
Uncover 2030
Innovation opportunities
Two decades of disruptions in telecoms
twimbit

Uncover 2030

Contributors

Lee Sparkman
CEO – SC-Nex

Neelesh Maglani
Strategic Business Development Leader – HPE

Vivek Malhan
Industry Consultant

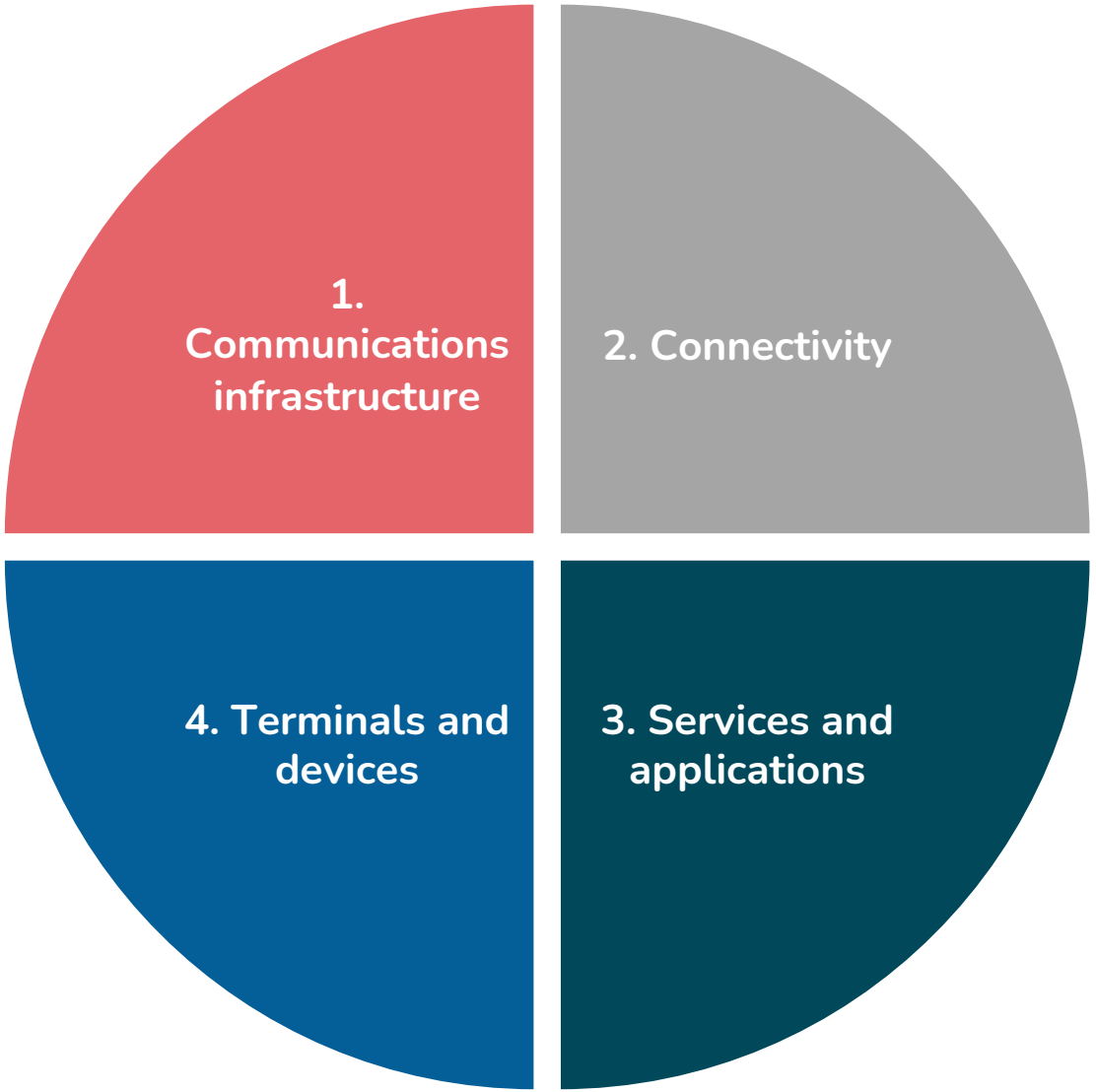
Satish Mittal
Industry Expert

Thomas Sennhauser
Regional Technical Director (APJ/PRC) – Intel

Inderpreet Kaur
Research Manager
twimbit

Manoj Menon
Managing Director/Founder
twimbit

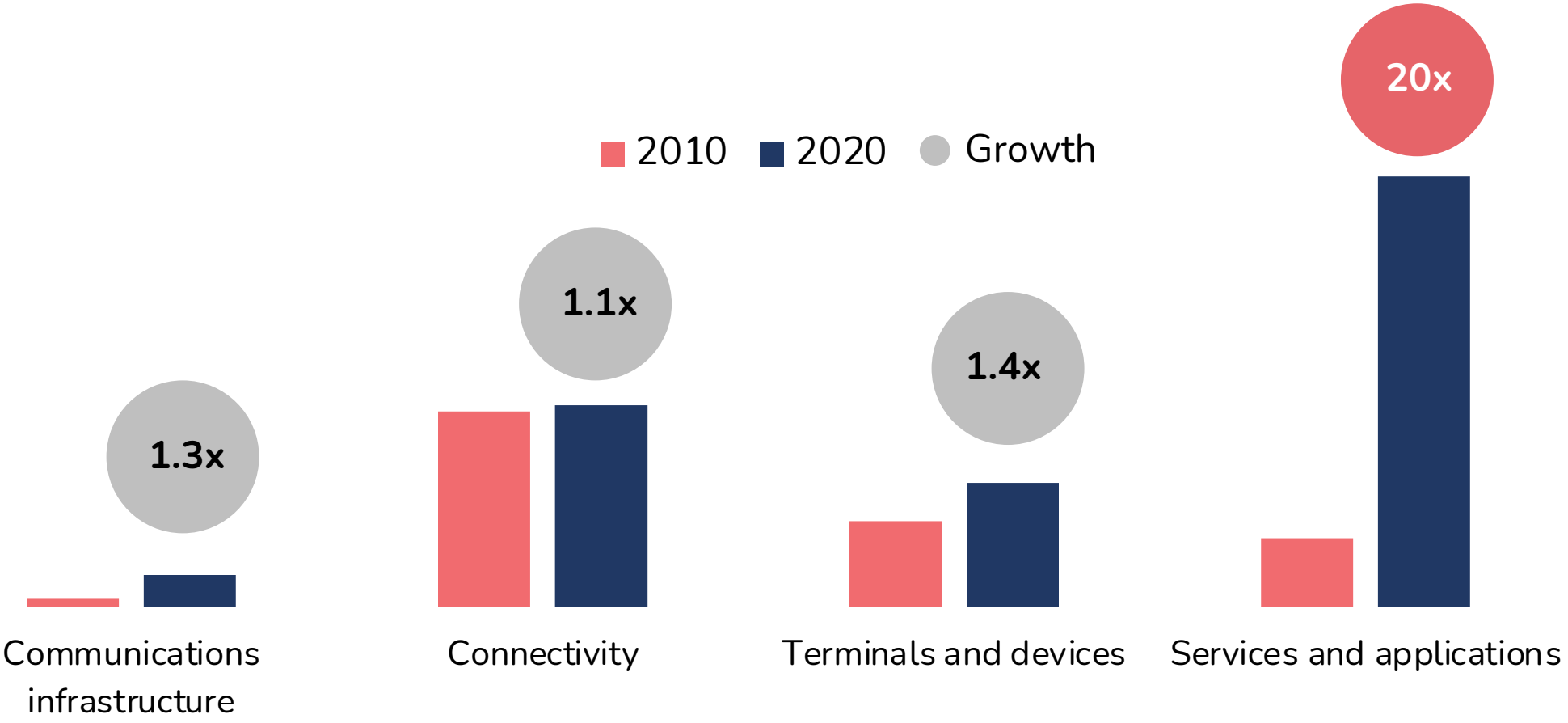
Telecoms is changing at 4 layers



Source: twimbit

twimbit

Performance: 2010 vs 2020



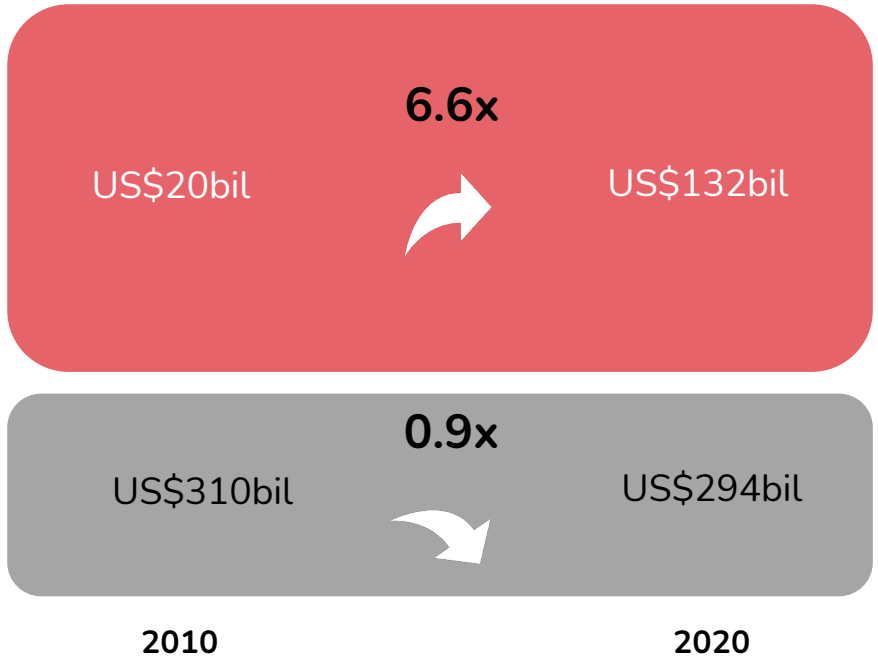
Source: AT Kearney, Omdia
* The data above presents a view of the global market

twimbit

Telecoms over the last decade (2010 – 2020)

Communications infrastructure

Infrastructure spending increase driven by cloud data center build outs



Aggregate network bandwidth in the cloud exceeds few petabits/second compared to the typical 1 terabit/second in a traditional data center.

Networks are architected and built differently to support the cloud environment:

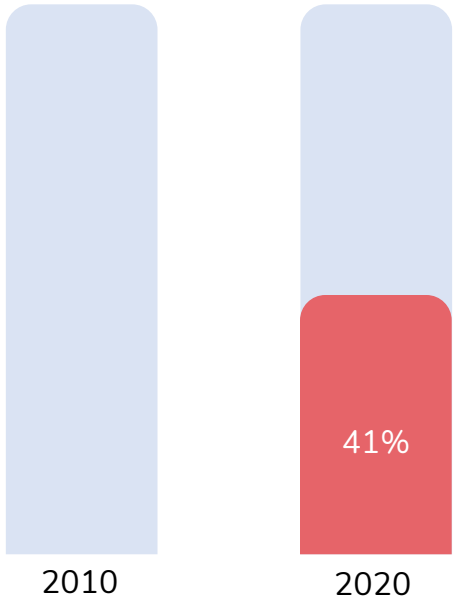
- to deliver high capacity,
- for high availability,
- for predictability, and
- greater agility.

