FUTURE OF TELCO AND RELATED ECO-SYSTEM

Keynote Speech, Karim Taga

NOV. 7th 2023, KECSEKMET
The market dynamic is changing driven by reconfiguration and 3rd parties taking more control of the telco business.

Digital platforms are emerging backed by VCs and PEs providing à la carte all the key functions required to “consume” as a Service.

New opportunities for the key stakeholders: telcos (stand-alone and groups), digital platform providers, investors, tech & SW players.
THE MARKET DYNAMIC IS CHANGING
Since 2002, we have been publishing the landmark reference study on the industry, backed by inputs from senior industry decision makers. A long track-record of successfully analysing and predicting industry trends.
Arthur D. Little is years ahead of competition in conceptualizing and executing Asset Reconfiguration and delayering to unlock value and unleash the operating model.

Q1 2014: Arthur D. Little publishes report describing how operators need to structurally change to cope with changing industry dynamics by embracing a new "layered" business model.

Q2 2015: Arthur D. Little assists O2 CZ and its shareholder PPF to conceptualize, and operationalize the voluntary structural separation.

Q1 2016: Arthur D. Little recommends Strategic Asset Reconfiguration to unlock hidden value within a Telco.

2020-23: Arthur D. Little supported various clients in their strategic asset reconfiguration journeys, leading to unprecedented deals uniquely catering for local specificities ...

Source: Company websites, Arthur D. Little
All the major telco players in US and Europe dropped significantly in the share price over the past 5 years – except for Deutsche Telekom

Source: Investing.com, Arthur D. Little
Debt/equity: While debt is slowly increasing, equity is shrinking faster (as share price is decreasing), leading to higher leverage (Debt/equity) increasing financial risk.
Recent deals show that Telcos can reduce leverage by selling stakes in their infrastructure to financial investors – who in turn have higher borrowing capacity.

Global Telco debt leverage
2023, Debt/EBITDA

| Year | AT | HU | SK | SL | Turk | Telone | Singtel | KPN | NTT | BT | Telia | Comcast | Corp | Tele2 | Bharti | Airtel | Orange | T Mobi | US | TEF | Verizon | Comms | AT&T | DT | Amer | Tower | Telecom | Italia | Inwit | Cran | Cst Inc | Helios | Towers | AT &C | Ailice | Usa | Sba | Comms | Cellnex |
|------|----|----|----|----|------|--------|--------|-----|-----|----|-------|---------|------|------|-------|-------|-------|-------|-----|-----|-------|-------|-------|-----|------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-------|-------|
| 2018 | 2.0 | 3.0 | 2.8 | 2.9 | 1.7 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.6 | 2.6 | 2.7 | 2.8 | 2.9 | 3.1 | 3.2 | 3.7 | 3.8 | 4.7 | 5.0 | 5.3 | 6.0 | 6.8 | 7.3 | 7.3 | 2x-4x is the Debt/EBITDA range for most Telcos
| 2019 | 2.0 | 3.0 | 2.8 | 2.9 | 1.7 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.6 | 2.6 | 2.7 | 2.8 | 2.9 | 3.1 | 3.2 | 3.7 | 3.8 | 4.7 | 5.0 | 5.3 | 6.0 | 6.8 | 7.3 | 7.3 |
| 2020 | 2.0 | 3.0 | 2.8 | 2.9 | 1.7 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.6 | 2.6 | 2.7 | 2.8 | 2.9 | 3.1 | 3.2 | 3.7 | 3.8 | 4.7 | 5.0 | 5.3 | 6.0 | 6.8 | 7.3 | 7.3 |
| 2021 | 2.0 | 3.0 | 2.8 | 2.9 | 1.7 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.6 | 2.6 | 2.7 | 2.8 | 2.9 | 3.1 | 3.2 | 3.7 | 3.8 | 4.7 | 5.0 | 5.3 | 6.0 | 6.8 | 7.3 | 7.3 |
| 2022 | 2.0 | 3.0 | 2.8 | 2.9 | 1.7 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.6 | 2.6 | 2.7 | 2.8 | 2.9 | 3.1 | 3.2 | 3.7 | 3.8 | 4.7 | 5.0 | 5.3 | 6.0 | 6.8 | 7.3 | 7.3 |

Source: Refinitiv Eikon, DT Q1 2023 Report, Arthur D. Little

1 THE MARKET DYNAMIC IS CHANGING
Equity vs Debt: Debt/Equity is steadily increasing across all telcos. Some telcos like Verizon have however managed to avoid too much debt.

