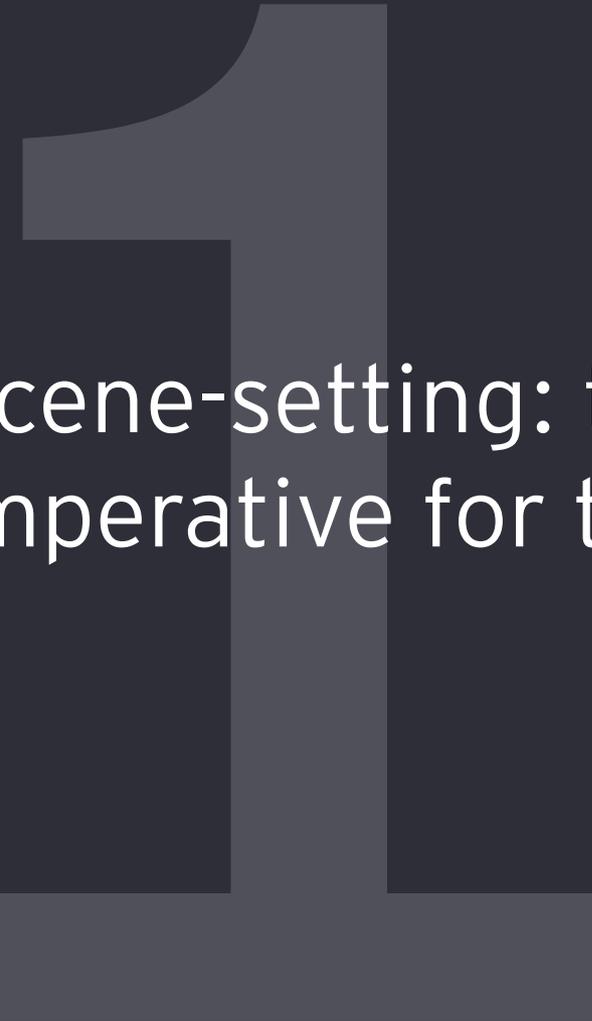


Global telecommunications study 2019

Accelerating the intelligent enterprise

September 2019





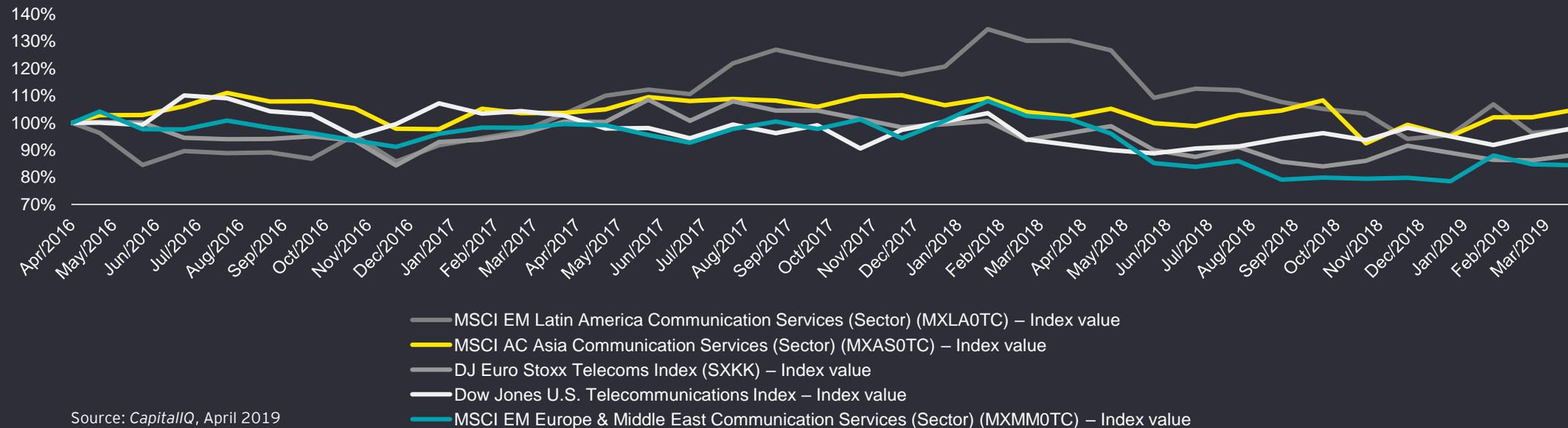
Scene-setting: the transformation imperative for telcos

The operating environment for telcos varies by geography

Performance of operators in emerging markets is outpacing developed markets

Telco share price development by region

Share price (rebased)



Source: CapitalIQ, April 2019

- ▶ The performance of Latin American operators improved in 2018 due to macroeconomic recovery in the region, but declined in 2019.
- ▶ Share price performance of Asian telcos, continued to increase driven by mobile broadband market, albeit at a flat pace due to saturating mobile subscriber market.
- ▶ European operator performance is facing decline over the years due to low average revenue per user (ARPU) compared with other developed regions and fragmented market structures.
- ▶ Operators in the US have performed better than other developed regions, benefitting from higher ARPUs, higher capex per subscriber and less industry fragmentation.

Competitive intensity is pronounced across the customer landscape

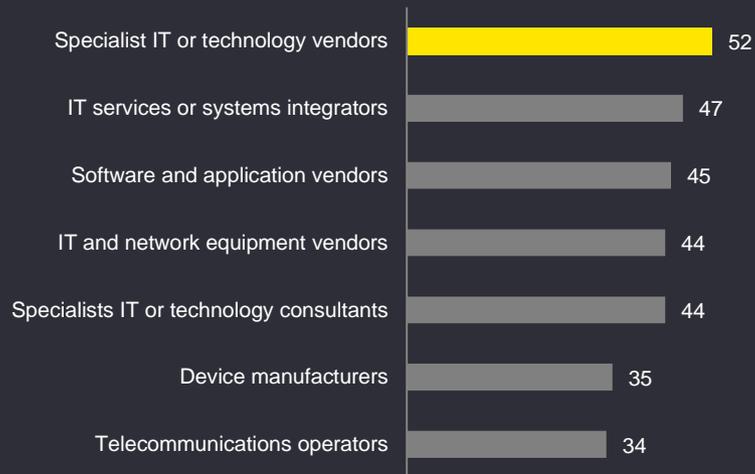
Telcos are facing new forms of disruption in consumer connectivity, while they rank behind competitors as trusted service providers to the enterprise

Telcos remain less trusted than other types of information and communications technology (ICT) providers to the enterprise

- ▶ Telco success with enterprise remains limited - many enterprise business units are evidencing a downward revenue trend.
- ▶ EY survey data shows that telcos are least trusted as digital transformation experts among UK enterprises

Question: Which types of ICT supplier are most trusted as digital transformation experts by your organization?

Percentage of respondents

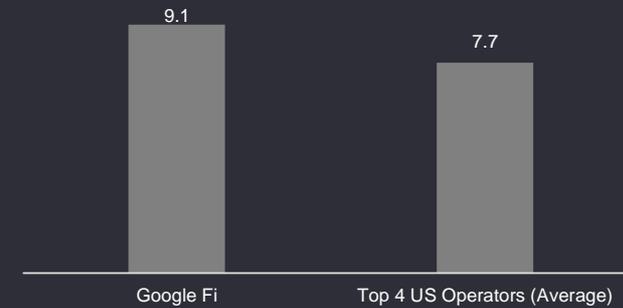


Source: "From supplier to partner: the way forward for TMT providers to the enterprise," EY, April 2019.

Web giants also have ambitions in the connectivity space

- ▶ Web giants are launching their own connectivity propositions, via own-build networks or through virtual platforms:
 - ▶ Alphabet has "Google Fi," a mobile virtual network operator (MVNO), as well as fiber and cloud offerings. Taken together, this represents a disruptive portfolio in telecommunications.
 - ▶ Facebook is launching its Terragraph network in San Jose using 5G @ 60Ghz spectrum.
- ▶ High levels of private capital are also entering the fibre altnet market. Demand for both ultra-fast broadband and 5G supports the growth outlook for this subsector.

Customer satisfaction for network services (score out of 10)

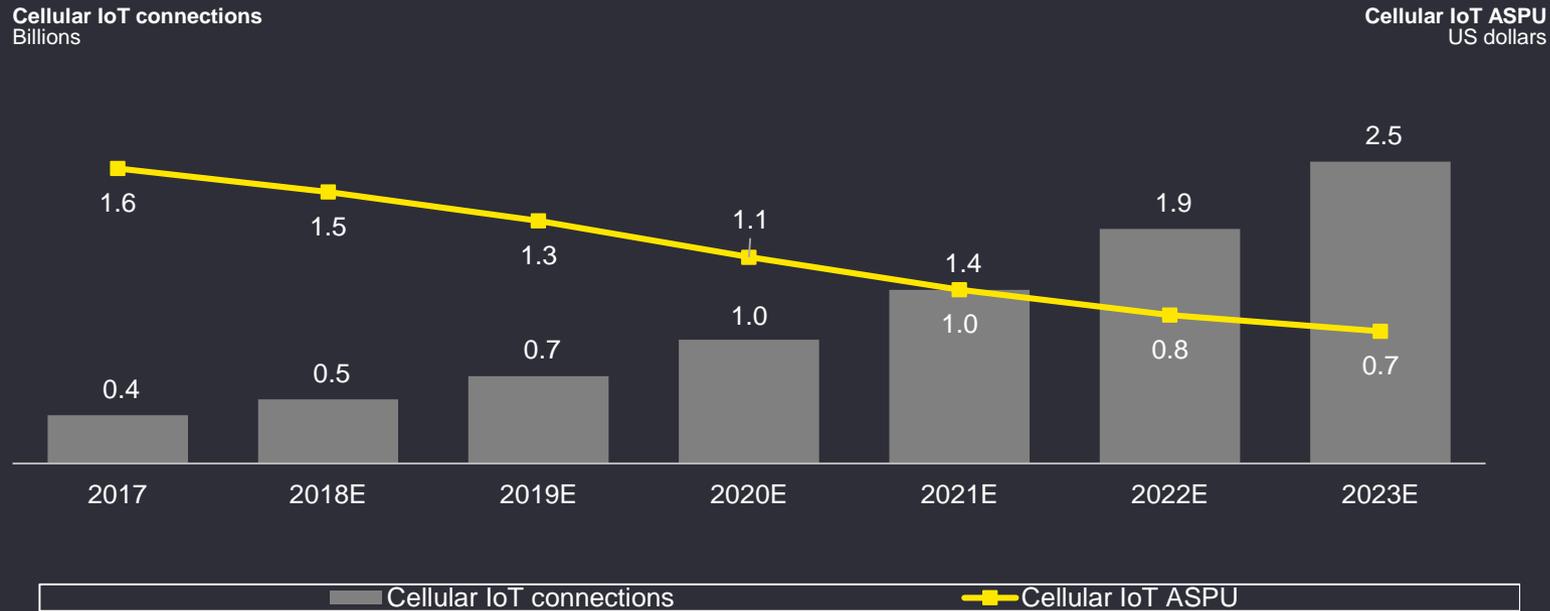


Source: "Survey-based insights," CBI Insights, May 2018

Operators are diversifying their revenue streams but top-line impact remains limited

Adjacent markets offer potential but their top-line contribution is still small

Decline in cellular IoT ASPU* accompanies the growth in connections



18.5%

Cellular IoT revenue CAGR 2017–23E, reaching **US\$19.4b** by 2023 estimated (E)

- ▶ While IoT connectivity growth rates are impressive, IoT revenues typically account for less than 2% of total operator revenues.
- ▶ Within IoT, consumer markets such as consumer electronics and smart homes are significantly growing, while the industrial IoT segment is still in its initial stages. However, the industrial segment is expected to be the largest source of connections growth in the future, overtaking consumer IoT connections in 2023.

