FUTURE MOBILE SPECTRUM IN AFRICA

Creating a sustainable future for mobile broadband

Herman Schepers, Senior Director, Spectrum Campaign, GSMA

24th March 2015

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AGENDA

ATU Market Update
Lasse Wieweg, Director, Government and Industry Relations, Ericsson

Recommended New Mobile Bands
Mortimer Hope, Director of Public Policy – Africa, GSMA

Conclusions
Herman Schepers, Senior Director, Spectrum Campaign, GSMA

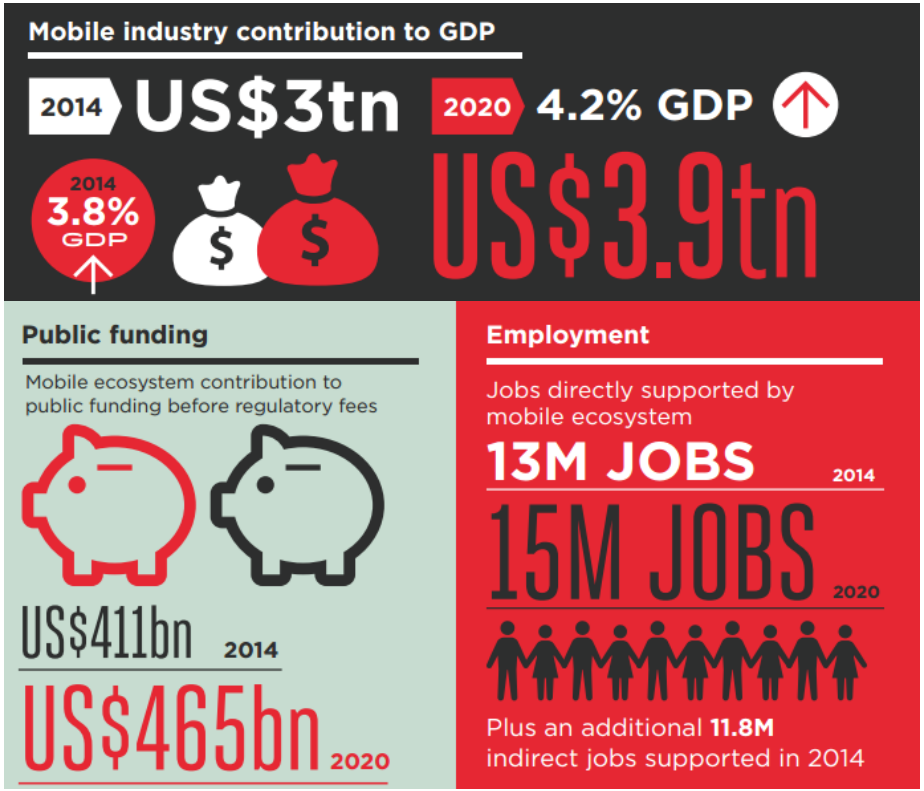
Lunch
GSMA Exhibition Area - CICG building





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GROWING MOBILE ECONOMIC IMPACT



