ASMG WRC-15 UPDATE

Creating a sustainable future for mobile broadband

Herman Schepers, Senior Director Spectrum Campaign, GSMA

March 26th 2015

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AGENDA

ASMG Market Update
Shiv K. Bakhshi, Ph.D.
Vice President, Industry Relations, Ericsson

Recommended New Mobile Bands
Peter Lyons, Senior Director, MEA
GSMA

Conclusions
Herman Schepers, Senior Director,
Spectrum Campaign, GSMA

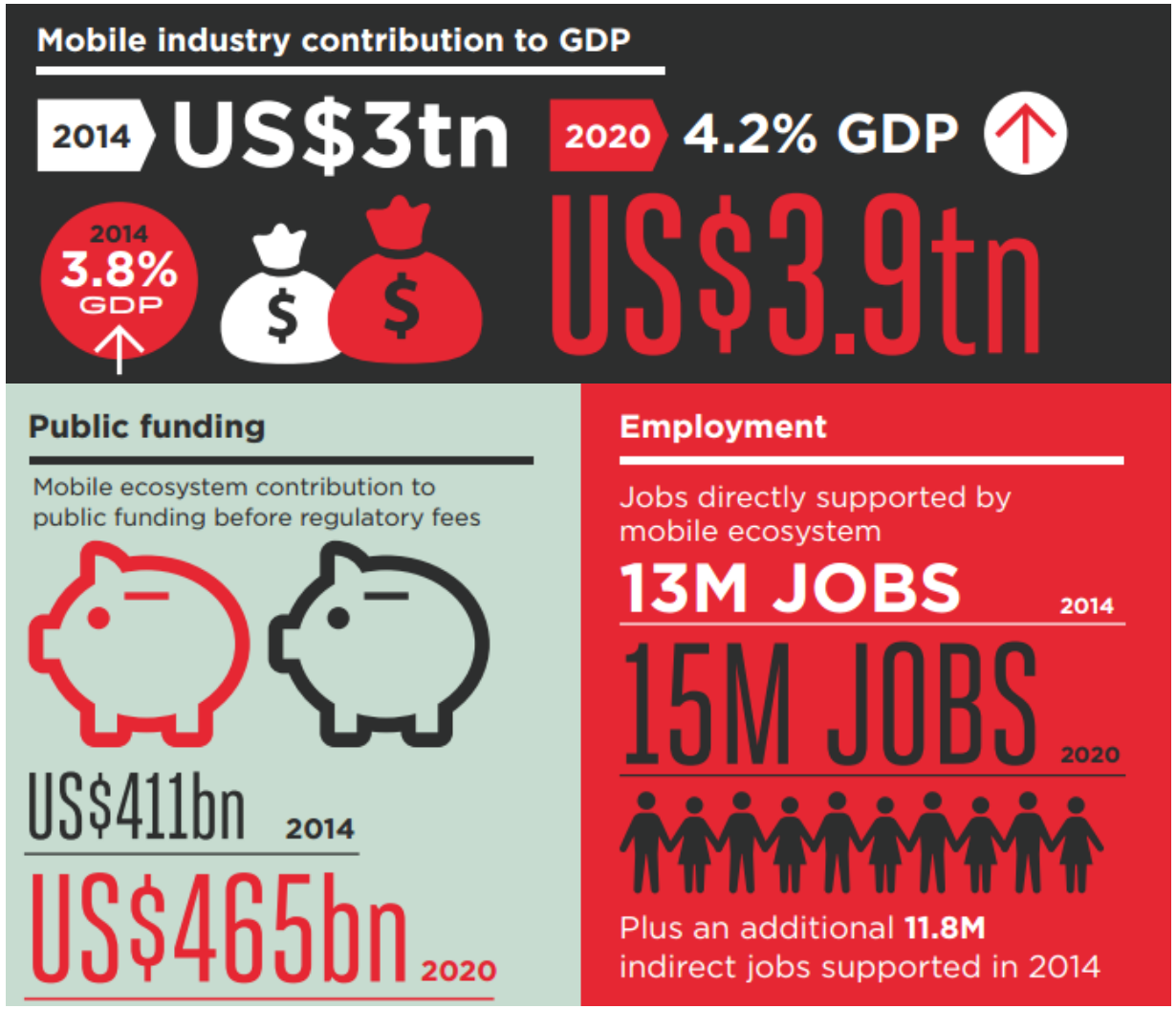
Lunch
GSMA Exhibition Area - CICG building





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GROWING MOBILE ECONOMIC IMPACT



