EUROPE WRC-15 UPDATE

Creating a sustainable future for mobile broadband

Roberto Ercole, Senior Director, Future Spectrum GSMA

March 27th 2015

AGENDA

Europe Market Update
Massimiliano Simoni, Cost Analysis and Frequency Management, Telecom Italia

Recommended New Mobile Bands
Glyn Carter, Senior Spectrum Advisor, Government & Regulatory Affairs, GSMA

Conclusions
Roberto Ercole, Senior Director, Future Spectrum GSMA

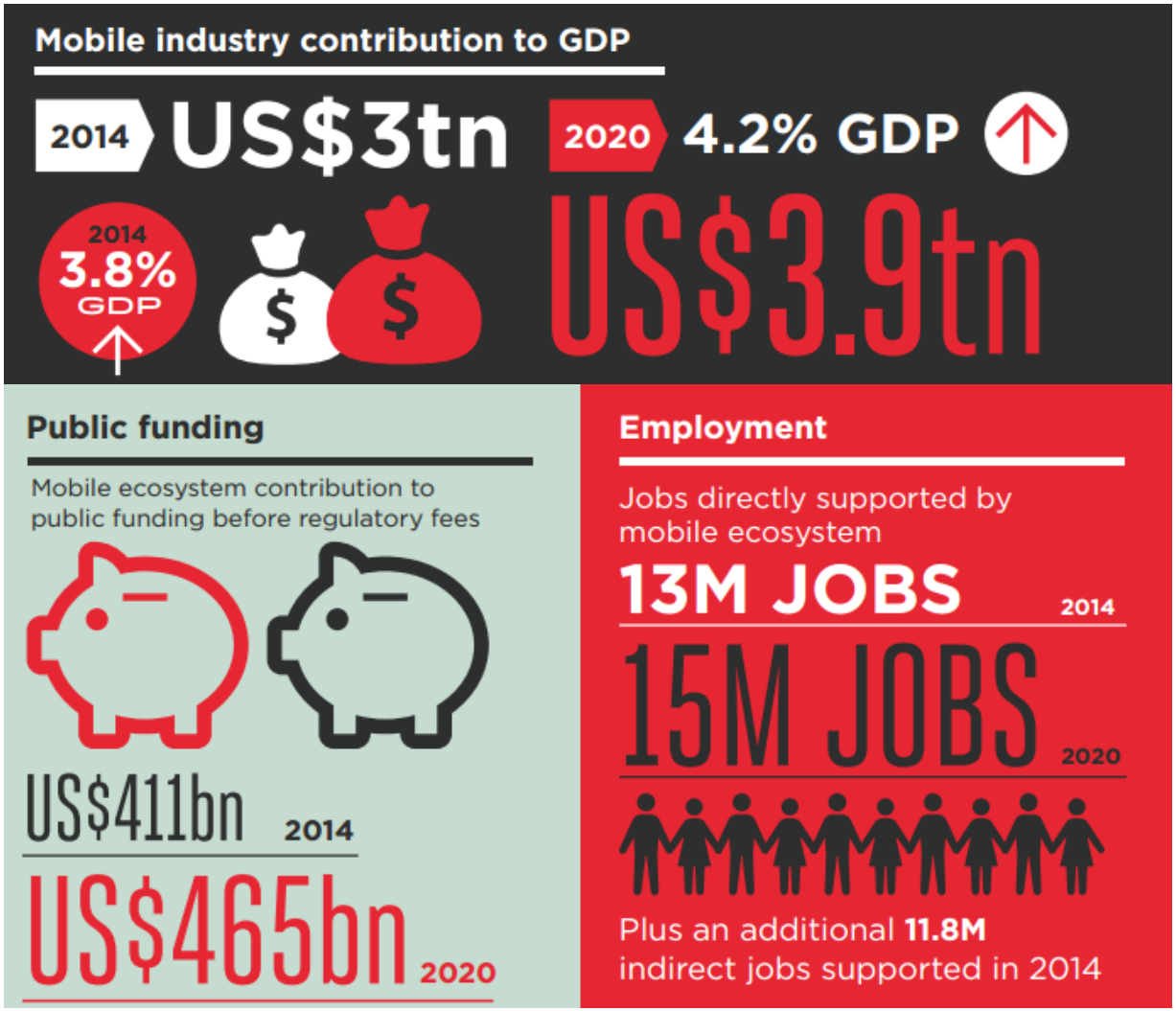
Lunch
GSMA Exhibition Area - CICG building





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GROWING MOBILE ECONOMIC IMPACT



