOD M-C	MOD M-C
ATU	MOD	NOC	MOD	MOD	MOD			MOD	MOD	MOD		
CITEL	MOD	NOC									NOC	NOC

Grey color indicates:

- Support the studies in these bands
- Multi-country (M-C) proposal (not regional)
- Bands are still under consideration

Reference docs:

<https://www.itu.int/en/ITU-R/conferences/wrc/2019/Pages/reg-prep.aspx>

# Agenda Item 1.14 – HAPS

1.14 to consider, on the basis of ITU R studies in accordance with Resolution **160 [COM6/21] (WRC-15)**, appropriate regulatory actions for **high-altitude platform stations (HAPS)**, within existing fixed-service allocations.

Existing HAPS identifications:

- on a global level: 47.2-47.5, 47.9-48.2 GHz
- on a regional level, outside Region 2: 27.9-28.2 GHz and 31.0-31.3 GHz
- and in 5 countries (Footnote 5.457): 6 440-6 520 MHz and 6 560-6 640 MHz

Study new frequency bands:

- on a global level: 38-39.5 GHz,
- on a regional level, in Region 2: 21.4-22 GHz and 24.25-27.5 GHz

► [Res. 160 \(WRC-15\)](#)



# Agenda Item 1.14 – HAPS

	Frequency bands (GHz) being considered by <b>some</b> countries of the Region					
	6 440-6 520 MHz	21.4-22 (Region 2 only)	24.25-27.5 (Region 2 only)	27.9-28.2 and 31-31.3	38-39.5	47.2-47.5 and 47.9-48.2
<b>CEPT</b>	MOD			MOD	MOD	MOD
<b>ASMG</b>	NOC	NOC	NOC	NOC	NOC	NOC
<b>RCC</b>	MOD	MOD	MOD	MOD	MOD	MOD
<b>APT</b>				MOD M-C	MOD M-C	
<b>ATU</b>				MOD	MOD	MOD
<b>CITEL</b>		MOD	MOD M-C		MOD	MOD M-C

Grey color indicates:

- Support in initiating studies in these bands
- Multi-country proposal (not regional)
- Bands are still under consideration

Reference docs:

<https://www.itu.int/en/ITU-R/conferences/wrc/2019/Pages/reg-prep.aspx>

# Agenda Item 1.16 – RLAN



1.16 to consider issues related to wireless access systems, including radio local area networks **(WAS/RLAN)**, in the frequency bands between **5 150 MHz and 5 925 MHz**, and take the appropriate regulatory actions, including additional spectrum allocations to the mobile service, in accordance with Resolution **239 [COM6/22] (WRC-15)**

▶ [Res. 239 \(WRC-15\)](#)



# Agenda Item 1.16 – RLAN

	Frequency bands (GHz) being considered by <b>some</b> countries of the Region				
	5 150-5 250 MHz	5 250-5 350 MHz	5 350-5 470 MHz*	5 725-5 850 MHz	5 850-5 925 MHz*
CEPT		NOC	NOC		NOC
ASMG		NOC	NOC		NOC
RCC	MOD	NOC	NOC	NOC	NOC
APT		NOC	NOC		NOC
ATU	NOC/MOD	NOC	NOC	NOC/MOD	NOC
CITEL	MOD	NOC	NOC	NOC	NOC

Grey color indicates:

- Support in initiating studies in these bands
- Multi-country proposal (not regional)
- Bands are still under consideration

Reference docs:

<https://www.itu.int/en/ITU-R/conferences/wrc/2019/Pages/reg-prep.aspx>

\* Bands that would require additional mobile allocation

# Agenda Item 1.6 – non-GSO FSS

1.6 to consider the development of a regulatory framework for **non-GSO FSS satellite** systems that may operate in the frequency bands **37.5-39.5 GHz** (space-to-Earth), **39.5-42.5 GHz** (space-to-Earth), **47.2-50.2 GHz** (Earth-to-space) and **50.4-51.4 GHz** (Earth-to-space), in accordance with Resolution **159 [COM6/18] (WRC-15)**;

▶ [Res. 159 \(WRC-15\)](#)



# Agenda Item 1.5 – ESIM

1.5 to consider the use of the frequency bands **17.7-19.7 GHz** (space-to-Earth) and **27.5-29.5 GHz** (Earth-to-space) by **earth stations in motion** communicating with geostationary space stations **in the fixed-satellite service** and take appropriate action, in accordance with Resolution **158 [COM6/17] (WRC-15)**;

▶ [Res. 158 \(WRC-15\)](#)





