Monetizing 5G – the disruption of traditional telco business models

4 July 2018
Service providers are facing a saturated market and declining margins due to the commoditizing of connectivity services.

Past 10 years cumulative change in average ARPU weighted with globalised population

-34%
Disruptive technologies will arise enabled by 5G revolutionizing complete vertical industries

- Transformation in roles
- New ecosystem
- New business models
An example for the complexity of a 5G vertical ecosystem – connected cars

THE 5G ECOSYSTEM

1. ...is not limited to an industry
2. ...establishes collaboration between market players
3. ...create close partnership between mobility platform providers and telcos
4. ...makes it possible for telco providers to play a vital role in creation of the new ecosystem
5G will create new opportunities for operators - new revenue streams as well as potential cost advantages

OPPORTUNITIES

**New Revenue in Enterprise and Consumer IoT**
- Enterprise IoT market may scale first, and Consumer to follow
- Early uptake likely to be use cases related to Manufacturing, Transport, Health and AR/VR

**Cost-effective Backfill, Backhaul or Fixed Wireless Access**
- Backfill for NBN in remote areas where the business case for fixed line is not appealing
- Relatively cheap backhaul option for operators and service providers
- 5G can be used as a cost effective last mile option (several trials on-gong)

**Substitute for Fixed Broadband**
- 5G can be a substitute to FBB for certain segments: for example, cohorts of youth that prefer to be mobile-only may tolerate higher spend on 5G for the convenience of remaining mobile-only

**Slicing and Latency-Enabled Services**
- 5G network slicing capability may enable graded, differentiated pricing for connectivity
- There will be relatively few use cases which justify low latency slicing services, but the superior 5G characteristics can’t be efficiently offered without proper slicing capabilities

**Network Operations Cost Efficiency**
- 5G could be utilized in “hot spots” to reduce the cost of data transmission, relative to 4G networks today
- 5G could lower the cost per MB due to its higher spectral efficiency and lower energy consumption

2 July 2018

PwC
5G comes with several challenges when trying to understand the nature of demand, willingness to pay and generation of returns

### 5G CHALLENGES

<table>
<thead>
<tr>
<th><strong>1. Challenges to Adoption of Integrated Machine to Machine Communications</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consumers still view IoT or 5G-enabled services as complex and their cost high or unknown</td>
</tr>
<tr>
<td>• Enterprises are concerned about data control and system integration</td>
</tr>
<tr>
<td>• Most enterprises are yet to believe the business case for IoT and haven’t started thinking about 5G</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>2. Significant New Capability and Cost Requirements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• 5G plays will require capabilities that many telcos and technology companies alone do not possess (e.g. software solutions selling, device selling, device lifecycle management)</td>
</tr>
<tr>
<td>• 5G CapEx will present new burdens, as well as spectrum cost</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>3. Competition is Increasing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Multiple players will compete in the IoT market ranging from start-ups, large tech players, device players, etc.</td>
</tr>
<tr>
<td>• Because of seed funding, it may take a few years before the market shakes out</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>4. Value Extraction is Low Due to Partnership-Driven Offerings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Players typically will need to strike partnerships with other value chain players to create an offering (device, platform, applications etc.)</td>
</tr>
<tr>
<td>• Value extraction thus will remain low unless wider plays are considered</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5. Inventory/Investment Risks for Device-led Plays</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Devices will likely claim a larger share of the consumer spend on 5G than 3G/4 G (due to possible elevated 5G device cost)</td>
</tr>
<tr>
<td>• However, device plays are characterized by inventory risks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>6. Alternate Monetization Models not Mature</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Alternate monetization options are yet to be proven (digital advertising, big data driven solutions, and advanced bundling driven packages)</td>
</tr>
</tbody>
</table>
The preparation for 5G rollout includes three main tasks ranging from finding the business value specific for an operator to possible rollout partnerships.

**THREE MAIN AREAS**

**1. Business Strategy & Use Cases**

- **1.a Business Model Definition**
  - Identify emerging business models and ways to play
  - Assess business case and articulate strategy for execution
  - Build the operating model

- **1.b Use Case Assessment and Definition**
  - Evaluate and prioritize use cases based on client context and aspirations, market conditions and emerging trends
  - Synthesize roadmap of uses cases and size the opportunity

**2. Design Detailing**

- **2.a Design Detailing**
  - Functional specifications, use case blueprint, high-level architectures
  - Derive network demand requirements across use cases

- **2.b Solution Architecture**
  - Reference architectures
  - Prototyping, development and testing
  - Running operations and management

**3. Deployment Models & Pre-requisites**

- **3.a Rollout Models and Partnerships**
  - Evaluate options for architecture deployment, including joint-rollout, TowerCo JVs, national networks, etc.
  - Define target model, engage partners and initiate deployment

- **3.b Spectrum Evaluation**
  - Evaluate spectrum needs based on roadmap of use cases and architecture design
  - Valuate spectrum bands, prepare for and participate in auctions

Source: Strategy& analysis
Take-away for telcos / regulators and government

**Telecommunication companies:**
- Connectivity is not enough to sustain margins, operators should aim for higher value add
- New skills should be developed especially in B2B solution selling
- Facilitators can help establish trust between telcos and vertical industry players
- Consider the benefits of rollout partnerships, tower asset companies

**Regulators:**
- Network management roles might be shifting towards new players requiring regulatory attention
- The business case will most likely not support 3-4 independent countrywide networks, which has an impact on spectrum auctions

**Government:**
- In order to exploit the innovation potential of 5G enabled services an increased emphasis should be placed on supporting R&D activities + pilots via state and EU finds
- Industry development strategies should involve telecommunication as a key enabler
- Rural and not developed areas might lag behind without state support in coverage
Thank you for your attention!

Bálint Végh
Manager
Telecommunication Consulting
Tel: +36 30 790 1965
balint.vegh@pwc.com