Market capitalization, debt and debt/equity of major telco operators in US and EU

US & EU, 2014-2022, EUR & %

Why do Telcos pursue asset reconfiguration?

1. **Reduce Debt/Equity**
   - **TIM**
     - EV: EUR 35 bn
     - Debt: EUR 30 bn
     - Equity: EUR 5 bn
   - **KKR/CDP**
     - ~20% Equity
     - Cash-in: EUR 2.2 bn
   - **NetCo**
     - EV: EUR 18-22 bn
     - Reduce Debt by EUR 2.2 bn
     - Increase equity via valuable NetCo
   - **Vodafone Group**
     - **Spain**
       - EV: EUR 5 bn
       - Cash-in: EUR ~4 bn
     - **Hungary**
       - EV: EUR 1.8 bn
       - Cash-in: EUR ~0.5 bn
     - **Vantage Towers**
       - EV: EUR 22 bn
       - Cash-in: EUR 3-6 bn
   - **Total cash-in from sales:**
     - EUR 7.5-10.5 bn
   - **Debt retired by Vod in 2022-23:**
     - EUR 9.5 bn
   - **Orange PL**
     - EV: EUR 18-22 bn
     - Debt: EUR 30 bn
     - Equity: EUR 5 bn
   - **APG Group**
     - 50% Equity
     - Cash-in: EUR 300 mn

2. **Cash to pay down debt**
   - **Orange PL**
   - **Swiatlowod Inwestycje**
     - FTTH HHP: 1.7 mn
     - Capex: EUR 600 mn

3. **Cash for Capex (FTTH)**
   - **TIM Italy**
     - TIM sold ~20% of its ‘NetCo’ infraco (FTTH access network) to KKR at an EV of EUR 8-22 bn and cash-in of EUR 2.2 bn in Nov 2023
   - **Vodafone Group**
     - Vodafone is selling OpCos (Vod HU, Vod ES) using the proceeds to pay down its debt
   - **Orange PL**
     - Orange PL sold a 50% stake in its FiberCo (Swiatlowod Inwestycje) to raise a majority of the 600mn funding needed to roll out 1.7 mn FTTH in Poland to APG Group

Source: Arthur D. Little
Telcos realize value with asset reconfiguration by starting with InfraCos – Carve-outs in all forms are becoming a reality in more and more markets

Strategic asset reconfiguration

Integrated Telco

Commercial side (ComCo)

- B2C retail
- B2B retail
- Enablement & product house
- Brand, Channels, Spectrum for mobile etc.

Infrastructure side (InfraCo)

- RanCo: Active RAN
- TowerCo: Tower/Roof top
- FiberCo: FTTH/P
- LegacyCo: Ducts/ copper
- DataCenterCo: Computing infra

Source: Arthur D. Little

Telco fragmentation into layers has created new players with different investment profiles, each needing to interconnect with & buy services from players in other layers

- Short-term perspective (1-3 years)
- Dividends & stock accumulation
- Capex-averse

**Commercial layer**
Retail, customer operations, product aggregation

**Historically underinvested, business model transformation required**

**Passive infrastructure layer**
(e.g. towers, fibers, data center infrastructure, …)

**Historically underinvested, business model transformation required**

**Active Infrastructure layer**
NW orchestration & operation layer (OSS)

**Substantial cyclical (5-10 years) technology-related investments**

**Private equity markets**
- Strategic value creation leading to larger valuations at exit
- Longer-term perspective (5-7 year)

**Public equity markets**
- Dividends & stock accumulation
- Capex-averse

**Passive infrastructure layer**
(e.g. towers, fibers, data center infrastructure, …)

- Huge initial investment, stable & predictable cash flows (15-20 years) once viability is proven

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- Longer-term perspective (5-7 year)

**CEOs can drive the agenda of the transformation:**

- **Monetizing passive infrastructure to finance transformation** of the commercial and active infrastructure / orchestration layers
- **Pushing to de-list company**

**IRR^1**

- 15-20%

**IRR^1**

- 11-15%

**IRR^1**

- 4-8%

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1) Unleveraged, typically expected
Source: Arthur D. Little
Financial and private investors have increasingly been shaping the telecommunication deal landscape since 2015.