Source: "The mobile economy 2018," GSMA, 2018; Analysys Mason, EY analysis;
 Note: *Average spend per user per month

Network expenditure is set to ramp up significantly

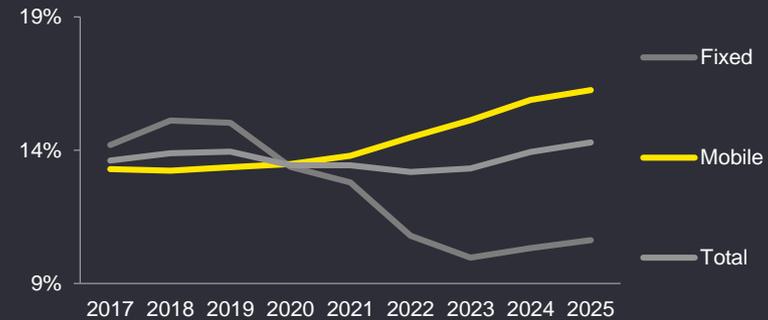
Migration to 5G will ensure that network capex levels remain elevated

Rising network capex and uncertainties on RoI

- ▶ Operators worldwide are contending with a new wave of capex:
 - ▶ 5G rollout will spur an increase in global mobile capex, with capital intensity rising from 13.2% to 16.3% between 2018 and 2025. Spectrum expenditure adds to the burden of network upgrades.
 - ▶ The increasing policy focus on full-fiber connectivity will also stimulate a new wave of fiber investments worldwide.
- ▶ The capex burden is widening beyond traditional domains - low-power wide-area (LPWA) rollouts to support IoT have trended up, while spend on SDN is designed to procure long-term capex and opex savings.
- ▶ Nevertheless, ROI is a source of anxiety. IoT-centric 5G use cases are in their infancy and require a more localized approach to network planning, while the perception of broadband as a utility may undermine the premium pricing of fiber.

Capital intensity shift toward mobile operators

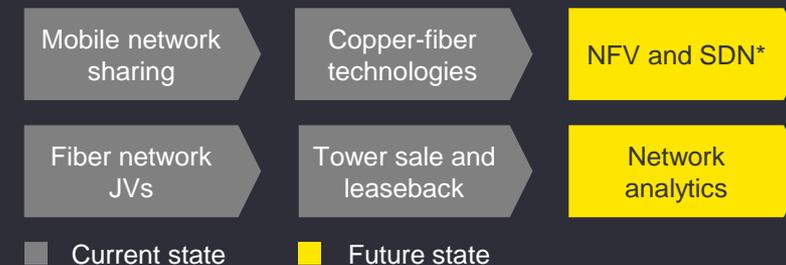
Telco capital intensity (fixed and mobile)



Source: Analysys Mason, EY analysis

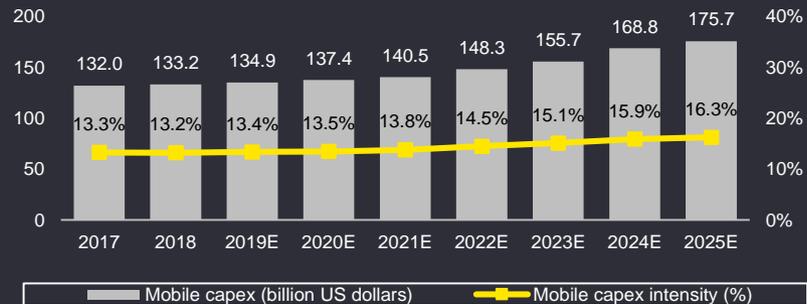
Telcos are using a variety of capex control strategies

Evolution of operator capex control strategies



Source: EY analysis

Global mobile capex and capital intensity

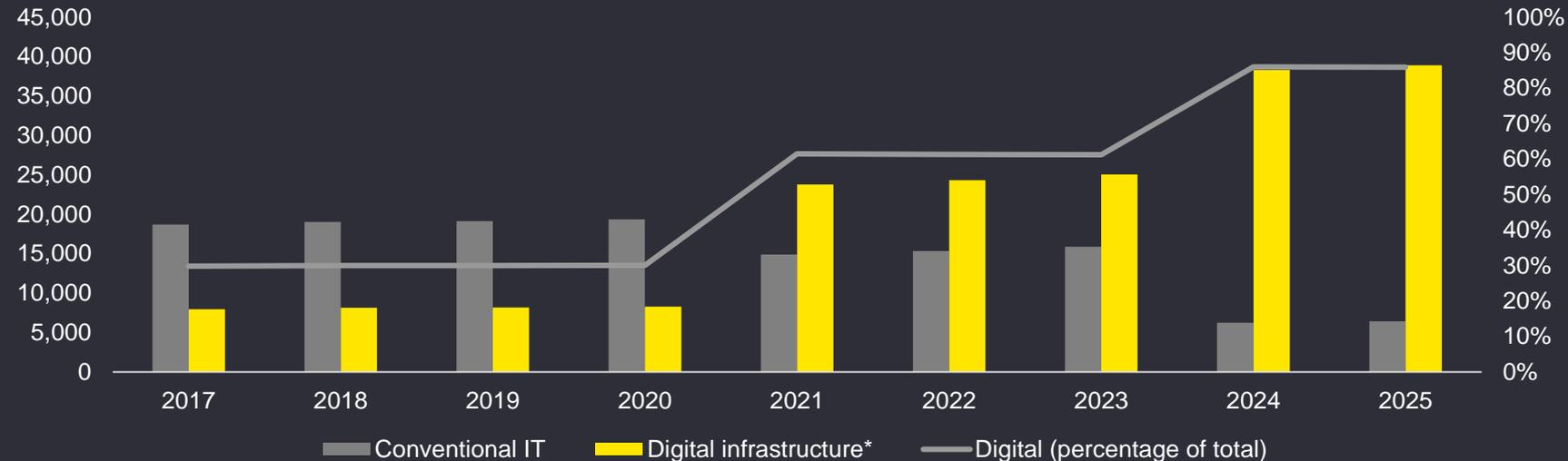


Source: "Telecoms capex forecast: Worldwide trends and forecasts," *Analysys Mason*, March 2019;
 Note: *Network function virtualization (NFV) and software-defined networking (SDN)

The complexion of IT spend is changing

Transformation of the IT estate acts as a bedrock for digitization

IT capex forecast (US\$m)



Source: *Analysys Mason*, March 2019;

Note: *Digital infrastructure includes new cloud infrastructure, edge computing systems, content delivery networks (CDNs) and other elements.

- ▶ In order to support the shift of networks toward virtualization, white boxes and software, there will be a significant change in IT capex spending.
- ▶ Adoption of NFV or SDN will require communication service providers (CSPs) to increase their spending on data center systems to support virtualized network functions.
- ▶ With growing network virtualization, the digital infrastructure and associated software share of IT capex will grow from 30% to 86% during the forecast period, including new cloud infrastructure, edge computing systems, content delivery networks (CDNs) and other elements.

Customer experience improvement is at the heart of digital transformation

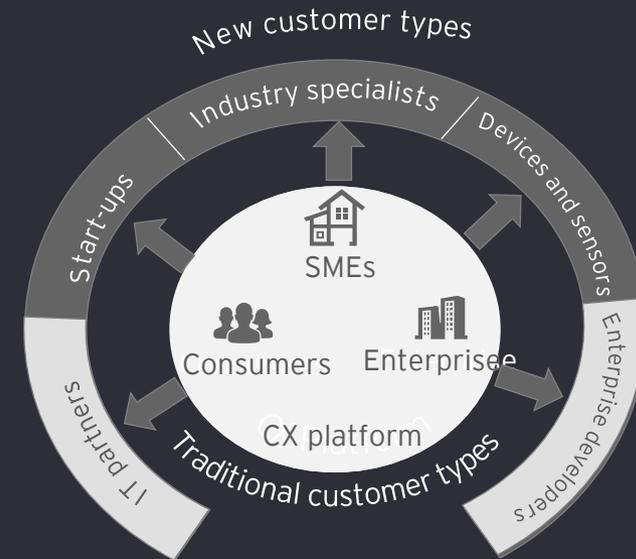
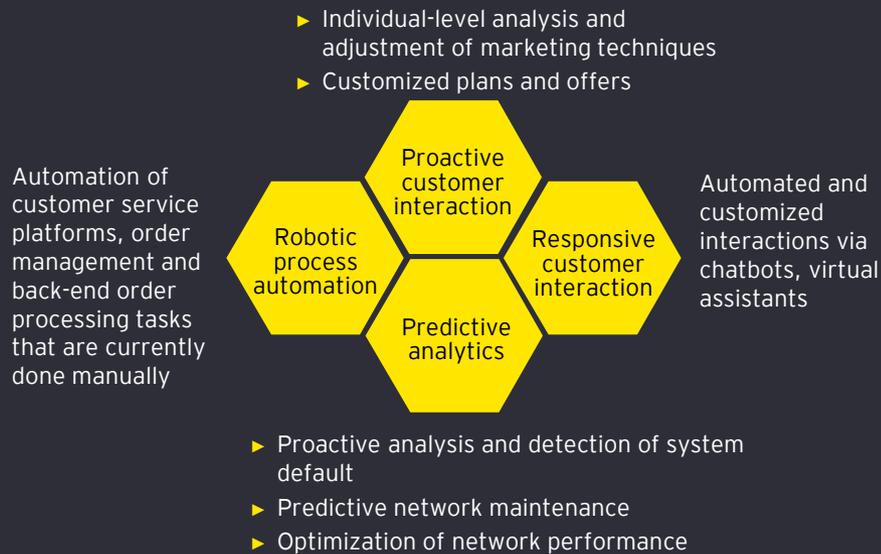
Frictionless interactions are key to boosting retention levels

Improving existing relationships via emerging tech

- ▶ Customer experience expectations continue to increase - end users want sophisticated capabilities provided via simple and intuitive value propositions and customer support.
- ▶ While telcos have made Net Promoter Score (NPS) improvements, they still lag behind other sectors considerably (e.g., financial services, retail, health care).
- ▶ Emerging technologies are already playing a pivotal role in enhancing and simplifying the customer journey.

