

FUTURE OF TELCO AND RELATED ECO-SYSTEM

Keynote Speech, Karim Taga

NOV. 7TH 2023, KECSKEMÉT



ARTHUR LITTLE



1

The market dynamic is changing driven by reconfiguration and 3rd parties taking more control of the telco business

2

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

3

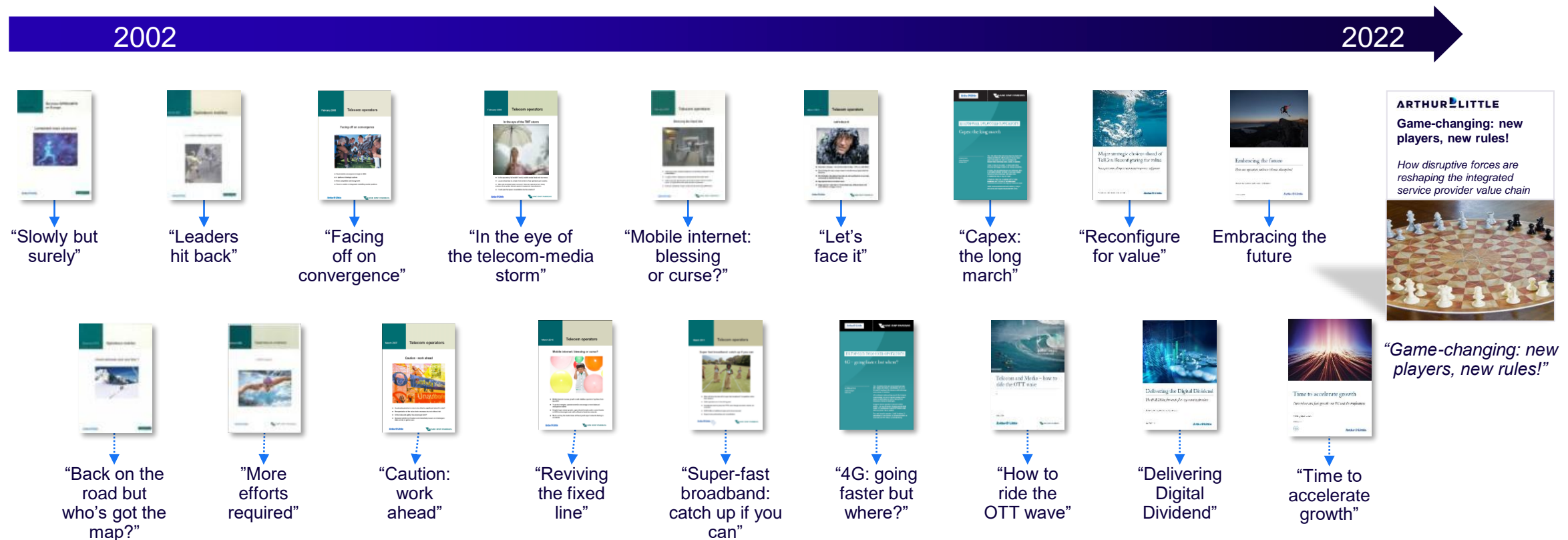
New opportunities for the key stakeholders: telcos (stand-alone and groups), digital platform providers, investors, tech & SW players

1

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



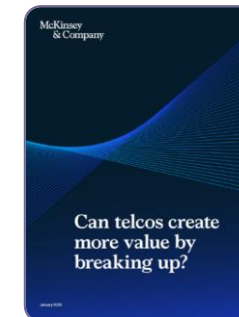
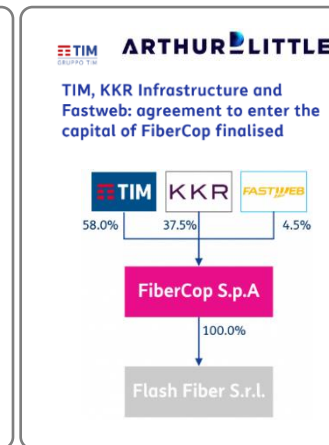
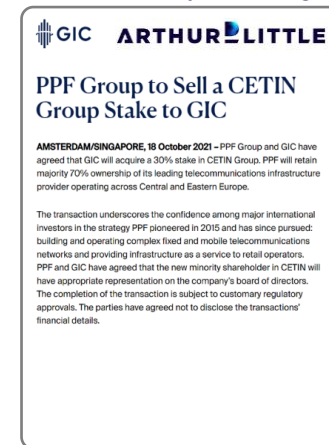
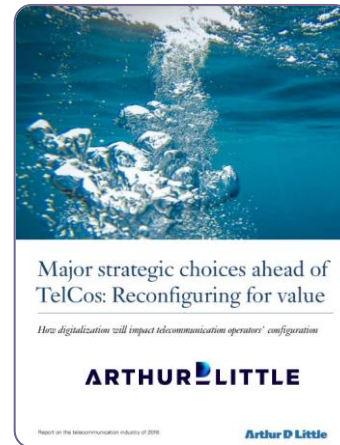
Arthur D. Little is years ahead of competition in conceptualizing and executing Asset Reconfiguration and layering to unlock value and unleash the operating model

 **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 ...

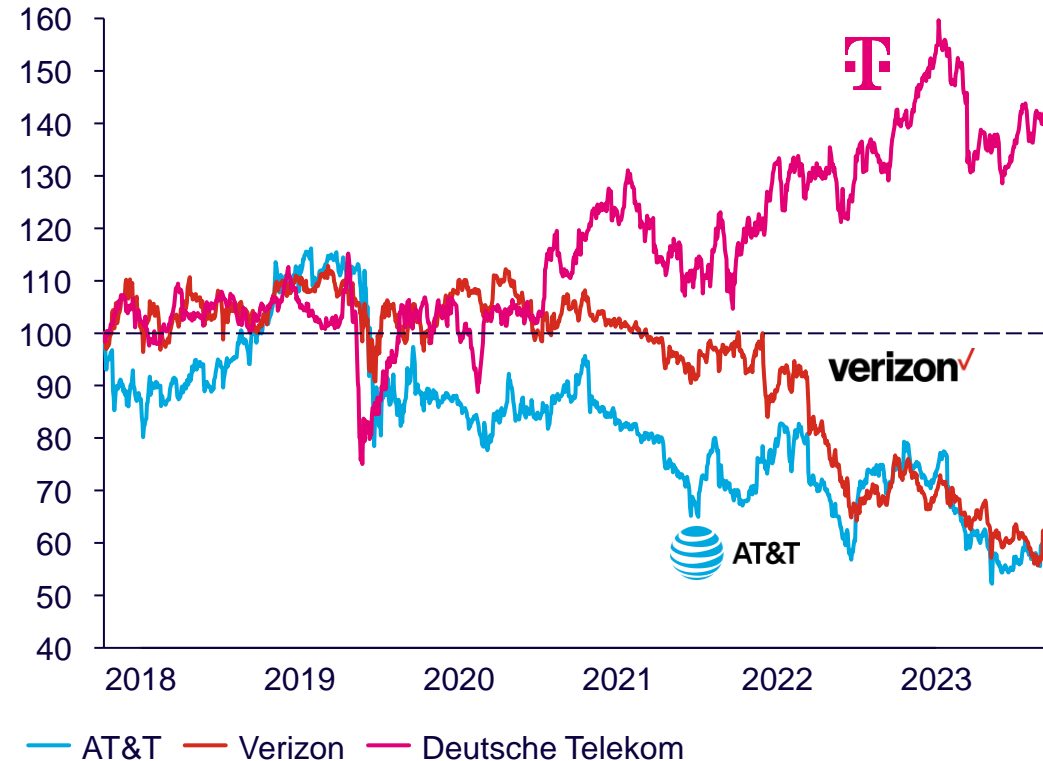


All the major telco players in US and Europe dropped significantly in the share price over the past 5 years – except for Deutsche Telekom