**Telecom deals in Europe and North America**
2015-2022, split by acquirer industry (>9,000 deals), USD bn of deal volume

**Telcos taking the lead in shaping Telco deals**

**Financial and private investors taking the lead in shaping Telco deals**

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**THE MARKET DYNAMIC IS CHANGING**

1) Excluding buyback and pure financial restructuring deals
Source: Arthur D. Little Analysis, Eikon 2010-22 M&A Database
Private investors cover the full range of telco categories across six main geographies

Telco players owned by PE & Infra funds
2012-2023, Deal transactions

Source: Arthur D. Little analysis based on publicly disclosed valuation
ComCo’s have new owners: Financial players, especially PE funds, are increasingly owning domestic players and smaller telco groups

# of telcos (integrated or ComCos) owned by private investors

Source: Arthur D. Little analysis based on publicly available information
Summary points of the changing telco eco-system

Asset reconfiguring is happening in our industry leading to further fragmentation:
- Stock performance
- WACC and Capex requirement
- Debt / Equity ratio

Carve-outs of assets are attractive to investors:
- ComCos (commercial assets, spectrum, CeX platforms and most of the active layers)
- NetCos: FTTx, CableCo, Towers, DCs

Financial investors are (co-) owning telcos and are changing the game:
- Governance and management incentive
- Capex investments
- Asset light focus for PEs acquiring telcos
- Infra fund focus on NetCos to consolidate and follow the multi-tenant logic in wholesale
DIGITAL PLATFORMS ARE EMERGING
In recent years, the digital platform business for telecom has seen a substantial increase in the average investment ticket from PE & VC players.

### TICKET VALUES FOR PE / VC INVESTMENTS IN DIGITAL TELCO COMPANIES

**2020-2022, EUR bn**

<table>
<thead>
<tr>
<th>Year</th>
<th>H1 2021</th>
<th>H2 2021</th>
<th>H1 2022</th>
<th>H2 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>0.1</td>
<td>0.5</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>H1 2021</td>
<td></td>
<td></td>
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<tr>
<td>H2 2021</td>
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<td></td>
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<tr>
<td>H1 2022</td>
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<tr>
<td>H2 2022</td>
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</tbody>
</table>

**Low investment activities due to Covid-19**

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**TARGET COMPANIES**

- **MessageBird**: A cloud communications platform developer, had an extended Series C round, funded by Eurazeo, Tiger Global, BlackRock, and Owl Rock.
- **ICG**: Acquires the Circet Group, pan-European infrastructure services provider from Advent International.
- **Citrix**: Vista Equity Partners and Evergreen Coast Capital acquired Citrix Systems, merging it with TIBCO to boost its digital platform.
- **Xendesk**: A customer service platform, was acquired by Hellman & Friedman and Permira consortium.

**Source**: Crunchbase, Open sources, Arthur D. Little
Various players exist with the platform ecosystem – however, strategically play in different areas of the value chain with the defined platform layers.

1) NKOB = New kid on the block vendors
Source: Arthur D. Little

1) Active network layer
- Netcedd
- beeXact
- deepomatic
- wgtwo
- Hewlett Packard Enterprise
- ndac
- Ericsson
- EIC

2) Network orchestration
- Nokia
- Ericsson
- Netcracker
- Mavenir
- OREX
- Rakuten Symphony
- established

3) Network API exposure
- Twilio
- Infobip
- iBasis
- VONAGE
- sinch
- Kong
- PacketFabric
- Megaport
- Messaging
- Data

4) Digital services & enabling platforms
- zoom
- PROSEGUR
- SORACOM
- mce
- GENESYS
- everphone
- NICE
- emnify
- 1ot
- teridion
- Wholesale
Everphone is a leading as-a-service provider of an all-in-one solution to source, procure, roll out, and manage mobile (smartphone) devices for enterprises

Deep-dive: Everphone

**Offering overview**

- **everSetup**
  - Demand analysis / customization of device rollout
  - Fixed (monthly rental) pricing, no hidden fees
  - Roll out planning within enterprise organization
  - Device onboarding for employees

- **everManage**
  - Device orders via portal (for exchanges, upgrades, etc.)
  - Staging of device rollout / management
  - End-to-end logistics (sourcing, procuring and delivery)
  - Upscaling / downscaling based on device requirement

- **everCare**
  - Full customer service / support for devices
  - Incident management for full mobile fleet
  - End-user offboarding support & data deletion
  - Refurbishment / recycling of devices