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ENABLERS TOWARDS DIGITAL INCLUSION



Shiv Bakhshi, Ph.D.
VICE PRESIDENT, INDUSTRY RELATIONS, ERICSSON GROUP FUNCTION TECHNOLOGY

GSMA lunch meeting for ASMG

POINT OF DEPARTURE

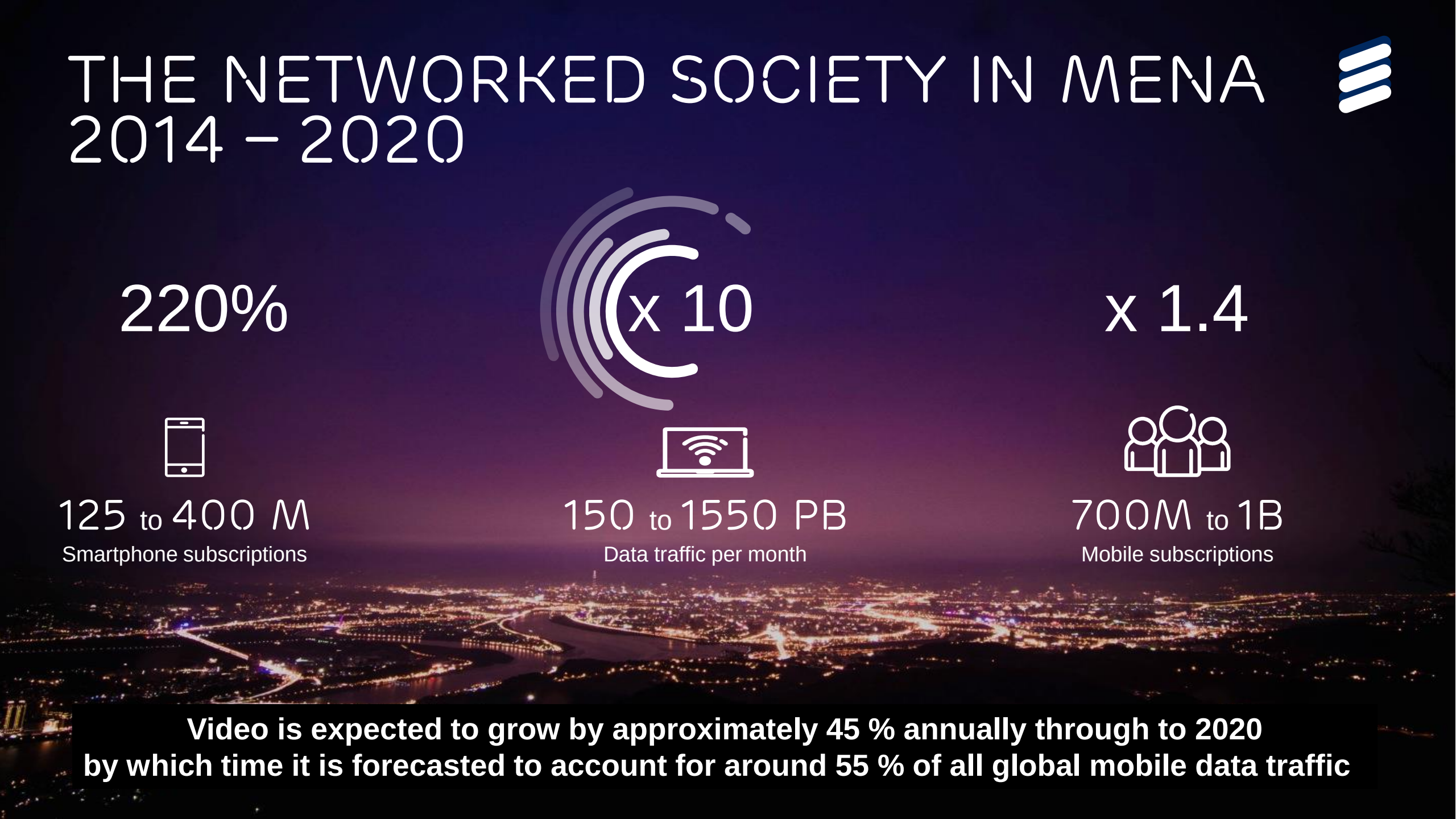




MUTUAL INTERDEPEDENCE

SPECTRUM IS THE LIFEBLOOD OF ALL THAT IS MOBILE

THE NETWORKED SOCIETY IN MENA 2014 – 2020



220%

125 to 400 M

Smartphone subscriptions

x 10

150 to 1550 PB

Data traffic per month

x 1.4

700M to 1B

Mobile subscriptions

Video is expected to grow by approximately 45 % annually through to 2020 by which time it is forecasted to account for around 55 % of all global mobile data traffic

WHY DO THESE NUMBERS MATTER?