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GRUPPO TELECOM ITALIA

CPM-15

March 27th 2015

CEPT Seminar @CPM-15

Room 23 – Exhibition hall

Massimiliano Simoni

Cost Analysis and Frequency Management

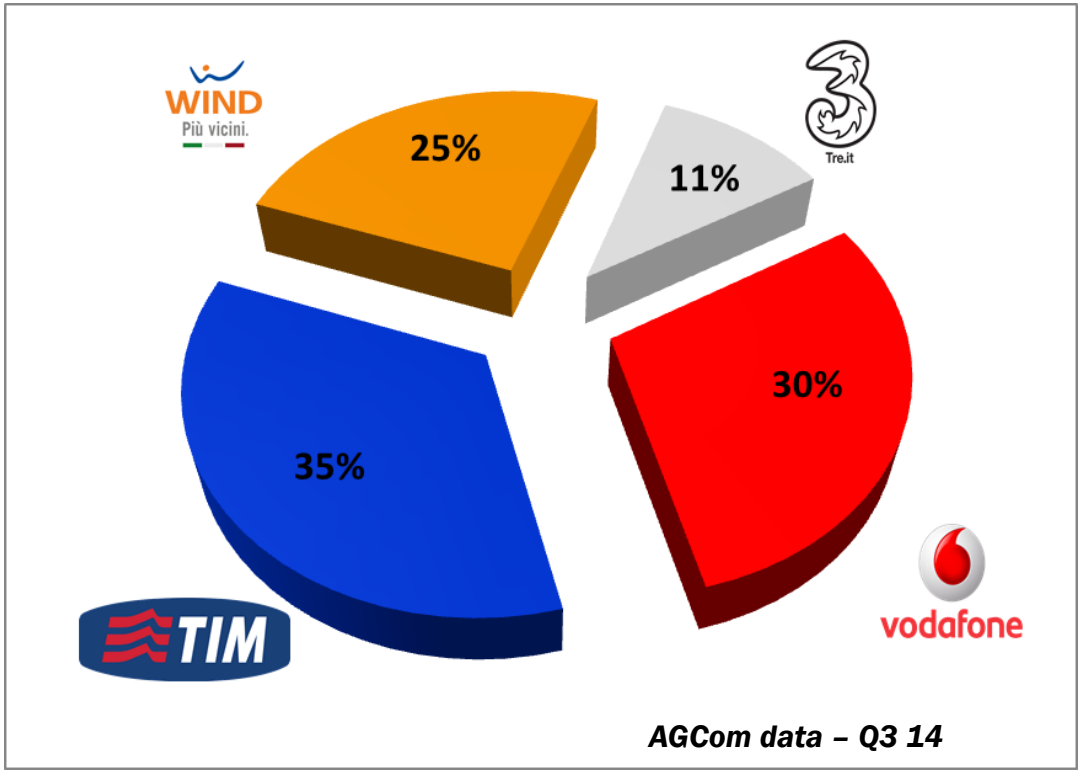
"…Mobile communications including mobile broadband communications contribute positively to the economic and social developments of both developed and developing countries. …"

Draft CPM Report to the WRC-15

Italian mobile market

- 61 Mln inhabitants
- 88 Mln MNO voice SIM
  - *144% penetration*
- 42 Mln BB SIM
  - *69% penetration*
- 6,7 Mln MVNO SIM
- 25 MVNO
- **Overall penetration 155%**

