Presentation to IIC Asia Forum

What is the digital dividend, how will it come about – and what should we do with it?

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David Abecassis
Analysys Mason is a globally trusted adviser on telecoms, media and technology

- Analysys Mason is a trusted adviser on telecoms, technology and media. We work with our clients, including operators, regulators and end users, to:
  - design winning strategies that deliver measurable results
  - make informed decisions based on market intelligence and analytical rigour
  - develop innovative propositions to gain competitive advantage
  - implement operational solutions to improve business efficiency
- With around 235 staff in 12 offices, we are respected worldwide for our exceptional quality of work, independence and flexibility in responding to client needs

Assignments completed
Cambridge • Dubai • Dublin • Edinburgh • London • Madrid Manchester • Milan • New Delhi • Paris • Singapore • Washington DC
We have recently worked on topics that are at the forefront of thinking for leading Asian telecoms and media entities

**Mobile**

*New business opportunities*
- Developed a mobile data strategy for a mobile group, assessing big vs. small screen opportunities
- For a retail bank, developed its mobile banking strategy
- Valuation and successful acquisition of LTE licence

*Cost rationalisation*
- Assisted two operators in developing a network sharing plan
- Bottom-up network cost modelling (including broadband)
- Strategic investor in outsourcing call centre

**Media and content**

*New pay TV/OTT business models*
- Advised a quad-play operator on the risks from new content business models and strategy to prevent fragmentation of traditional pay-TV distribution
- App store ecosystem development for mobile group

*Broadcasting/Content*
- For a leading TV broadcaster, defined a vision and strategy to enter content production and distribution
- Business plan development for sports channel for market entry into a large South-East Asian country

**Fixed and broadband**

*NGN networks strategy*
- Advised an operator on its strategic approach to a new FTTH network
- Technical and procurement review for a large government-supported NGN

*Enterprise infrastructure investment and market review*
- Assessed the costs and benefits of a lease versus build model for its enterprise fibre network
- Market sizing and growth strategy for managed services

**Spectrum, policy and regulation**

*Digital dividend*
- Defined the strategy for digital dividend spectrum for a leading regional regulator

*National broadband plan policy*
- Prepared a national broadband plan to address existing barriers to development of the market – 2 markets

*Regulation*
- We helped diagnose content exclusivity and its impact on competition for a regulator
- Digital dividend spectrum lobbying support for operator
Introduction: what is the ‘digital dividend’?

Sharing the digital dividend to maximise benefits

The need for spectrum harmonisation for mobile uses

Recent developments in Asia Pacific and elsewhere
A few big words first: the ‘digital dividend’ is a once-in-a-lifetime opportunity arising from a unique digital shift.

- Analogue terrestrial TV had intriguing characteristics:
  - Ubiquitous
  - Rapidly uneconomic at high frequencies and/or low power
  - Therefore very wasteful in terms of spectrum!
    - Now blocking about 350MHz of spectrum for relatively little information
- Transition to digital is improving spectral efficiency tremendously – see table opposite

### Capacity of DVB multiplexes (per 8MHz channel)

<table>
<thead>
<tr>
<th></th>
<th>DVB-T</th>
<th>DVB-T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth / multiplex</td>
<td>27Mbit/s</td>
<td>35Mbit/s</td>
</tr>
<tr>
<td>Number of channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD MPEG-2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>HD MPEG-2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD MPEG-4 AVC</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>HD MPEG-4 AVC</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

How to make the most of this new-found efficiency?

Best in class standard
In Singapore, digital transition is helped by a few key characteristics – but that does not mean the ‘digital dividend’ will be easily gained

Terrestrial is complementary to other TV delivery platforms...

... but challenges reside in the proximity with neighbouring countries

1. HH dependent solely on non-terrestrial: ~50%
2. HH who use terrestrial in some form: ~50%
3. HH dependent only on terrestrial: <2%
So for Singapore to maximise the benefits of the digital dividend, the benefits must be clear to its neighbours as well.

- Relative dependence on terrestrial
  - Pay-TV penetration = non terrestrial penetration = ~50% of households
- Highly sensitive to neighbouring countries’ interference
  - JB, Penang close to borders, KL sensitive to Sumatra interferences
- Ambitious but as yet ineffective digital migration plan
- Politics linked to broadcasting

- Very high dependence on terrestrial
  - Pay-TV penetration = non terrestrial penetration = <3% of households
- Limited sensitivity to interference from neighbouring countries
- Very fragmented broadcasting landscape

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The digital dividend is prime spectrum for a range of applications and sharing the spectrum between uses will yield optimal benefits

