# TV White Space (TVWS)

## GSMA Position and Perspectives

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# AGENDA

GSMA overview

Mobile broadband: situation and forecast

TV White Space: basic principles

GSMA view and position

# GSMA OVERVIEW

# GSMA BY THE NUMBERS

## MEMBERSHIP

**800**
mobile operators in over 220 countries

**230** associate members

## MOBILE REACH

**6.6 billion**
mobile connections

**3.2 billion**
individual subscribers

## PRESENCE

Offices in
**9 countries**
serving every region

Staff based in
**26 countries**
representing
**36 nationalities**

# MOBILE BROADBAND

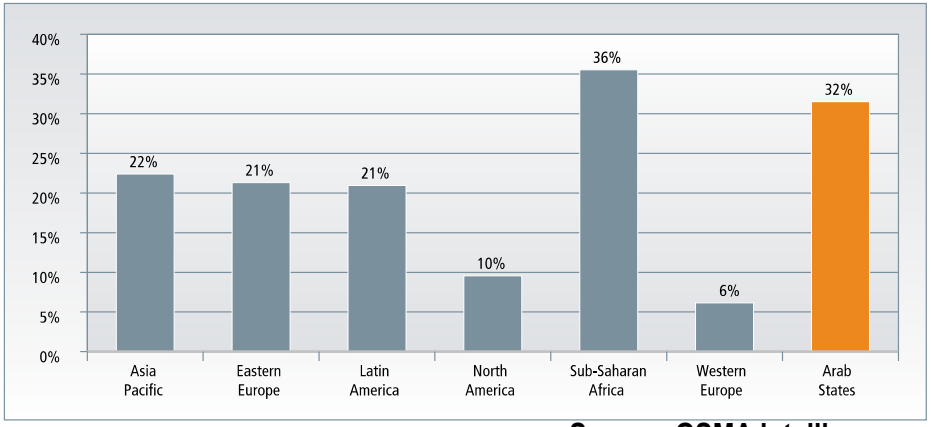
## SITUATION AND FORECAST IN THE ARAB STATES

# MOBILE MARKETS IN THE ARAB STATES

**Significant growth** in the number of mobile connections

- The Sub-Saharan Africa region is the fastest growing region
- The MENA region is the second-fastest growing telecoms market globally