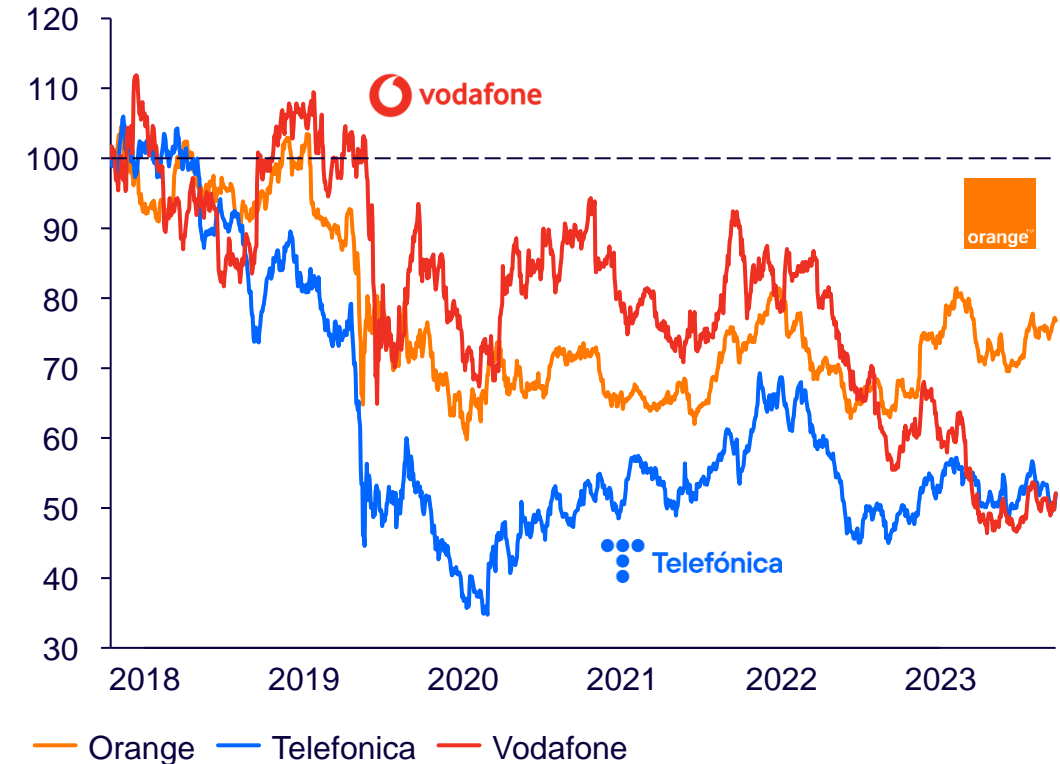
Share price of US major telco operators

US, Nov 2018 – Nov 2023, indexed to 100



Share price of EU major telco operators

EU, Nov 2018 – Nov 2023, indexed to 100

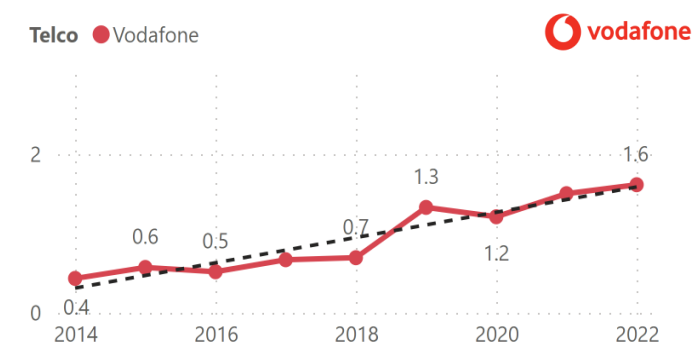
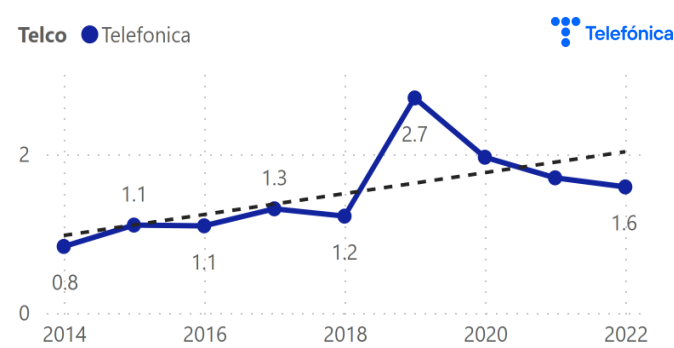
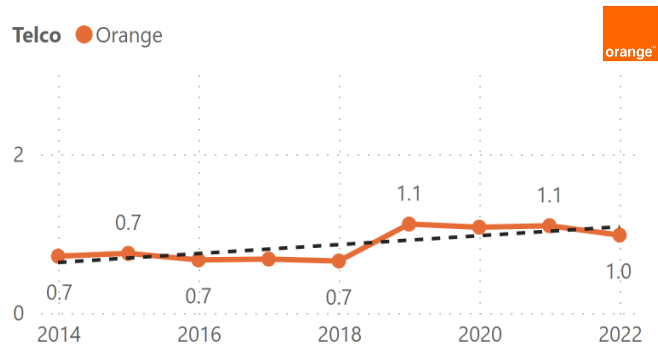
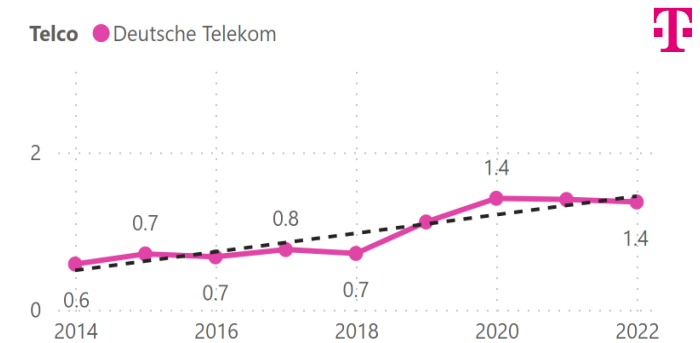
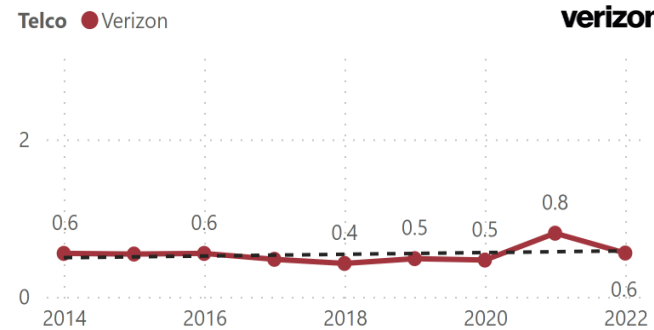
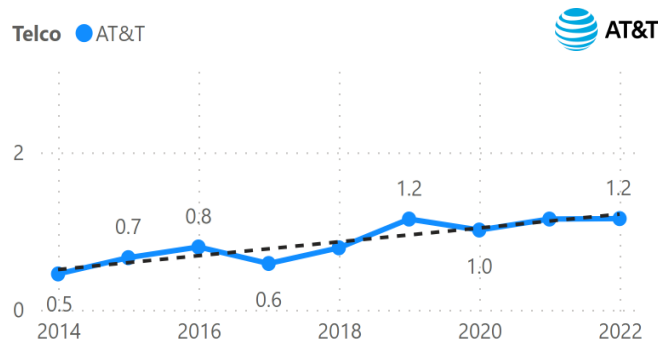