- Hyperscalers CAPEX to reach US$200bil by 2025
- Total CAPEX for Telco + Hyperscalers + Carrier neutral US$520bil by 2025

Source: AT Kearney, Omdia, MTN Consulting, Zacks (Cloud infra spending is CAPEX for 7 largest Hyperscalers)
* The data above presents a view on the global market

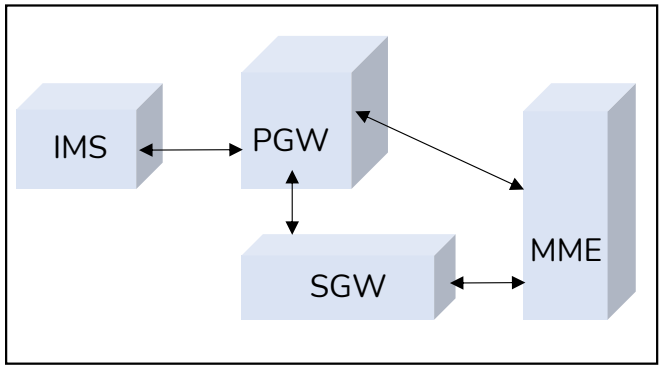
Virtualization and softwarization hitting telco core infrastructures

Share of virtualized packet core*

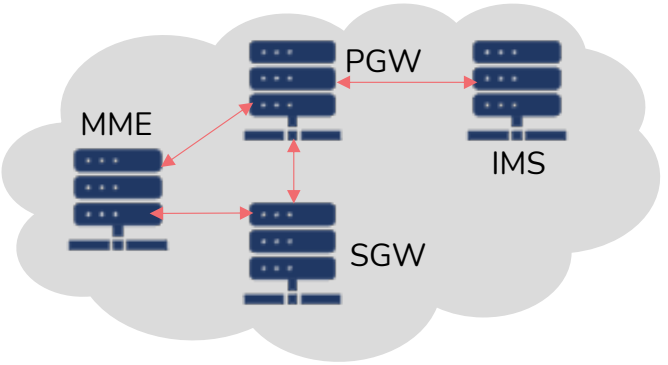


Telecom providers switched to SW/cloud- based functionality and a cloudified core. The majority of core network functions are run as software applications on top of the standard hardware infrastructure.

Legacy EPC



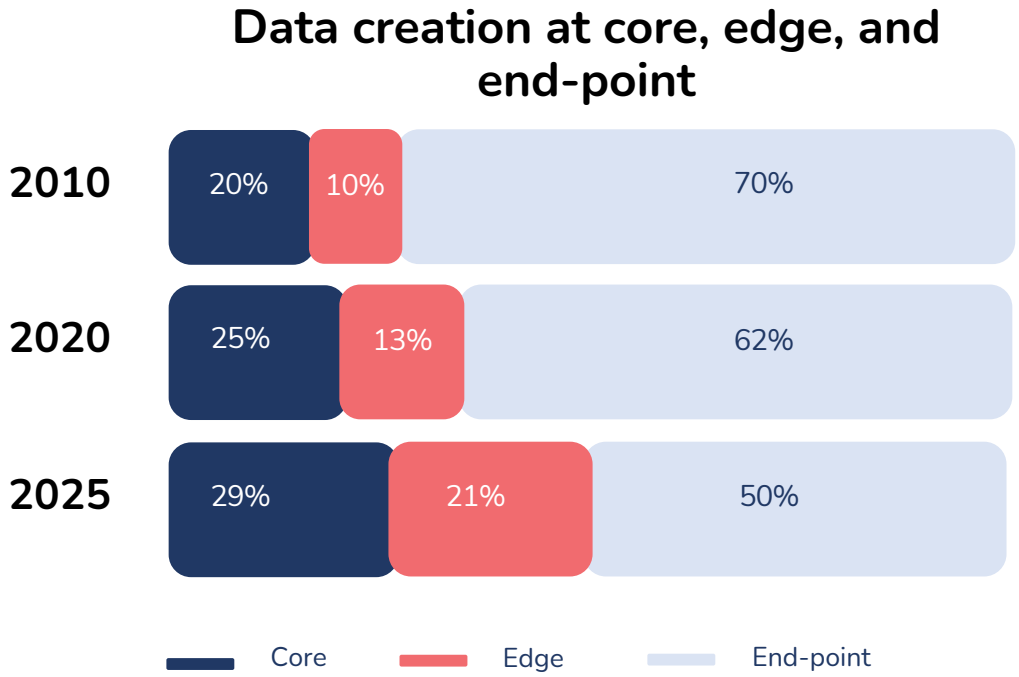
Cloud EPC



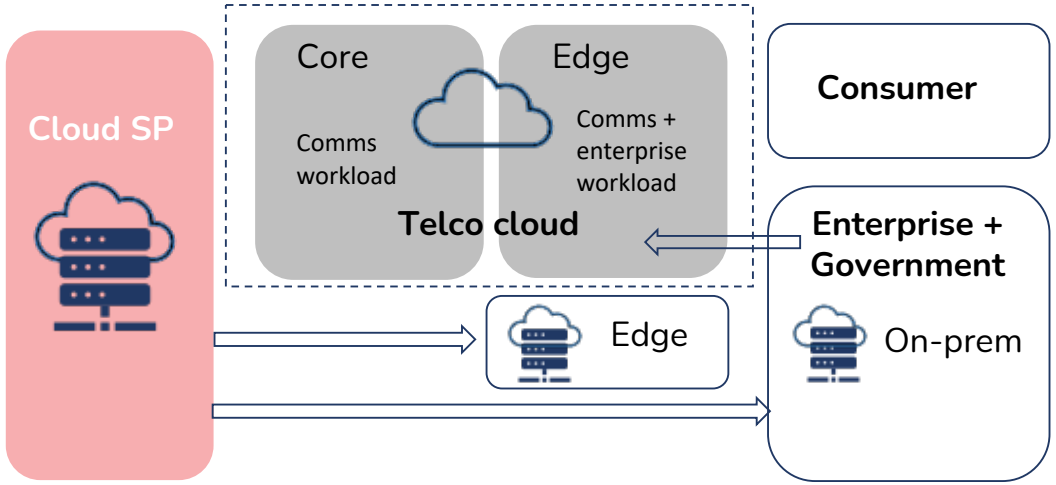
Source: twimbit,
*packet core is EPC + 5GC

twimbit

Cloud moving deeper into communications networks



Core and edge networks to grow in their capabilities to handle more data processing as end-points are now relocated



Traffic flow shifts with public cloud adoption, leading to processing at cloud's distributed infrastructure vs on-prem data-centres

Cloud changes enterprise networking with clear implications for routing and switching infrastructures

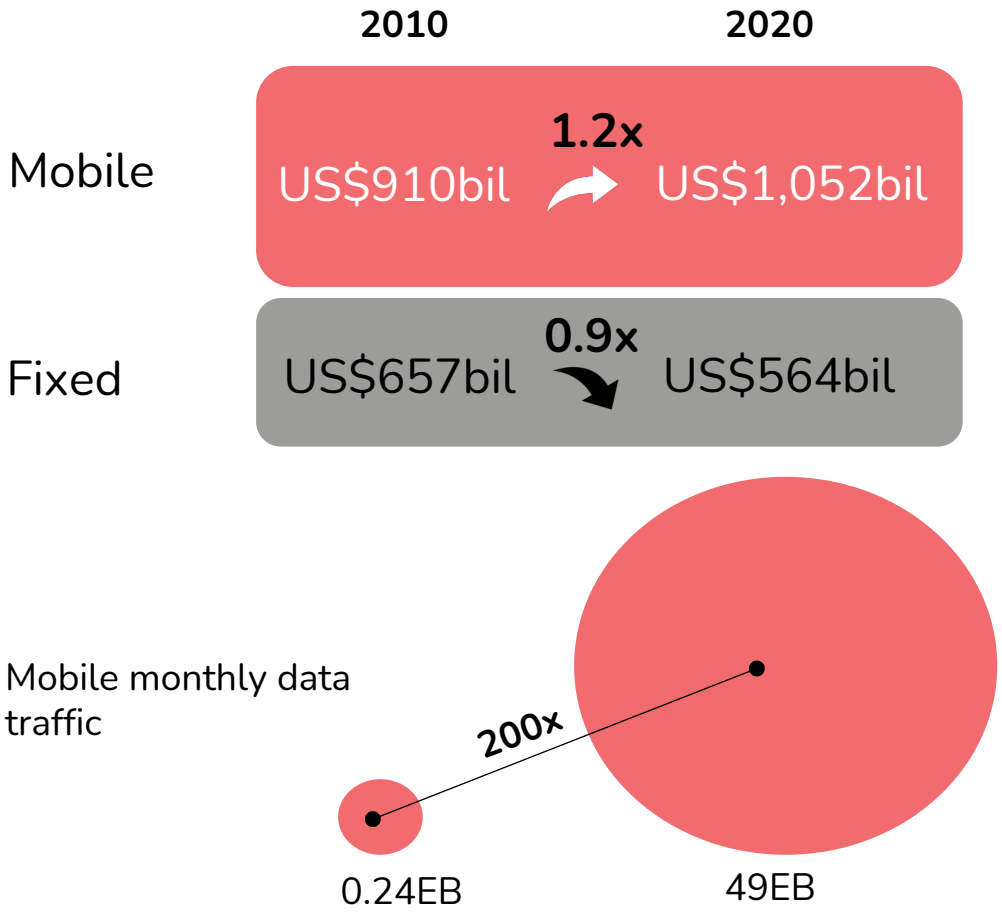
Source: twimbit, Seagate, IDC Global DataSphere 2018

twimbit

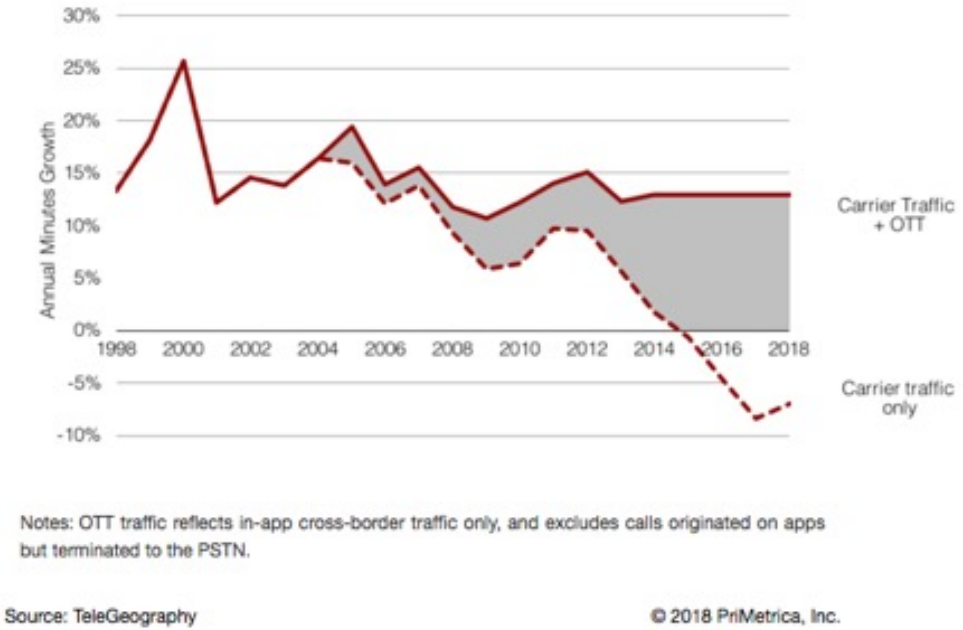
Telecoms over the last decade (2010 – 2020)

Connectivity

Connectivity sees dramatic disintermediation



OTT delivering more minutes every year



Notes: OTT traffic reflects in-app cross-border traffic only, and excludes calls originated on apps but terminated to the PSTN.

Source: TeleGeography

© 2018 PriMetrica, Inc.