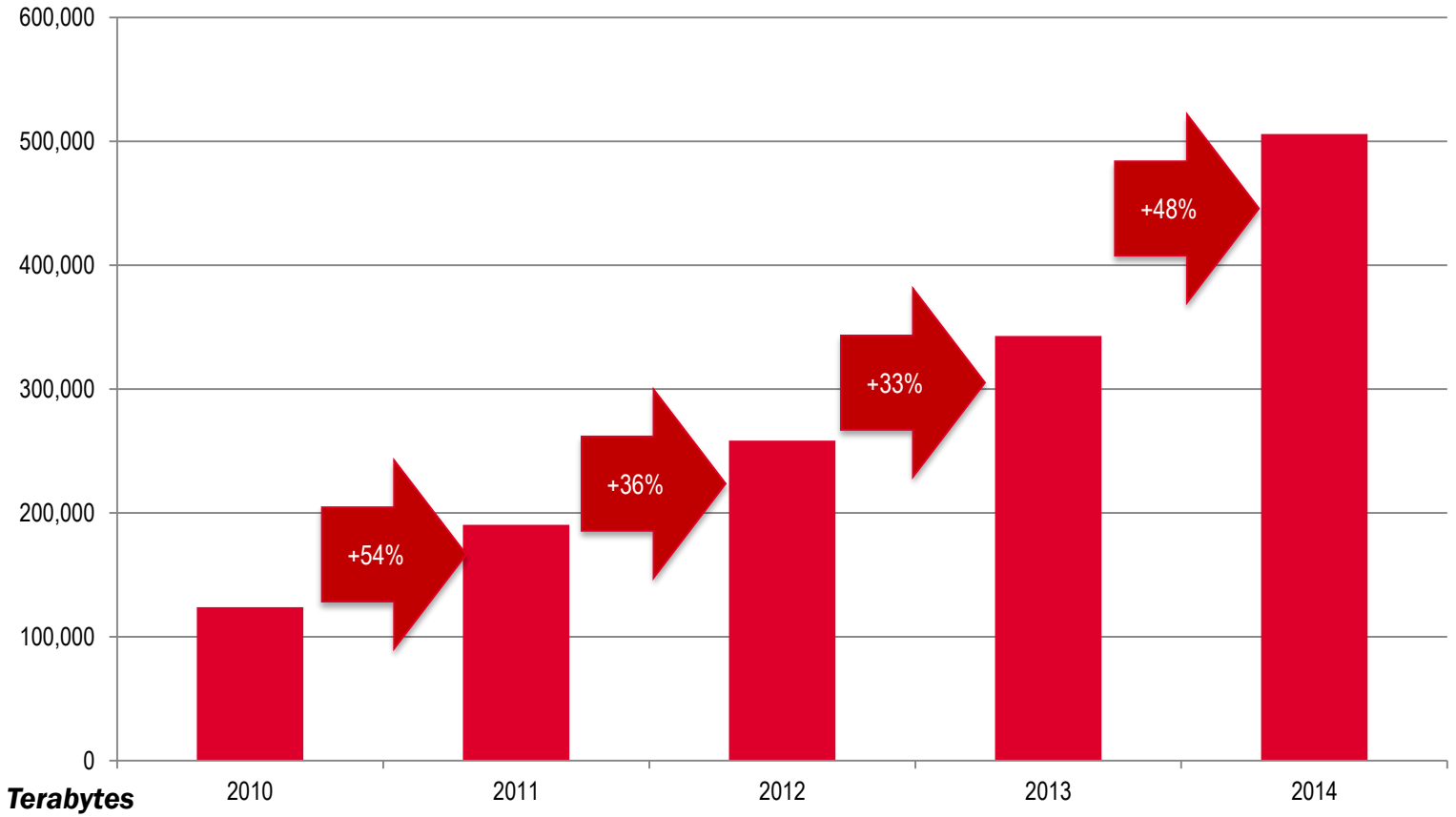
Italian MNO market share



CEPT Panel @CPM-15

Massimiliano Simoni

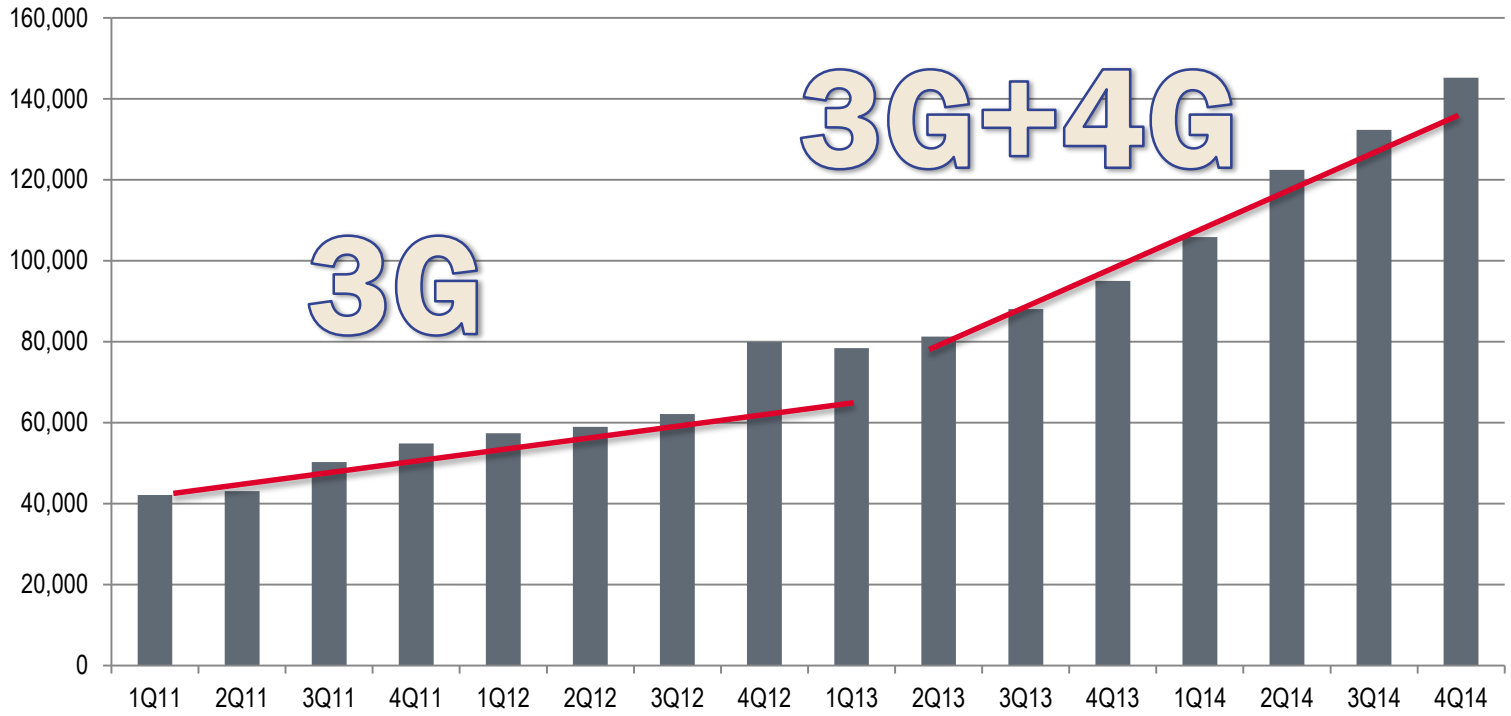
Yearly Italian MBB traffic trend



Terabytes

Processing of AGCom data

Quarterly Italian MBB traffic trend



Terabytes

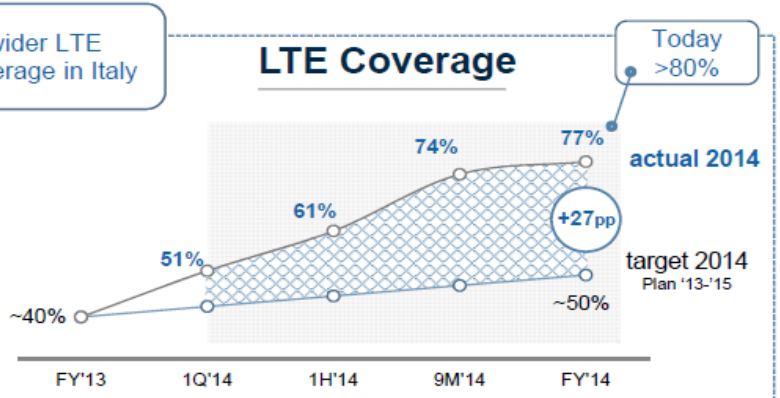
Processing of AGCom data

What are we doing?