New customer groups present new challenges

- ▶ Telcos are also widening their addressable market to include new customer types, from start-ups to smart industry verticals.
- ▶ Meeting the needs of an evermore diverse range of customers presents additional challenges - segmentation of attitudes and needs is critical.

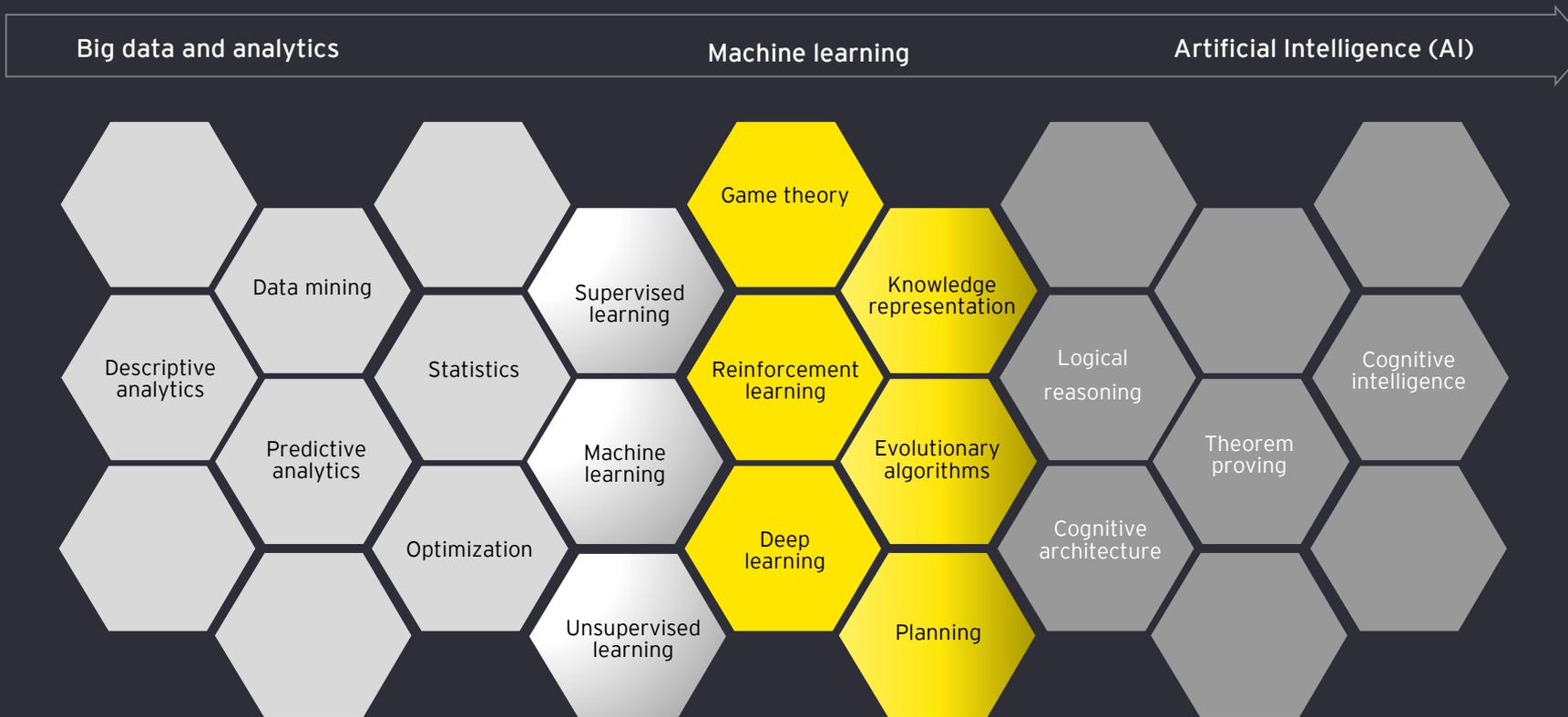


Sources: EY analysis, "The zero-touch customer experience," Ericsson, May 2018; "The future of CX in telecoms," Oracle, April 2018

AI is helping to redefine telcos' data management capabilities

Analytics and AI strategies are maturing

Data management: the capability continuum



Massive amounts of data managed by data science

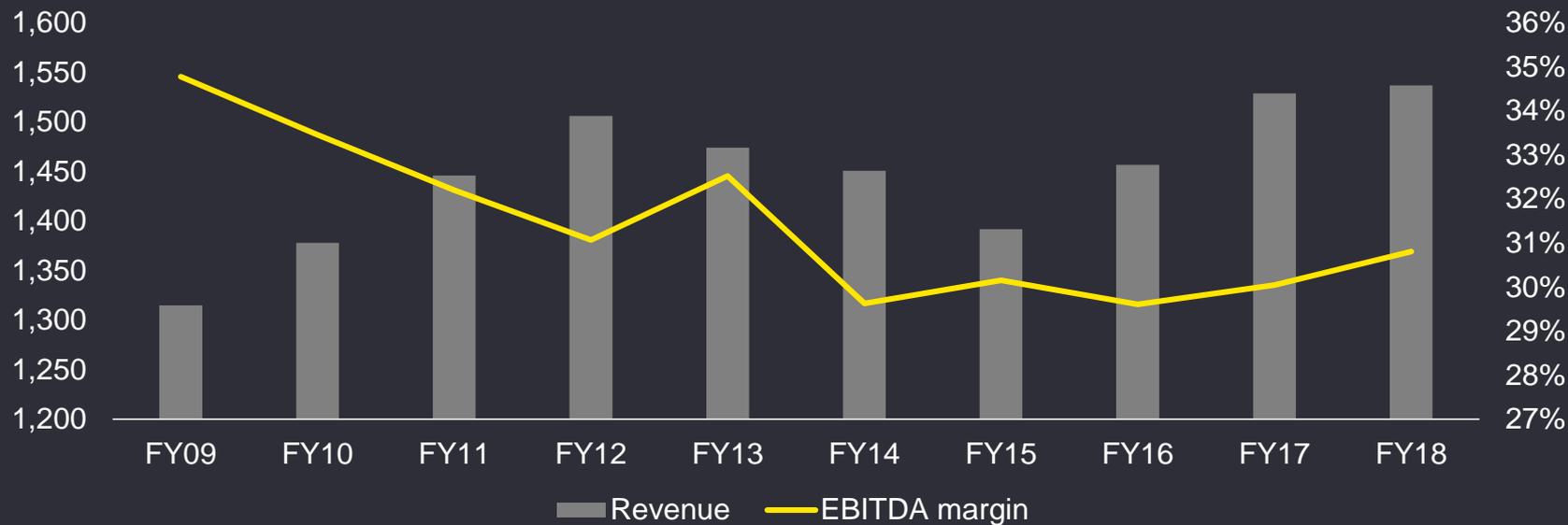
Value creation through new technologies

Source: Ericsson Press Seminar, MWC18

Overall, profitable growth remains challenging

Digital transformation has yet to translate into concrete financial gains

Telco revenue and EBITDA* margin development



Source: *CapitalIQ*, April 2019

- ▶ Growing revenues are not translating into earnings before interest and tax (EBIT) growth due to increasing operating costs, primarily due to higher investments in network expansions.
- ▶ Over the last three years (2015-18), revenue increased by a CAGR of 3.7%, while EBITDA* margin increased by 0.6% over the time frame. While this signals improvement, telecoms investment cycles challenge the long-term prognosis. During the last major upgrade cycle to 4G, top- and bottom-line performance both suffered.

Note: *Earnings before interest, tax, depreciation and amortization



Headline survey findings

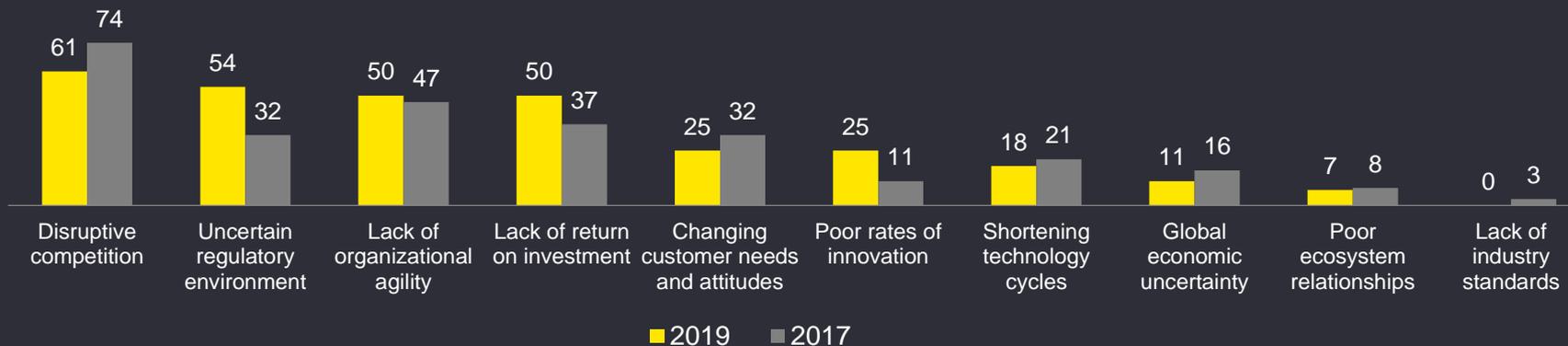
Disruption remains the top sector challenge

Perceived challenges are in line with our previous findings but regulatory and ROI concerns have both risen

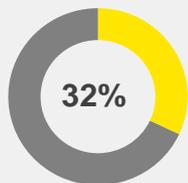
Operator views of strategic challenges

Question: What are the most significant challenges facing the industry? (please select three)

Percentage of respondents



The role of over-the-top (OTTs) continues to unnerve operators



Operators that see disruptive competition as the top challenge facing the industry

Competition or partnership? OTT perceptions vary

"Our objective is not to compete or fight disruptors such as web-scale companies etc. - our objective is to support them and drive growth through them."

"Competition from players through the use of e-SIM and MVNO presents a real challenge without any regulatory framework to protect infrastructure players."