Debt/equity: While debt is slowly increasing, equity is shrinking faster (as share price is decreasing), leading to higher leverage (Debt/equity) increasing financial risk



Debt/equity of major telco operators in US and EU

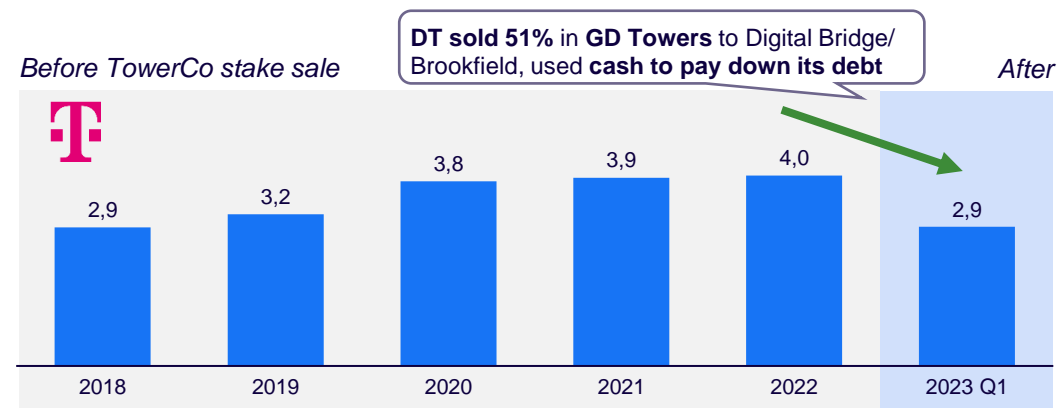
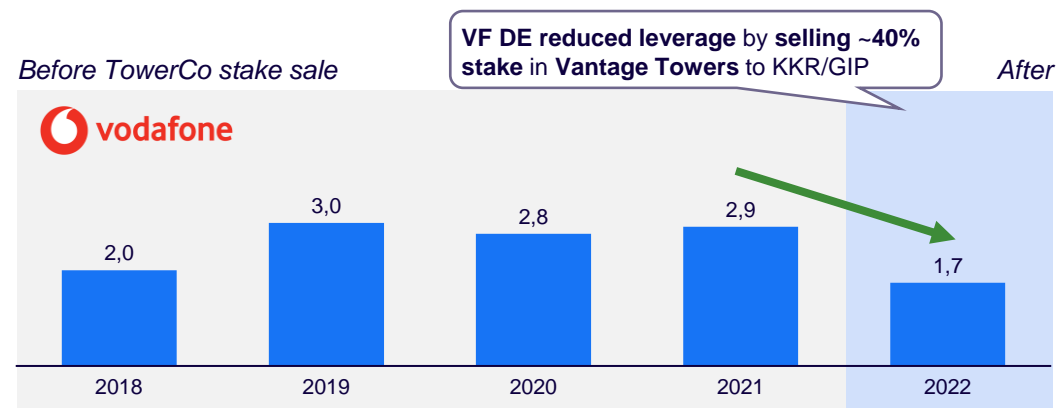
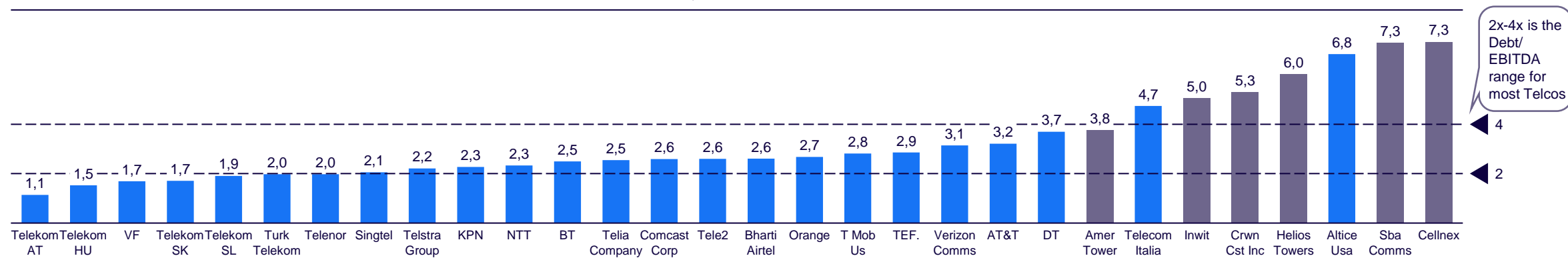
US & EU, 2014-2022, %



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



■ Telco ■ InfraCo

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

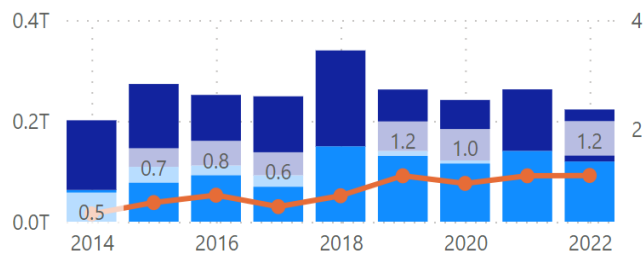
US & EU, 2014-2022, EUR & %

Verizon retired USD10 bn debt during 2018-19 and reissued USD 25 bn of low interest debt in 2020-21

