Models for Monetising 5G Investments

STL Partners

GSMA 5G Live webinar series

15th July 2020

@STLPartners  linkedin.com/company/stl-partners
Agenda

• Introductions
• The $1.4 trillion 5G opportunity
• Why telco financial models inhibit service innovation
• Potential strategies for addressing the 5G vertical opportunity
• Examples of telcos successfully investing in a vertical strategy: Telus and Elisa
• Q&A
STL Partners helps our clients innovate, grow, and stay ahead of existing and new competition in a digital world

- Research
- Consulting
- Events
Today’s presentation draws an extensive 5G research programme covered in five STL Partners reports...
...and work through our Edge Computing Practice

Unrivalled expertise and experience...

Supported 4 major telecoms operators to develop a commercial strategy for edge computing

“STL brings edge expertise. They understand that landscape across telco and other ecosystems.”
Head of Commercial & Partnering - Global MNO

“We worked closely with STL in true partnership to deliver high quality, actionable insights that were not available elsewhere.”
Head of Cloud Edge - European MNO

“The consulting team produced high-quality output that could be repurposed in a wide variety of ways.”
Product Manager - global software company

Supported 4 major telecoms operators to develop a commercial strategy for edge computing

Interviews with over 50 enterprises and solution providers across different industries

Advised global telco on hyperscaler partnership negotiation worth €0.5M

Team of experts: leading industry analysts and consultants, IoT practitioners & cloud specialists

...and an industry-leading edge knowledge centre

Database of 150+ use cases for MEC, private networks edge and on-premises edge

Interactive model for forecasting use case revenues

Ecosystem tool mapping 80+ vendors across the edge value chain

MEC site ROI model & hyperscaler negotiation tool
Telcos and others are investing huge amounts of capital to build networks... some of which will start to feed into edge

$350

$54

$2

Telecommunications annual capital investments

Hyperscale capital investments (Amazon, Microsoft & Google)**

Edge investments (PE, VC, etc.)*

* largest edge investments recorded in STL Partners Edge Ecosystem Tool 2016-2020
**2019 fiscal year; Source: finbox.com
The good news: 5G is forecast to generate significant value for other industries

Benefits to industry attributable to 5G (USD trillions)
The absolute size of each industry is a key factor in the absolute size of 5G’s impact.

2030 Global GDP by Industry (with no 5G) - USD Trillions

- Manufacturing: 17.5
- Retail: 10.2
- Health: 9.7
- Construction: 7.2
- Agriculture: 4.7
- Transport & distribution: 4.6
- Energy & extractives: 2.0
- Media, sports & entertainment: 1.0
The percentage increase in GDP from 5G varies significantly by industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>5.1%</td>
</tr>
<tr>
<td>Energy &amp; extractives</td>
<td>4.9%</td>
</tr>
<tr>
<td>Media, sports &amp; entertainment</td>
<td>4.0%</td>
</tr>
<tr>
<td>Transport &amp; distribution</td>
<td>3.5%</td>
</tr>
<tr>
<td>Retail</td>
<td>1.6%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1.0%</td>
</tr>
<tr>
<td>Health</td>
<td>1.0%</td>
</tr>
<tr>
<td>Construction</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

 Several compelling use cases and relatively fast technology adoption
Fewer compelling use cases and/or relatively slow technology adoption
The bad news: There is no guarantee telcos will reap rewards with the current business model...as seen with 4G

Source: Company filings, STL Partners Analysis
In fact, telcos are facing a stagnant or declining market in all regions.

Annual growth in service revenue is tending to 1% in Asia Pacific, North America and Western Europe.

- Operators have focused on short-term cost-cutting and technology leadership.
- This may boost individual operators profitability for a while…
- …but, inevitably, will lead to further price reductions and margin compression.

Where does growth & value come from in a competitive commodity market?