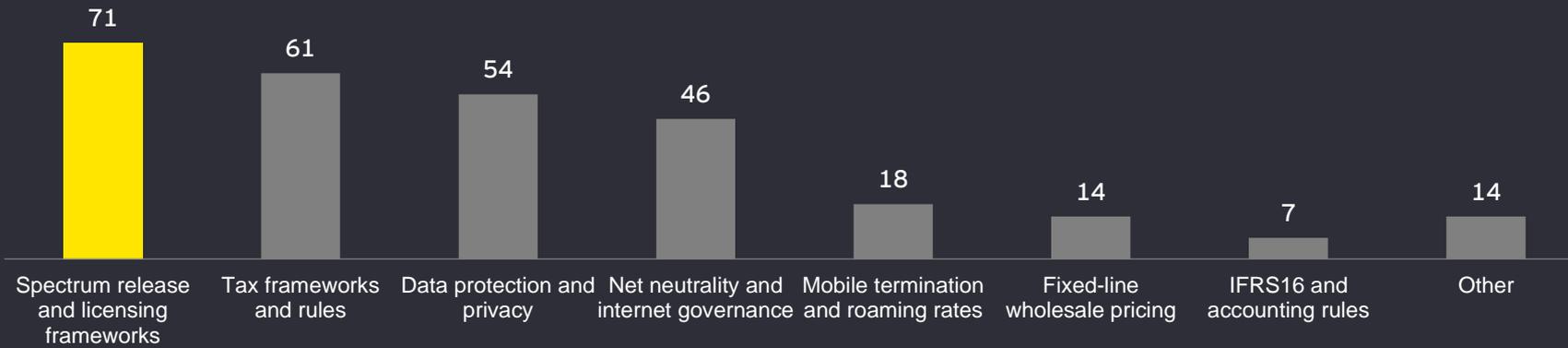
Spectrum release leads as a regulatory pain point

Tax frameworks rank ahead of data protection and net neutrality

Operator views on regulatory issues

Question: Which regulatory issues will be most likely to impact the industry in the next three years? (please select three)

Percentage of respondents



5G auctions are in the spotlight



Source: "Spectrum for Terrestrial 5G Networks: Licensing Developments Worldwide," GSMA, 14 May 2019

Telcos are hyper-sensitive to spectrum regulation ...

"Increasing fragmentation of spectrum ownership is not reflected in current spectrum pricing. Regulation has deliberately enabled people who are not asset holders to enter."

... but some legacy areas of concern are fading.

"Mobile termination and wholesale pricing? These are less relevant now compared to a few years ago"

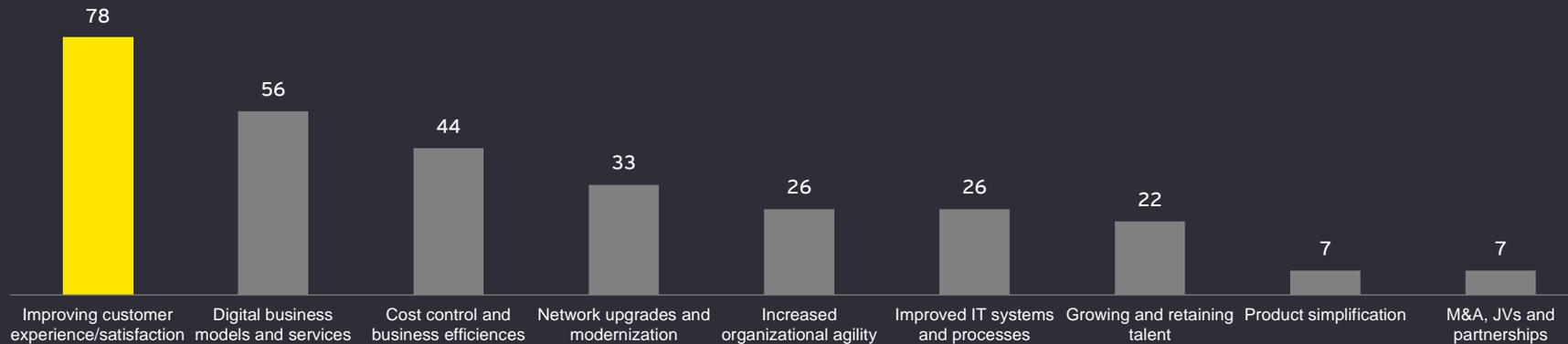
Customer experience leads as the top strategic priority

People and partnerships rank further down the list of strategic imperatives

Operator views of strategic priorities to 2022

Question: What are your most important strategic priorities over the next three years? (please select three)

Percentage of respondents



The customer is front and center of telco priorities, and while some are making progress...

"We need to invest in the customer because of disruptive competition"

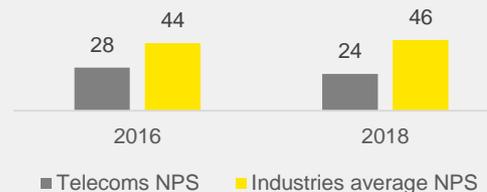
"We have been working on this for a long time and are seeing significant improvement."

"Client centricity is the key pillar for us."

"Our customer experience is actually quite mature now."

... the telco NPS challenge remains pronounced

Net promoter score (NPS) for telecoms and overall industry



"Our industry is plagued by churn levels that would terrify any other industry."

Sources: "2018 NPS & CX Benchmarks Report," CustomerGauge, 2018; "NPS Benchmarks: The Annual Survey '16," CustomerGauge, 2016

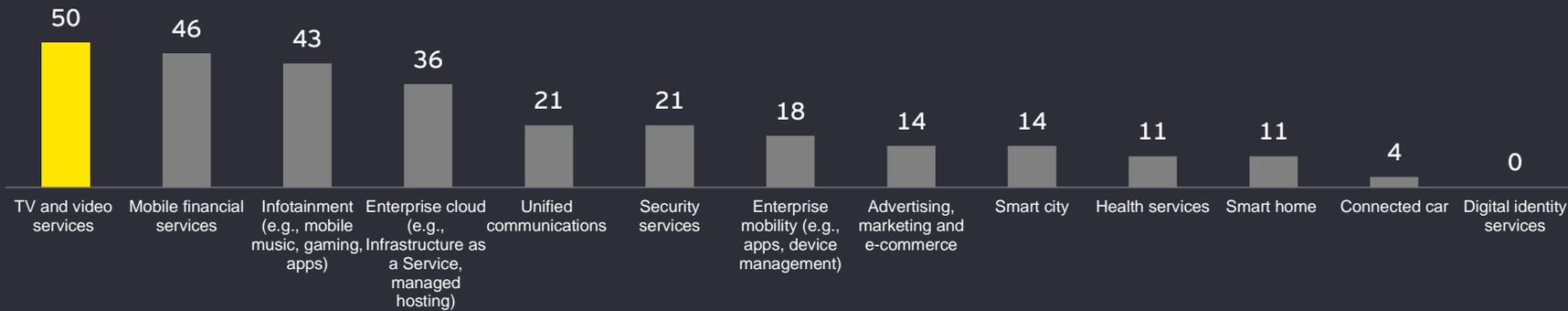
TV and video services lead the way as digital growth drivers

IoT use cases rank further down as an opportunity for revenue uplift

Operator views of digital service priorities

Question: Which digital services represent the best incremental revenue growth opportunities? (please select three)

Percentage of respondents



Content is a proven consumer growth story but staying relevant to the enterprise is more challenging

"We are now moving into producing our own content"

"Infotainment, in particular gaming and apps in a 5G context, are also important for us."

"It's important we stay relevant to the enterprise and don't become just a dumb pipe. Accompanying enterprise customers on their own digital transformation journey, that's critical."

Views on the IoT opportunity are mixed

"We view IoT as the key macro growth opportunity for us. We have seen strong early growth in things like connected car, which has actually been driven by regulatory developments and see similar opportunities in smart cities and health care."

"The health domain requires very domain specific competences so it's not for us."

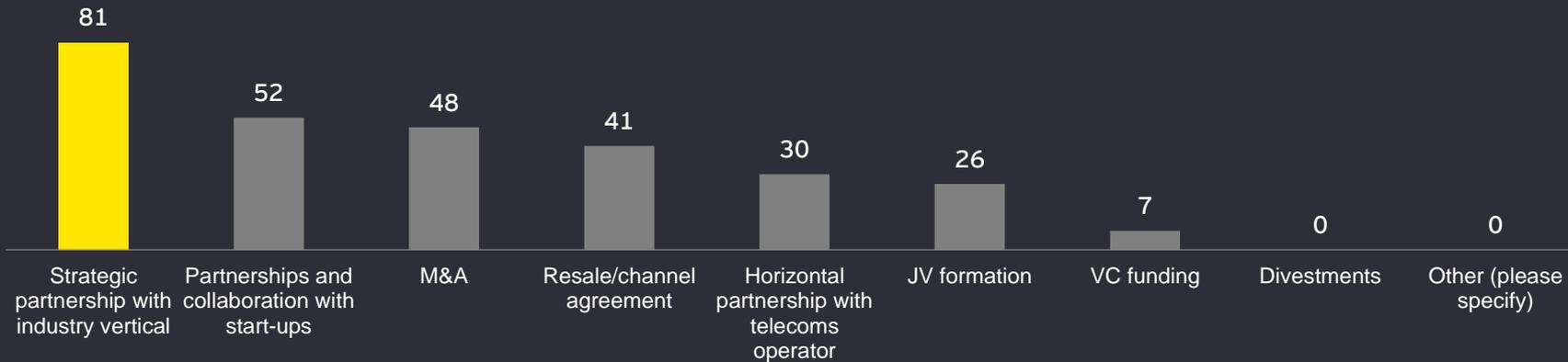
Partnerships are the key route to digital services expansion

Alliances with verticals and start-ups outscore M&A as a route to inorganic growth

Operator views on inorganic growth strategies

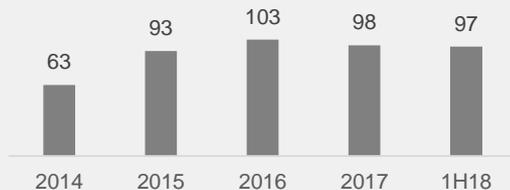
Question: What are the most important inorganic growth drivers of your digital services agenda? (please select three)

Percentage of respondents



Telco strategic partnerships have risen in recent years

Top 30 telcos by revenue: number of announced strategic alliances



Source: EY research

Cross-sector collaboration brings both opportunities and challenges

"Partnerships with verticals are beneficial for us - and have relatively lower capital requirements."

"Everyone feels like the data they own is theirs, but they also want to use everyone else's data. How do you solve this? It's an issue."