AT&T



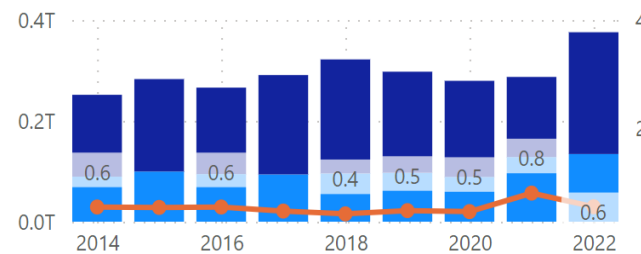
NetDebt Market_Cap Debt/Equity



Verizon



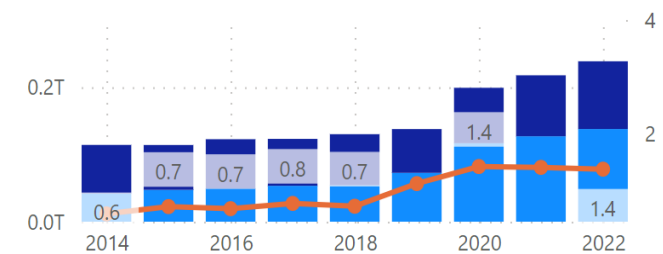
NetDebt Market_Cap Debt/Equity



Deutsche Telekom



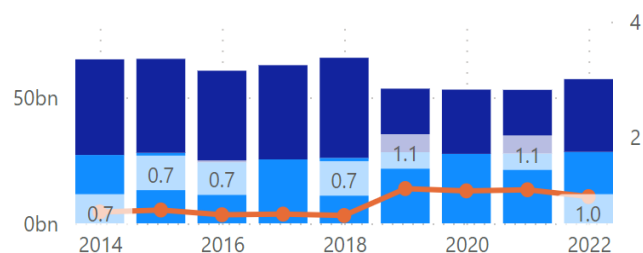
NetDebt Market_Cap Debt/Equity



Orange



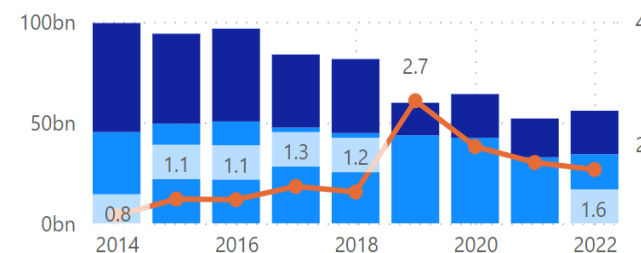
NetDebt Market_Cap Debt/Equity



Telefonica



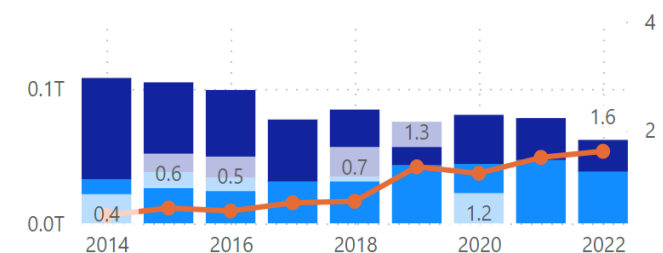
NetDebt Market_Cap Debt/Equity



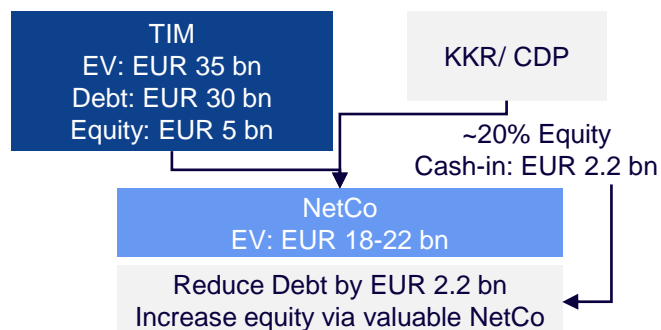
Vodafone



NetDebt Market_Cap Debt/Equity

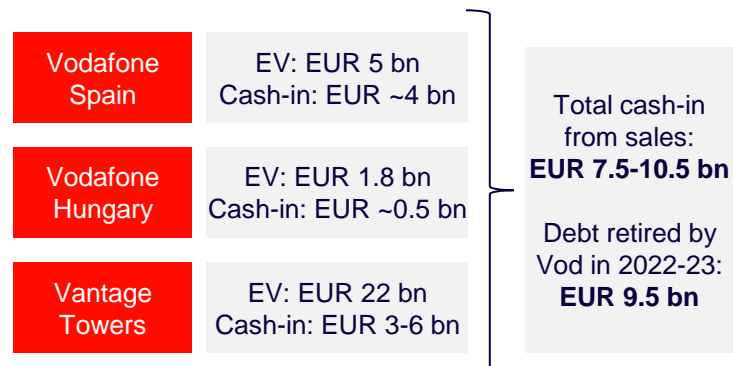


Why do Telcos pursue asset reconfiguration?



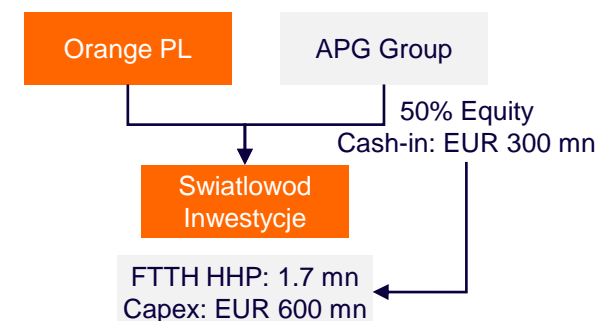
TIM Italy

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

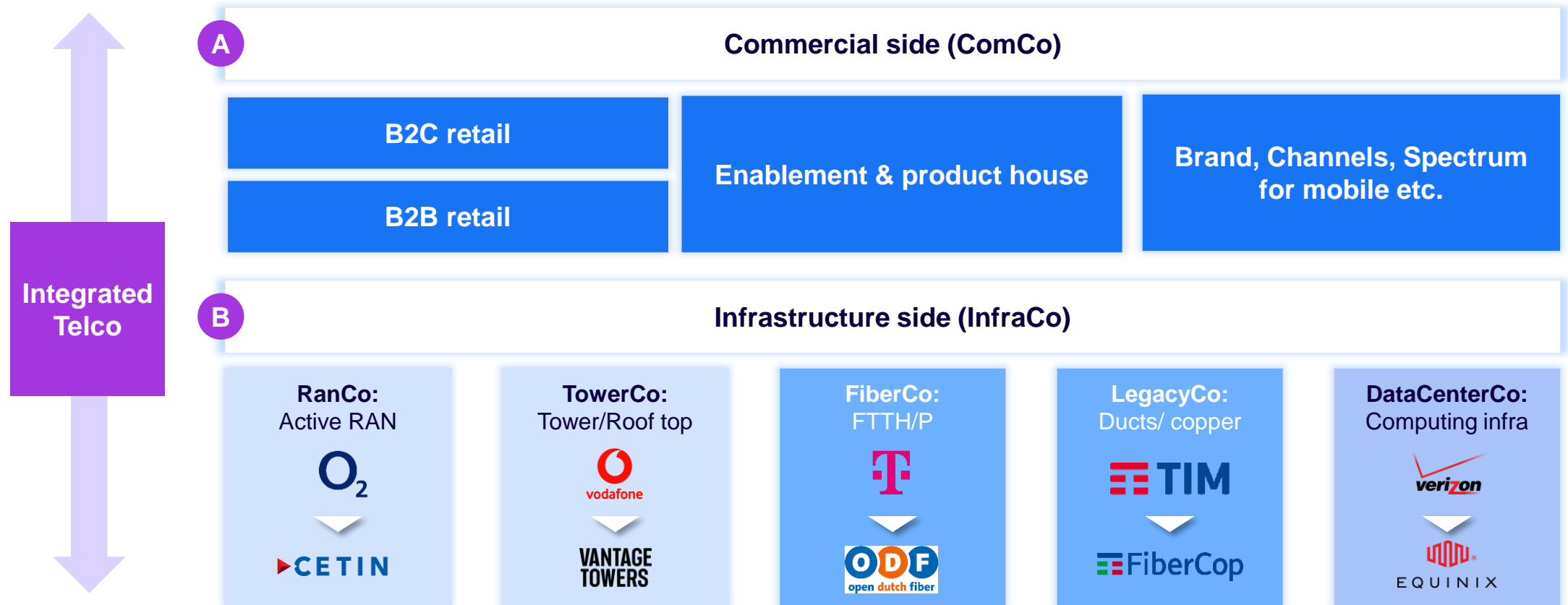


Orange PL

Orange PL sold a 50% stake in its FiberCo (Swiatlowod Inwestycje) to raise a majority of the 600m€ funding needed to roll out 1.7 mn FTTH in Poland to APG Group

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



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

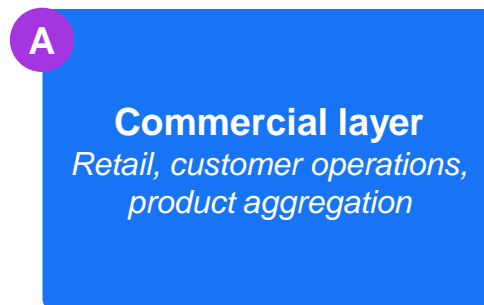
- Short-term perspective (1-3 years)
- Dividends & stock accumulation
- Capex-averse