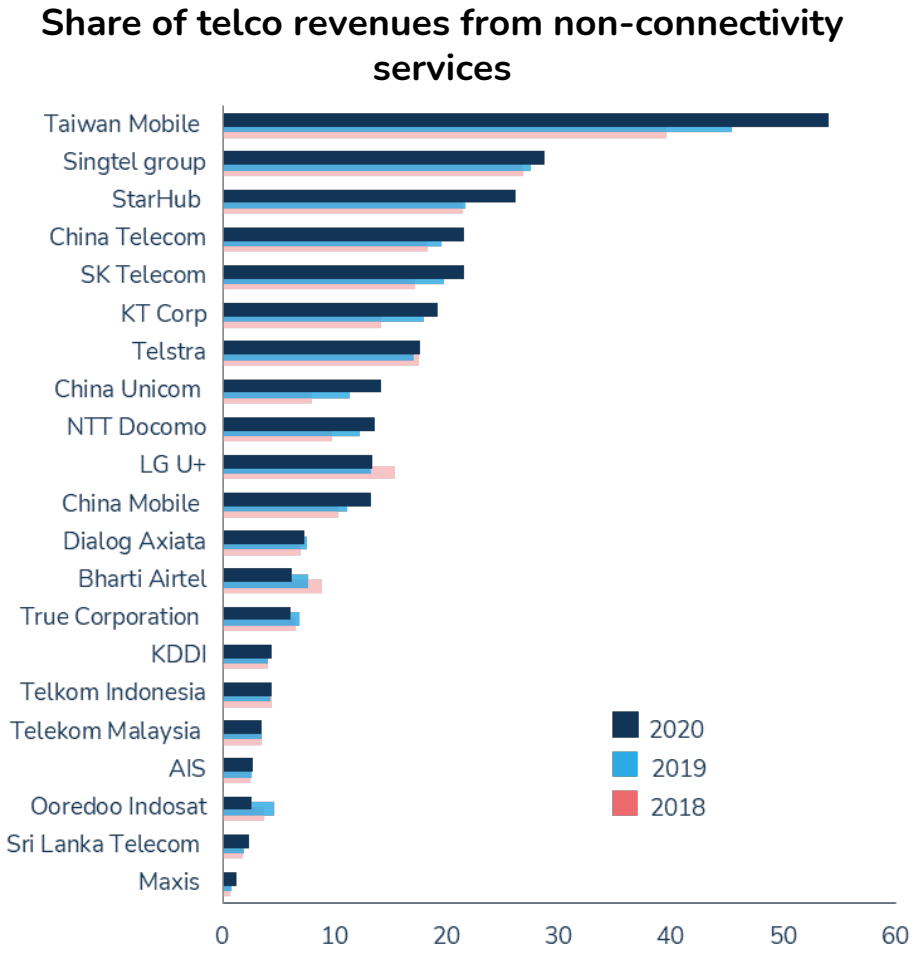
OTT platforms become the intermediaries between telcos & consumers

Industry estimates suggested more than US$157bil in voice revenue loss between 2018 – 2023

Source: twimbit, TeleGeography, Omdia, Ericsson, Cisco
* The data above presents a view on the global market

twimbit

Few telcos managed to establish strong revenue streams beyond connectivity



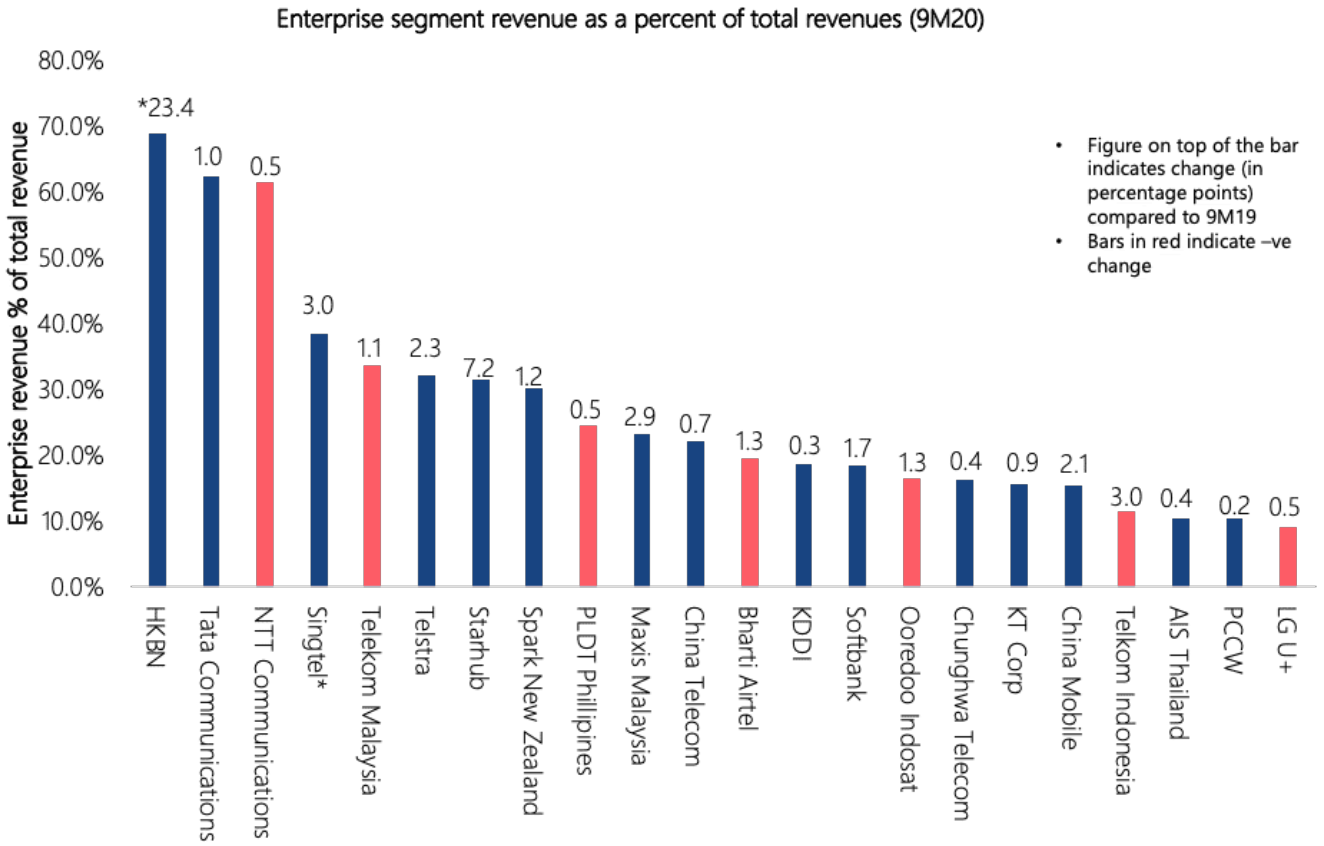
A telco's non-connectivity business focused on 4 key service areas:

- Enterprise (B2B)
- Content and media
- E-commerce
- Analytics & data

In these segments, telcos have faced stiff competition from many non-traditional service providers.

Source: twimbit

Selling connectivity holds 70% share, telcos disrupt their existing business models



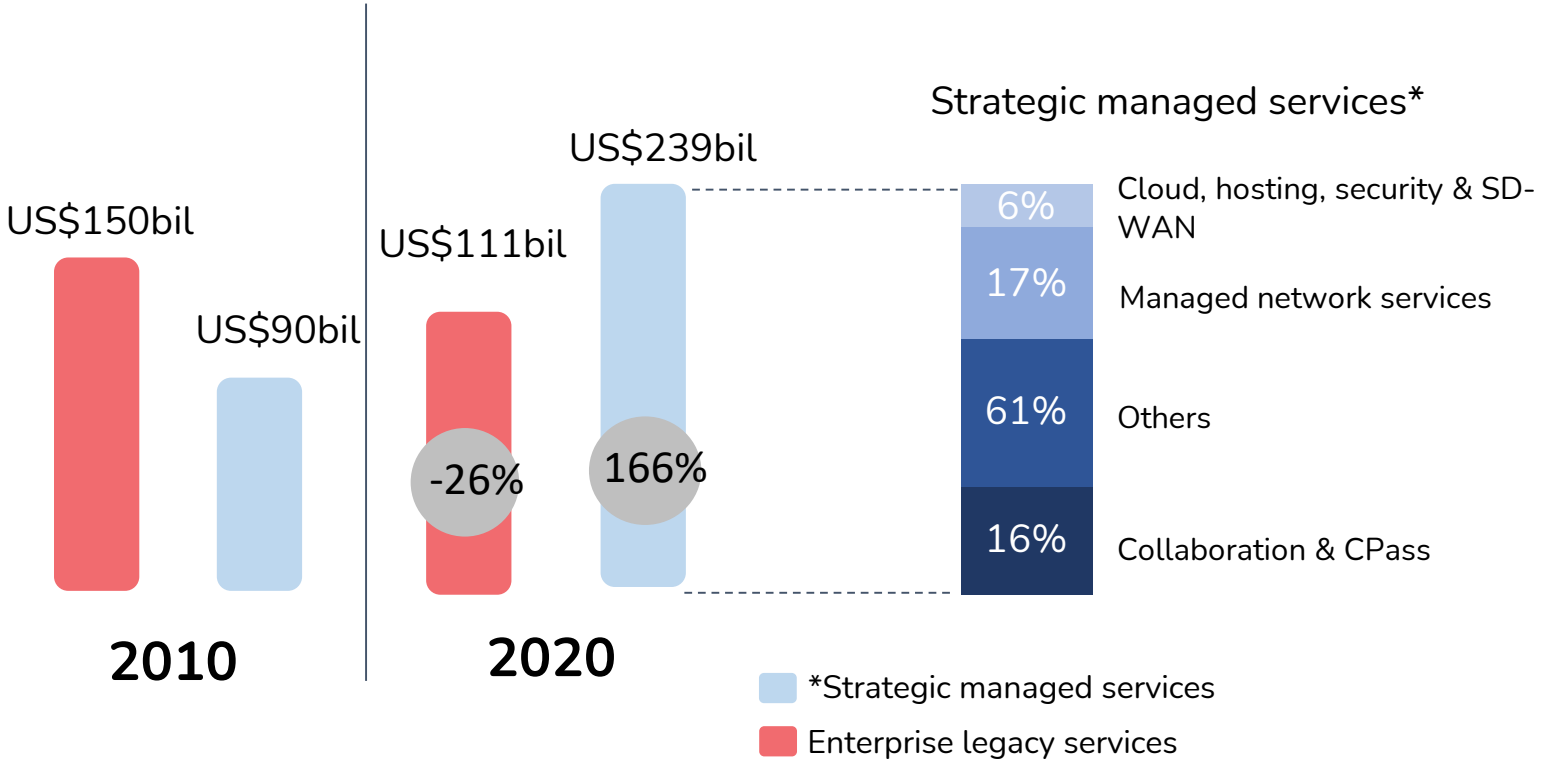
27% of a telco's total revenues are from B2B or enterprise segment (average for Asia)

Out of which connectivity is 70%, while the remaining is contributed from managed services, SI, professional services, and other segments

Source: twimbit

twimbit

Significant movement to managed services, high competition from non-telco providers



Cloud delivery models for UC&C altered the landscape of enterprise communication providers. OTT UCaaS providers are growing in the business communications & collaborations space.