**Average annual growth in the number of mobile connections (2002–2012)**

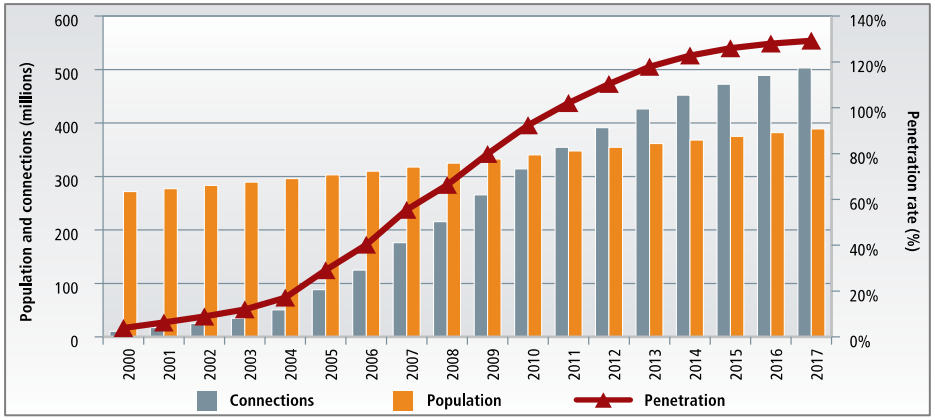



Source: GSMA intelligence

**High penetration** and **sustained growth** in mobile connections

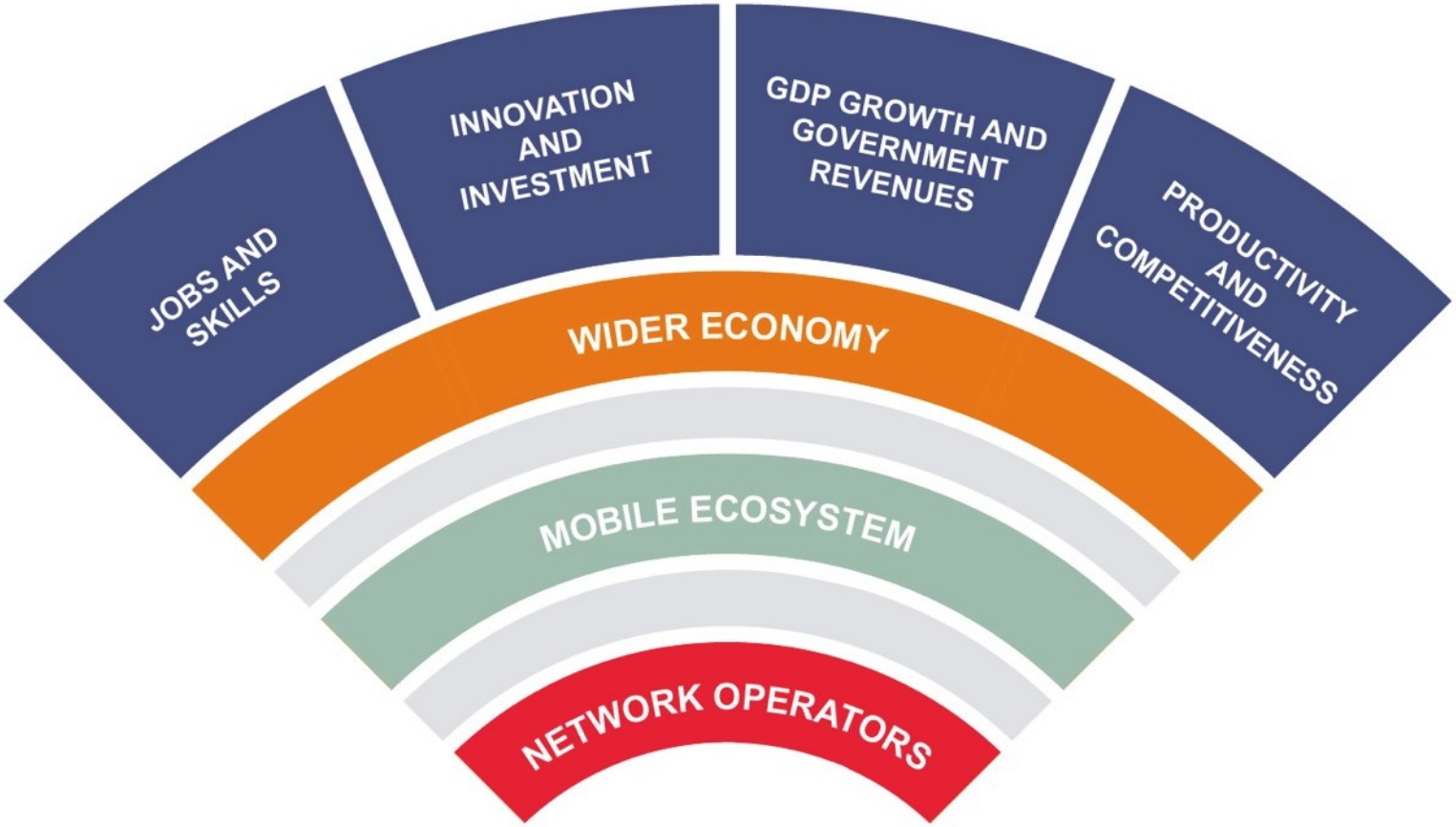
- Mobile penetration has increased rapidly in the past 12 years, from just 3% in 2000 to 105% in 2012, representing an average annual growth rate of over 32%
- Today there are more than 391 million connections in the region

**Mobile connections, population and mobile penetration in the Arab States (2000–2017)**




Source: GSMA intelligence

# IMPACT OF MOBILE BROADBAND



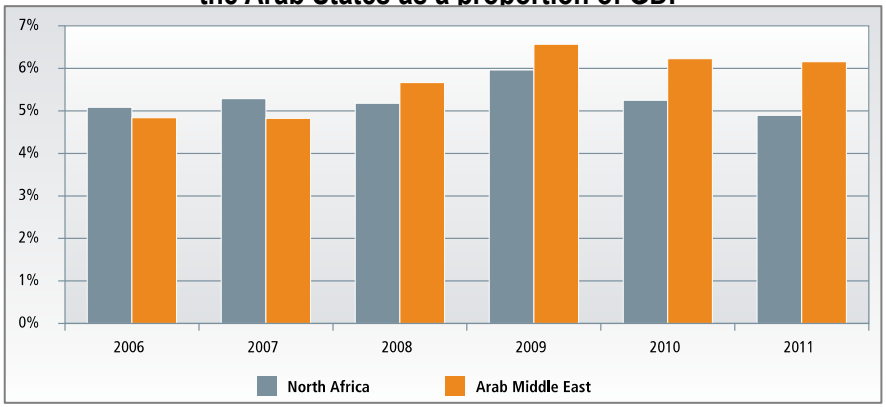
# MOBILE : A TRANSFORMATIVE TECHNOLOGY

## Mobile, using licensed spectrum, has a significant economic and social impact on the Arab States

Overall estimated **economic impact** of mobile:

- In 2011, the supply-side impacts were estimated at **2.9% and 4.2% of GDP** in North Africa and the Middle East, respectively
- The benefits of mobile technologies on improvements in efficiency and productivity are estimated at **2% of GDP across the Arab States**

**Total economic impact of mobile in the Arab States as a proportion of GDP**




**Source: Mobile Economy 2013**

- The mobile industry has contributed more than **1.2 million full-time jobs** across the Arab States in 2011
- **Allocating additional harmonised spectrum** to mobile broadband could create 5.9 million additional jobs by 2025

# TV WHITE SPACES

## BASIC PRINCIPLES

# TV WHITE SPACE: BASIC PRINCIPLES

| | |
|---|---|
| **DEFINITION** | White space comprises spectrum that is **not used at a particular time and geographic location.** Traditionally the focus has been on TV white space, which consists of unused spectrum in the television broadcasting bands |
| **CONCEPT** | It is normally unused due to the necessary geographical separation between TV stations using the same frequency channel and due to unused spectrum by regional TV stations |
| **REGULATORY FRAMEWORK** | The TV white space scenario often relies on **the licence-exempt model** with “no individual rights of use” as well as “no individual frequency planning/coordination”. As a consequence, the TV White Space implementation is on a ***non-interfering / non-protected basis*** |

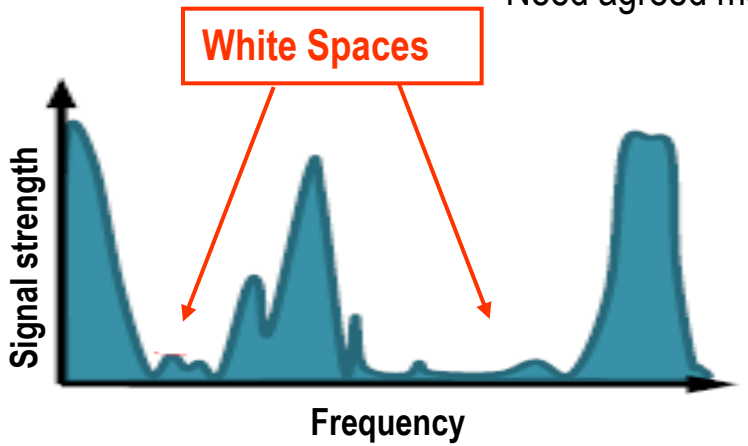
# TV WHITE SPACE: BASIC CHALLENGES

**How to determine whitespace accessibility**

- Balance between reliability and availability
- Adequately protecting incumbent services

**How to measure interference**

- Statements such as “this equipment shall not cause harmful interference…” does not help
- Need agreed monitoring interference method