Public equity markets

Valuation disconnect

Private equity markets

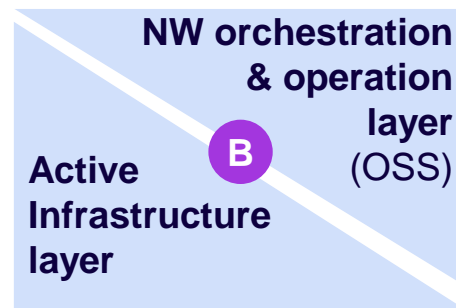
- Strategic value creation leading to larger valuations at exit
- Longer-term perspective (5-7 year)



Historically underinvested, business model transformation required

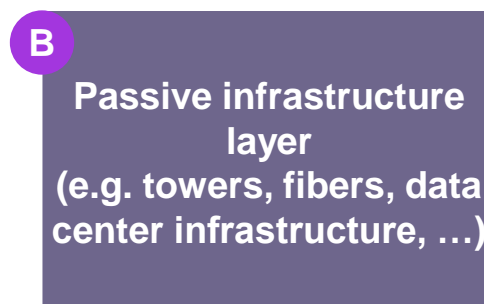
IRR¹

15-20%



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

11-15%



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

4-8%

ILLUSTRATIVE

CEOs can drive the agenda of the transformation:

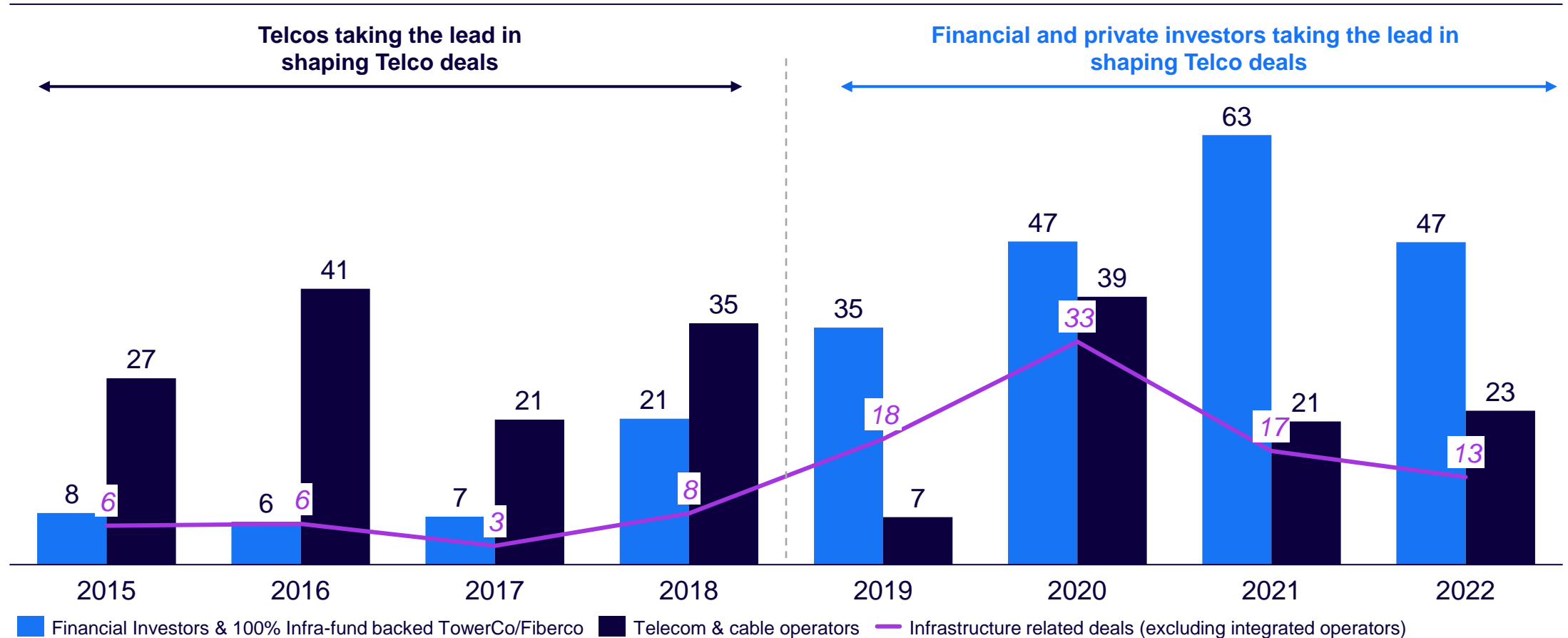
- **Monetizing passive infrastructure to finance transformation** of the commercial and active infrastructure / orchestration layers
- **Pushing to de-list** company

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 volume¹

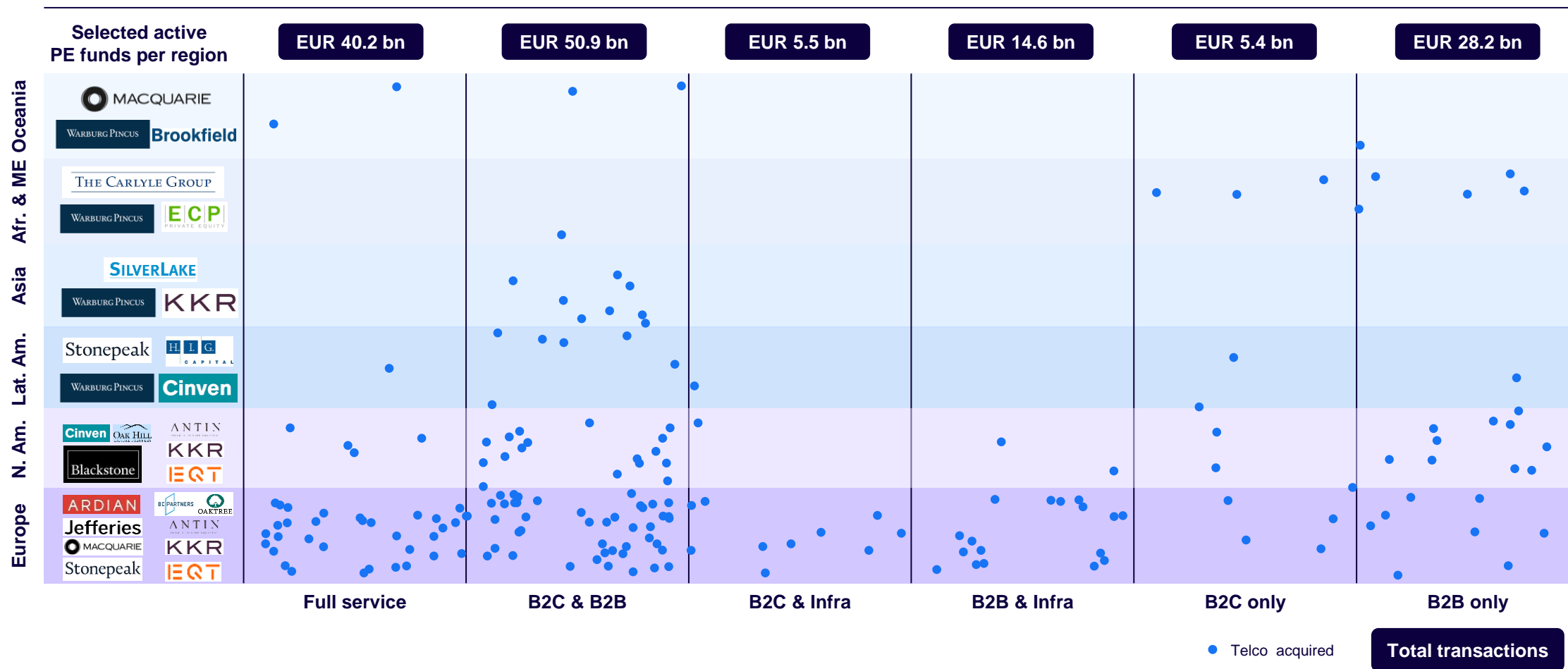


¹) Excluding buyback and pure financial restructuring deals
Source: Arthur D. Little Analysis, Eikon 2010-22 M&A Database