**Key enterprise benefits**

1. **All-in-one solution**: go-to provider of smart devices – covering full lifecycle from set up, to device mgt. and customer care

2. **Self-service portal**: providing full device overview and enabling direct help, exchange and upgrade of devices

3. **No more IT tickets**: fully customized device support, handling all device care required for mobile fleet
EMnify’s platform is built in-house, funded by VCs leveraging cloud-native technology for the IoT stack and an API controlled network

- Purpose-built for IoT
- Cloud-native architecture
- Own IP giving us full control over roadmap
- Multitenancy / Multi-carrier
- High operational scale at marginal cost per SIM
- API first principle, every aspect of platform is exposed as API

**EMNIFY MOBILE CORE NETWORK**
- Subscriber management
- Mobility management
- Policy and Charging
- Messaging
- Data transport

**Connectivity management platform**
- Integrations
- Cloud Connect
- Customer operations team

**Customer IoT device**
- emnify programmable SIM
- 490+ mobile radio networks

Source: EMnify, Arthur D. Little
With OREX, NTT DOCOMO and its partners enable the realization of a true Open RAN which allows vendors to interconnect via base stations

Deep-dive: OREX / NTT DOCOMO

OREX is an Open RAN service brand by DOCOMO and global partners that allows devices and systems from various vendors to interconnect via standardized, open-specification base stations.

Develops flexible and scalable radio access networks.
Expands opportunities for new vendors to enter the base station market, which will revitalize the market.
Allows vendors to focus on developing devices that they are good at.

Partners:
- AMD
- Dell Technologies
- Fujitsu
- Hewlett Packard Enterprise
- Intel
- Mavenir
- NEC
- NTT Data
- NVIDIA
- Qualcomm
- Red Hat
- VMware
- WNDVR

Realizing Open RANs:

1. **Open fronthaul**: integration of multi-vendor radio units (RUs) and central units (CUs) as well as distributed units (DUs) using dedicated hardware with O-RAN Alliance-compliant interfaces.

2. **Virtualization**: The virtualized base station will separate hardware and software, allowing the latter to be installed in general-purpose hardware for network construction.

3. **Intelligent RANs**: Data from base stations are analyzed and terminals are used to optimize RANs by automatically controlling base stations with AI and other tools for increasingly complex operations.
wgtwo is an innovative Core-as-a-Service provider emerging from a Telenor Spin-off that serves M(V)NOs and enterprises beyond EU

**CUSTOMER EXAMPLE** (based on Tier-2 full operator)

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Svc/Equip</th>
<th>Supplier</th>
<th>Svc/Equip</th>
<th>Supplier</th>
<th>Svc/Equip</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSS, Core NW, MS</td>
<td></td>
<td>OS Software, OEM Support</td>
<td></td>
<td>Monitoring for DC</td>
<td></td>
</tr>
<tr>
<td>PGW, GGSN, L3 Support</td>
<td></td>
<td>Active Directory Services</td>
<td></td>
<td>Service MGT tools</td>
<td></td>
</tr>
<tr>
<td>OMA, RB, L3 Support</td>
<td></td>
<td>Central Back-up</td>
<td></td>
<td>ACF Services</td>
<td></td>
</tr>
<tr>
<td>DC Appliances, OEM Support</td>
<td></td>
<td>Cybersecurity Licenses, Services</td>
<td></td>
<td>Adult Content Filtering Solution</td>
<td></td>
</tr>
<tr>
<td>DC Appliances, OEM Support</td>
<td></td>
<td>DC Services</td>
<td></td>
<td>IP Addresses</td>
<td></td>
</tr>
<tr>
<td>Servers, OEM Support</td>
<td></td>
<td>DC &amp; ISP transmission</td>
<td></td>
<td>Wholesale, Billing &amp; Settlement</td>
<td></td>
</tr>
<tr>
<td>Servers, OEM Support</td>
<td></td>
<td>Transmission SVC</td>
<td></td>
<td>ISP Services</td>
<td></td>
</tr>
<tr>
<td>OS Software, OEM support</td>
<td></td>
<td>Remote Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Servers, OS Software, OEM Support</td>
<td></td>
<td>SS7 Signaling Services</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ISP transmission</td>
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</tr>
</tbody>
</table>