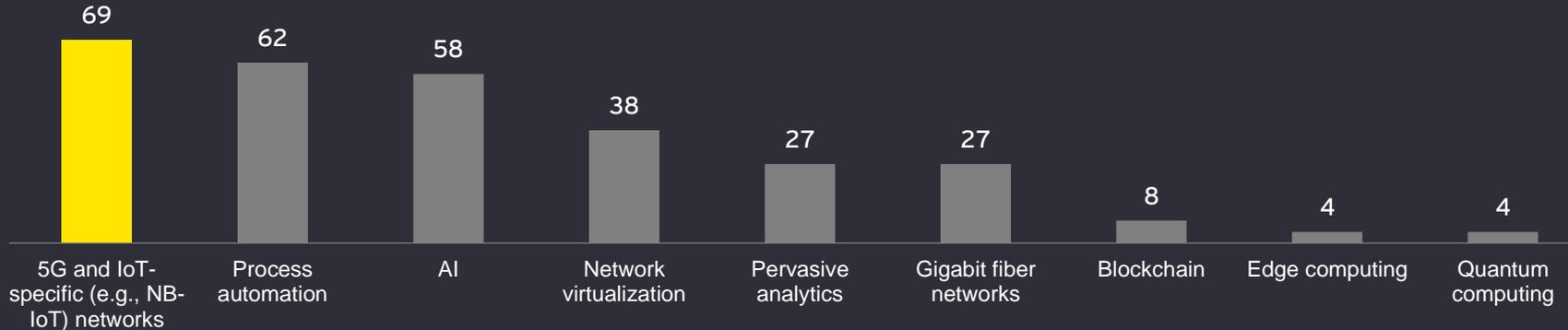
5G, AI and automation are the key technologies driving digital transformation

Blockchain and edge computing are not yet on the transformation radar

Operator views on technologies supporting digital transformation

Question: Which emerging technologies and processes will be the most critical driver of your organization's digital transformation journey over the next five years? (please select three)

Percentage of respondents



The transition to 5G is viewed as a fundamental game changer

"5G moves IoT from being a data network to being a control network. The network becomes more predictable and you can control things, and 5G helps moves this control into the cloud. It is vital to resetting the value of the connection."

AI and automation are also a primary focus

"AI and pervasive analytics will change everything."

"Automation will have a fundamental impact on both the customer experience and the back office."

Other emerging technologies are at a more nascent stage

"Quantum computing is very conceptual, we're at the beginning of the hype cycle there."

"I don't believe we are close to block chain being anything meaningful, we need to figure out what it is."

Customer experience improvements lead as an AI rationale

Business efficiencies and new service creation also rank high as AI drivers

Operator views on rationales for deploying AI and analytics

Question: What are your organization's most important rationales for building analytics and AI capabilities? (please select three)

Percentage of respondents



Analytics' role in customer experience improvements are clear

"We are in the second year of a fairly large investment program in analytics. It's had a big impact on NPS."

"What we get out of data related to our business has a significant impact on our service quality."

"Cross-selling and up-selling is also part of our customer support. Problem resolution can actually drive new sales."

Telco analytics

Number of analytics initiatives announced in a particular year by telcos globally



Source: EY research (sample: top 50 operators by revenue worldwide)

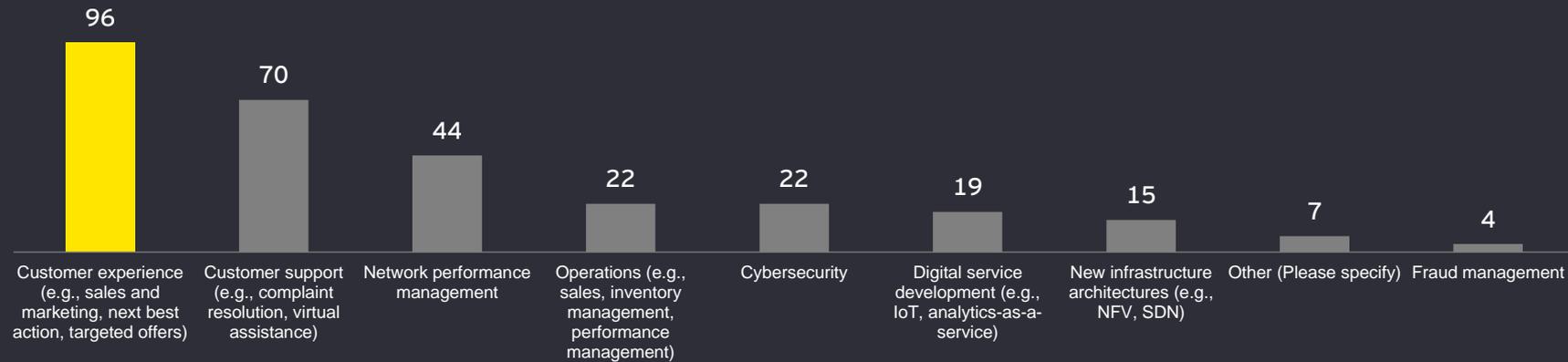
Marketing and customer support will remain the key use cases for analytics and AI over the next five years

Network-specific gains and digital service development are less of a focus

Operator views on use cases for AI and analytics

Question: What are the most critical use case domains for analytics and AI at your organization over the next five years? (please select three)

Percentage of respondents



Scope for more advanced AI use cases over the next five years is open to debate

"I'm quite sceptical about the role of analytics in digital service development. Perhaps there is scope to provide analytics-as-a-service, but the customer always owns the data. This is a tricky area for telcos to get into."

"Five years is a long time. Who knows, someone could come up with a game-changing AI capability for IoT that could transform the industry."

"Analytics could enable us to have more visibility on our value creation activities. This has always been the dream of the CFO - where do I make money, where do I lose money? The quicker I can discover this, the better."

"There is what I would call input analytics, where you can provide insights relating to things like people density. This is monetizable, but not by us."

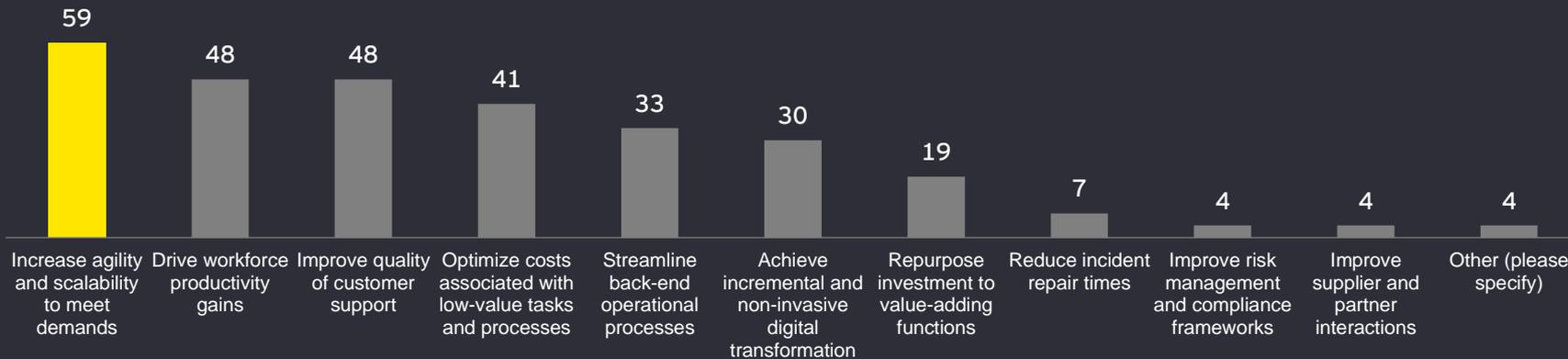
Agility, productivity and customer support gains are the key drivers of automation adoption

Automation's role as a catalyst for transformation is a little more muted

Operator views on the drivers of automation

Question: What are the most important drivers of automation adoption at your organization? (please select three)

Percentage of respondents



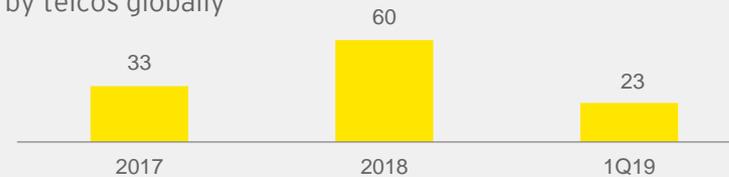
Opex and capex gains are also top of mind

"If we think of RPA: it's actually streamlined backend-type of automation functions to drive cost efficiency. On top of that it does not matter how well you train people, humans will eventually make some mistakes but machines will not."

"Eliminating repairs is important for us - it's about optimizing our capital investment in the supply chain."

Telco automation

Number of automation initiatives announced in a particular year by telcos globally



Source: EY research (sample: top 50 operators by revenue worldwide)

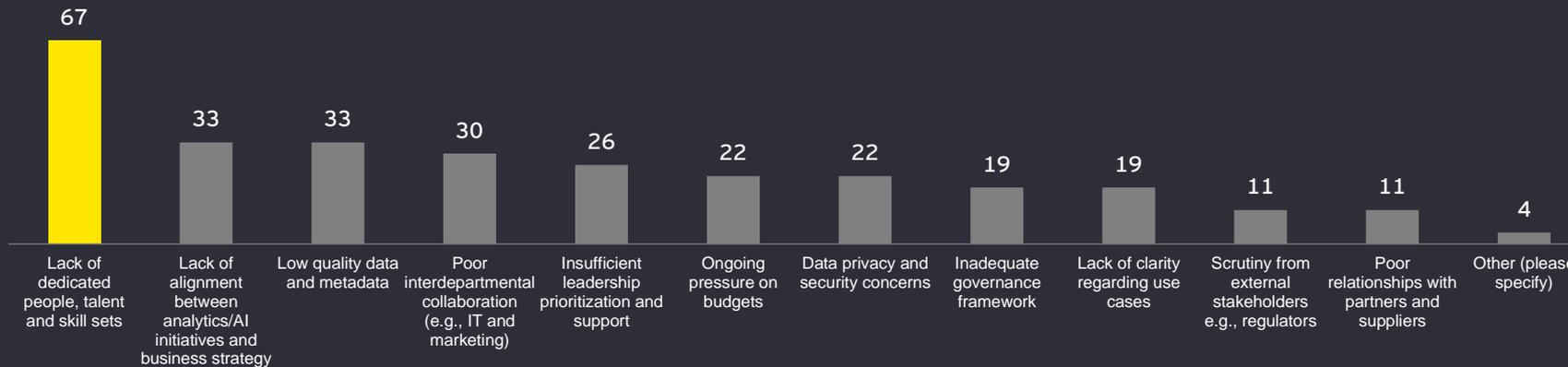
Missing people and skills are the dominant barrier to AI success

Lack of alignment with strategy, poor levels of collaboration and low-quality data also present significant challenges

Operator views on the barriers to maximizing use of analytics and AI

Question: What are your organization's most significant barriers to maximizing the use of analytics and AI? (please select three)

Percentage of respondents



Inadequate talent and skills are the chief pain point

"Obviously data scientists are hard to find."

"We don't struggle to attract data scientists at the moment, but we do struggle when it comes to big data architects, more on the engineering side."

Data quality is lacking too

"Low-quality of data is a problem and we have had some data cleansing projects."

"Poor-quality data is the key thing we need to fix - we need to have the right infrastructure in place."

Silo organizations are also standing in the way

"Internally, we struggle with people who don't want to give you the data that you need, it's the old reflexes on the IT side."

"We are still seeing low levels of collaboration between internal functions."