Because all kinds of societal goals – political, economic, developmental – are intrinsically tied to the growth of Mobile Broadband

























ICT CREATING SOCIETY BENEFITS

Social progress

Environment progress

Economic progress

Education
Health
Inclusion

Resources
Pollution
Climate change
Waste management

Productivity
Competitiveness
Vertical markets

inclusion



ENABLERS FOR NETWORKED SOCIETY

technical standardization

infrastructure equipment / devices

high performing networks



content, including local content

National Broadband Plans (NBPs)

appropriate regulations, and spectrum resources

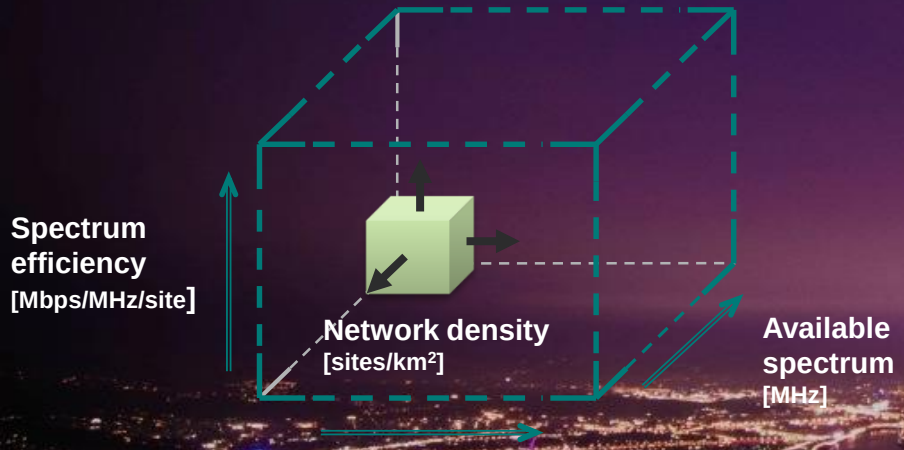
MOBILE

MOBILE ON THE SPECTRUM MAP



TRAFFIC GROWTH AND SPECTRUM

- There are only so many ways to handle growing traffic :
  - Spectrum Efficiency
  - Network densification
  - More spectrum



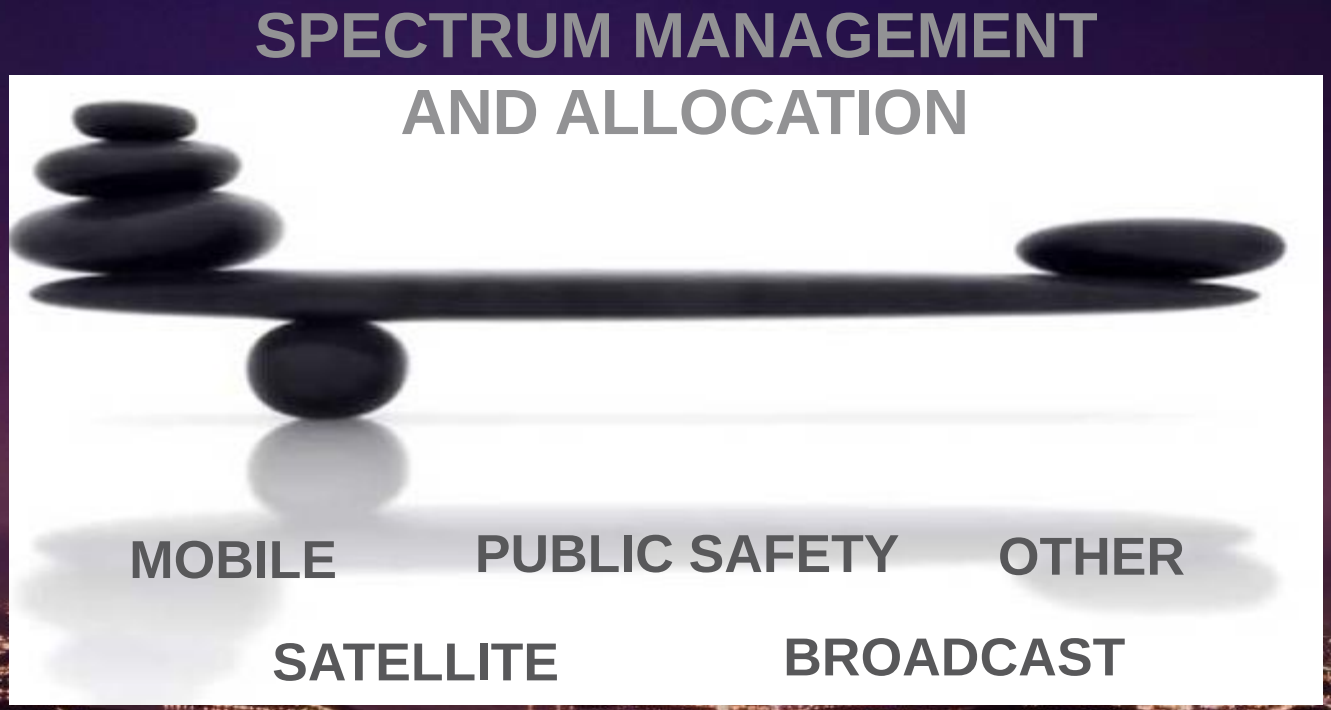
Industry doing its part on network density & spectrum efficiency