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ERICSSON

Lasse Wieweg
Director, Government and Industry Relations

24th March 2015

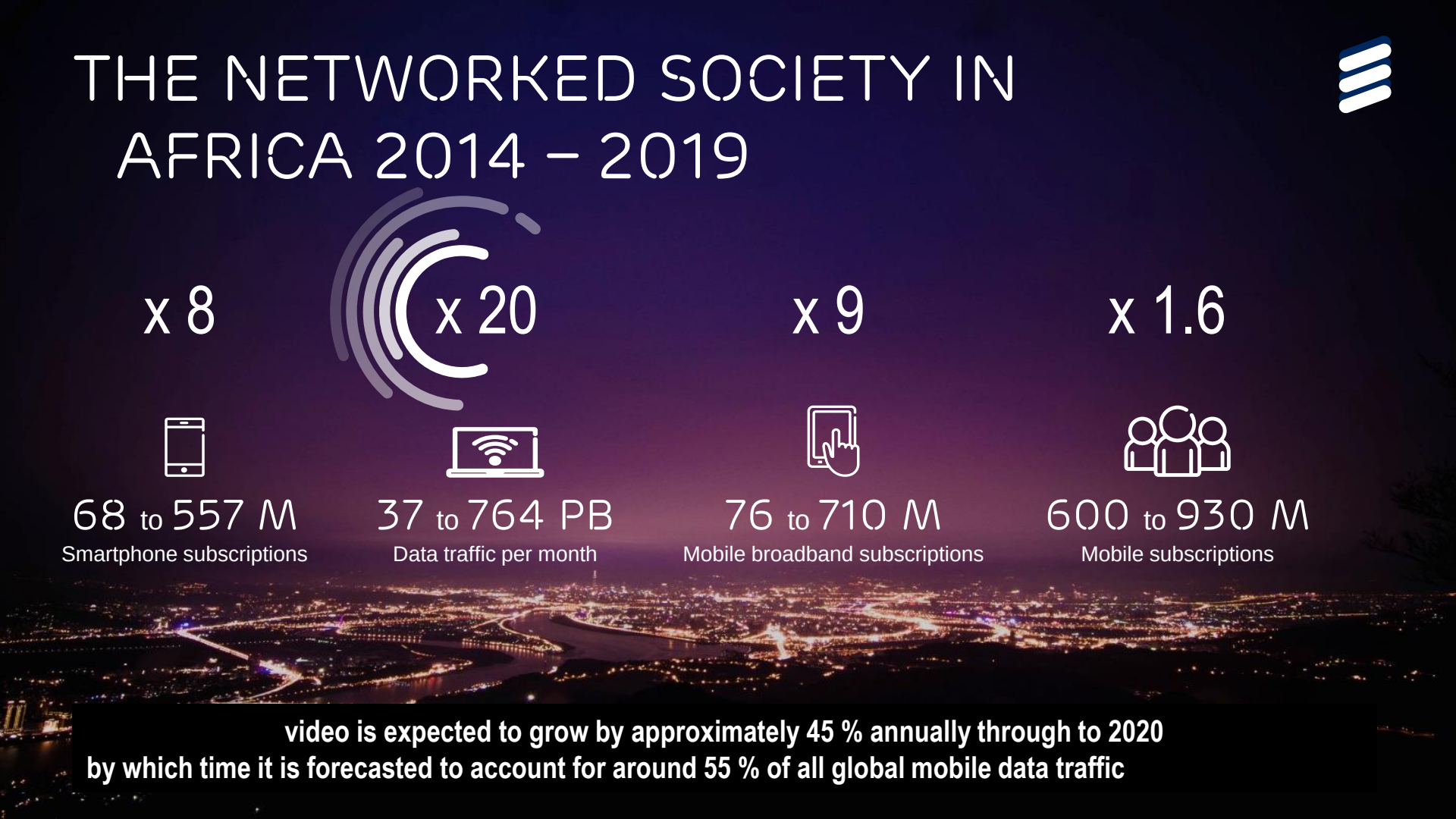
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ENABLERS TOWARDS DIGITAL INCLUSION



GSMA lunch meeting for ATU

THE NETWORKED SOCIETY IN AFRICA 2014 – 2019



x 8

68 to 557 M

Smartphone subscriptions

x 20

37 to 764 PB

Data traffic per month

x 9

76 to 710 M

Mobile broadband subscriptions

x 1.6

600 to 930 M

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

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 A NETWORKED SOCIETY

technical standardization

infrastructure equipment / devices

high performing networks



content, including local content

National Broadband Plans (NBPs)