# Thank you

Mario Maniewicz  
2019



McKinsey  
& Company

# The 5G inflection point

Operator perspective

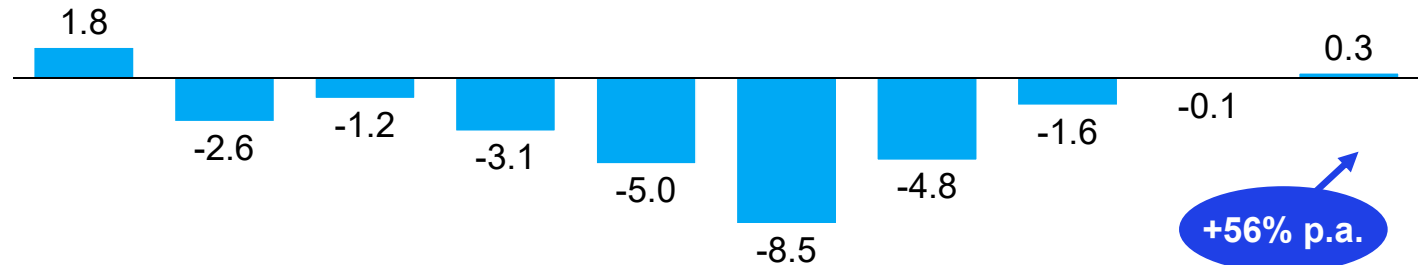
Rolando Balsinde | Port Vila, July 12 2019

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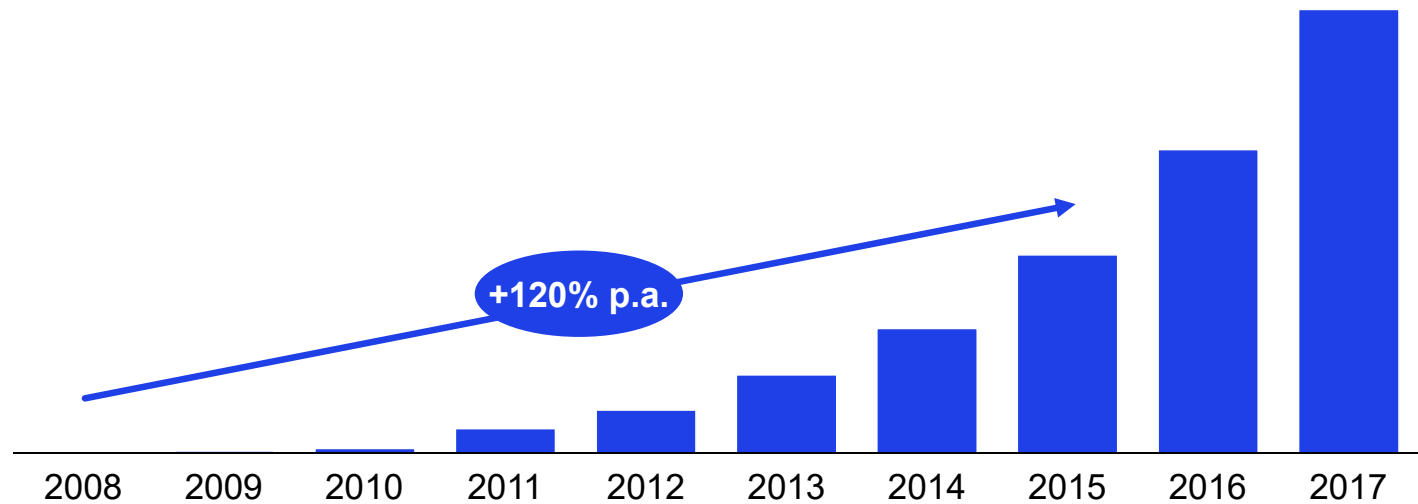