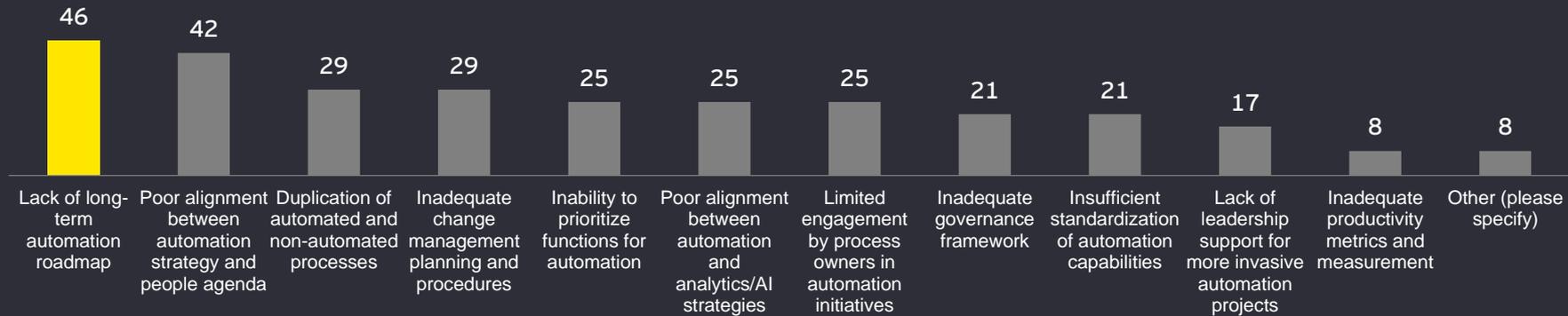
Long-term planning is essential if telcos are to maximize the benefits of automation

The right linkages to the people agenda also need to be firmly in place

Operator views on barriers to maximizing the use of automation

Question: What are your organization's most significant barriers to maximizing the use of automation? (please select three)

Percentage of respondents



Telcos lack an overarching approach to automation

"If you don't know where you are going in terms of your automation journey, that's a big problem."

"There are many functions to automate, making it difficult to establish an automation roadmap."

"The concept of end-to-end process ownership when implementing automation is rare. Most of the automation is managed in a silo, rather than an end-to-end approach."

The automation and people agenda need to go hand in hand

"People only come up with the use cases for automation when there is a people strategy in place to deal with the implications. It's a very human-centered issue - it's about way more than robots."

"The recognition of change management as part of this, that's a massive barrier."

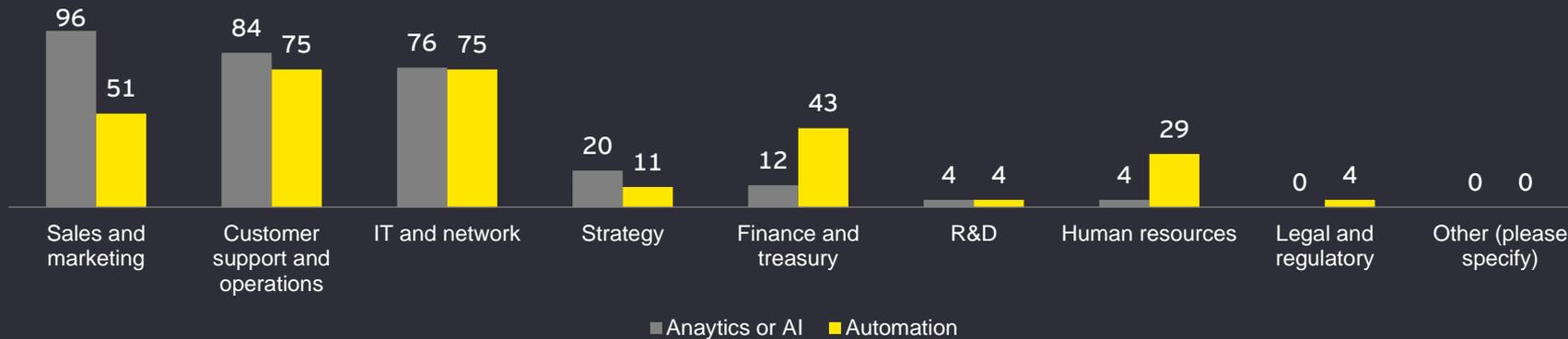
Customer and technology functions are viewed as the prime beneficiaries of AI and automation over the next five years

Finance and HR also stand to gain from automation

Operator views on emerging technologies' long-term impact on business functions

Question: Which parts of your organization are most likely to benefit the most from improved analytics or AI capabilities over the next five years? (please select three)

Percentage of respondents



Plenty of impact still to come via AI in sales and marketing

"We are still too archaic at the moment in terms of sales and marketing."

"Sales and marketing will remain the top priority because of how much it influences the bottom line."

Network-related gains have yet to be tapped

"Before when you optimized network capacity it was based on assumptions. Today we have real-time data on utilization levels."

Automation's role in finance is beginning to be felt

"We also have some RPA use cases for the finance department."

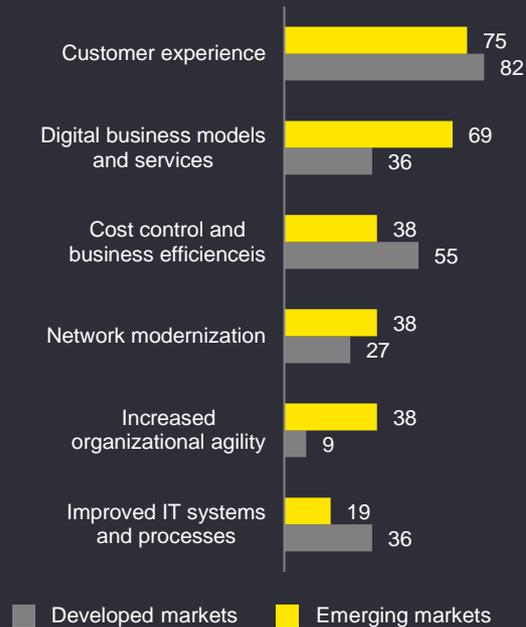
"Finance and treasury are starting to see the benefit of automation, particularly in tax."

Operator sentiments diverge according to market maturity

The telco outlook varies by geography on strategic priorities, technology drivers and AI or automation pain points

Developed market telcos are less focused on business model innovation

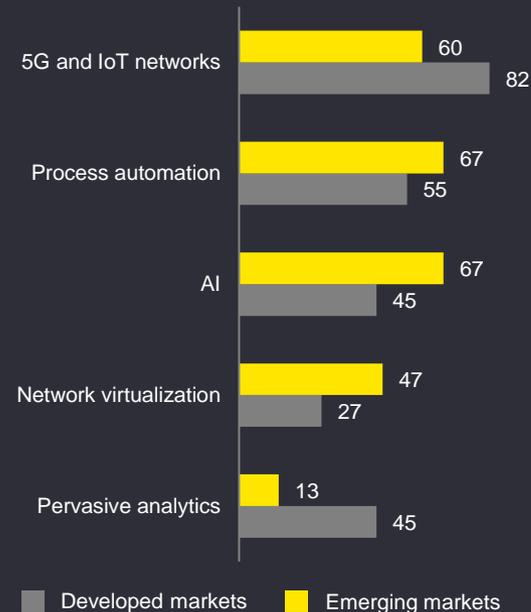
Customer experience and cost control dominate as developed market strategic priorities



Percentage of respondents citing most important strategic priorities (top three answers)

Opinions diverge on the emerging technologies that will drive transformation

Emerging market operators are more likely to put AI, automation and 5G on an equal footing as transformation drivers



Percentage of respondents citing most critical technology drivers of digital transformation (top three answers)

Pain points on artificial intelligence vary between regions

Low-quality data and metadata is a key concern in developed markets while leadership buy-in and collaboration rank second in emerging markets



Percentage of respondents citing most significant barriers to maximizing AI and analytics (top three answers)

Accelerating the intelligent enterprise: next steps for telcos

Prioritize the mutually reinforcing impact of emerging technologies

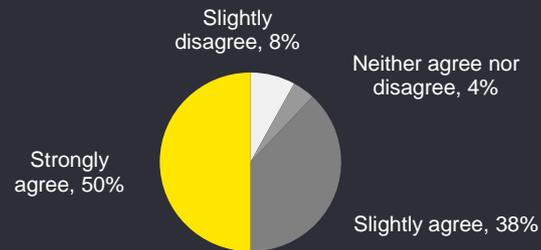
An informed and holistic mindset is essential if new technologies are to deliver upside

Increasing internal knowledge is essential

- ▶ As the choice of emerging technologies and processes continues to widen, telcos should take care to increase their knowledge and education. This challenge is present at all levels of the organization.

Statement: Our organization requires greater understanding of interrelated digital transformation concepts (please select one)

Percentage of respondents

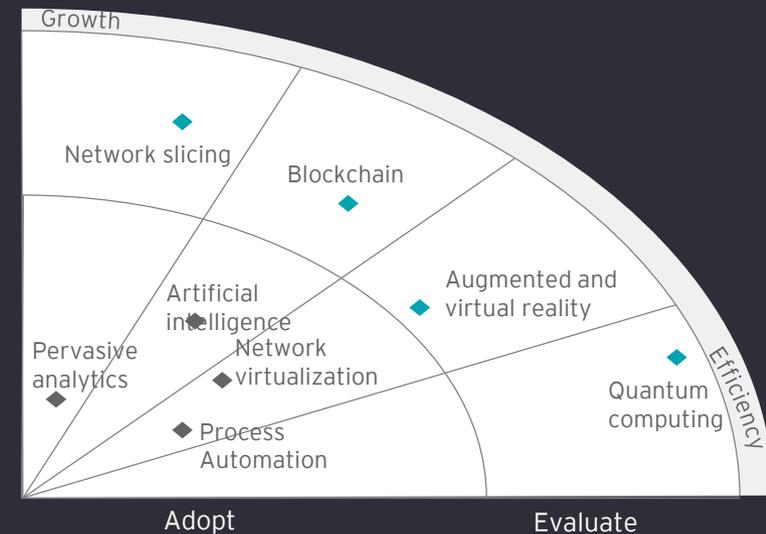


"Insufficient leadership prioritization is ultimately driven by a lack of understanding about what analytics is, and how it can drive value. I find educating colleagues about it takes up a significant proportion of my time."

"Too many people don't understand things beyond their own functional domain."

Take a holistic, long-term approach to deployments

- ▶ Define the optimal interplay and phasing of different technologies to maximize their impact, balancing growth and efficiency imperatives
- ▶ Take a long-term view of emerging technology deployments. Automation is already delivering plenty of benefits, but long-range planning is missing



"AI and automation are intrinsically linked."

"Analytics and automation go hand in hand, but in the short term they are distinct."

Engage and empower the telco workforce as agents of change

Greater workforce cohesion can help scale transformation while overcoming age-old silos

Engaging process owners is critical

- ▶ Roles and responsibilities regarding digitization need better articulation - a sense of ownership is still lacking among process owners.
- ▶ Leadership roles with an end-to-end view of data management require long-term backing.

"The first thing we need to address are the process owners - half our processes have owners, the other half don't. If you speak to people in our organization, most won't understand what we mean when we talk about owning processes."