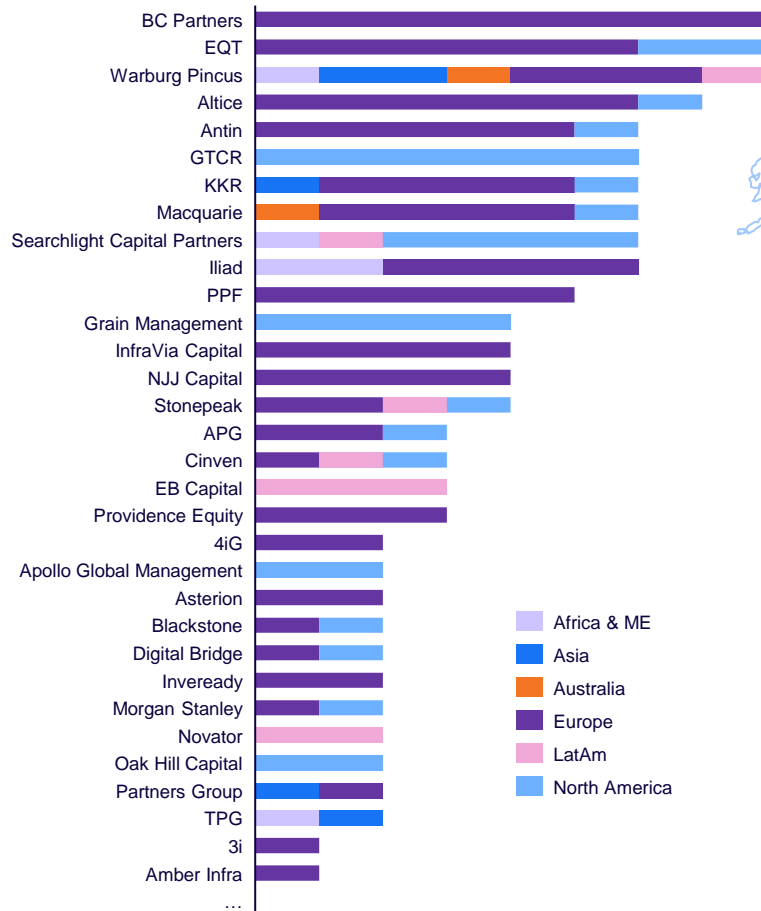
Private investors cover the full range of telco categories across six main geographies

Telco players owned by PE & Infra funds

2012-2023, Deal transactions



ComCo's have new owners: Financial players, especially PE funds, are increasingly owning domestic players and smaller telco groups