# Business performance has been challenging – falling revenues despite exploding usage





**Mobile revenue growth**  
Percent YoY



**Mobile data**  
EB/year



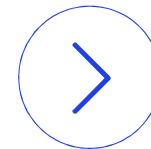
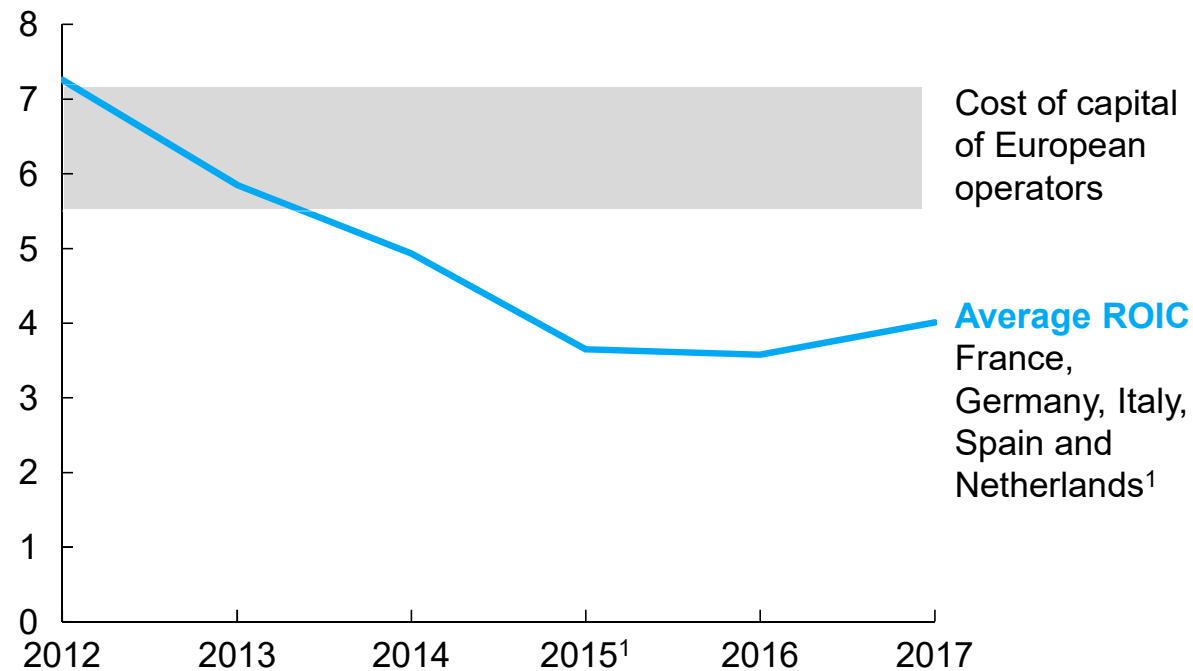
# The inevitable race for 5G has begun and all operators are defining their strategies

	Challenger network	Best network (at scale)
First-movers	<p><b>Disruptors</b> – attacking incumbents, but without a long-term strategy to lead in network</p> 	<p><b>First and best</b> – brand value built on offering the best network <i>first</i> – focused on premium and early adopter customers</p> 
Wait-and-see	<p><b>Fast-followers</b> – challengers content with awaiting proof of concepts, then following</p> 	<p><b>Stable leaders</b> – focused on long-term network leadership – less so on moving first – leaders that launched 4G after market challengers</p> 

# Operators are badly positioned to take on further investments with return of invested capital (ROIC) below cost of capital