Traffic capacity [Mbps/km²] = Available spectrum × Area spectrum efficiency (Network density × Spectrum efficiency)

Policymakers must act to make more spectrum available

PRIORITIES, TRAJECTORIES & CHOICES

Needs of the Society

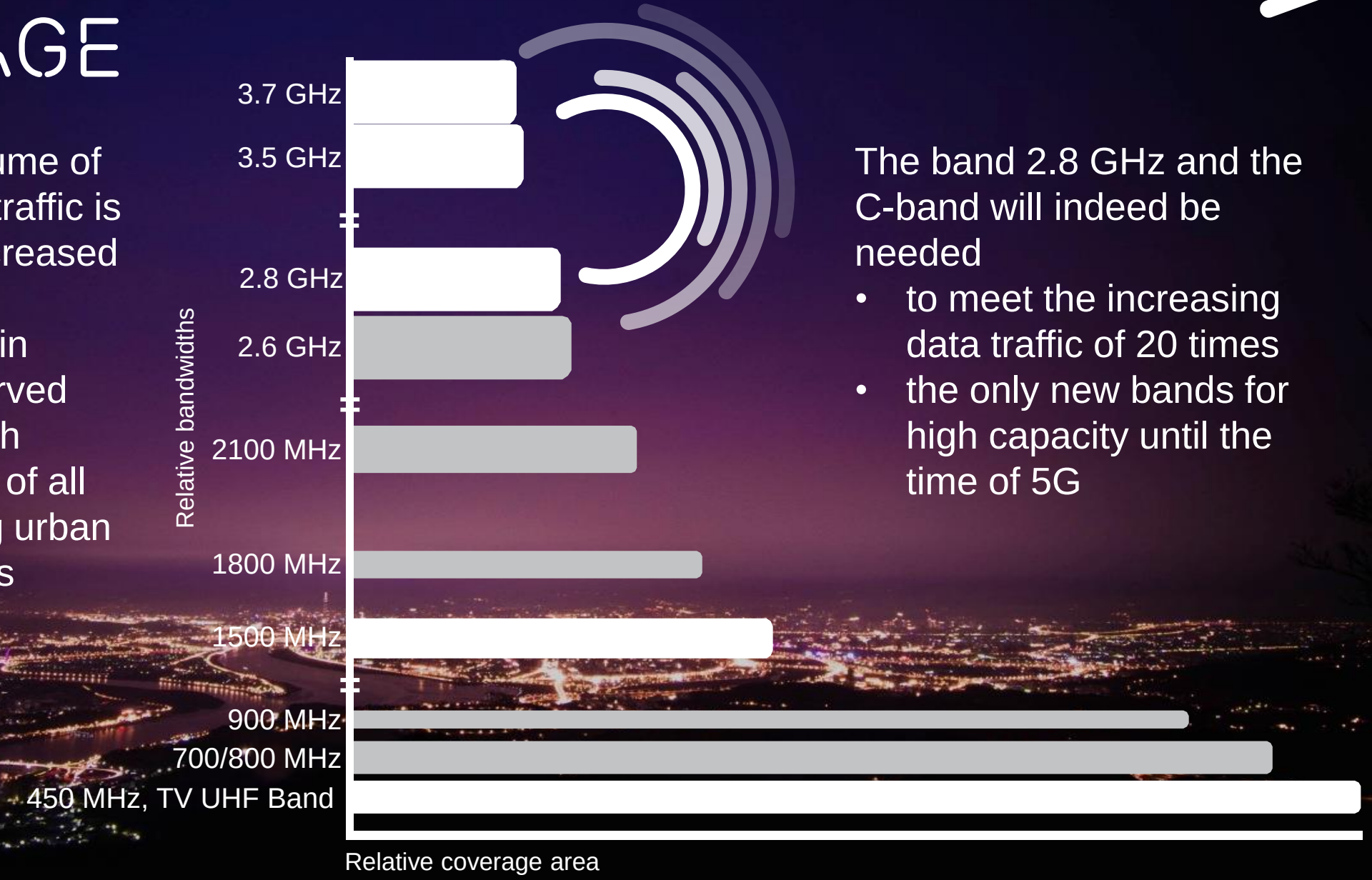


Needs of the State

Different priorities, technological trajectories, may dictate different choices
But regional/global harmonization should always remain a key consideration

CAPACITY (DL) AND COVERAGE

The increasing volume of mobile broadband traffic is needed for both increased coverage (still with sufficient capacity) in