"Some organizations are starting to appoint Chief Data officers - people who have a genuine end-to-end view... It's a different role. Data and digital pervades it, but the role is actually about acting as the glue."

Do more to break down silos

- ▶ Collaboration between product development, marketing and IT remains challenging - trust between business units is lacking.
- ▶ Centralization strategies remain in flux, complicating a consistent transformation agenda across geographies.

"The overarching barrier for us is our organizational structure and the degree of complexity driven by this."

"Internally, we struggle with people who don't want to give you the data that you need, it's the old reflexes on the IT side."

Telco organizational design considerations



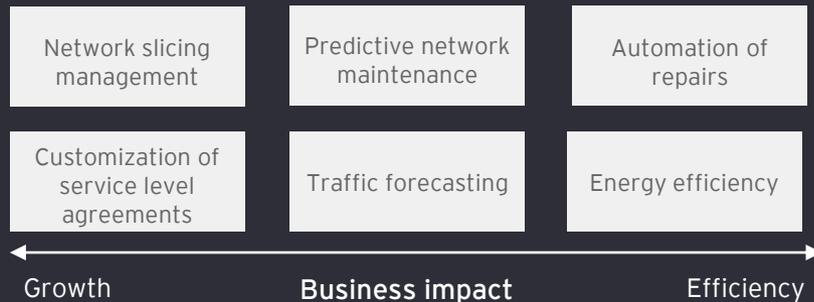
Extend your AI and automation efforts well beyond the customer

Networks and security use cases are still an untapped horizon for many

Network-driven AI use cases offer plenty of scope

- ▶ Network- and security-related AI use cases are more nascent compared with customer experience-led - less than half of respondents cite them as critical use case domains over the next five years.
- ▶ AI and machine learning have an important role to play in supporting new business models e.g., network slicing for enterprise.

Indicative network AI use cases for telcos



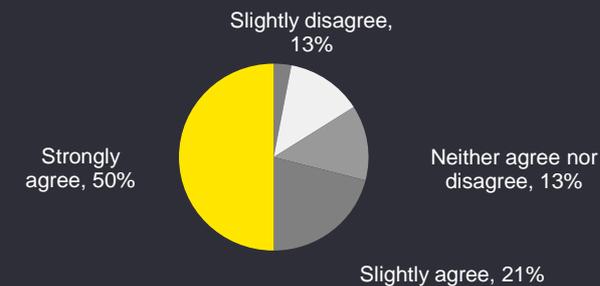
“Before when you optimized network capacity it was based on assumptions. Today we have real-time data on utilization levels and can control single base stations based on capacity demand, increasing capex efficiency. We have only ‘scratched the surface’ from an analytics point view.”

Low confidence in 5G could act as a brake

- ▶ Major question marks around 5G strategy and ROI persist among telcos.
- ▶ These uncertainties may distract from and undermine more nascent use cases for AI at the network level.

Statement: 5G business models require greater clarity in my organization in order to maximize ROI (please select one)

Percentage of respondents



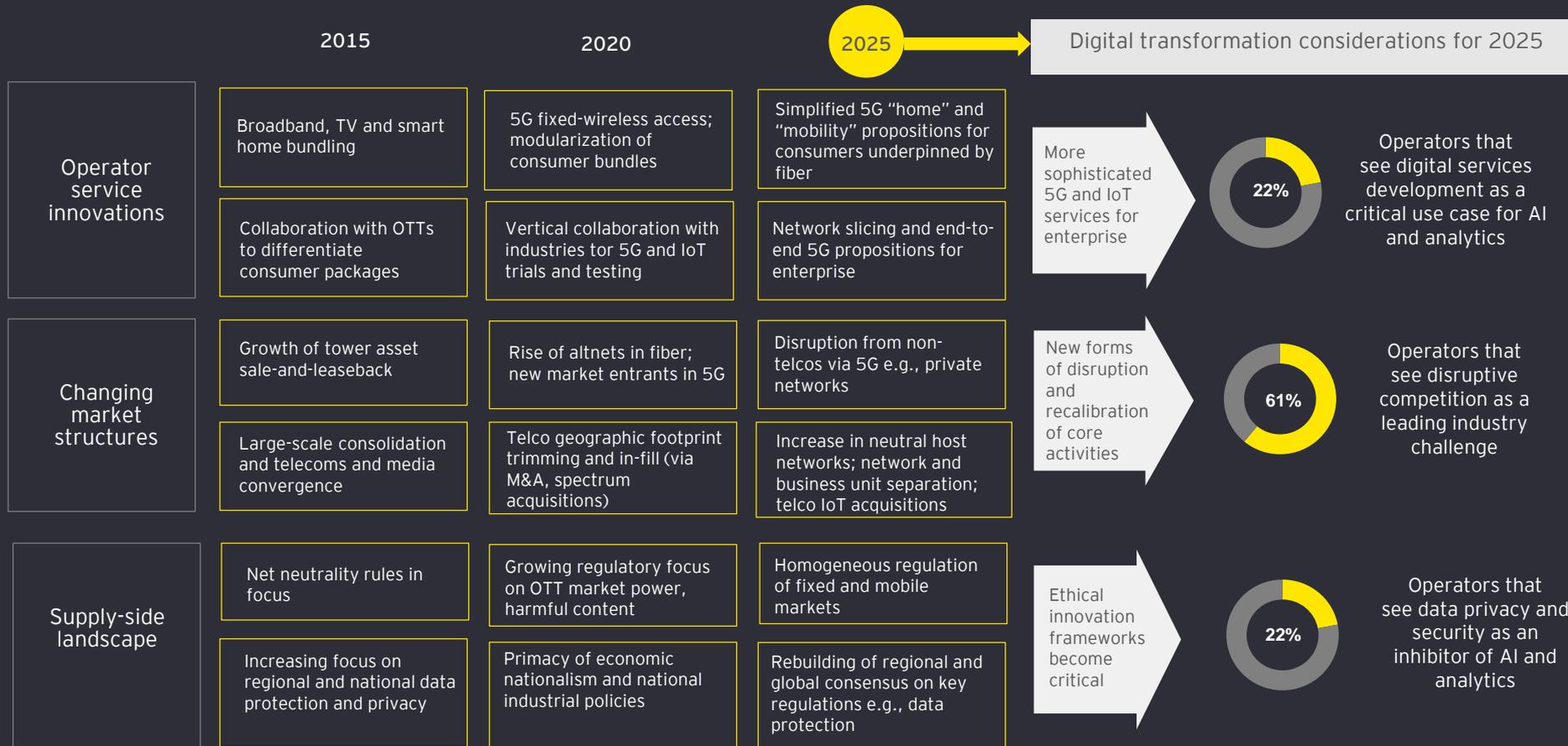
“There is more you can do on the revenue side to create offers providing analytics and AI using the network.”

“There are lots of different views on 5G and plenty of uncertainty in terms of profitability.”

A shifting telecoms landscape will spur new transformation demands

Industry ecosystems and strategic imperatives will evolve further in the 5G era

The telecoms landscape will shift in the 2020s, forcing transformation agendas to adapt further



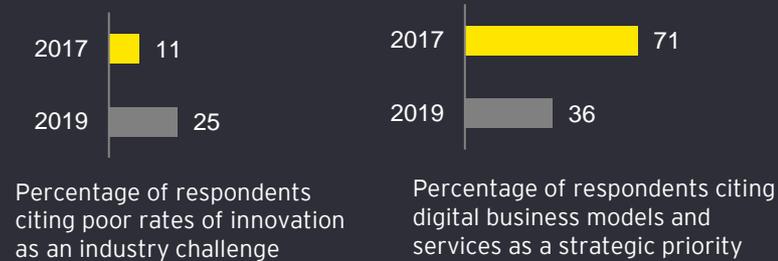
"Five years is a long time; who knows, someone could come up with a game-changing AI capability for IoT that could transform the industry."

Revisit and refresh your digital transformation fundamentals

An agile transformation roadmap is essential if telcos are to maximize long-term value creation

Prize innovation as well as efficiency gains

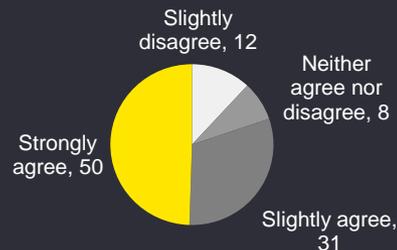
Despite increasing fears about poor innovation, digital business models and services are underweight as a strategic imperative



Balance experimentation and execution

Experimentation remains a critical route to new learnings and new competencies

Statement: My organization requires a more experimental mindset to maximize the success of analytics and automation initiatives (please select one)



Improved governance and metrics are key

As digitization matures within the organizations, new forms of measurement and oversight are essential

"It's the poor data architecture that holds you back and you pay the price for it every day... fixing the basics is important, in terms of data quality and availability."

"We have automation use cases that impact a low number of people and a large part of their activities. But as you progress, more people are affected but to a lesser extent. How do you quantify those kind of savings?"

"Not having the right metrics (in automation) means you don't focus on the right benefits."

Recognize the limits of digitization

Transformation is a human-centered process - AI and automation have their limits

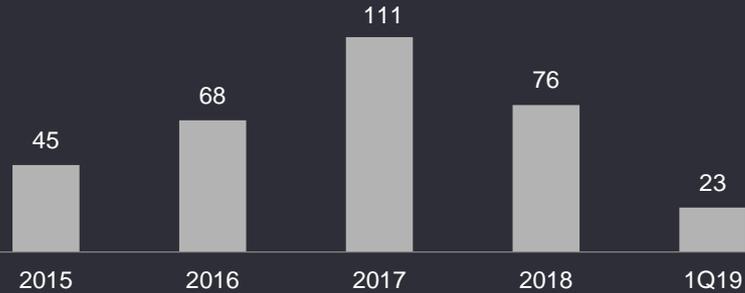
"You have to be careful about how far analytics can extend - it is important not to view it as a replacement for business intelligence and AI is no substitute for understanding what your customer wants. If a customer doesn't want to buy from you, it's because they don't want to buy from you."

Appendix: EY research into telco adoption of emerging technologies

Growth in analytics over the years is followed by an uptick in automation initiatives as organizations focus on digitizing operations and reducing inefficiencies

Number of analytics initiatives has experienced a decline in 2018, after a phase of growth over 2015-18

Number of analytics initiatives

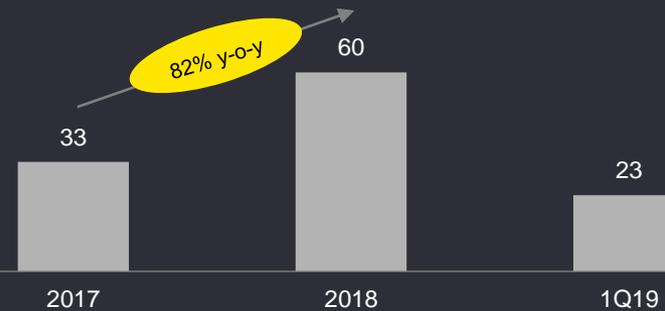


Source: EY analysis based on top 50 telecom operators; overall number = 323

Analytics initiatives peaked in 2017, with the number of initiatives declining by 32% year on year to 76 in 2018.