## Evolution of European MNOs return on invested capital

Percent

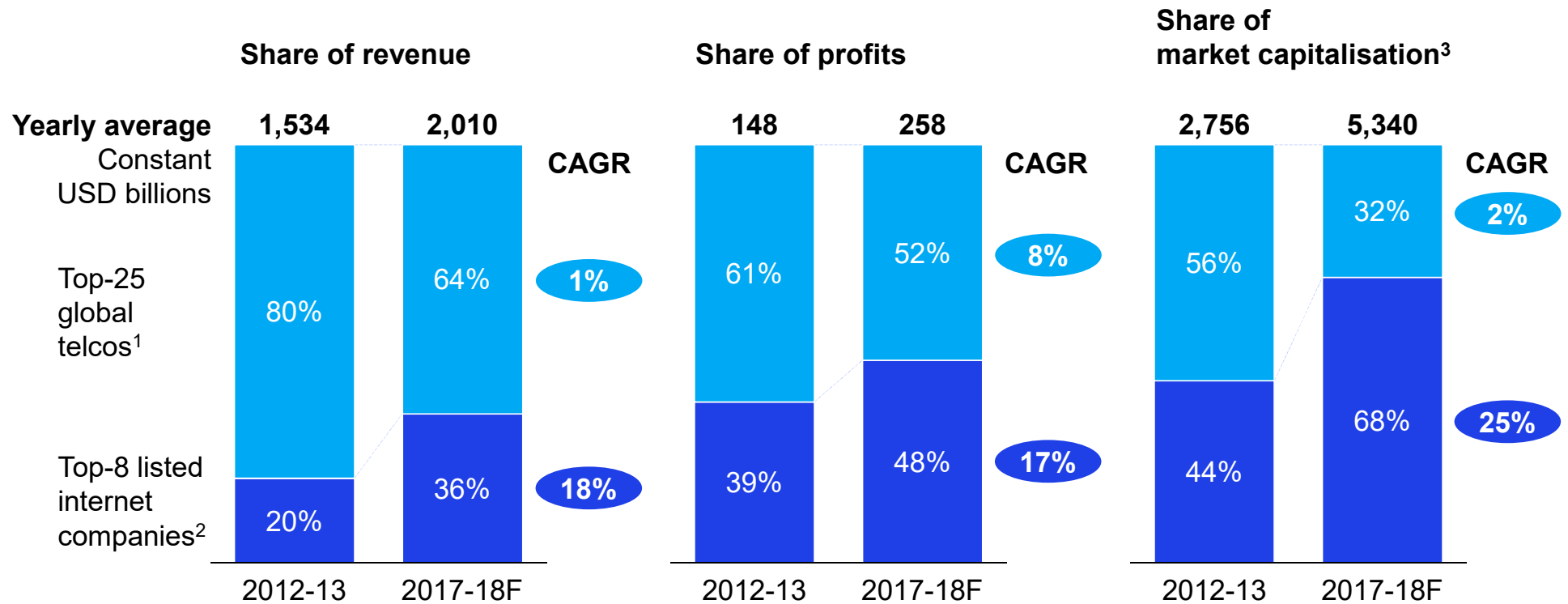


Without and inversion of trend, further investment in the sector would look increasingly unattractive

<sup>1</sup> Does not include Movistar (Telefonica) figures for Spain in 2015 due to the temporary impact of a plan for voluntary employment suspension