Likewise, non-telco providers dominate managed mobility, security, and SD-WAN services. While there is no single dominant provider, telcos compete with the likes of DMI, IBM, Cass, HCL, Sakon, and Gema in the managed mobility segment

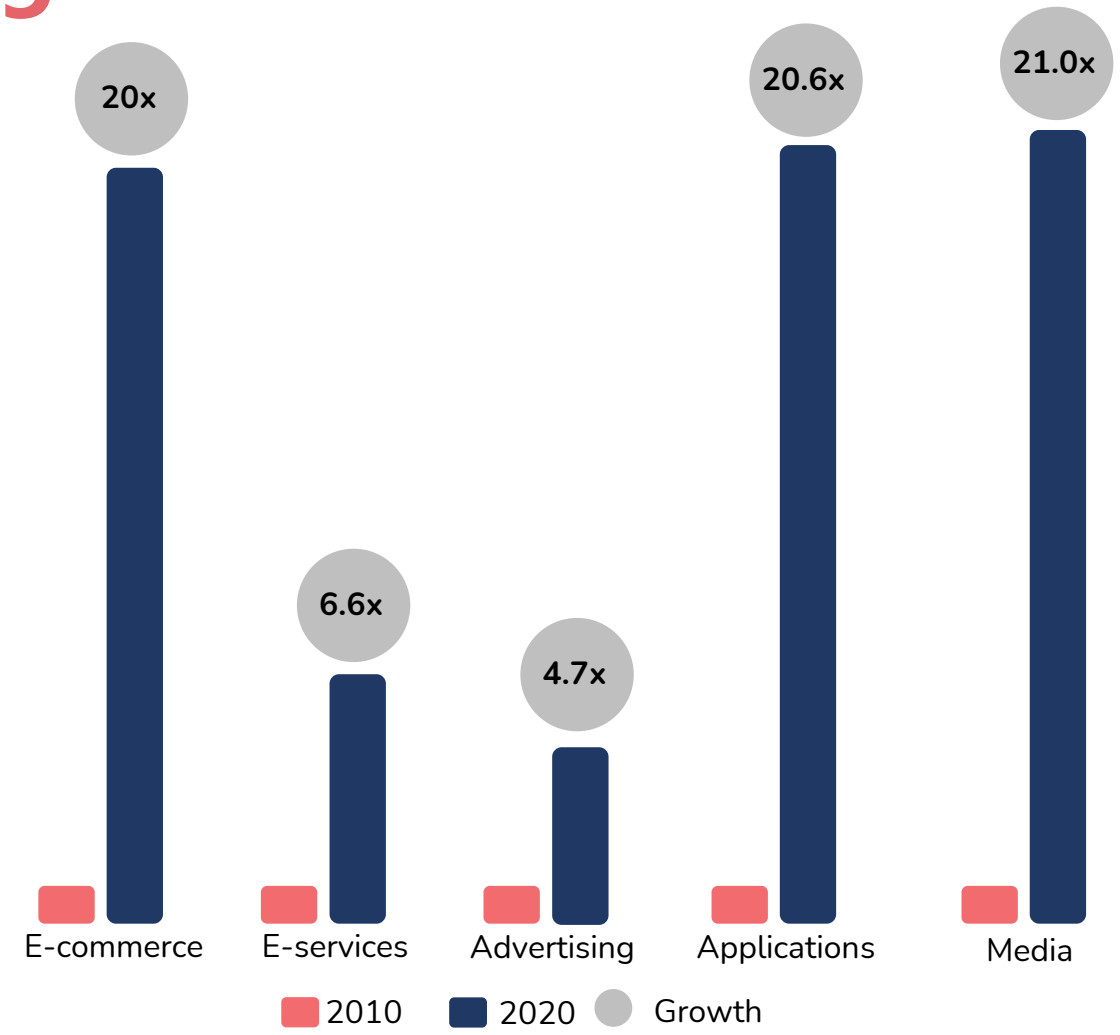
Source: twimbit, Ovum, Tata Communications, TM Forum
* Strategic managed services include managed networks, compute, managed mobility & workspace, unified communications & collaboration, applications, and security

twimbit

Telecoms over the last decade (2010 – 2020)

Services and applications

Application platforms and services created significant value



Speed, scale, and asset utilisation are three factors determining incremental value growth for any business model.

Few operators have succeeded in creating platform-led businesses on top of core connectivity.

SK telecom has successfully built a portfolio of diversified revenues streams, including media, commerce, and mobility analytics.

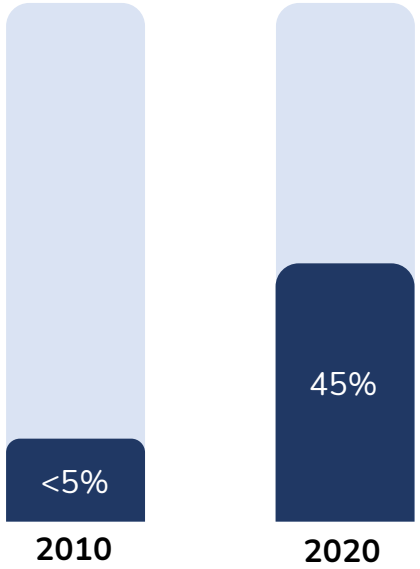
Taiwan Mobile

E-commerce accounted for 50.5% of Taiwan Mobile's total revenue in 2020.

Source: twimbit, AT Kearney, Omdia,
* The data above presents a view on the global market, E-Commerce refers to B2C (excluding cross-border)

Mobile operators enabled trillion dollars in e-commerce payments

Share of digital wallets as a percentage of total e-commerce transactions



Non-Telcos		Telcos	
Ali Pay	1.2 billion	Airtel Payments Bank	115 million
WeChat Pay	1.15 billion	JazzCash	31 million
Apple Pay	411 million	au Jibun Bank	>40 million
PayPal	325 million	GCash	>33 million
G Pay	100 million	M-Pesa	50 million

Global players** dominated so far with scale.

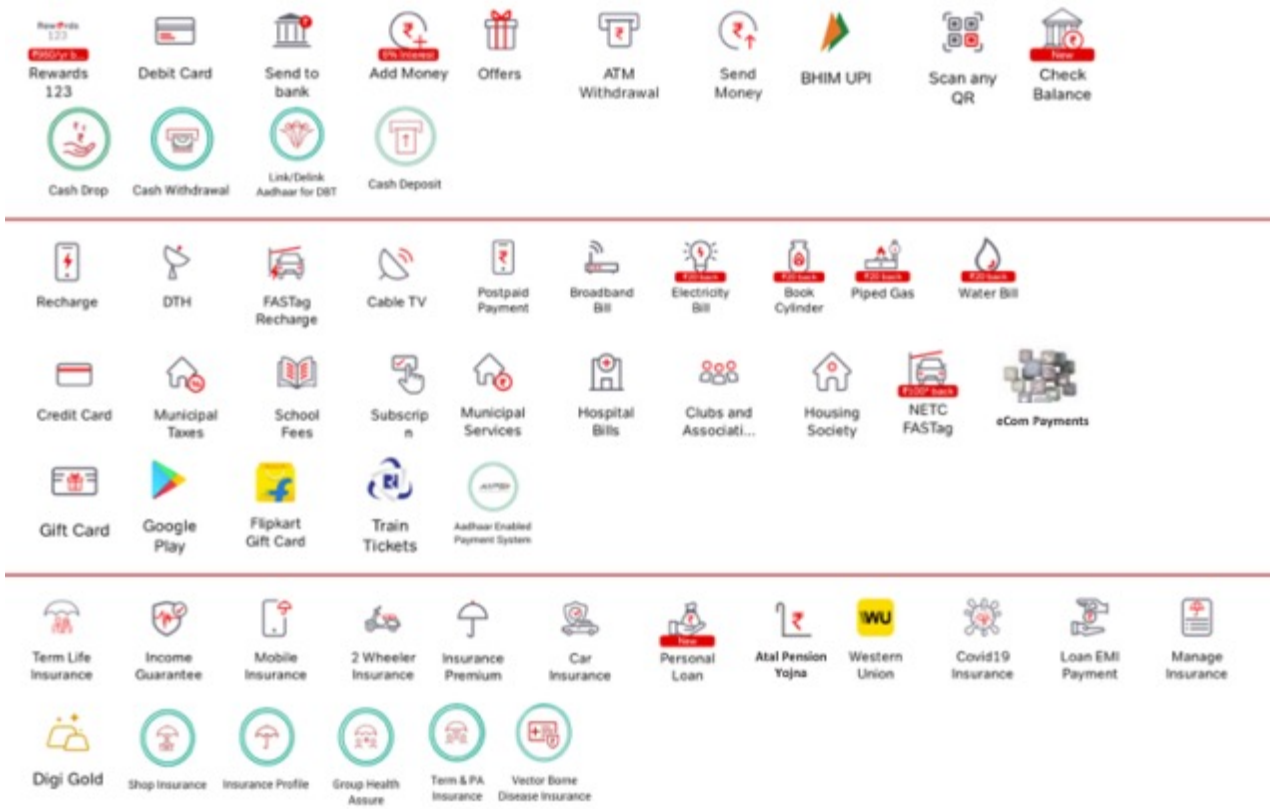
Payment value chain disintermediation with several paytechs, fintechs, and neobanks entering the digital payments space.

Source: twimbit, Statista, MerchantSavvy
- The data above presents a view on the global market;

** barring China where local players have dominated

twimbit

Airtel Payments Bank – providing financial services for the underbanked



Airtel Payments Bank product & service stack

Quick facts: Sep 2021

India

115 million

US$126mil revenue
US$17.2bil GMV

Product strategy

Focus on rural unbanked regions of India

Develop a merchant ecosystem of partners (8 million partners)

Offer a comprehensive suite of services

Source: twimbit, operator financials

Telcos assuming the role of marketplace enablers

SmartLife business for NTT DoCoMo

Content and commerce

dTV — d hits — d magazine — d shopping — d travel — DAZN

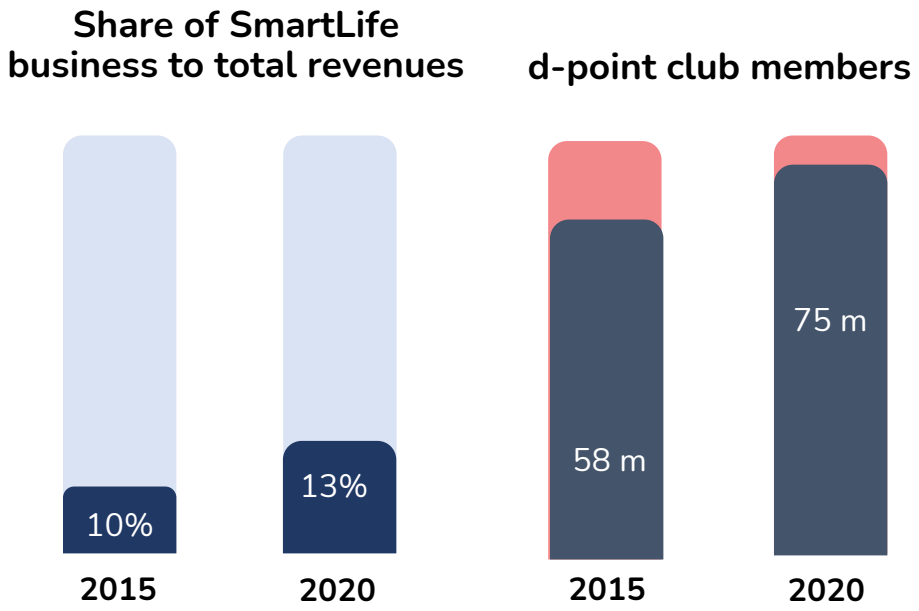
Finance and payments

d card — d payments

Lifestyle services

d healthcare — d gourmet — d photo

An increasing amount of value is being generated by third parties participating at the application layer. Very few telcos succeeded at integrating this value back into their core business. NTT DoCoMo's SmartLife business is an example of such success.