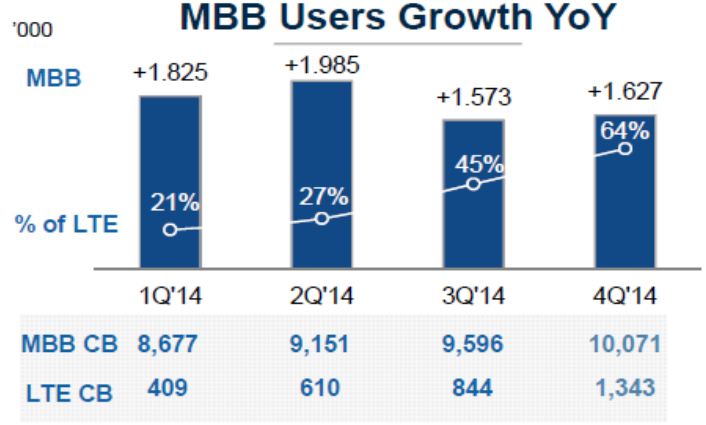
TIM 4G deployment in Italy

wider LTE coverage in Italy

LTE Coverage



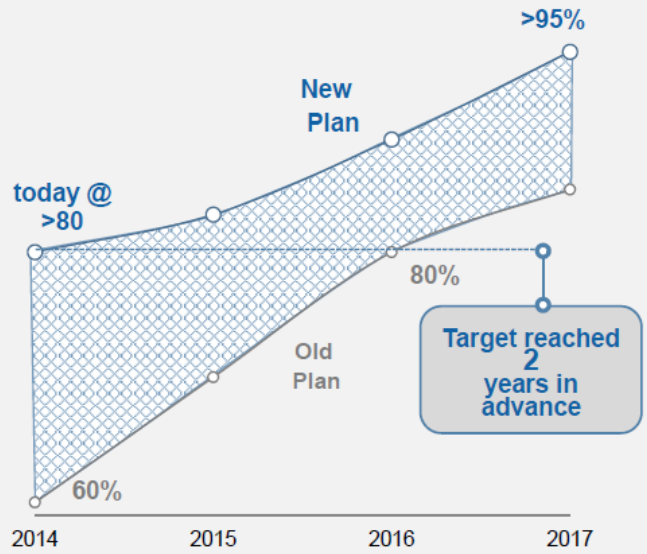
MBB Users Growth YoY

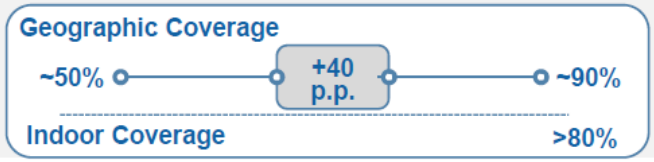


	1Q'14	2Q'14	3Q'14	4Q'14
MBB CB	8,677	9,151	9,596	10,071
LTE CB	409	610	844	1,343

(1) As of Jan 30, 2015

LTE Coverage Plan





(1) Innovative revenues = browsing+data content; traditional revenues =voice+SMS

TIM 4G Frequency assets:

- **2x10 FDD @800MHz**
- **2x5 FDD @1800MHz**
- ***2x10 FDD @1800MHz refarming***
- **2x15 FDD @2600MHz**

2014 TI Group Results

5 Bln € invested



- >80% pop. coverage with 4G services
- 29% pop. coverage with fiber (FTTH)



- 124 cities covered by MBB
- +92% increase in 4G sites

2015-2017 TI Group Strategic Plan

14 Bln € new investments



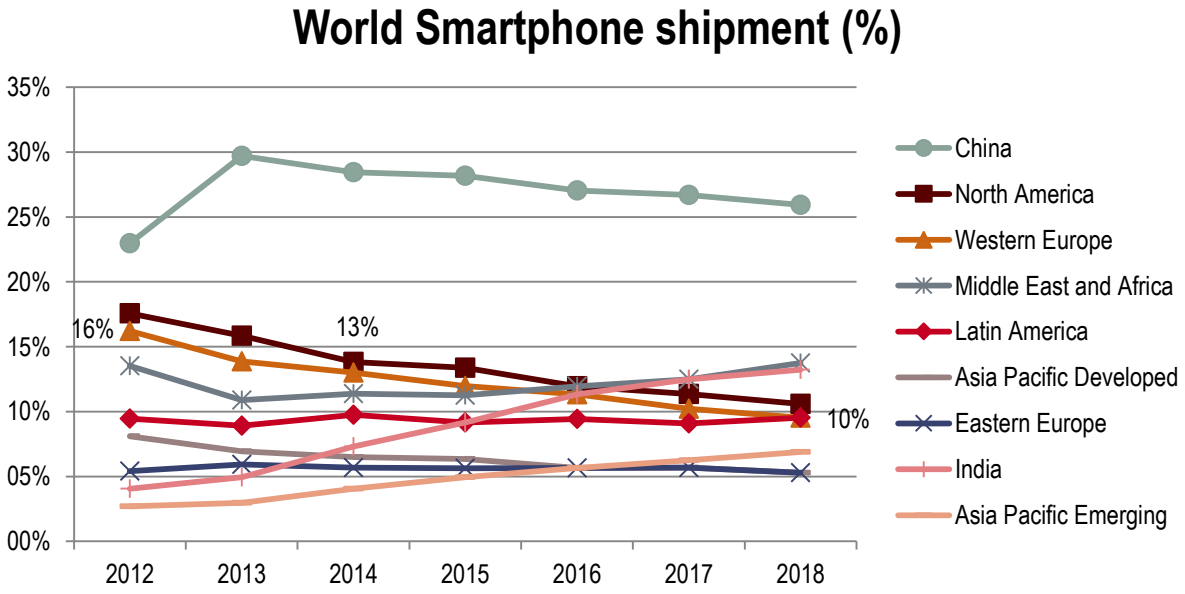
- 10 Bln € new investments
  - 95% pop. coverage with 4G services
  - 75% pop. coverage with fiber (FTTH)



- 14 Bln R$ new investments (4,2 Bln €)
  - 80% pop. coverage with 4G services
  - 15k sites for 4G and 14k for 3G services

Harmonisation benefits

- Economies of scale
- More products and more services to people at a lower price
- Less cross-border interference
- Roaming