# Over the last five years telcos have lost significant ground to new internet companies

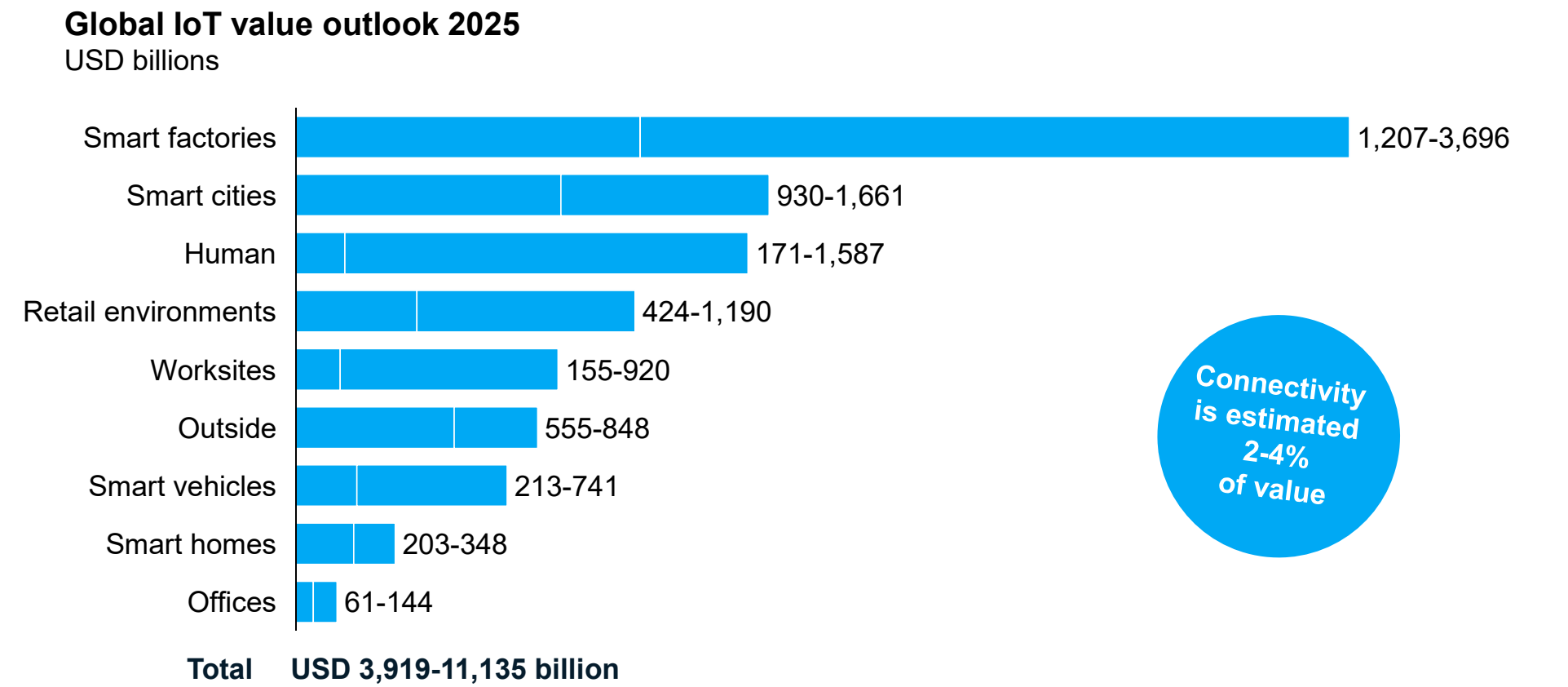


1 Operators includes the top 25 global operators by revenue

2 Internet companies comprise of FANG, BAT and Apple








3 Based on December 2017 and September 2018 average, excluding companies that were not around in 2012

# Going forward value pools will shift “up-stack” with diminishing value of connectivity



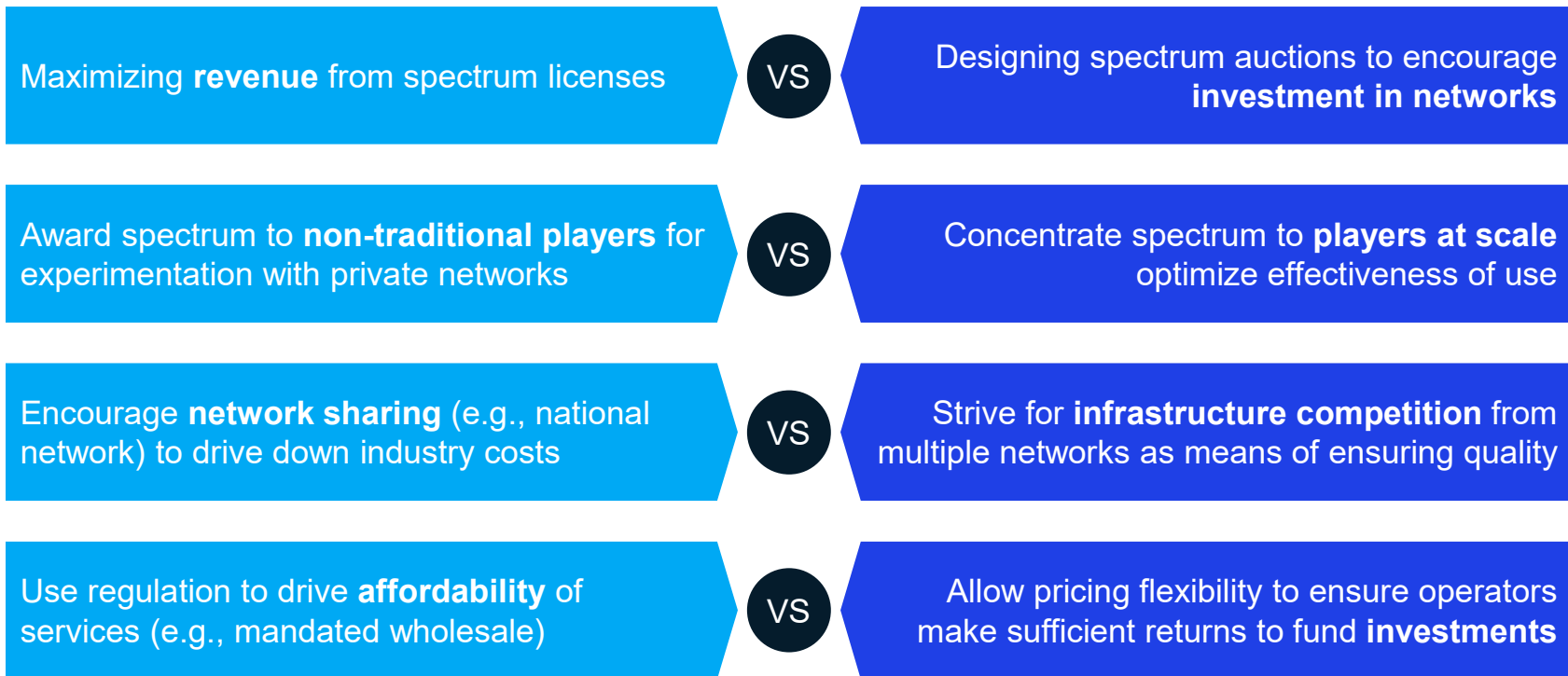
# Regulators need to define an industry strategy and approach



Dimension	Topic	Example
Industry structure	# players	
	# networks	
	Private networks	
Spectrum	Bands	 
	Auction approach	
Customer experience	KPIs	
	Coverage	
Wholesale and partnerships	Wholesale	
	National roaming	
	Network sharing	
	Ecosystems	
	Slicing	

# There are several difficult but important trade-offs inherent in designing 5G regulation

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## **McKinsey on regulation – contact for further questions**

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