appropriate regulations, and spectrum resources

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

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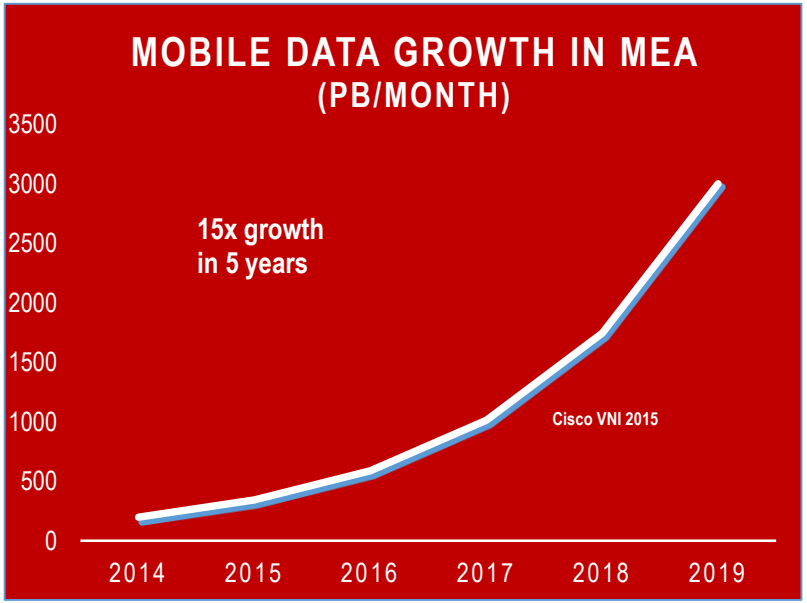
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MOBILE REVOLUTION IN AFRICA

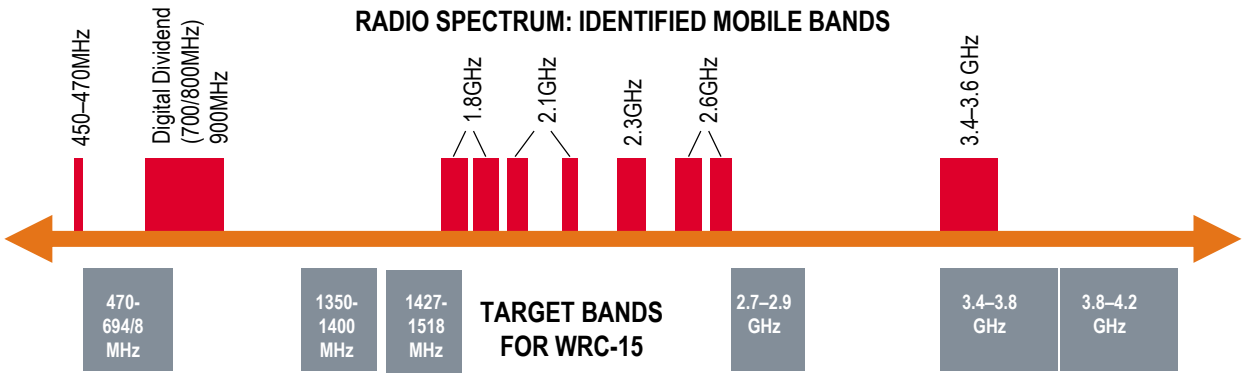


- **GSMA findings show 600-800MHz more spectrum needs to be allocated to the mobile service by 2020**
  - This takes into account new tech (e.g. LTE-A), small cells and Wi-Fi offload which operators use increasingly
- **The additional spectrum needs to be identified at WRC-15 to meet data demand in 2020-2025**
  - Can take around a decade to ready new mobile allocations for licensing then launch services
  - Existing mobile spectrum allocations that are not yet licensed will be essential to support increasing data demand during the next 5-10 years

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NEW BANDS FOR MOBILE

- **GSMA had agreed widespread mobile operator support for 4 new mobile allocations: all supported by JTG**
  - Sub-700MHz UHF (470-694/8MHz)
  - 2.7-2.9GHz
  - L-Band (1350-1400MHz & 1427-1518MHz)
  - C-Band (3.4-4.2GHz)
- **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**