Africa & ME
 Asia
 Australia
 Europe
 LatAm
 North America



of telcos (integrated or ComCos) owned by private investors

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

2

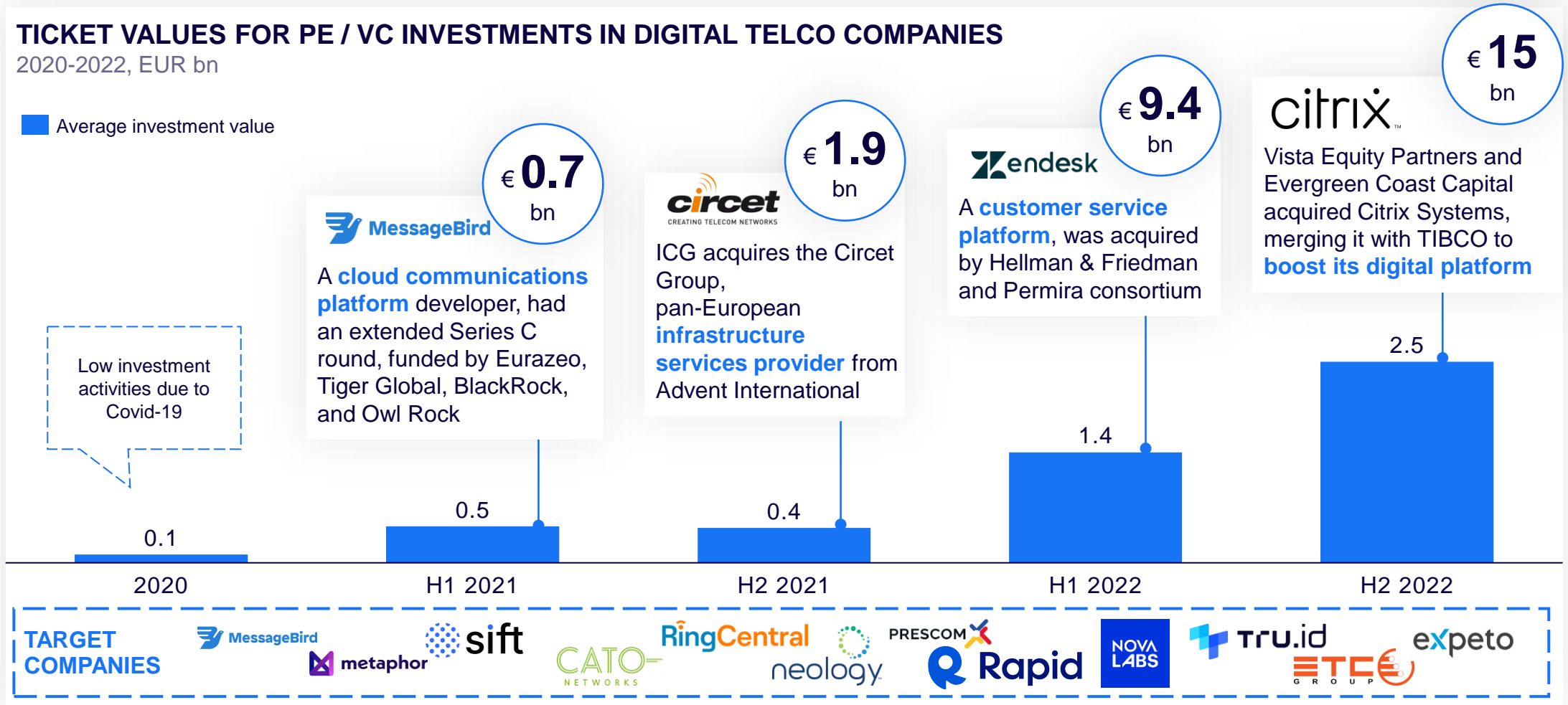
DIGITAL PLATFORMS ARE EMERGING

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

■ Average investment value



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

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

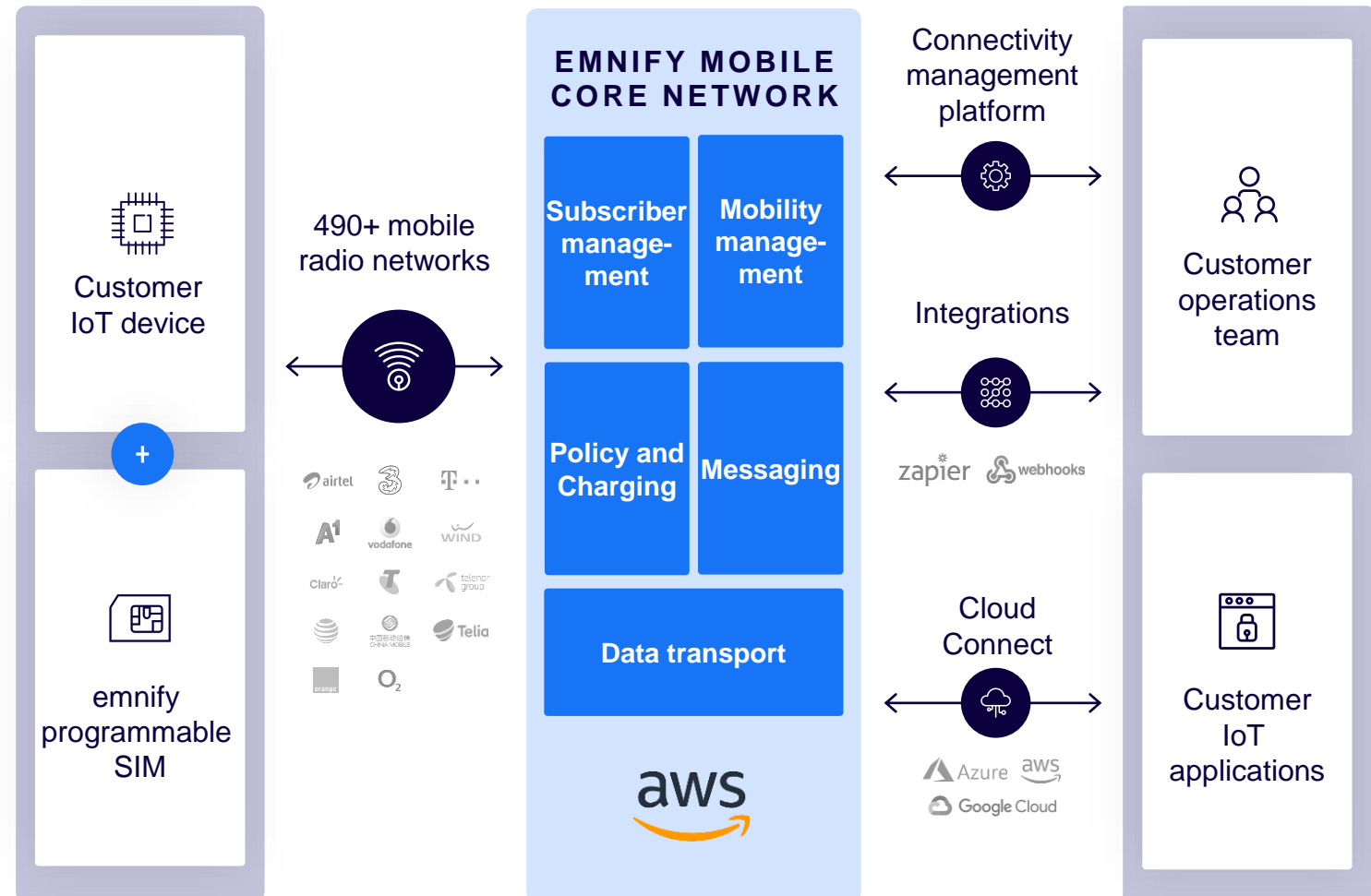
Self-service portal: providing full device overview and enabling direct help, exchange and upgrade of devices

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



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



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

Partners



wgtwo is an innovative Core-as-a-Service provider emerging from a Telenor Spin-off that serves M(V)NOs and enterprises beyond EU



- wgtwo - born inside Telenor in 2014, spun-off in 2017, with Telenor, Digital Alpha and Cisco as backers
- Tentative agreement with Cisco for take-over in 2023
- Track record with MNOs, MVNOs and Enterprises



CUSTOMER EXAMPLE (based on Tier-2 full operator)

Legacy set-up (26 vendors)						Set-up with wgtwo (5 vendors)	
Supplier	Svc/Equip	Supplier	Svc/Equip	Supplier	Svc/Equip	Supplier	Svc/Equip
Others	BSS, Core NW, MS	Others	OS Software, OEM Support	Others	Monitoring for DC	wgtwo	Core NW Services including SW dev, O&M Support, Onboarding Services for MVNO, IOT and other
	PGW, GGSN, L3 Support		Active Directory Services		Service MGT tools		
	DRA, RB, L3 Support		Central Back-up		ACF Services	Others	Trans-mission Links and Services
	DC Appliances, OEM Support		Cybersecurity Licenses, Services		Adult Content Filtering Solution		
	DC Appliances, OEM Support		DC Services		IP Addresses		
	Break-fix, Re-sell, OEM Support		DC & ISP transmission		Wholesale, Billing & Settlement		
	Servers, OEM Support		Transmission SVC				
	Servers, OEM Support		Remote Support				
	OS Software, OEM support		SS7 Signaling Services				
	Servers, OS Software, OEM Support		ISP transmission				
							ISP Links and services, DC services
							ISP Services
							OCS, CRM, WBS, RSS

KEY TAKEAWAYS



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

The emergence of digital platforms – within the Telco space – is fueled by changing market dynamics and financial considerations



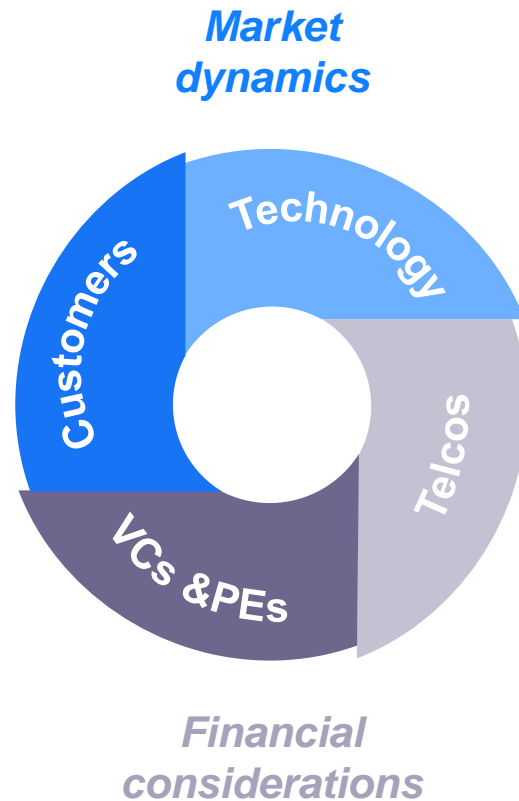
Corporate and consumer needs are changing

- 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

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



8 Min Read

A high valuation for Vodafone IoT may be too tempting for Vodafone to ignore, despite the risks

June 2022

Michele Mackenzie and Tom Rebbeck

Vodafone announced, in its 2022 annual report, that it is in the process of splitting off Vodafone's IoT division. The company's vague statement has created speculation about the operator's plans for its IoT division. Separating the IoT unit 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. However, there are also risks; 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 not overvalued. However, such a move would also reduce Vodafone's exposure to a high-growth market. The balance of these benefits and disadvantages depends on the model that Vodafone Group takes. A high valuation for the IoT business (it is likely that the unit will sell for multiple billion euros) may be 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 Kleinman
City editor @MarkKleinmanSky

sky news

Monday 15 May 2023 19:44, UK

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.