Source: Data from 165 company filings, STL Partners analysis and forecasts.
Telcos are moat builders (with leaky moats) and are radically out-invested in service innovation by tech companies

- Historically, service innovation = network capex:
  - Outsourced to Network Equipment Players (NEPs)

- Now, services are independent of the network (thanks to Internet)

- Telcos still invest only in capex but value is increasingly in network-independent services

![Diagram showing R&D and Capex % of Revenue, 2017 and Moat builders](image)

Source: Company accounts; STL Partners analysis
Reality check: Market capitalisation of seven internet players is more than all telecoms operators combined!

Why?

Service innovation + moats = Profitable growth = Future value creation

Revenue and Market Capitalisation, 2017, Telco vs Internet

Source: Company accounts, stock market data; STL Partners analysis
Operators need to shift from a horizontal strategy to a vertical strategy

From large-scale standardised commodity products for all...

...to higher-value solutions tailored for specific target industries

Past

Voice Messaging Connectivity

Now & future

SaaS

PaaS

NaaS

New:
- Skills
- Partners
- Business models
A vertical strategy means resources must be allocated differently

- Greater telco investment on platforms & services to move beyond connectivity...
- ...means correspondingly less on CapEx – i.e. 5G investment

Impossible?

- Google shifted to greater CapEx investment between 2009 and 2017

Source: Google/Alphabet accounts; STL Partners analysis
Where should all this new operating expenditure go?

Skills, assets, capabilities

Infrastructure
- Vendor management
- Operational efficiency
- Service assurance
- Network quality of service
- Congestion management
- Provisioning
- Capital investment planning

Existing capital expenditure and network operating expenses
The telco CFO needs to preside over a fundamental change in financial and commercial models

Potential resource breakdown for a typical telecoms operator

- EBIT
- (Non-network) service innovation and delivery
- Sales and customer care
- Operations (to run infrastructure)
- Amortisation of intangibles
- Capital Expenditure (ie depreciation)

Source: Telecoms operator accounts, STL Partners estimates and analysis
Operator management must determine their vertical focus and their role in the ecosystem

1. Who are you serving?

   - Energy & Extractive industries
   - Healthcare
   - Manufacturing
   - Retail
   - Financial services
   - Logistics & Distribution
   - Agriculture
   - Media & Entertainment
   - Consumers

2. What are you doing for them?

   - Applications and solutions
     Specific vertical solutions and applications.
   - Application enablement
     Aggregation platforms for data, applications and enablement services.
   - Network-as-a-service
     Customised cloud-like networks.
Poll 1: Which business model do you believe your organisation should focus on to deliver 5G growth?

1. Applications and solutions
2. Application enablement
3. Networks-as-a-service
1. Operators have some structural advantages in some industries…and disadvantages in others

Degree to which connected technology can change the industry

- **Telecoms sweet spot**
  - Global internet players, hyperscalers, other technology companies, have strategic advantages here

<table>
<thead>
<tr>
<th>Level at which economies of scale operate</th>
<th>National</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Fishing</td>
<td>Oil &amp; gas</td>
</tr>
<tr>
<td></td>
<td>Construction</td>
<td>Fashion</td>
</tr>
<tr>
<td></td>
<td>Mining</td>
<td>Insurance</td>
</tr>
<tr>
<td></td>
<td>Agriculture</td>
<td>Media</td>
</tr>
<tr>
<td>High</td>
<td>Healthcare</td>
<td>Wellness</td>
</tr>
<tr>
<td></td>
<td>Energy</td>
<td>Media</td>
</tr>
<tr>
<td></td>
<td>Manufacturing</td>
<td>Wellness</td>
</tr>
</tbody>
</table>
2. Each ecosystem role offers different opportunities, has different characteristics, and requires different skills...