support of underserved areas, and very high capacity (coverage of all corners) supporting urban and suburban areas



The band 2.8 GHz and the C-band will indeed be needed

- to meet the increasing data traffic of 20 times
- the only new bands for high capacity until the time of 5G


ERICSSON

FUTURE MOBILE SPECTRUM IN ARAB STATES

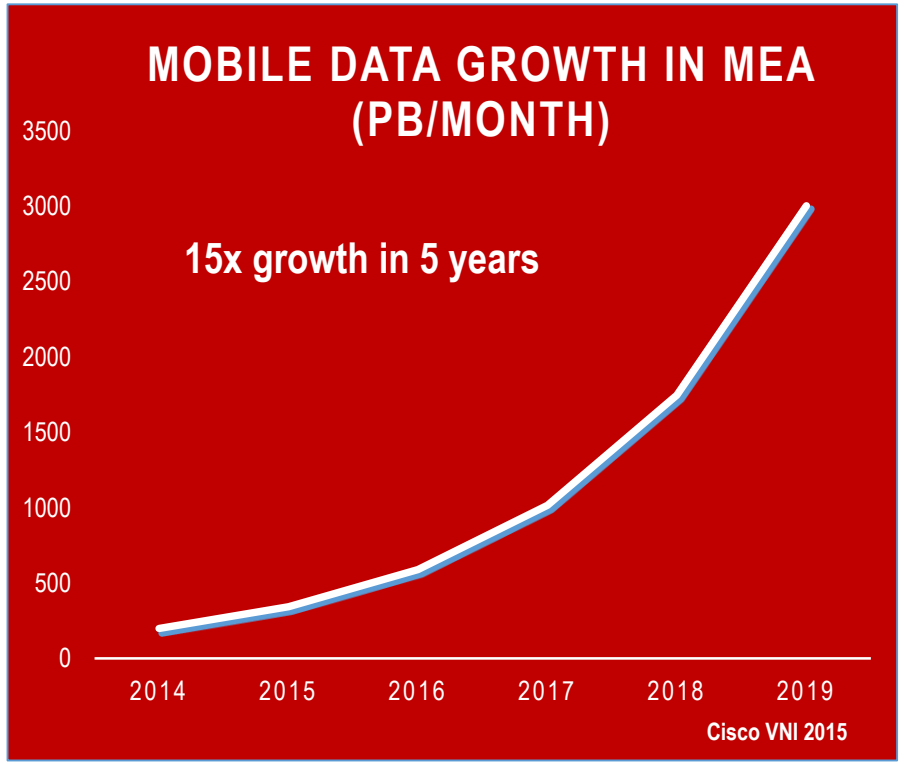
Creating a sustainable future for mobile broadband

Peter Lyons, Senior Director, Middle East and Africa, GSMA

March 26th 2015

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MOBILE REVOLUTION IN ARAB STATES