Processing of CCS Insight data

Thank you

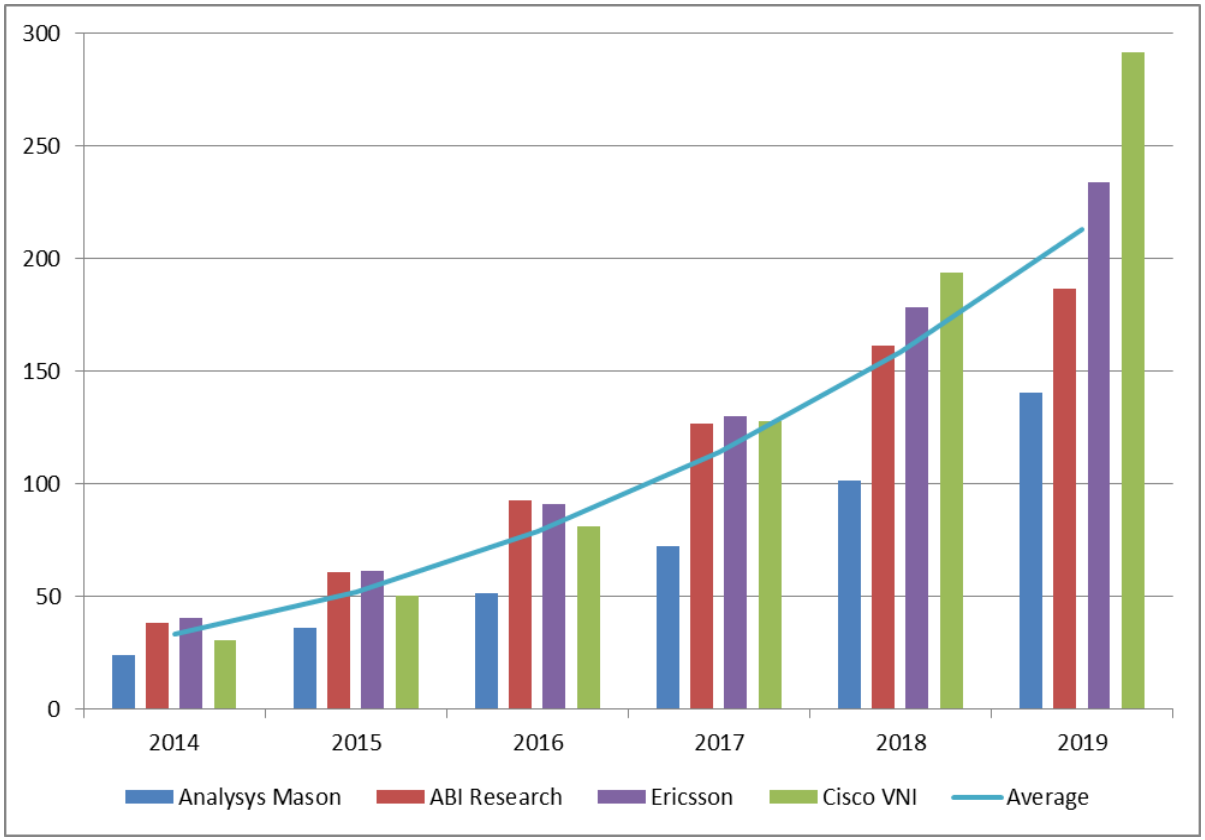
FUTURE MOBILE SPECTRUM IN EUROPE

Creating a sustainable future for mobile broadband

Glyn Carter, Senior Spectrum Advisor, GSMA

27th March 2015

MOBILE DATA REVOLUTION



Mobile data traffic is growing exponentially and several forecasts have been revised upward since last year