**How to detect incumbent services**

- Sensing
- Dedicated Pilot Channel (CPC)
- Geolocation & database

**How to prevent security problems**

- Data can be manipulated to create or enlarge spectrum for whitespace use

# TV WHITE SPACE

## GSMA POSITION AND VIEW

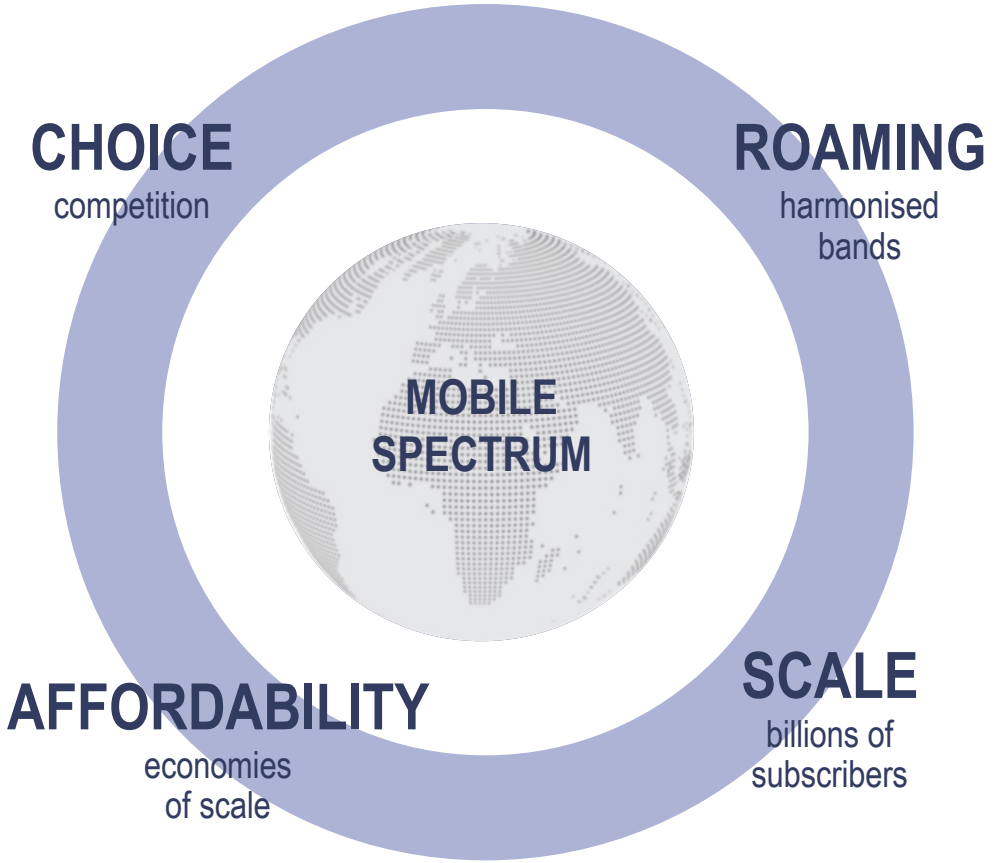
# SPECTRUM HARMONISATION MATTERS

- Need to consider **market harmonisation** to achieve long term benefits
- Importance of following **international spectrum allocations** that have been endorsed at the WRC conferences

Brings down the cost of mobile devices

Enables roaming

Reduces interference issues along borders



# LICENSING REGIME

**Exclusive access remains the main regulatory approach for mobile broadband spectrum — guaranteeing quality of service, safeguarding against interference and providing a higher degree of market certainty to create incentives for investment.**

**The TV White Space licensing regime should not jeopardize the future of the UHF band** including:

- The implementation of the **Digital Dividend**
- The impact on the **preparation process for WRC-15** since the UHF band is going through a number of changes
- **Future spectrum investment** due to uncertainty about licenses and their commercial viability

**TV white spaces would not guarantee high-quality mobile data services** due to:

- **Non-homogeneous geographical coverage** and **fragmented bands**
- **Quality of service issues** due to the interference risk (where work is ongoing) and best effort nature of the service
- **Device issues** surrounding availability, cost and technology due to bands and uncertain market

# GSMA VIEW ON TV WHITE SPACE

**Uncoordinated spectrum sharing could be counterproductive to global harmonisation and reduce the economies of scale in device manufacturing.**

| ACCESS TO ADDITIONAL SPECTRUM | IMPORTANCE OF HARMONISATION | LICENSING REGIME |
|---|---|---|
| Urgent need to secure additional spectrum especially sub 1GHz band to support growing mobile data usage in the Arab States. Operators could gain access to complementary spectrum for mobile broadband — in IMT-identified bands. | Spectrum needs to be harmonised to enable low cost mobile equipment, roaming and to minimise interference. The WRC-15 will be a key milestone for the future development of harmonised mobile broadband. | Exclusive access remains the main regulatory approach for mobile broadband as there are no question-marks surrounding deployment (unlike whitespace) creating an incentive for further investment |

# GSMA RESOURCES

## Digital Dividend Toolkit

**www.gsma.com/digitaldividendtoolkit**

An online resource offering the latest policies, perspectives and best practices for securing and implementing Digital Dividend spectrum for mobile broadband.

## Digital Switchover Guide

**www.gsma.com/spectrum/digital-switchover**

An interactive tool that describes how to manage the conversion to digital television and release Digital Dividend spectrum for mobile.

## Mobile Policy Handbook

**www.gsma.com/publicpolicy/handbook**

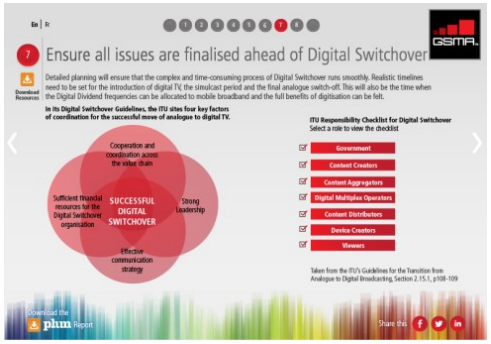
A portal to GSMA positions on mobile policy issues, including spectrum management and licensing.

## GSMA Spectrum Resources

**www.gsma.com/spectrum/resources**

Our library of research, reports, case studies and collateral.





# THANK YOU