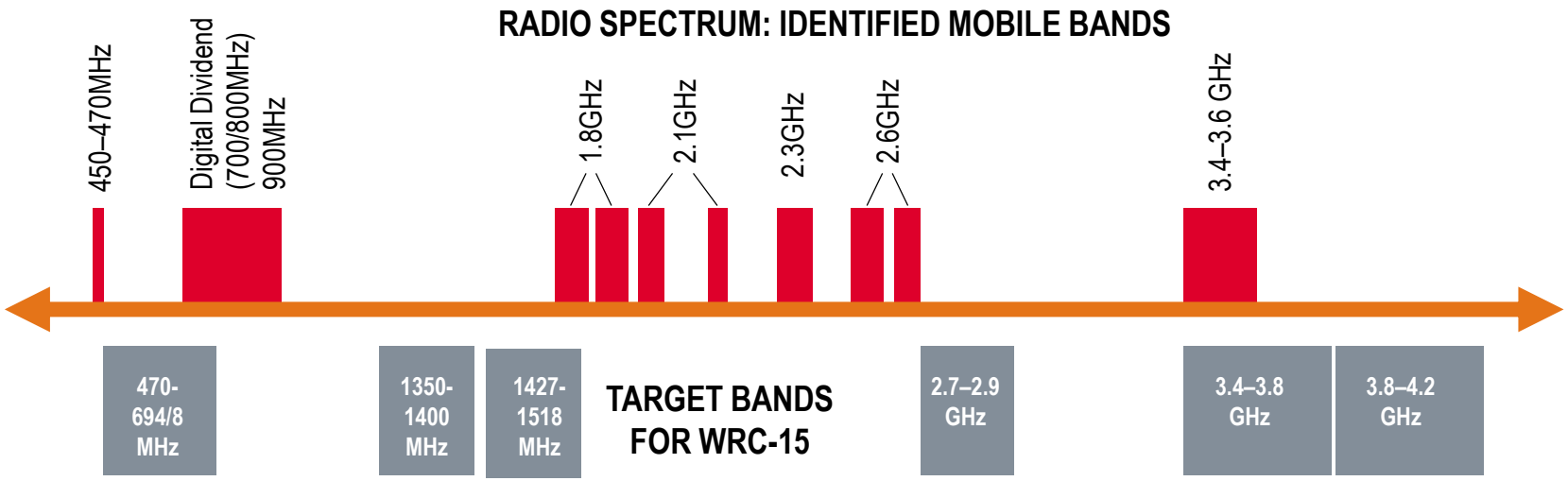
- **GSMA findings show 600-800MHz more mobile spectrum needs be allocated by 2020**
  - This accounts for new tech (e.g. LTE-A), small cells and Wi-Fi offload which operators use increasingly
- **This needs to be identified at WRC-15 to meet data demand in 2020-2025**
  - Can take around a decade to ready new mobile allocations for licensing then launch services
  - Existing unlicensed mobile spectrum will be essential to support data rises for the next 5-10 years

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SOURCE: ERICSSON MOBILITY REPORT 2015 & CISCO VNI 2015

NEW BANDS FOR MOBILE

- **GSMA had agreed widespread mobile operator support for 4 new mobile allocations**
  - Sub-700MHz UHF (470-694/8MHz)
  - 2.7-2.9GHz
  - L-Band (1350-1400MHz & 1427-1518MHz)
  - C-Band (3.4 - 3.8GHz & 3.8 - 4.2GHz)
- **Takes 5-10 years to ready new bands**
  - Existing bands will support growth in next 5 years
  - The bands will be needed to meet demand in 2020-2025
- **Bands can be harmonised regionally/ globally to drive lower cost devices**
  - Supporting others risk creating fragmentation



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JTG STUDIES SUPPORT GSMA BANDS*

WRC-15 CANDIDATE BANDS IN THE DRAFT CPM TEXT ARE:

Band	Frequency ranges	
UHF	**470 - 694/698 MHz**	
L-band	**1350 - 1400 MHz**	**1492 - 1518 MHz**
	1427 - 1452 MHz	1518 - 1525 MHz
	1452 - 1492 MHz	1695 - 1710 MHz
S-band	**2700 - 2900 MHz**	
C-band	3300 - 3400 MHz	4500 - 4800 MHz
	3400 - 3600 MHz	4800 - 4990 MHz
	3600 - 3700 MHz	5350 - 5470 MHz
	3700 - 3800 MHz	5725 - 5850 MHz
	3800 - 4200 MHz	5925 - 6425 MHz
	4400 - 4500 MHz	