Automation initiatives have picked up pace over the last year and the trend is expected to continue

Number of automation initiatives



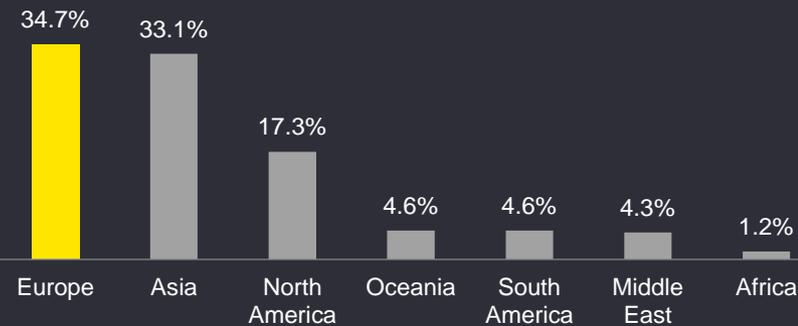
Source: EY analysis based on top 50 telecom operators; overall number = 116

The survey results revealed that telcos are moving toward AI and automation as critical drivers for organizational digitization. This falls in line with the trends witnessed over the years with 82% y-o-y growth in number of automation initiatives in 2018

Europe and Asia are global leaders for implementing automation and analytics initiatives, closely followed by North America

Europe leads globally, accounting for highest analytics initiatives, followed by Asia and North America

Regional split of analytics initiatives (2015-1Q19)

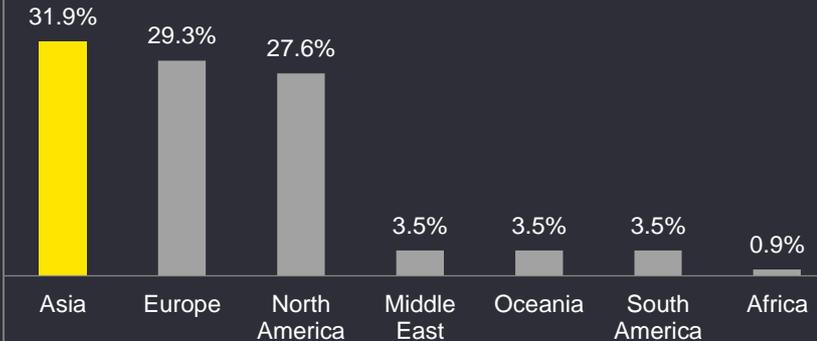


Source: EY analysis based on top 50 telecom operators; overall number = 323

- ▶ Europe leads the market, accounting for 34.7% of overall analytics initiatives.
- ▶ In 2015 and 2016, Asia led the market with market share of 40% and 33.8%, respectively, with focus on analytics implementations. However, Europe overtook Asia in 2017, growing its share in analytics initiatives to 35.1%.

Automation initiatives are mostly driven by Asian region, followed by Europe and North America

Regional split of automation initiatives (2017-1Q19)



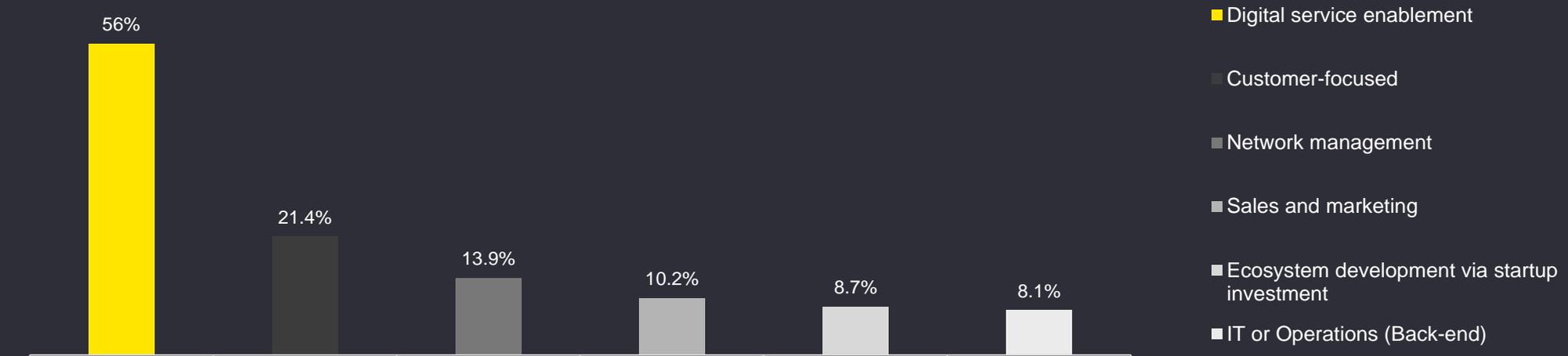
Source: EY analysis based on top 50 telecom operators; overall number = 116

- ▶ Asia leads the market with 31.9% share in automation initiatives
- ▶ In 2018, Europe and North America increased their automation initiatives, becoming global automation leaders with share of 30% each as part of overall initiatives in 2018

Analytics initiatives continue to focus on enablement of digital services, followed by customer-related analytics

Majority of analytics initiatives are focused on enabling digital services, followed by customer-based analytics

Split of analytics initiatives via types of focus areas



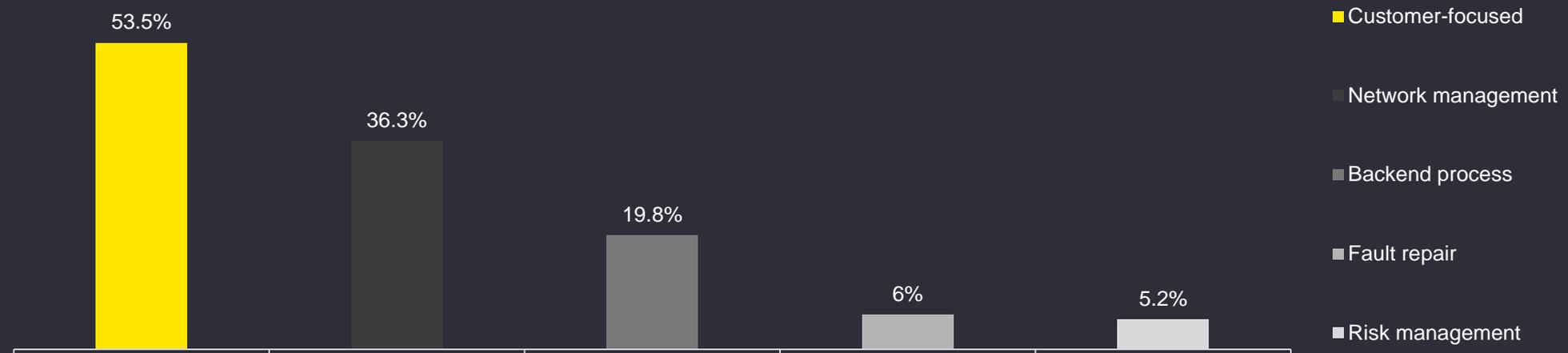
Source: EY analysis based on top 50 telecom operators; overall number = 323

- ▶ Digital service enablement, both inside and outside, forms a core part of organization's analytics initiatives.
 - ▶ However, as part of the survey, only 27% of the telcos ranked analytics among top three critical technologies driving organization's digital transformation.
- ▶ After digital service enablement, implementation of analytics is majorly focused on customer-related innovations and network management, falling in line with the priorities witnessed from the survey results
 - ▶ 96% of the telcos cite customer experience among top three "most critical use cases for analytics."

Automation is majorly focused on implementing customer-related and network-based solutions

Over half of automation initiatives are focused on customer-level automations, driven by launches of chatbots

Split of automation initiatives via types of focus areas



Source: EY analysis based on top 50 telecom operators; overall number = 116

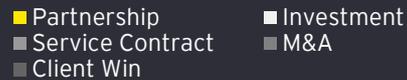
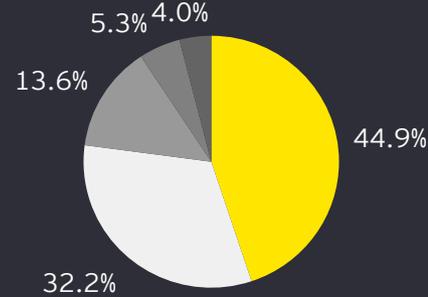
- ▶ Automation forms a critical part of overall telco strategy (62% ranked it among top three drivers of digitization). Focus of initiatives is consistent with the top automation drivers mentioned by telcos.
- ▶ Increasing flexibility, workforce productivity and enhanced customer support aims fall in line with the focus on automating repetitive tasks and improving response time to both customers and network outages.
- ▶ Fault repair and risk management continue to fall behind as part of overall automation strategy with 7% and 4% of telcos choosing them among top three drivers for automation initiatives.

Strategy for implementing analytics and automation

Inorganic growth strategy forms major part of overall initiatives, with focus on partnerships; while analytics initiatives are external-focused, automation is majorly carried out for internal operations

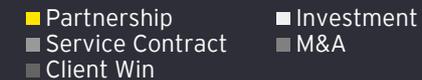
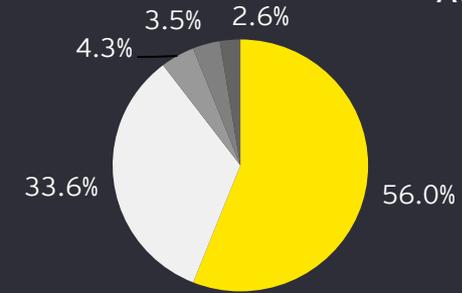
Approach of initiatives

Analytics



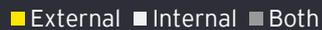
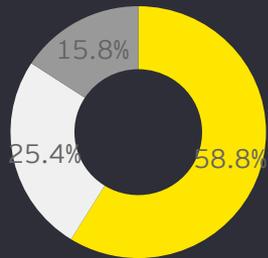
In line with the inorganic growth strategy of telcos as evidenced by the survey results, partnership is the leading approach for carrying out initiatives.

Automation



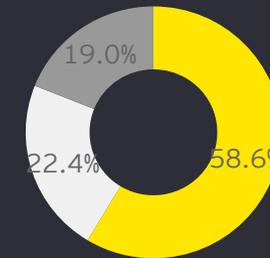
Focus of initiatives

Analytics



While 58.8% of analytics initiatives are focused on providing external service offerings, automation initiatives are majorly focused on automating internal operations (58.6%)

Automation



Source: EY analysis based on top 50 telecom operators; overall number for analytics = 323; automation = 116

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EYG no. 004185-19Gbl

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