Source: twimbit, operator fillings

Media became a natural adjacency for telcos

Share of Pay-TV revenues to telco total revenues

	2015	2020
AT&T	5.0%	17.5%
Telefonica	4.4%	17.5%
SK Telecom	4.0%	20.0%
*Orange	13.0%	17.0%

Telcos successfully built media business with IPTV by:

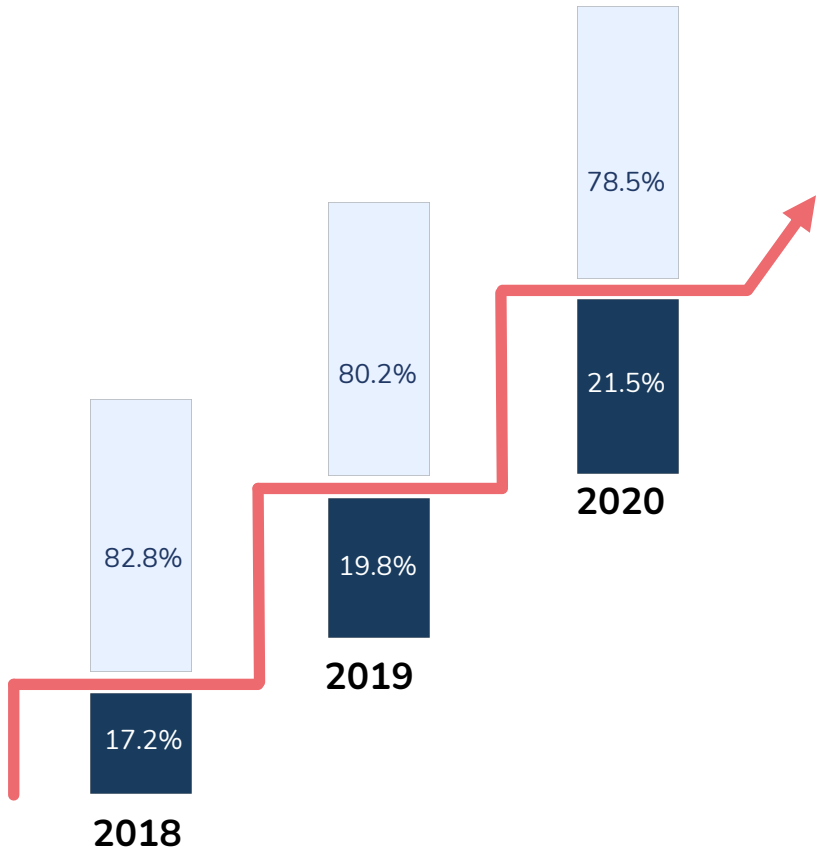
- utilising deep infrastructure assets to distribute content
- bundling TV with broadband & connectivity services

However, there was disruption with OTT video services. Telcos are struggling to keep the momentum going.

Source: twimbit, operator financials
* Convergent services revenues

SK Telecom: Scaling non-connectivity revenues through partnerships and acquisitions

Growth in non – connectivity revenues

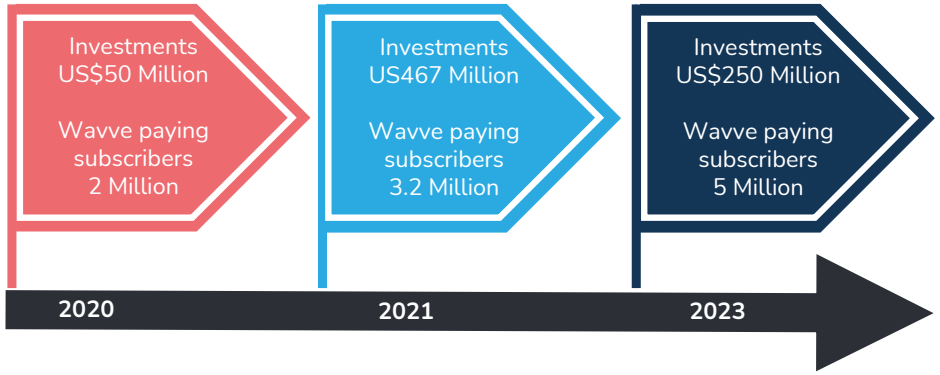


Source: twimbit, operator financials

About 20% revenue share, Media a key growth engine for SK Telecom

A merger between SK Broadband and t-broad bumped media contribution for non-connectivity business

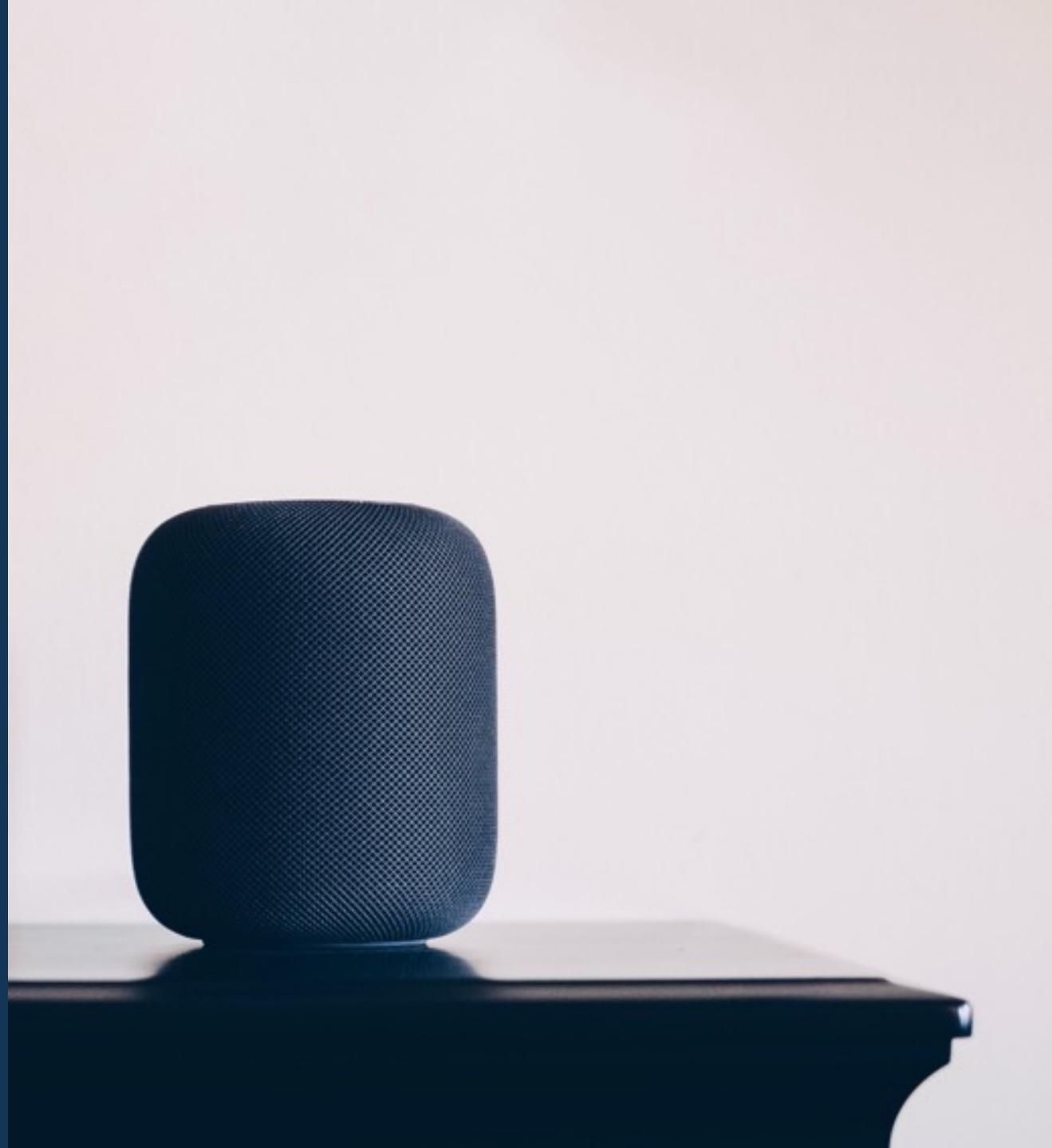
wavve strengthened its premium content capabilities by expanding on original content



twimbit

Telecoms over the last decade (2010 – 2020)

Terminals and devices



Connected devices growth led by connected homes

	2010	2020
	US$221bil	US$226bil
	US$236bil	US$444bil
	US$10bil	US$45bil
	US$87bil	US$280bil

The growing number of connected devices creates a need for intelligent edge infrastructure.

A multi-device environment is leading to open platforms, and that offers better choices to customers.

Telefónica

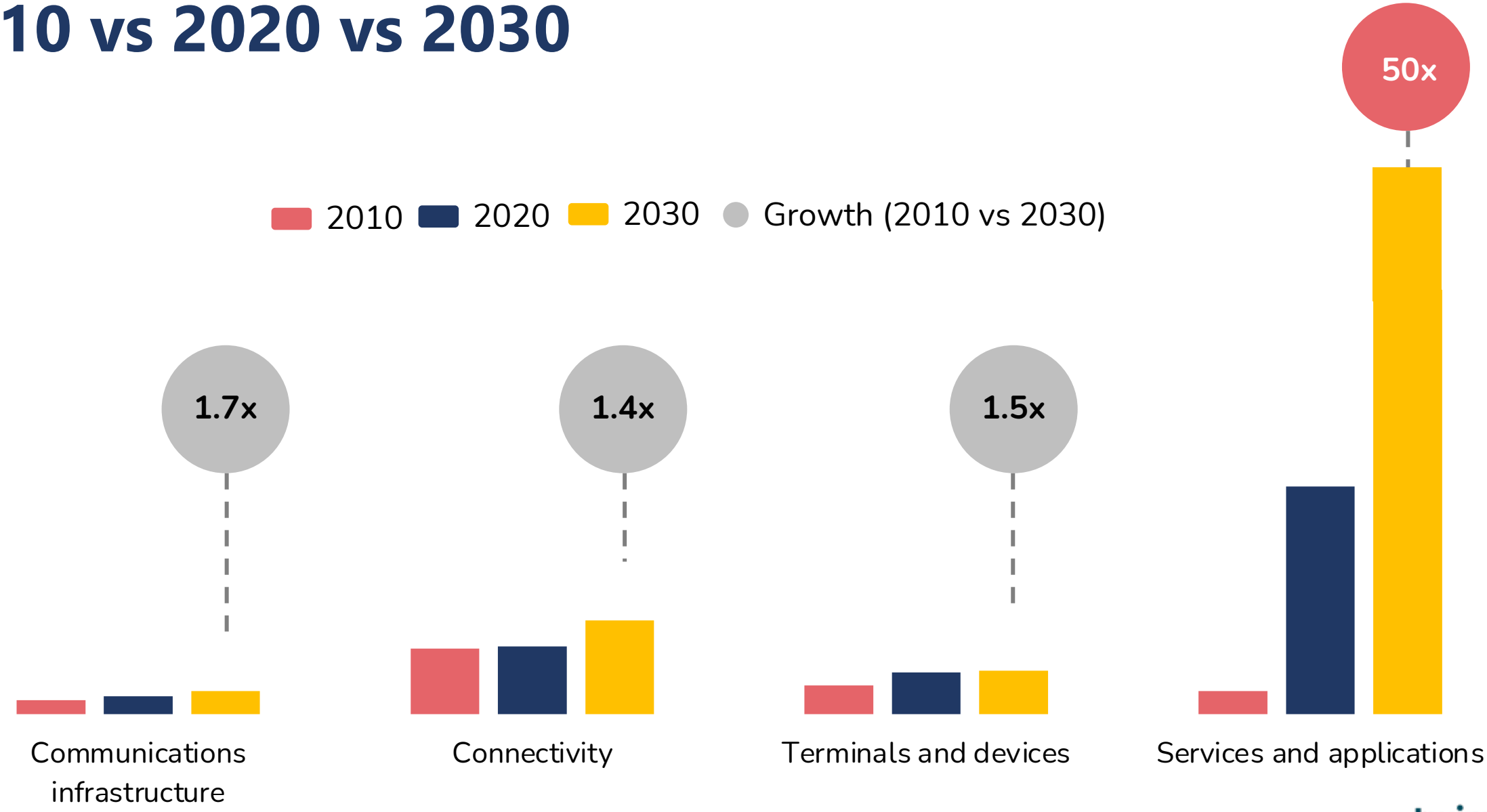
As the HaaC smart home platform is built with open APIs, this allows third party developers to launch and develop their services on Telefonica's home gateway platform.