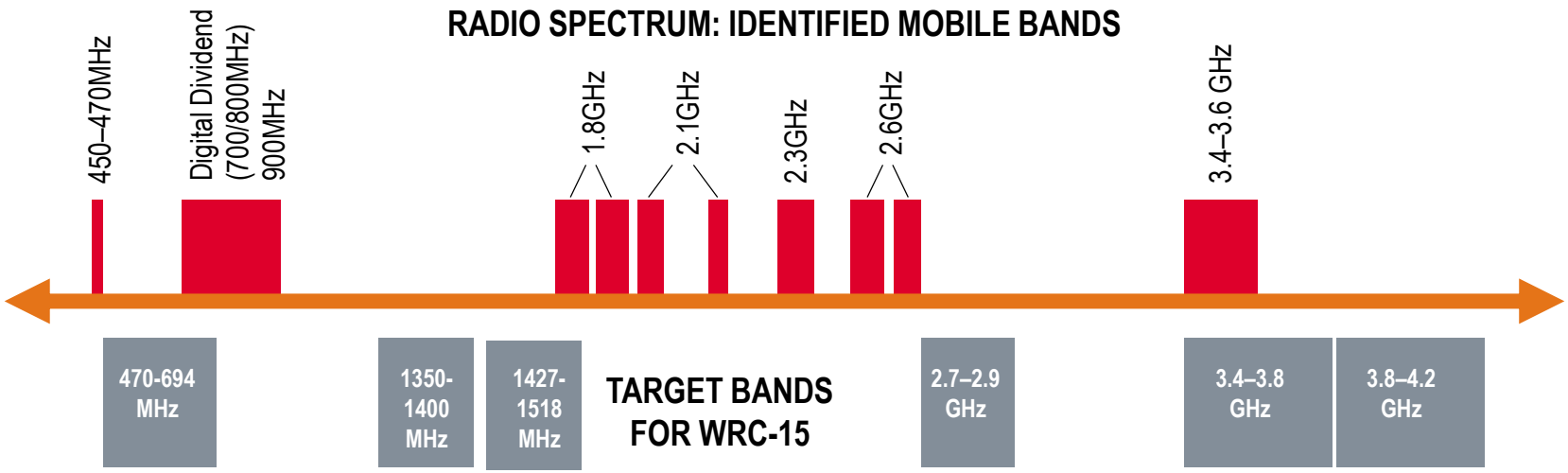
- **Additional spectrum needs to be identified at WRC-15 to meet data demand in 2020-2025**
  - New technology, small cells and Wi-Fi offload being used to help meet demand for mobile data
  - Without additional spectrum, networks will not be able to meet growing data demand