Vodafone Hints at IoT Spinoff

The company's 2022 annual report suggests change is afoot

June 29, 2022



Principal Analyst IoT at Omdia

Vodafone has been held up as the poster child of IoT success in the West. While telecommunications service providers (CSPs) dominate the global market, Vodafone has emerged as the Western leader with 7% of global IoT market share. If the company removes the three Chinese CSPs, Vodafone's market share would increase significantly.

VF identifies 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



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



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

telecompaper::

Home / Internet / Deutsche Telekom deploys Comcast Cloud TV Suite on Magenta TV

Deutsche Telekom deploys Comcast Cloud TV Suite on Magenta TV

telecoms
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Comcast to do the heavy lifting for Deutsche Telekom's TV service

CISION
PR Newswire

News Products Contact

Search

News in Focus Business & Money Science & Tech Lifestyle & Health Policy & Public Interest People & Culture

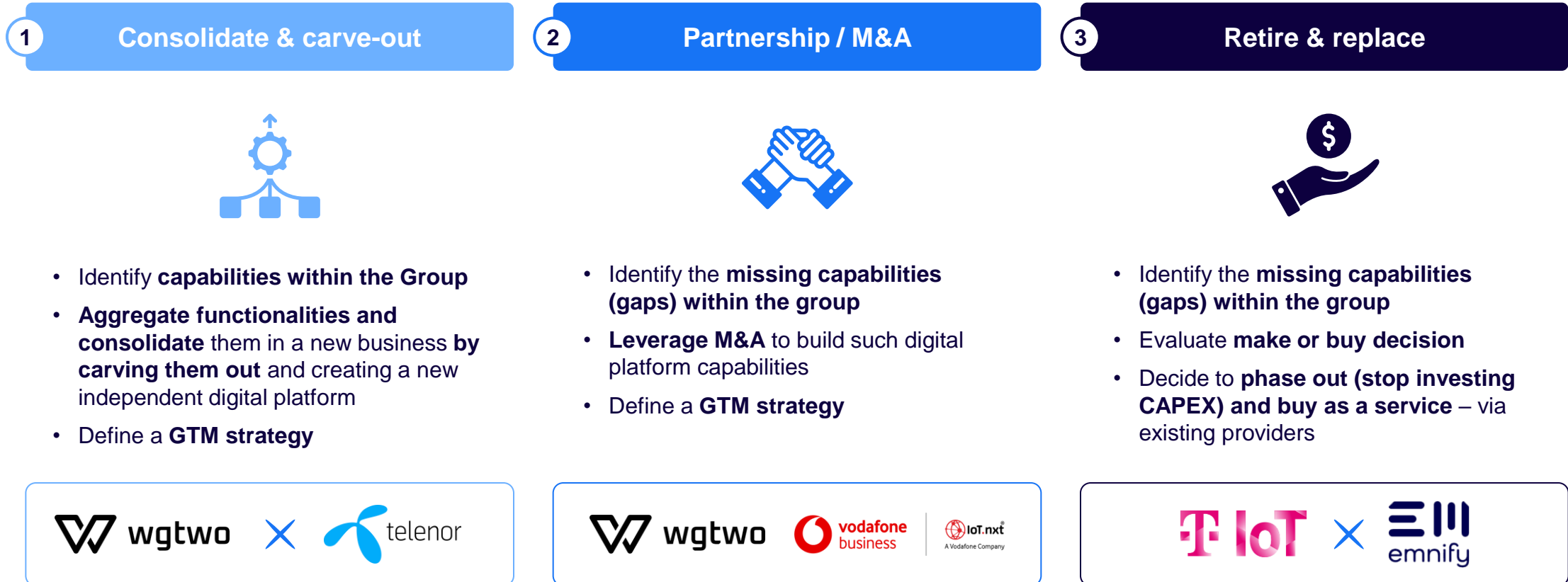
Comcast Technology Solutions Selected by Deutsche Telekom as Centralized Cloud Management Platform For Magenta TV

COMCAST
TECHNOLOGY SOLUTIONS

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



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

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

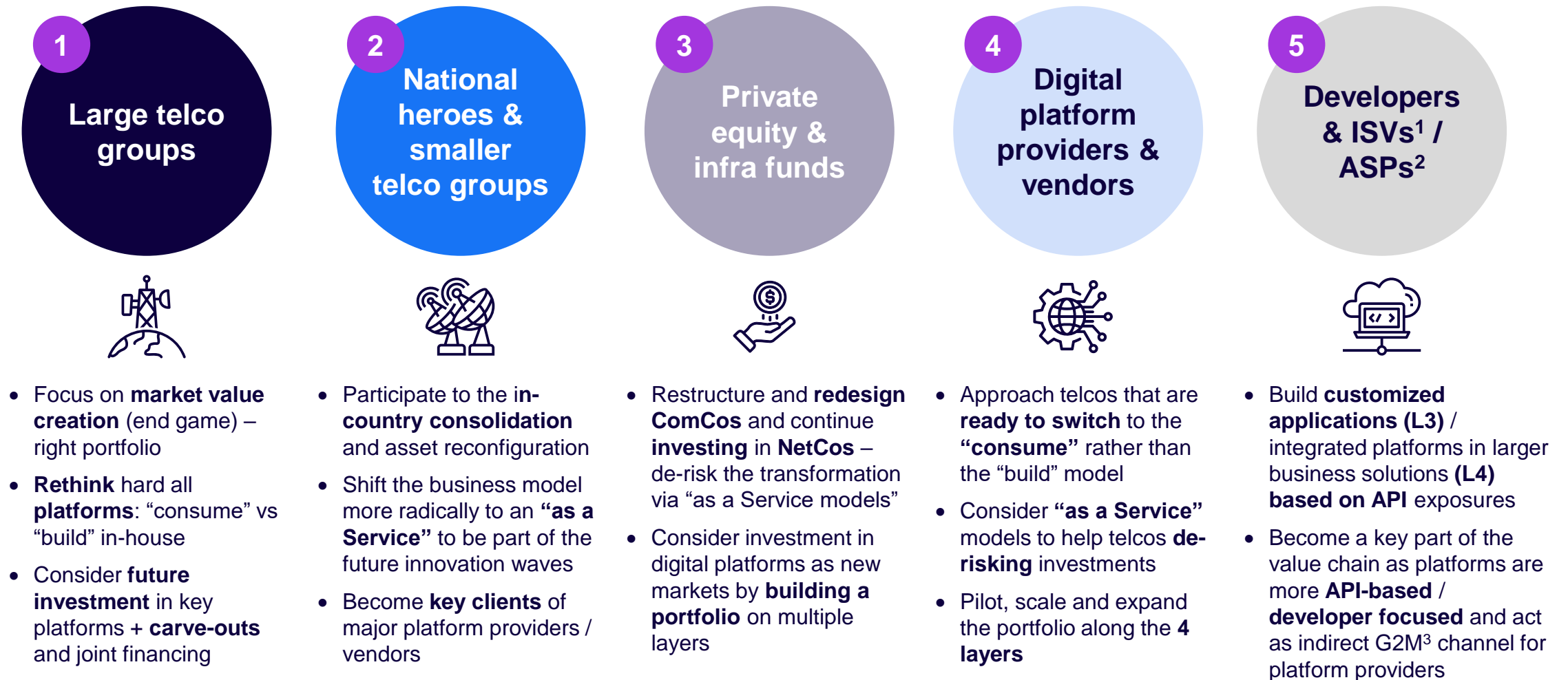


Telcos started to rethink – **“Consume”** instead of **“Produce”**

3

NEW OPPORTUNITIES FOR THE KEY STAKEHOLDERS

Bold moves are expected from each stakeholder in the changing eco-system representing as well new opportunities



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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THE DIFFERENCE