Source: twimbit, AT Kearney, Omdia
The data above presents a view on the global market

Top disruptions in the telecoms industry – 2030

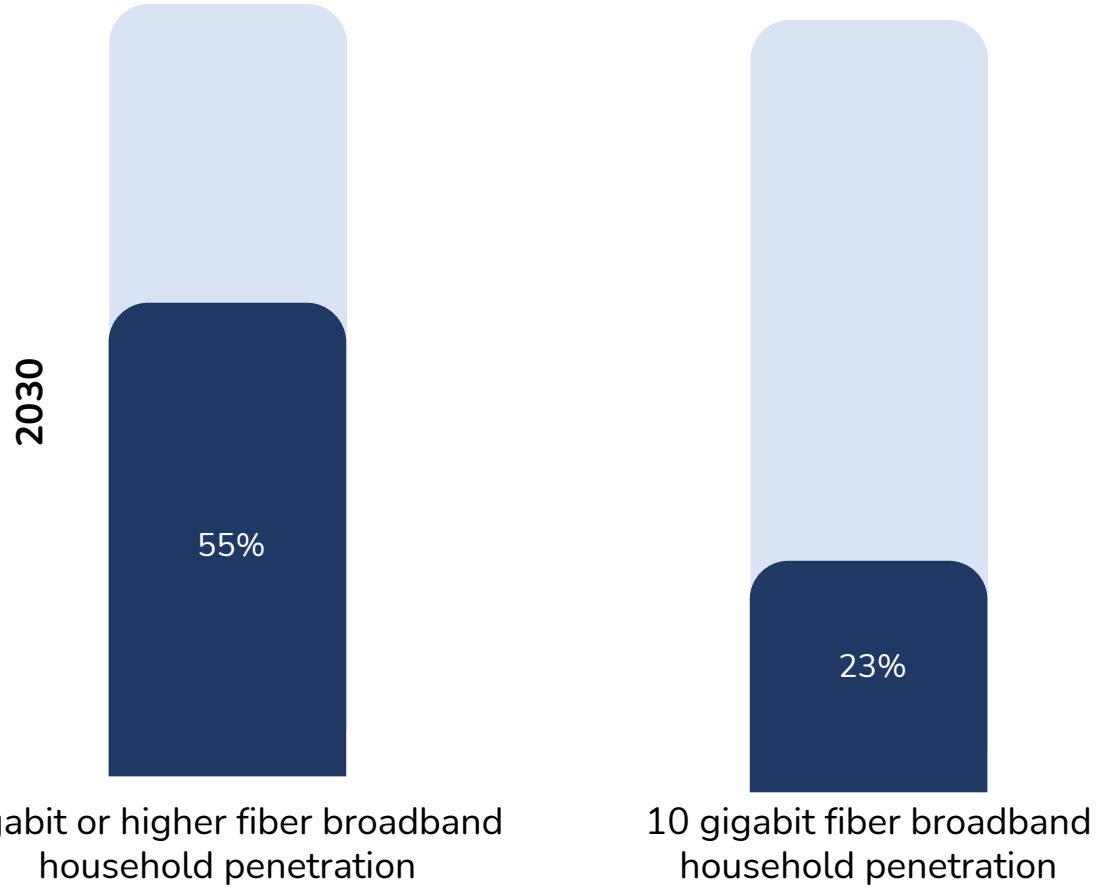
Get a glimpse into the future

2010 vs 2020 vs 2030



Source: twimbit estimates
The data above presents a view on the global market

Gigabit sets the context for hyperconnectivity with 6G

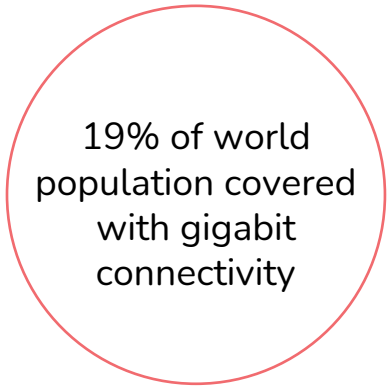


gigabit or higher fiber broadband household penetration

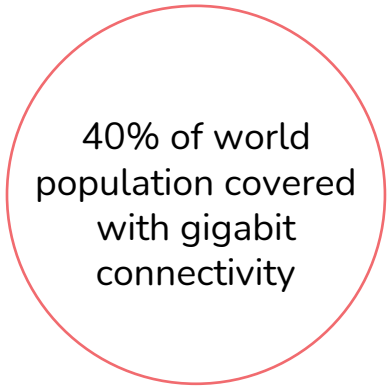
10 gigabit fiber broadband household penetration

"For me, a Gigabit Society is just a stepping-stone on the way to 10 Gigabit, 100 Gigabit, and Terabit Societies. Since it's only every 15 years that we reach the next major denominative level, i.e. the Terabit, now is a good time to take a breath and look at where we're at and what we can now do next, but 'Gigabit' is really just one of many speed jumps to come."

- Gerhard Fettweis, Chair Professor for Vodafone at TU Dresden



2020



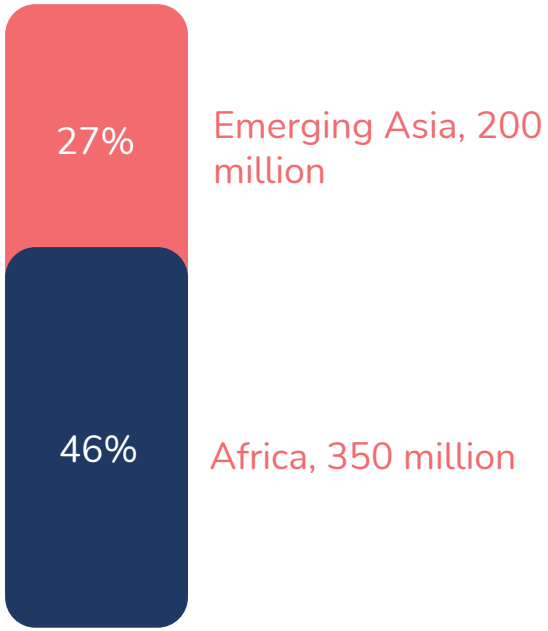
2030

Source: Huawei, Viavi, twimbit
The data above presents a view on the global market

twimbit

New growth engines from low-income economies

Net increase in world population (2020 – 2030)



Source: IFC, World Bank

Connectivity landscape in Africa, 2020

89%	51%	40%
Mobile penetration	Smartphone penetration	Internet penetration

Solving the connectivity challenge for low-income economies will see real implementation

- SpaceX, OneWeb, and Kuiper would have 8,300 satellites in orbit by 2027 – four times the total currently in orbit for any purpose
- Telcos open up to alternate business models, enabling connectivity for the next billion

Networks become complex with connectivity delivered through multiple ways

The future network type has multiple layers in macro networks. A number of factors influence the choice of connectivity, such as coverage, cost, security, application or use case, and business model.

Sharing of infrastructure and partnerships with other parties (such as neutral hosts or equipment vendors) become the norm.

Enterprise & private

Huawei projects up to 1 million private networks (including virtual private networks) in 2030

Satellite

McKinsey forecasts 65% annual growth in demand for satellite connectivity through 2030 from the B2B segment

Neutral hosts

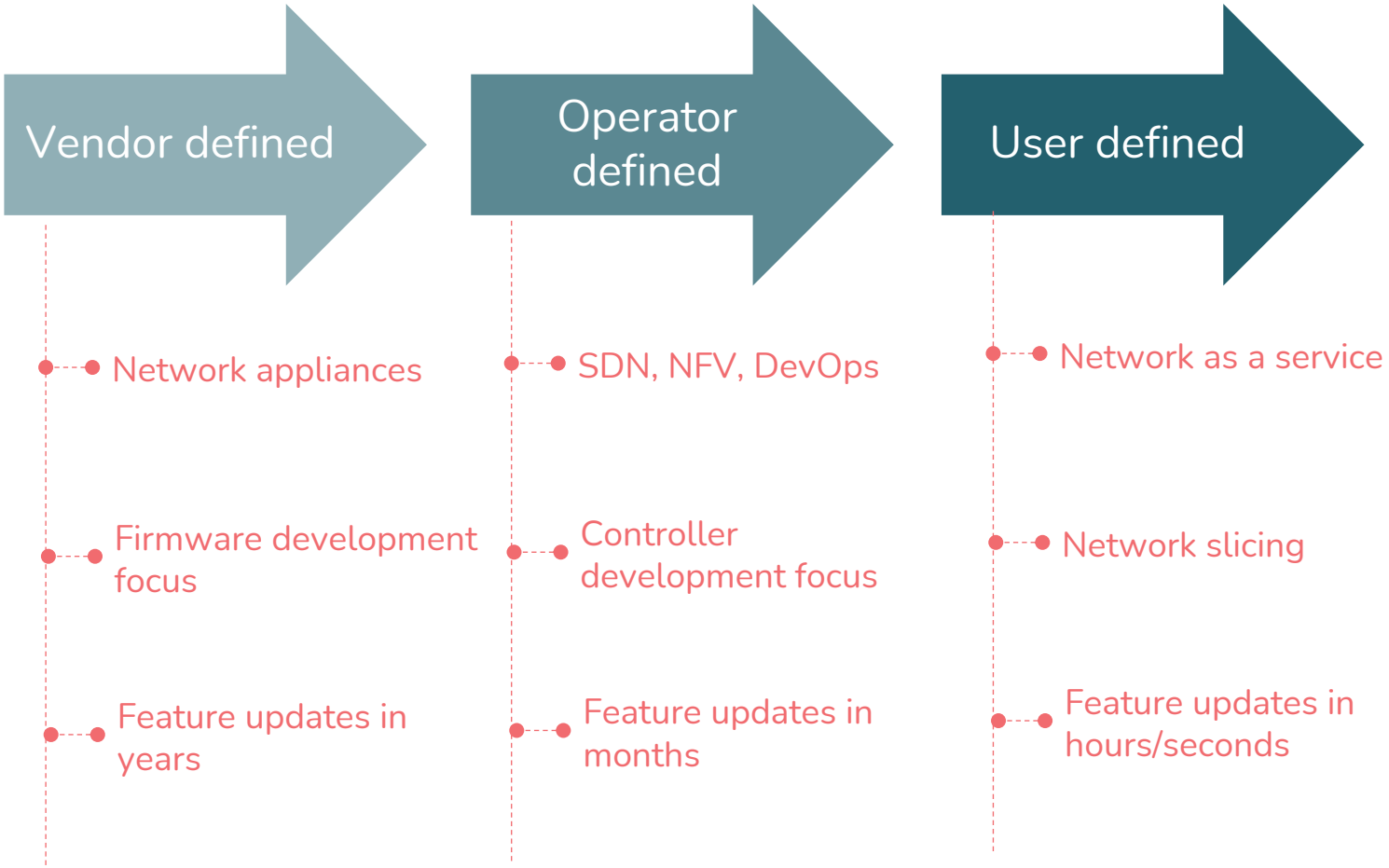
More sharing of network assets to encourage neutral host and wholesale network models