* GSMA target bands in **bold**

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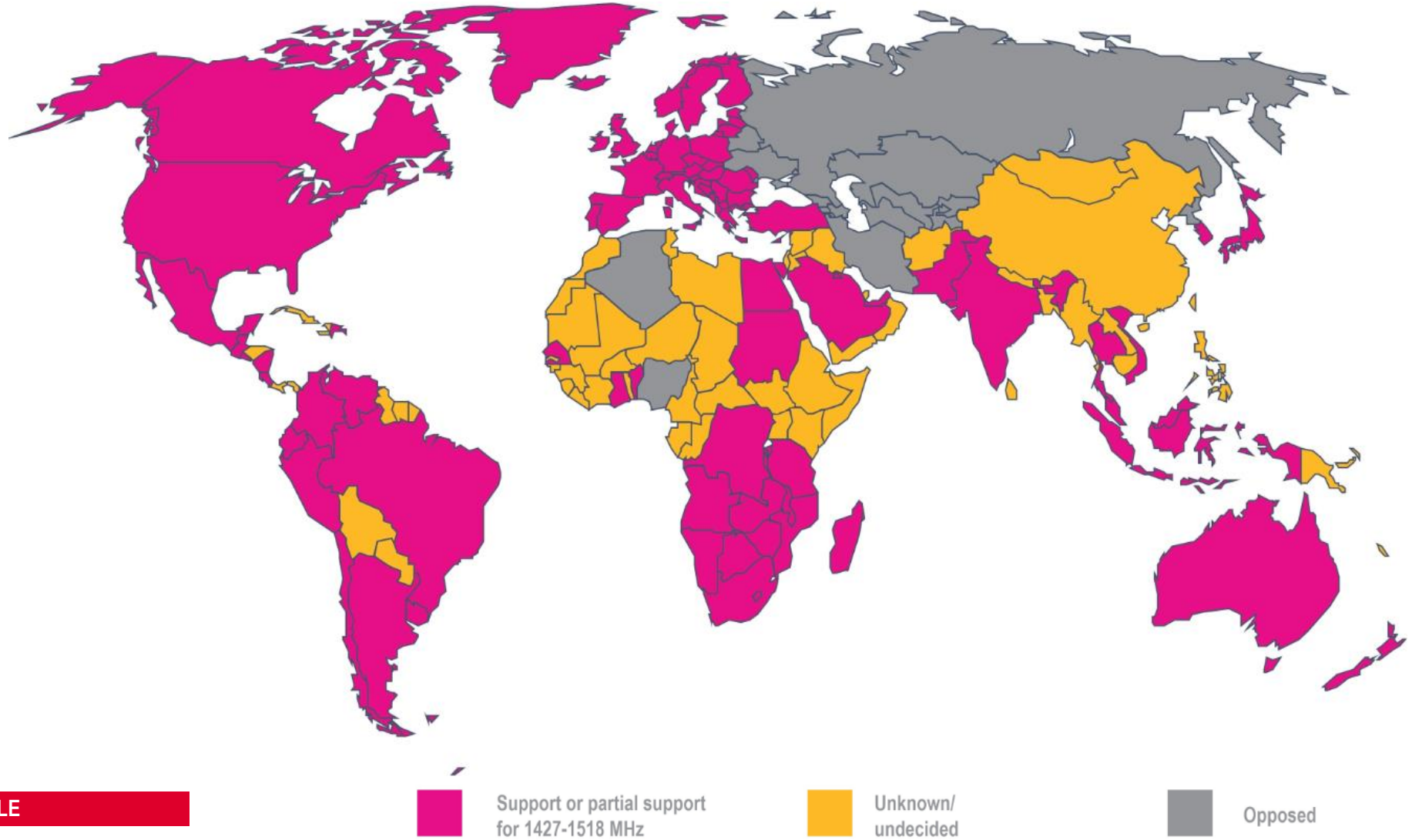
SHARING CONSIDERATIONS

BANDS MUST BE SHARED TO INCREASE OVERALL SPECTRUM EFFICIENCY

- **We encourage regulators to look at ways of sharing bands**
  - Most bands are not allocated exclusively for one service in the Radio Regulations
- **Sharing is demonstrably possible if we consider realistic scenarios and not the worst case**
  - Possible by segmenting bands or geographic sharing
  - Opponents to our bands typically argue that sharing isn't possible based on unrealistic scenarios (e.g. huge exclusion zones)
- **Numerous incumbents are emphasising highly unrealistic scenarios**
  - **Sub-700MHz (470-694/8MHz):** some argue co-channel sharing requires 274-1000km exclusion zones premised on one country putting TV transmitters on its borders pointing directly at neighbour - more realistic scenarios showed 14km exclusion zones adequate
  - **L-band (1350-1518MHz):** some argue exclusion zones would be 500km wide and require a 7.8 MHz guard band BUT this was premised around 1km tall LTE base stations. A study with more realistic heights found a 2km exclusion zone was adequate and a 3 MHz guard