<table>
<thead>
<tr>
<th>Role</th>
<th>Revenue &amp; profit pool</th>
<th>Market &amp; competition</th>
<th>Fit with current skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications and solutions</td>
<td>70+%</td>
<td>Fragmented specialists, intense competition</td>
<td>Low</td>
</tr>
<tr>
<td>Application enablement</td>
<td>20-25%</td>
<td>Consolidated, large tech players, intense competition</td>
<td>Medium</td>
</tr>
<tr>
<td>Network-as-a-service</td>
<td>5-10%</td>
<td>Consolidated, large telcos, intense competition</td>
<td>High</td>
</tr>
</tbody>
</table>
...so management must balance implementation risk against market risk

Telco strategic roles summary

- **Applications and solutions**: Be ambitious and risk implementation failure?
- **Application enablement**: versus
- **Network-as-a-service**: Be cautious and risk being squeezed by market decline?

Size of opportunity

Ability to compete
We are seeing examples of telcos starting to focus on specific customer segments

- Energy & Extractive industries
- Healthcare
- Manufacturing
- Retail
- Financial services
- Logistics & Distribution
- Agriculture
- Media & Entertainment
Poll 2: To what extent is verticalisation core to your 5G strategy?

1. **We are not focused on verticalisation**: we see future 5G growth coming from our horizontal connectivity business

2. **We are exploring verticalisation**: we see B2B being a key growth engine in 5G but do not yet have a clear strategy

3. **We are starting to invest in verticalisation**: we have selected our verticals and are exploring organic and inorganic growth options

4. **We are actively investing in verticalisation**: we have already made some acquisitions and/or organic investments in our select verticals
Telus: Key learnings from a flagship telco-health business providing solutions and platforms

Case Study
Each vertical requires a detailed analysis of roles and the ‘right to play’ for a telco

Healthcare opportunities for the telecoms industry

1. Healthcare network focus:
   - Healthcare-specific propositions?
   - New sales channels, partnerships?
   - Client-specific network solutions?
Each vertical requires a detailed analysis of roles and the ‘right to play’ for a telco

Healthcare opportunities for the telecoms industry

2. Healthcare enablement platform:
   - Health (data) exchange only?
   - Add additional enablement capabilities?
   - What to do alone, in partnership, exclude?
   - Interoperability with other platforms?
   - How to integrate with Network-as-a-service solution?
Each vertical requires a detailed analysis of roles and the ‘right to play’ for a telco

3. Healthcare Solutions and applications:
   - Where to specialise?
   - How to integrate with other specialists, other enablement platforms?
   - Add-on to an enablement platform solution or separate focus?
   - How to integrate with Network-as-a-service solution?
TELUS Health - a flag ship for telcos in health?

What are they doing?

APPS & SOLUTIONS
- Claims settlement
- Consolidate Canadian EMR market
- Remote monitoring
- Employee insurance & wellness

APP ENABLEMENT
- Canadian health data exchange
- Licence technology to other telcos globally

How are they doing it?

1. Build reach
   - Emergis claims settlement
   - EMRs for GPs
   - Pharmacy IT

2. Drive collaboration
   - Mobile apps
   - Gvt contracts

3. Improve outcomes with analytics
   - Babylon

What have they achieved?

- #1 EMR provider
- #1 pharmacy IT provider
- eClaims reaches 5 different user groups
- 2017: awarded national e-prescription contract
- LIVE eClaims + EMRs
- IN DEVELOPMENT
  - Virtual care + remote monitoring

TELUS Health revenues

<table>
<thead>
<tr>
<th>Year</th>
<th>CAD millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>0</td>
</tr>
<tr>
<td>2012</td>
<td>200</td>
</tr>
<tr>
<td>2013</td>
<td>400</td>
</tr>
<tr>
<td>2014</td>
<td>600</td>
</tr>
<tr>
<td>2015</td>
<td>800</td>
</tr>
<tr>
<td>2016</td>
<td>1000</td>
</tr>
<tr>
<td>2017</td>
<td>1200</td>
</tr>
<tr>
<td>2018</td>
<td>1400</td>
</tr>
</tbody>
</table>

TELUS Health revenue

As a % of TELUS total revenue

bar chart with years 2011-2018 and values 0%, 2%, 4%, 6%, 8%
TELUS Health have an early stage remote patient monitoring solution – Home Health Monitoring