Public venues

Stadiums, parks, and other common public venues or networks, deployed by municipalities

Source: twimbit, Huawei, McKinsey&Company

Delivery of outcomes drive value in connectivity

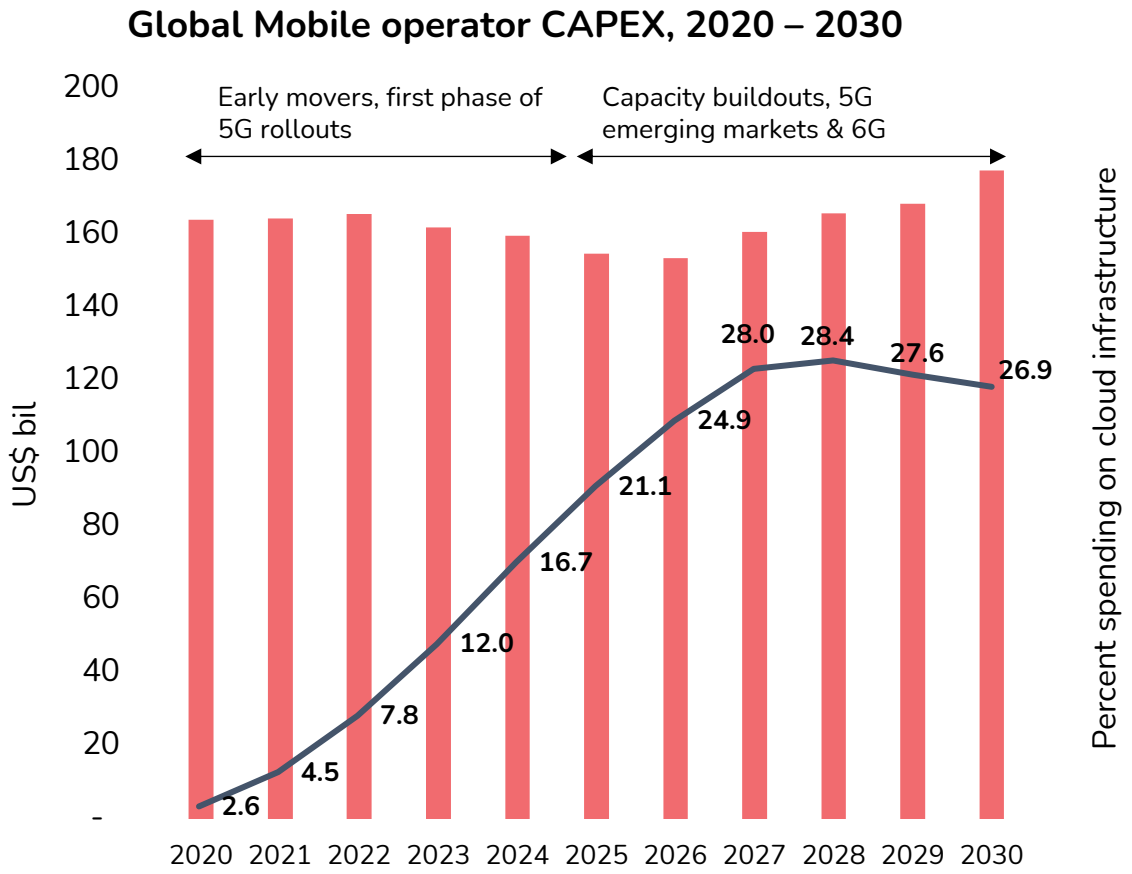


Agility in networks is the biggest driver. The network is now user-defined, where the user buys an outcome, and not just bandwidth.

Network functionality is tweaked and adapted to specific service quality and user-defined parameters varying on use cases.

Source: twimbit

Hyperscaler CAPEX overtake network investments by mobile operators



Annual capital spending (2030)

US$178bil vs US$220bil

Mobile operators **Hyperscalers**

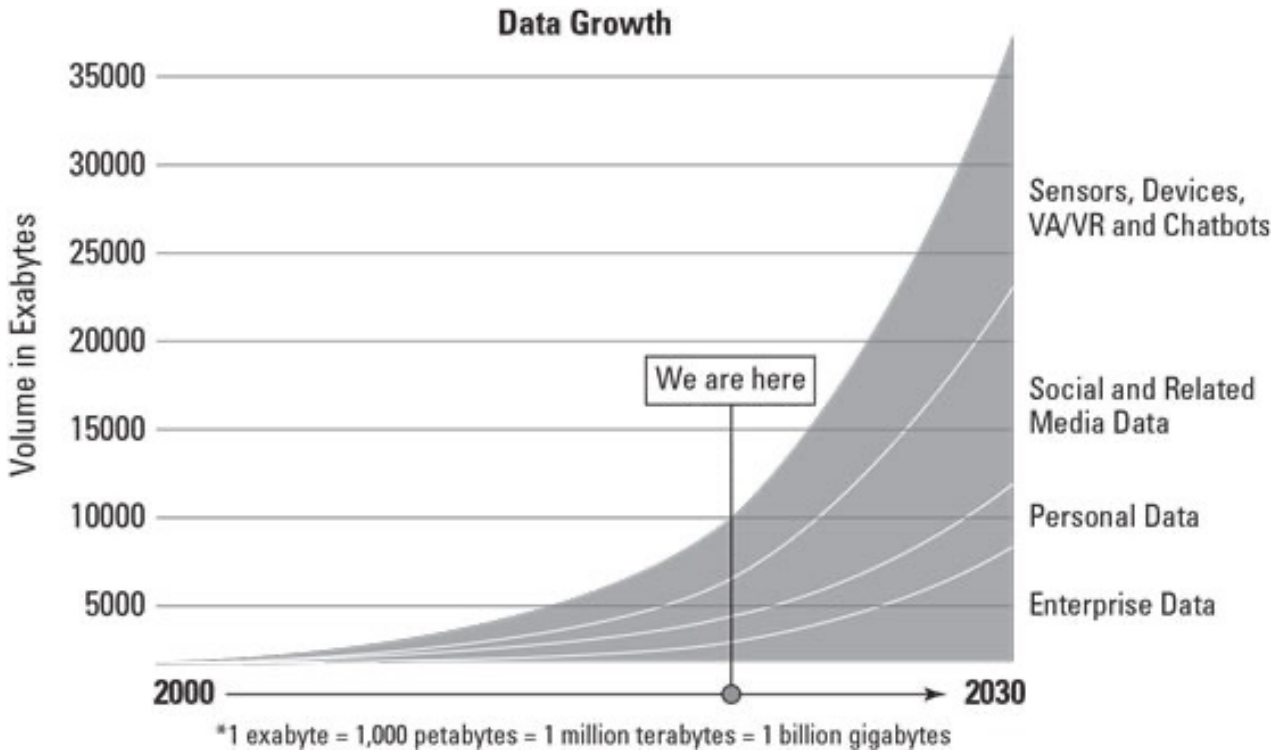
About 20% of cumulative mobile CAPEX is spent on cloud infrastructure between 2020 – 2030.

For enterprises, 87%* of enterprises' application expenditures will be on cloud services by 2030.

Source: twimbit, *Huawei
The data above presents a view on the global market

twimbit

Connectivity converges with computing to manage explosions in network traffic



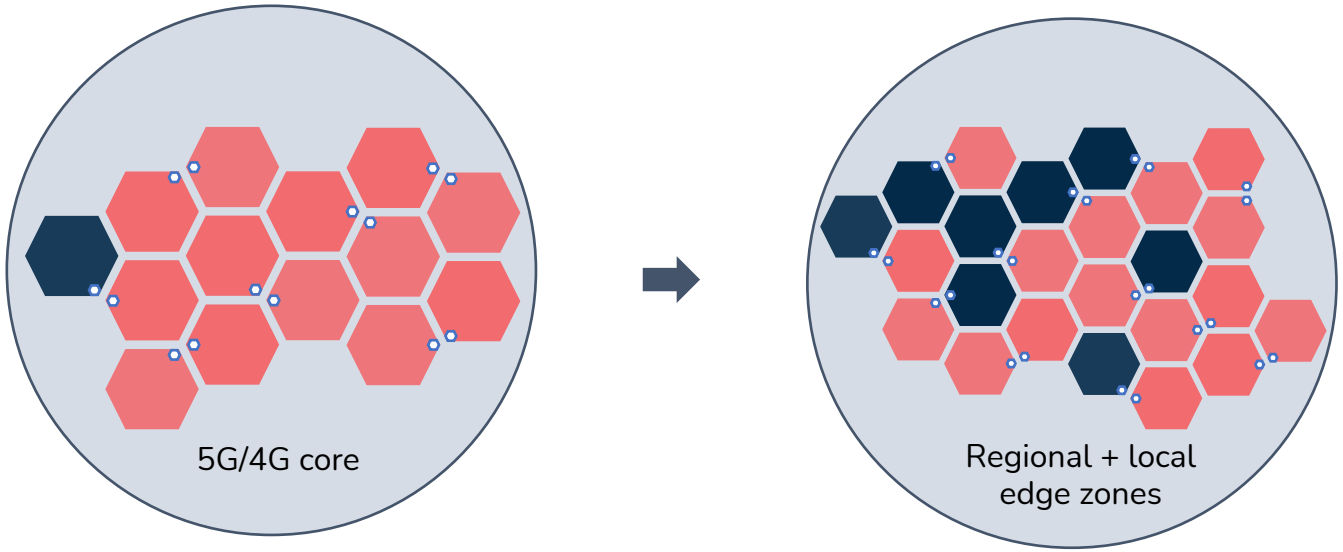
Cloud-based infrastructure, particularly distributed MEC, to handle data explosion from:

- Video consumed on small screens
- New AR and VR based applications and immersive extended reality (XR)
- IoT, Sensors, and digital transformation (of industrial operational technology)

Caching data near edge to reduce demand for high backhaul capacity.

Source: Internet search

Edge data centres are predominant in a fragmented landscape



Few core data centers

Edge contributes to 75% of total computing*

Edge use cases

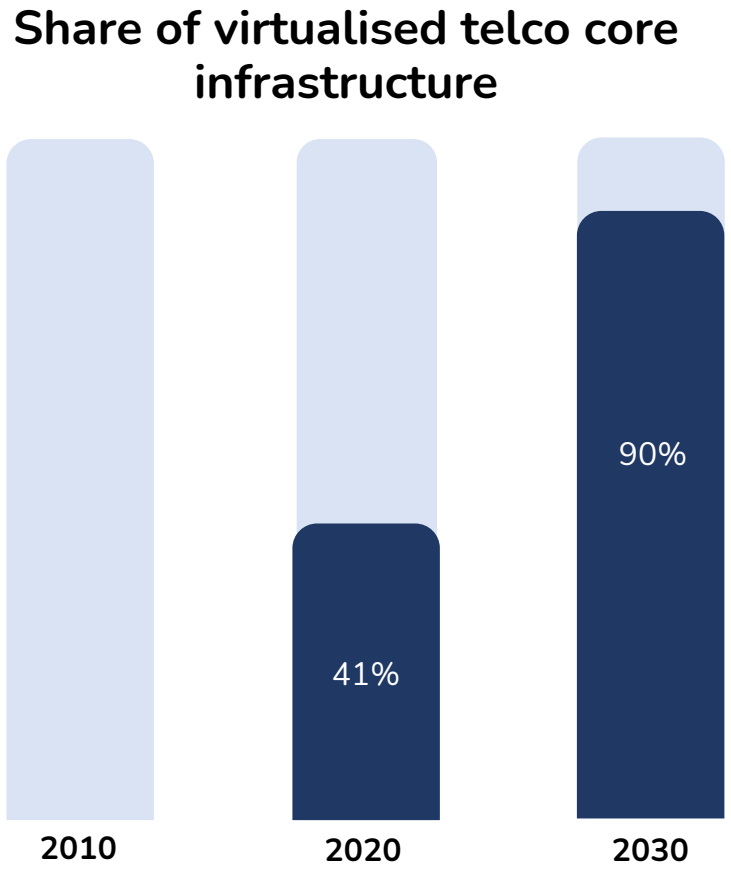
- Network operations
- Content delivery
- Cloud gaming
- Connected & autonomous vehicles
- Smart retail
- IIoT & Smart factories
- Smart cities
- Private networks
- MEC as a service

Multiple factors drive this distributed computing – supporting new applications, data residency, private networks, and 4G & 5G SA.