**Set-up with wgtwo (5 vendors)**

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Svc/Equip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core NW Services including SW dev, O&amp;M Support, O&amp;M Support, Cybersecurity Licenses, Services and Cybersecurity Licenses, Services</td>
<td></td>
</tr>
<tr>
<td>ISP Links and services, DC services</td>
<td></td>
</tr>
<tr>
<td>ISP Services</td>
<td></td>
</tr>
<tr>
<td>OCS, CRM, WBS, RSS</td>
<td></td>
</tr>
</tbody>
</table>

**KEY TAKEAWAYS**

1. **Leading Telco groups can carve-out / spin off network capabilities or export them directly to their peers, also across geographic markets**

2. **Depending on operator requirements** (consumer/business, private/public), the offering can be either full core NaaS (for Tier 2-3 operators, MVNOs, specialists) or only selected network functions in an „adjacent core“ like MPN, IoT, CyberSec, Disaster Recovery (for Tier 1 operators)

Source: wgtwo, Arthur D. Little
The emergence of digital platforms – within the Telco space – is fueled by changing market dynamics and financial considerations

Corporate and consumer needs are changing
- More digital experience
- More convenient
- More value driven demand

Growth in investments in digital platforms by VCs/PEs
- Following tech trends (scale and digital)
- Telecom industry still embracing digital platform (strong demand for supply of digital services)
- Capitalizing on inefficiencies of telecom industry (too local/regional & legacy hurdle)

Emerging tech enhancing productivity & value creation
- Addressing a new demand
- Cost efficiency
- Ease of delivery (customer friendly interface)

Telcos underinvesting in digital platforms
- Capex requirement and debt situation (priorities of investment - e.g. FTTH, 5G)
- Governance (local/regional vs global)
- Challenges to carve-out assets/skills/capabilities and productize them

Source: Arthur D. Little
Vodafone is on the way to carve-out its Internet of Things business amid the fast-growing industry and high valuation

Deep-dive: Vodafone IoT carve-out

Vodafone announced, in its 2022 annual report, that it is in the process of splitting off its IoT business. The move has generated speculation about the operator’s plans for its IoT division. Separating IoT may bring some potential benefits for the unit. For example, it may mean that the unit has funding to invest in acquisitions, and it may be easier to use connectivity from other suppliers as a revenue stream. The unit may not have access to Vodafone’s resources, such as its sales channels.

For Vodafone Group, a sale could generate funds and help to show activist investors that it is making progress in reducing debt. However, a sale would also reduce Vodafone’s exposure to a high-growth industry. The balance of these benefits and disadvantages depends on the model that Vodafone Group takes. It is likely that the unit will sell for multiple billions, so tempting for Vodafone to ignore, despite the downsides of selling.

Vodafone dials up sale of stake in £1bn Internet of Things unit

The FTSE-100 telecoms giant has hired Akira Partners to help find a buyer for a minority stake in the division which focuses on internet-connected devices. Sky News learns.

Mark Kieran
City editor @MarkKieranSky

Vodafone has picked advisers to help sell a stake in its ‘Internet of Things’ (IoT) division as it bets on a rapid global expansion of connected devices amid growing investor interest in the space.

Sky News has learnt that the FTSE-100 telecoms giant has hired Akira Partners, an independent advisory firm specialising in deals in the telecoms, media and technology sectors, to field offers from outside investors.

Source: IoT World Today, Analysys Mason, Sky News
VF identities IoT as a strategic asset, with aims to carve out / monetize the asset – enabling market consolidation and capturing of the global opportunity

**Deep-dive: Vodafone IoT**

<table>
<thead>
<tr>
<th>Overview</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT as strategic asset</td>
<td>Vodafone has identified <strong>IoT as a key strategic asset</strong> and service offering on the Global market</td>
</tr>
<tr>
<td>Investment is required</td>
<td>Investment is required to strengthen <strong>competitiveness and enable next-gen evolution</strong> (Community, APIs, etc.)</td>
</tr>
<tr>
<td>Market consolidation goals</td>
<td>Vodafone has identified key opportunity to <strong>consolidate the market / capture a strategic positioning</strong></td>
</tr>
<tr>
<td>Opportunity to monetize asset</td>
<td>Vodafone aims to <strong>monetize their asset</strong> and ensure future strategic positioning on the market</td>
</tr>
</tbody>
</table>

1. **Vodafone to bring on a financial investor to fuel growth ambitions**

2. **Aim to monetize asset via sale of minority stake** in its IoT business – ca. GBP 1bn

3. **Objective to consolidate the market / expand via M&A** to build out offering

**Source:** Arthur D. Little
Comcast Technology Solutions offers support not only for content providers but also advertisers and tech players – Deutsche Telekom chose it for its Magenta TV

Deep-dive: Comcast Technology Solutions and Deutsche Telekom

Comcast Technology Solutions (CTS) build on Comcast's experience to deliver technologies for global video, media, communications, data applications, and cybersecurity & compliance.