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COMMITMENT TO MOBILE IN A PORTION OF L-BAND



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SUB-700MHz (470-694/8MHz)

AFFORDABLE MOBILE BROADBAND SERVICES EVERYWHERE

LIMITED NUMBER OF TERRESTRIAL BROADCAST TV IN ARAB STATES (WITH VHF)

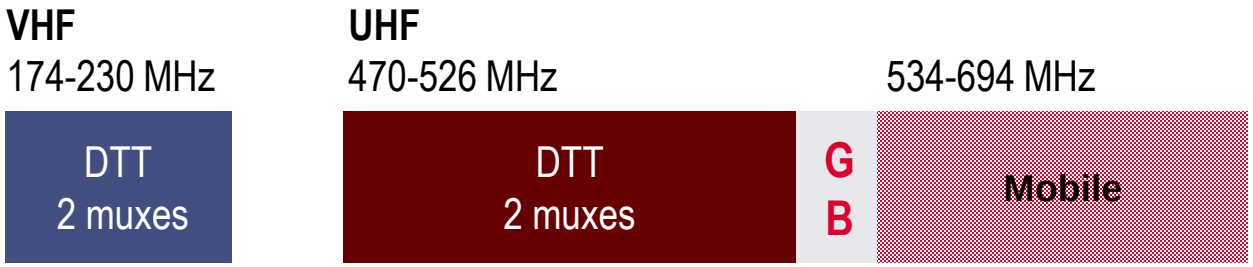
THE 600MHz BAND IS SET TO BE LICENSED FOR MOBILE IN THE US

EXISTING SUPPORT:
Canada, US, Mexico, Finland, Switzerland, Denmark, Egypt, Jordan, Ghana, Colombia (part).
Entire band is co-allocated to mobile on primary basis in Asia Pacific

HOW TO ACCOMMODATE MOBILE *IN A PORTION*:

- As consumer preference for IPTV grows, less demand terrestrial broadcast in future
- Move to digital TV means more can be done with less spectrum
- How can broadcasters reach the most consumers with their content?

Possible sharing scenario



VARIATION IN NATIONAL BROADCAST USE MEANS REGULATORS NEED FLEXIBILITY TO USE THE BAND AS THEY WISH ESPECIALLY GIVEN IMPACT ON MOBILE COVERAGE

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*For more details on segmentation of this band, please see document APG15-4/INF-17

C-BAND (3.4-3.8 & 3.8-4.2GHz)

EXCELLENT CAPACITY BAND – SUPPORTS BEST POSSIBLE MOBILE EXPERIENCE

CURRENT USAGE:

- Mostly used for the Fixed Satellite Service (FSS) worldwide
- Already used for mobile broadband in some parts of the world



HOW TO ACCOMMODATE MOBILE *IN A PORTION*:

- FSS is increasingly moving to Ka & Ku
- Sharing studies prove satellite & IMT can use the band under the right conditions
  - C-band IMT in city centres, *full* FSS for rural areas, a separation distance **of 5 km***
  - Several markets already use the band for both including an LTE service in the UK

EXISTING SUPPORT:

- Existing IMT footnote for 3.4-3.6 GHz in 91 region 1 countries and 10 region 3 countries
- Common CEPT mobile proposal for 3.4-3.8 GHz
- Strong agreement for 3.4-3.6/7 GHz in Region 2

THE ECONOMIC BENEFITS OF ALLOCATING THE 3.4-3.8GHz TO MOBILE SERVICES IN THE ARAB STATES EXCEED COSTS BY 24X

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*For more details on C-band co-existence, please see document APG15-3/INF-03 and APG15-4/INF-17

**See Frontier Economics' report: "Economic assessment of C-band re-allocation".

CONCLUSIONS

Creating a sustainable future for mobile broadband

March 26th 2015

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PROGRESS ON AGENDA ITEM 1.1 IS VITAL

THE FUTURE OF MOBILE BROADBAND IS AT RISK WITHOUT MORE SPECTRUM

- **Mobile traffic is growing faster than anyone's expectations**
  - 2015-2020: 10x traffic growth currently expected
- **Unless significant progress is made on Agenda Item 1.1, it could fail in its goal**
- **Networks could slow, consumer prices may rise, socio economic benefits lost**
- **Supporting higher IMT spectrum demands mean lower cost devices in Arab States**
  - Advanced markets who use the bands first will drive equipment economies of scale for later users
- **Flexibility is essential to allow countries to react to their evolving situations**
  - New bands won't be licensed to operators until governments see clear demand



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