Industry landscape and trends

**Scenarios for the future**

- Industry faces a range of uncertainties and must prepare for a number of alternative scenarios:
  - Surviver Consolidation - Revenue decline, industry loss of confidence, leading to consolidation of Telcos
  - Clash of giants - competition between integrated giant carriers, increased competitive threats from OTT
  - Market Shakeout - Structural separation, growth through premium connectivity sold to third parties
  - Generative Bazaar - Scattered initiatives, passive infrastructure sharing, valorization of active infrastructures

A return to strong growth requires the telecom industry to act collectively to create the necessary conditions for the emergence of the more profitable scenarios - How can Governments support this transition?

Public driven initiatives for VHS broadband

**Why and how?**

- Growing awareness of broadband investments spillover effects (GDP, productivity and competitiveness)
- To achieve ubiquitous coverage of very high speed connectivity and tackle future challenges of society inclusion, ageing population, climate change
- To complement private initiatives in policy driven areas and maximize network's social benefits, minimize public funding thanks to private investments
- To ensure network openness and cost-effective connectivity through competition while encouraging new investments needed to handle data capacity growth

**How do Public Authorities, governments and regulators intervene?**

- Enabling competition and coverage (through PPP like projects (recovery plan in the US, digital divide plan in the EU and APAC, EU State Aid guidelines encouraging PPPs))
- Organizing new competition models (HVV model, open local LTE networks)
- Facilitating infrastructure sharing models to lower market entry barriers (ducts, in-house wiring, poles and mast sharing, NGA recommendation, co-investment in wire-line and wireless passive infrastructure)

**Public driven initiatives for VHS broadband investments**

**Regulatory impact on access competition models**

<table>
<thead>
<tr>
<th>Active infrastructure-based competition</th>
<th>Service-based competition</th>
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<tbody>
<tr>
<td>Access to non replicable passive infrastructure (ducts, poles, wires) in-house wiring - triggers infrastructure competition in urban/suburban dense areas</td>
<td>A single network is rolled-out and shared: - regulated monopoly - &quot;virtual&quot; separation model</td>
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<td>High medium/low density areas, competition is based on a combination of access to passive infrastructure and bitstream wholesale</td>
<td>Competition is based on bitstream wholesale (layer 2) or Radio Access Network (spectrum sharing)</td>
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<td>State Aid is allowed for fibre access networks and in backhauling in underserved areas</td>
<td>Vertical convergence is a key property of these projects: projects are government driven</td>
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<td>Differentiation between operators is based on access to physical network resources (fixed or mobile IP bitstream)</td>
<td>Vertical integration operators compete through passive infrastructure wholesale</td>
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<tr>
<td>Horizontally integrated operators compete through active bitstream wholesale</td>
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**Infrastructure sharing**

French case study: infra sharing according to geo-types

- Very dense areas:
  - Fiber flexibility point at building basement (if HBD has more than 12 DUs)
  - Multi-fibre is the terminating segment (on-house wiring) in case of co-investment
  - Fully shared access

- Less dense areas:
  - Fiber flexibility point at cabinet level (min 300 fibres)
  - Shared mono-fibre in terminating segment and in-house wiring
  - Fully shared access
Infrastructure sharing

**Australian Case study: active access sharing and universal coverage**

A Diversity of Wholesale and Retail Business Models

- Retail service provider
- Retail service provider
- Retail service provider
- Retail service provider

Layer 3 Wholesale
Layer 2 Tunnel Protocol Wholesale
Layer 2 Backhaul Wholesale
Layer 2 Ethernet Access Network Wholesale

Public driven initiatives for VHS broadband investments

**Regional trends**

- EMEA
  - Infrastructure-based competition prevails, favoring operators’ vertical integration. Bitstream wholesale being considered as a second-best except in UK (VULA).
  - EU Digital Agenda: universal broadband coverage, bandwidth increase, national BB strategies required.
  - State Aid scope has been broadened for fibre networks in suburban and remote areas with pricing equalization - may accelerate fibre PPPs.

- AMERICAS
  - US: ARA Stimulus funds mainly allocated to middle-mile projects in unserved and underserved areas - upcoming debates on HS as USO and PSTN retirement.
  - CALA: Broadband plans are heating up, focus on mobile open access and open backbones.

- APAC
  - Functional separation (i.e., "shared access") combined with bitstream wholesale and regulated monopolies are leading network transformation (Singapore, Australia, NZ, and NBN - Open backbones in India).
  - Tested for very high-speed universal coverage.

Thank you!

Questions?