Target segments

- Content & streaming providers
- Communication providers
- Advertisers
- Cybersecurity & IT
- MVPDs1 & operators
- Technology providers

In 2022 CMS became the back-end platform for Deutsche Telekom’s Magenta TV across all markets.

1) Multichannel video programming distributors
Source: Comcast Technology Solutions, News articles, Arthur D. Little
To capture the platform opportunity, Telcos hold three potential options: carve-out internal capabilities, partnership / M&A or retire and replace

1. **Consolidate & carve-out**
   - Identify capabilities within the Group
   - Aggregate functionalities and consolidate them in a new business by **carving them out** and creating a new independent digital platform
   - Define a **GTM strategy**

2. **Partnership / M&A**
   - Identify the **missing capabilities** (gaps) within the group
   - **Leverage M&A** to build such digital platform capabilities
   - Define a **GTM strategy**

3. **Retire & replace**
   - Identify the **missing capabilities** (gaps) within the group
   - Evaluate **make or buy decision**
   - Decide to **phase out** (stop investing CAPEX) and buy as a service – via existing providers

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**Private equity-driven digital platform providers** and also **Telcos that have carved out own platforms** (e.g., wgtwo, VF IoT) to play a **critical role** in enabling Telcos to capture the platform opportunity today

Source: Arthur D. Little
**Summary points of the changing telco eco-system**

**Financial investors** have appetite in investing in **digital platforms**
- Sizes of investments are getting bigger
- Investments are done along 4 layers
- Performance of the new generation of digital platform providers is impressive: cloud based, providing a market-place to partner, give access to a large community developer and is based on an API controlled architecture

**Telcos** have to **compete** with **global platform players** if they build internally digital platforms and sustain the **Capex** investments for the next generation roadmaps – hence they will need to make choices

Telcos started to rethink – **“Consume”** instead of **“Produce”**
NEW OPPORTUNITIES FOR THE KEY STAKEHOLDERS
Bold moves are expected from each stakeholder in the changing eco-system representing as well new opportunities

1. **Large telco groups**
   - Focus on **market value creation** (end game) – right portfolio
   - **Rethink** hard all platforms: “consume” vs “build” in-house
   - Consider **future investment** in key platforms + **carve-outs** and joint financing

2. **National heroes & smaller telco groups**
   - Participate to the **in-country consolidation** and asset reconfiguration
   - Shift the business model more radically to an “**as a Service**” to be part of the future innovation waves
   - Become **key clients** of major platform providers / vendors

3. **Private equity & infra funds**
   - Restructure and **redesign ComCos** and continue **investing** in **NetCos** – de-risk the transformation via “as a Service models”
   - Consider investment in digital platforms as new markets by **building a portfolio** on multiple layers

4. **Digital platform providers & vendors**
   - Approach telcos that are **ready to switch** to the “**consume**” rather than the “build” model
   - Consider “as a Service” models to help telcos de-risking investments
   - Pilot, scale and expand the portfolio along the 4 layers

5. **Developers & ISVs\(^1\) / ASPs\(^2\)**
   - **Build customized applications** (L3) / integrated platforms in larger business solutions (L4) based on API exposures
   - Become a key part of the value chain as platforms are more **API-based / developer focused** and act as indirect G2M\(^3\) channel for platform providers

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\(^1\) Independent Software Vendors; \(^2\) Application Service Providers; \(^3\) Go-to-market

Source: Arthur D. Little
Arthur D. Little has been at the forefront of innovation since 1886. We are an acknowledged thought leader in linking strategy, innovation and transformation in technology-intensive and converging industries. We navigate our clients through changing business ecosystems to uncover new growth opportunities. We enable our clients to build innovation capabilities and transform their organizations.

Our consultants have strong practical industry experience combined with excellent knowledge of key trends and dynamics. ADL is present in the most important business centers around the world. We are proud to serve most of the Fortune 1000 companies, in addition to other leading firms and public sector organizations.

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