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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 often argue against sharing based on unrealistic scenarios (e.g. huge exclusion zones)
- **Numerous incumbents are emphasising highly unrealistic scenarios**
  - **L-band (1350-1518MHz):** some argue exclusion zones would be 500km wide and require a 7.8MHz 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 3MHz guard
  - **2.7-2.9GHz:** some argue need for co-channel exclusion zones that are hundreds of kilometres wide. But 0.5km is possible for uplink and 1km for downlink with appropriate guard bands and emission limits
  - **C-band:** Some argue in favour of tens of hundreds of km co-channel exclusion zones but IMT small cells should be able to co-exist with satellite given <5MHz guard band

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L-BAND (1350-1400MHz & 1427-1518MHz)

COULD PROVIDE A GOOD MIXTURE OF ADDITIONAL MOBILE COVERAGE AND CAPACITY – IT COULD ALSO BE MADE AVAILABLE QUICKLY



CURRENT USAGE:

- Various: radar, aeronautical telemetry, fixed links & broadcast satellite
  - However, in most countries it is underutilised
  - Widespread global support for use of band 1427-1518MHz exists
  - This gives sufficient guard band to protect MSS services above this frequency

HOW TO ACCOMMODATE MOBILE *IN A PORTION*:

- The largely unused portion could quickly and easily be made available (ie.1427-1518MHz)
  - Europe already plans to use this portion for mobile so equipment will be coming
- ITU sharing studies show mobile services & existing users could operate in the band
  - They demonstrate interference can be avoided when the proper measures are taken

The L-band frequencies provide a strong hope for a globally harmonised IMT band at WRC-15

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2.7-2.9GHz

GOOD CAPACITY BAND NEXT TO 2.6GHz BAND: LOWER NETWORK EXPANSION COSTS



CURRENT USAGE:

- Radars for aviation (military and civilian) and meteorological purposes
  - Small number of radars in fixed locations leaving band unoccupied in other areas
  - Significant potential to use the spectrum more efficiently

HOW TO ACCOMMODATE MOBILE *IN A PORTION*:

- All existing radar requirements can be met in a much smaller portion
- Mobile could operate in areas where radar is not used or band could be segmented
  - ITU studies show large exclusions zones are not necessary around radar stations

2.7-2.9GHz represents a key capacity band which is very underused in the African region.

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C-BAND (3.4-4.2 GHz)

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*:

- Portion could be freed in future as FSS is increasingly moving to higher bands (e.g. Ka & Ku) which provide better value, better quality services
- Sharing studies prove satellite & IMT can use the band under the right conditions
  - When a C-band *portion* is assigned for IMT in city centres, and *full* FSS use continues in rural areas, a separation distance **of 5km** would typically be required*
  - Several markets already use the band for both including an LTE service in the UK

AFRICAN GOVERNMENTS COULD RECEIVE $13 BILLION IN TAX AND AUCTION REVENUES IF 3.4-3.8GHz WAS ALLOCATED TO MOBILE

EXISTING SUPPORT:

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

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CONCLUSIONS

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SPECTRUM WILL BOOST CONNECTIVITY

THE FUTURE OF MOBILE BROADBAND IS AT RISK WITHOUT MORE SPECTRUM

- **Mobile traffic is growing faster than anyone's expectations**
  - 2010-2020: Over 100x traffic growth currently expected
- **Significant progress still needs to be made on Agenda Item 1.1 and Africa's role is vital**
- **Without more spectrum, networks will become congested and socioeconomic benefits lost**
- **Supporting higher IMT spectrum demands mean lower cost devices in future**
  - Advanced markets who use the bands first will drive equipment economies of scale for later users
  - New bands won't be licensed to operators until governments see clear demand
- **WRC-15 is a vital opportunity to enhance connectivity for Africans in rural and urban areas**



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THANK YOU – ANY QUESTIONS?

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