- Key characteristics of the spectrum:
  - Good compromise between propagation and capacity
  - Available worldwide
  - Large amount of spectrum (>300MHz)
- Key services:
  - Mobile broadband communications (public and PPDR)
  - DTT broadcasting (and applications in TV white spaces)
  - Other existing uses (e.g. wireless microphones)
- The two main contenders are public mobile and DTT broadcasting
  - Public mobile has been growing very fast and has access to (quite a lot) of other spectrum, but it’s all heavily utilised!
- DTT broadcasting cannot realistically be moved to another band, and remains essential in many countries / areas, but...
  - How many shopping channels do you need (on terrestrial)?
  - TV is increasingly delivered over satellite and non-wirelessly
On the TV side, non-terrestrial is growing fast in Asia-Pacific – but in many countries, terrestrial remains socially and politically important.
However, wireless/mobile technology is clearly essential to internet access beyond the most developed areas in Asia Pacific.

**In developed Asia-Pac**

- **35%**
- **26%**
- **62%**
- **40%**
- **37%**

**In developing Asia-Pac**

- Indonesia
- India
- Vietnam
- Sri Lanka
- Philippines
- Malaysia

### Sources:
- Operators, regulators, Analysys Mason Research; 2011
The digital dividend is prime spectrum for a range of applications and sharing the spectrum between uses will yield optimal benefits

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All serious studies conducted to-date conclude that allocating a **substantial and harmonised** part of the digital dividend to mobile would be most beneficial
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The success of public mobile technology has always relied on scale, requiring standardisation.

The need for spectrum harmonisation for mobile uses.

Three main benefits of harmonisation:

- Efficiency gains in cross-border coordination
- Improved economies of scale
- Interoperability and roaming benefits
For 4G / LTE, the harmonisation battle is far from won, as Apple demonstrated spectacularly.
The need for spectrum harmonisation for mobile uses.

**Key point for Singapore:** without harmonisation, the costs will be severe and borne disproportionately by small countries.

<table>
<thead>
<tr>
<th>With harmonisation</th>
<th>Without harmonisation</th>
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</table>
| Efficiency gains in cross-border coordination           | Difficult cross-border coordination<br>
|                                                         | Incompatible uses will interfere, worst for small / enclosed countries (e.g. Singapore) |
| Improved economies of scale                             | Limited economies of scale<br>
|                                                         | Higher cost or even unavailability of equipment             |
| Interoperability and roaming benefits                   | Issues with interoperability and roaming<br>
|                                                         | Loss of competitiveness                                   |

With harmonisation, efficiency gains, improved economies of scale, and interoperability and roaming benefits are achieved. Without harmonisation, cross-border coordination becomes difficult, economies of scale are limited, and issues with interoperability and roaming occur.
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Things keep moving, but not all in the same (right?) direction

- Some positive developments…
  - Impending auctions in Australia, India and New Zealand
    - All compatible with the AWG band plan
  - Discussion of a second digital dividend in Europe
    - Welcome by BEREC (but limited appetite to tackle this at the moment!)
- And some new challenges:
  - First consumer impact of global fragmentation (new iPad)
  - Lack of clarity on plans for markets in key geographic positions (e.g. Malaysia)
  - DSO is not progressing as fast as hoped in many markets
Regulators and policy makers must go through three broad phases in order to maximise the benefits of the digital dividend:

- **analyse the socio-economic value** of spectrum for different uses, and draw up an allocation plan that reflects this
- **design and implement effective and economically efficient transition plans** from analogue to digital TV broadcasting, including distribution and financing of set-top boxes for vulnerable users
- **establish spectrum release and pricing rules** (e.g. auctions, administered incentive pricing) to extend the discipline of market forces to those parts of the spectrum that do not need to be protected on social grounds
To recap…

- The digital dividend spectrum is a once-in-a-lifetime opportunity to re-allocate very valuable spectrum
- As a general principle, the optimal allocation will involve a mixture of uses: broadcasting, public mobile, broadband PPDR
- The tremendous growth in mobile data makes policy decision urgent
- Harmonisation across Asia-Pacific is essential, particularly as there is already fragmentation between regions
- Regulators must prepare to make informed decision and adapt spectrum regulation frameworks accordingly
Thank you!

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A few points heard at a recent event (in HK) show that this message is being relentlessly expressed by wide parts of the industry.

- “Most people don’t use FTA / many people use catch-up TV”: not true in developing markets – although satellite reception is increasing
  - Borders issues linked to high power transmission are key
- “In HK people like free, so FTA is popular, but different in other places”:
  - True! People like free everywhere
  - But free can also be delivered through cable or satellite
- “Mission critical cannot possibly win an auction for spectrum against public mobile”
  - But they may well do against broadcasters! Marginal value of terrestrial broadcast spectrum is very low after a few channels
  - May fragmentation (globally) in the 700MHz band help, by increasing the breadth of assignments that can be used by emergency communications?