Over the next 10 years, interconnection bandwidth capacity at edge expands at a much faster rate compared to core locations.

Source: twimbit, *BCG, Equinix

Virtualisation completely overtakes telco core, gradually moving to edge



The majority of core network functions are software implementations using NFV

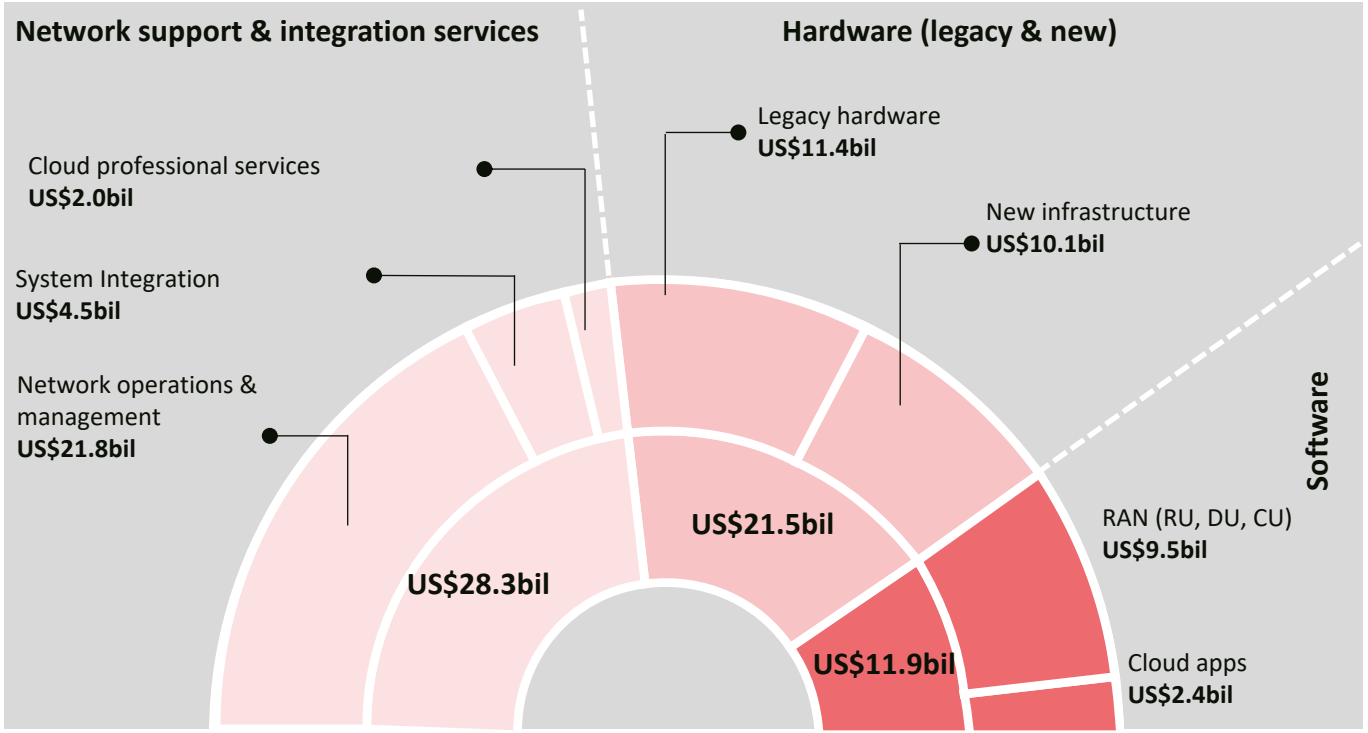
- 5GC is completely virtual. Network functions are software running on conventional servers

Dis-aggregation of network architecture enables telcos to push compute & storage closer to customer/service delivery points

Source: twimbit
The data above presents a view on the global market

Rapid disaggregation in communication network architectures

Over 60% of RAN CAPEX spend by telecom operators will migrate to virtualised and disaggregated network architectures by 2030



Value shifts away from legacy purpose-built hardware to cloud & virtualisation infrastructure.

There is high interested among both legacy and emerging vendors in building distributed and cloud platforms running at the network edge.

Source: twimbit
The data above presents a view on the global market

twimbit

Widespread implementation of automation across all telco assets and systems

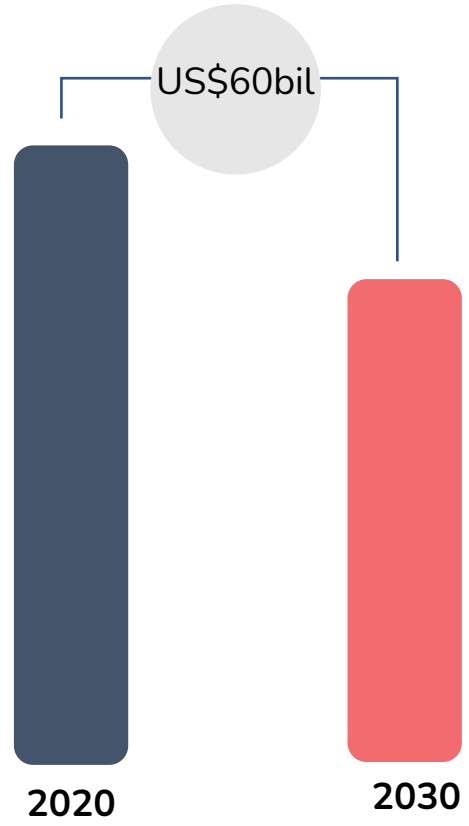
56% of Mobile Network Operators globally have little or no automation in their networks today

By 2025, 80% of MNOs expect to have automated 40% of their network operations

RAN accounts for 60% of network TCO. It presents a key use case for telco network automation achieved through:

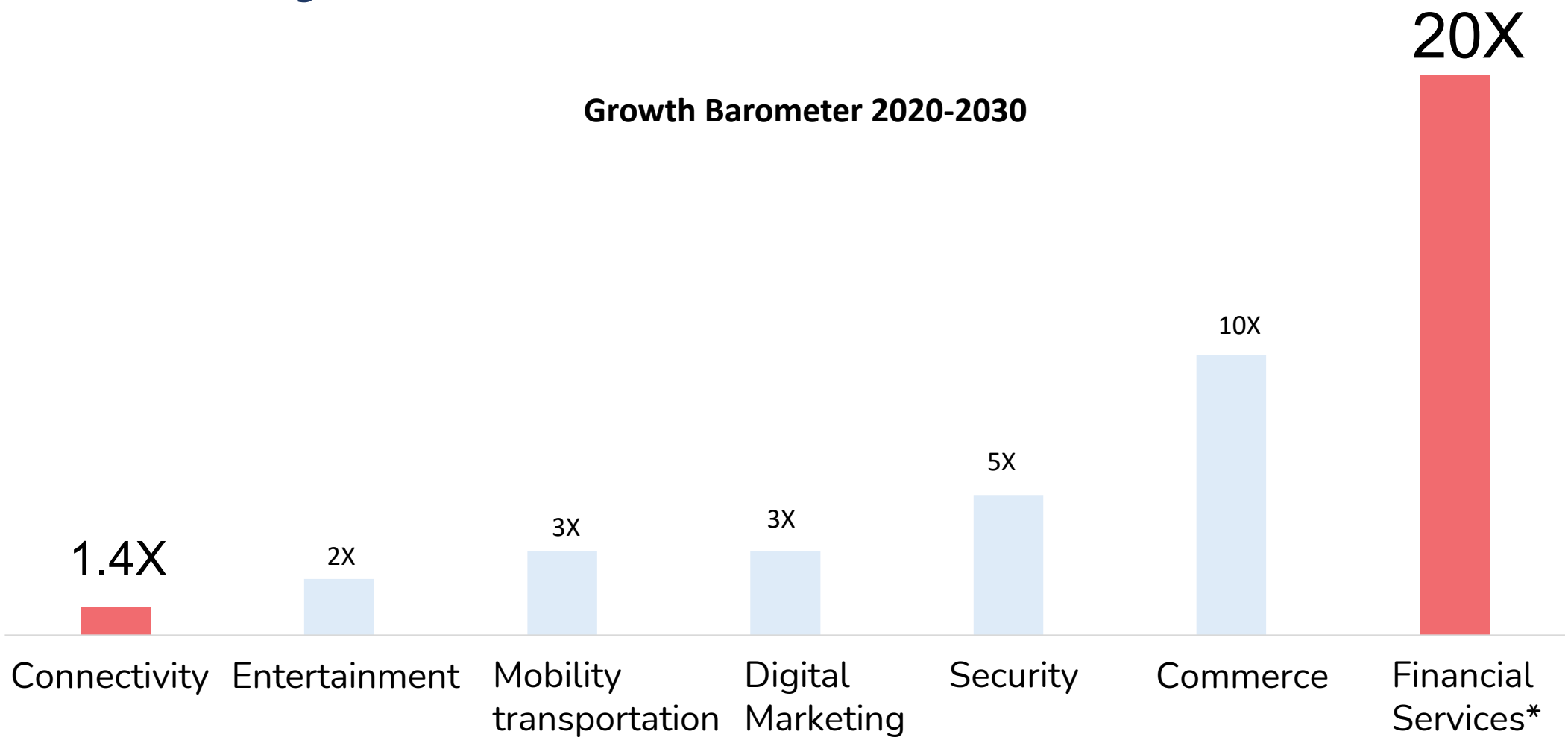
- AI
- SON
- Virtualisation

Savings in Network & IT TCO



Source: twimbit, GSMA, Deloitte

Superapps continue to extract customer value away from telcos



Source: twimbit
*Inclusive of payments, banking, insurance and lending

twimbit

What is your Ecosystem GMV?

A case study of Grab

	Deliveries	Mobility	Financial Services
Scale	US$5.5bil 2020 GMV	US$3.2bil 2020 GMV	US$8.9bil 2020 TPV
Growth	203% 2018-2020	37% 2018-2022E	102% 2018-2020
Profitability	2H21 Target EBITDA breakeven	11% EBITDA % 4Q2020	30% Long term EBITDA %

Source: Grab annual report

4 priorities for success in this decade

1 Focus on outcomes

From selling of network to orchestrating outcomes – cloud, security, payments, etc.

2 Digital measures of success

- Acquire, transact, engage digitally
- Measure ecosystem value/GMV enablement

3 Integrated network and IT

With a single team, innovate and reduce cost to serve by 30% to 50%

4 Organisation structure, talent, stakeholder

- Build tech expertise, reorganise teams around customer journeys, flat organisation
- Bring in capital from a new breed of investors

Source: twimbit

twimbit

Where the world discovers and shapes research

The twimbit experience:

Subscriptions

Communities

Advisory

How can we help?

reachus@twimbit.com