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SOURCE: ERICSSON MOBILITY REPORT 2014 & CISCO VNI 2015

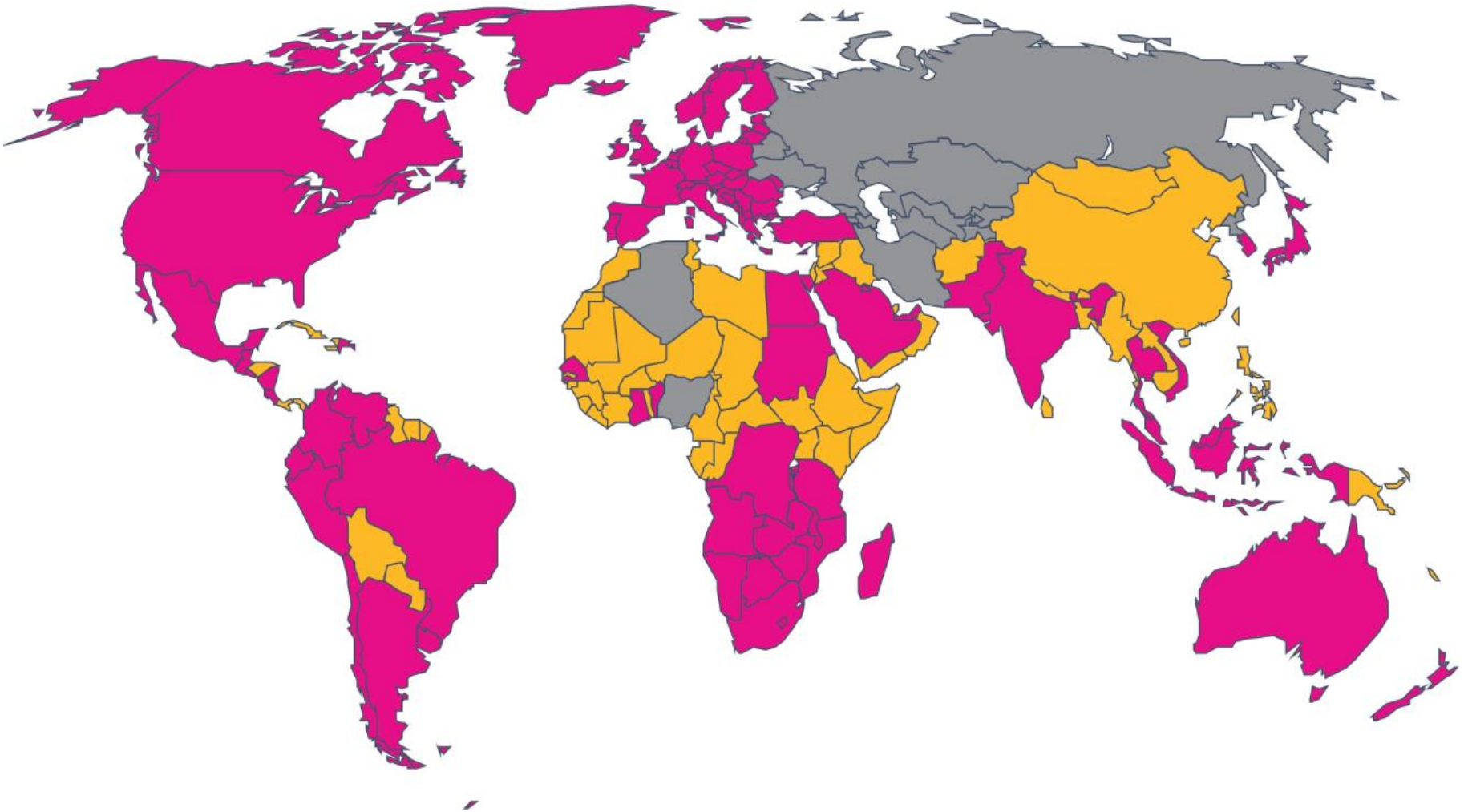
NEW BANDS FOR MOBILE

- **GSMA had agreed widespread mobile operator support for 4 new mobile allocations**
  - Sub-700MHz UHF (470-694 MHz)
  - L-Band (1350-1400 & 1427-1518 MHz)
  - 2.7-2.9 GHz
  - C-Band (3.4-4.2 GHz)
- **Mixture of coverage and capacity bands**
- **Bands can be harmonised regionally/ globally to drive lower cost devices**
  - Supporting too many bands risks creating fragmentation



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WIDESPREAD SUPPORT FOR IMT IN L-BAND



SPECTRUM FOR MOBILE

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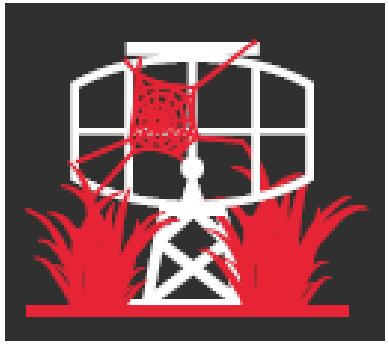
2.7-2.9GHz

ATTRACTIVE BAND FOR ADDITIONAL MOBILE BROADBAND CAPACITY

- Cost-effective network implementation due to re-use of base stations

2.7-2.9GHz BAND UNDER-UTILIZED IN MOST COUNTRIES

- Small numbers of radars at fixed locations in most countries
- Significant potential to use the spectrum much more efficiently



MOBILE COULD BE ACCOMMODATED IN A PORTION

- Existing radar requirements could be met using much less spectrum
- Band could be segmented, or IMT used in areas where no radars

2.7-2.9GHz SHOULD NOT BE SUBJECT TO 'NO CHANGE' ECP

- Growing support for 2.7-2.9GHz in Africa and Asia-Pacific
- Feasible and attractive option for mobile broadband capacity
- Countries that wish to use it should be able to do so

ECONOMIC BENEFITS OF USING THE BAND FOR MOBILE MUCH GREATER THAN COSTS THAT WOULD BE INCURRED

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

C-BAND (3.4-4.2GHz)

CAN PROVIDE WIDE BLOCKS OF SPECTRUM FOR CAPACITY AND HIGH PERFORMANCE MOBILE BROADBAND



CURRENT USAGE

- Mostly used for the Fixed Satellite Service (FSS) worldwide
- 3.4-3.8GHz already harmonised for mobile/fixed networks in Europe
- 3.8-4.2GHz also has potential to provide additional capacity
- However situation in some other parts of the world (e.g. tropical regions) very different to Europe, with greater FSS use

OPTIONS TO ACCOMMODATE BOTH MOBILE AND FSS OUTSIDE EUROPE

- Portion could be freed as FSS increasingly moving to higher bands
- Sharing between IMT and FSS is possible, e.g. through cross-border co-ordination and/or use of IMT in urban areas and FSS in rural
- Even with IMT identification, countries can continue to use the band for satellite services

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CONCLUSIONS

Creating a sustainable future for mobile broadband

March 27th 2015

PROGRESS ON MOBILE AGENDA ITEM 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**
  - Goal is to plan for mobile spectrum requirements in 2020-2025 – not today
  - Existing mobile allocations will be used to meet demand in 2015-2020
- **Without sufficient spectrum, Europe risks losing out in the broadband race**
  - Networks could slow, consumer prices may rise and socioeconomic benefits could be lost
- **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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THANK YOU – ANY QUESTIONS?

FUTURE MOBILE SPECTRUM
IN EUROPE

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