**Home Health Monitoring solution**

- COPD
- Heart failure
- Data

**Key partnerships for delivery**

- B2B2C model
- Key channel for TELUS
- Built relationships through provincial EMRs

- Integrated Care Platform for managed service model
- Connected health technology
**TELUS also have an early stage virtual consultation partnership**

<table>
<thead>
<tr>
<th>Babylon health services</th>
<th>Key partnerships for delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellness assessment</td>
<td>• Go-to-market partner for TELUS</td>
</tr>
<tr>
<td>AI-driven triage system</td>
<td>• Commercialised offering in UK and Rwanda</td>
</tr>
<tr>
<td>Text / video consultation</td>
<td></td>
</tr>
</tbody>
</table>

**Success?**

- In Canada – huge spike since COVID-19 pandemic
- In UK, more than 40,000 NHS patients registered

**So, why do we need 5G?**

**Key challenges**

- Fear of duplicated efforts
- Lag impacting user experience
- Pixilation preventing visual diagnoses

**Supported via 5G?**

- Yes
- Yes
Elisa: How building its own automated NOC helped the operator develop a smart factory business

Case Study
Elisa has a decade of experience in automation

- Zero person Network Operating Centre since 2010
- 60 automated use cases for network operation
- 90% of incidents automatically resolved
- 75% corrected before visible to customers
- Automated NOC now provided to other telcos

Significant improvement in NPS

Significant cost savings – fast!
Elisa Smart Factory stems from the company’s skills in telecom NOC automation

**TRADITIONAL APPROACH**

- **L4** Business systems (ERP, SCM, PLM) Governance & planning
- **L3** Production execution (MES / MOM)
- **L2** Process monitoring (HMI-SCADA)
- **L1** Process sensing, manipulation (PLC)

**IIoT CREATES A NEW LAYER OF DIGITAL TECHNOLOGY**

**L5** ELISA SMART FACTORY

**CONNECT DATA**
- Integrate data
- Understand data
- Define models & KPIs

**VISUALISE DATA**
- Real-time, role-based dashboards
- 3D/2D view of equipment and processes

**ACT ON DATA**
- Real-time alerts
- Automation through analysing data
- AI and machine learning enable better and faster decisions

- Reduce downtime
- Improve product quality
- Efficiency & safety

*ISA-95
Elisa creates a service operation centre in which everything is controlled through a single (virtual) pane of glass...
...with multiple applications creating customer value
Why is manufacturing a good opportunity for telcos?

1. It’s big, adopts technology readily, has tangible productivity and efficiency challenges

2. 5G can make a big difference – use cases are compelling and relatively understood by the industry

3. Telco NOC and automation skills are highly applicable to manufacturing
Summary lessons

Telus

• Acquisitions and partnerships can accelerate your go-to-market by quickly accessing solutions and customers...

• ...But telcos will need to consider the role in the value chain and ensure you can piece (point solutions together

• Leverage your “local” nature and work closely with government - as a partner and/or a customer

• Separate organisational structure for B2B initiatives does not impede network upsell opportunities

Elisa

• Telcos can grow vertical businesses organically – as long as you can bring a world-class capability to them

• Think creatively about how to apply your skills to other industries

• Research, design, and test with a willing partner or customer – then scale

• Network independence may be a good (initial) strategy to promote speed
Poll 3: To what extent are you confident in your 5G verticalisation strategy and execution?

1. We do not have a clear verticalisation strategy - e.g. yet to focus on key industries)

2. We are yet to finalise our verticalisation strategy – need to define our business model(s)

3. We have a clear verticalisation strategy but unclear execution plan – need to decide how we will acquire skills/capabilities/customers

4. We have a clear verticalisation strategy and execution plan – already seeing indicators of success
Thank you!

To discuss any of this content in more detail please visit our Edge Computing hub:

www.stlpartners.com/edge-computing