Service Provider Technology

2020 Research Agenda

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Research Director

> Communications service providers are constantly changing in order to deliver new services and to do so more efficiently. No network domain remains untouched. And, while CSPs have network vision commonalities, many are starting from different places. Working through those dynamics and making the right choices can be the difference between success and failure. ICPs (OTTs) are a critical part of the systems ecosystem: injecting new and growing revenue and capex firepower, disrupting legacy supply chains, pushing the technology envelope, and driving the pace of change.

2020 research themes

NETWORK INFRASTRUCTURE AND SOFTWARE

- 5G impact on mobile operator network planning from the radio to the core
- Optical Network Refresh: Core to Capillarity
- FTTx and cable broadband locked into a fight for the home
- The ongoing shift to a virtualized network
- Disaggregated routing applications for cell site backhaul and provider edge

OPTICAL COMPONENTS

- ICPs recasting the industry structure and driving integration
- Maturation and scaling of silicon photonics
- Amplification receiving overdue attention

MEDIA TECHNOLOGY

- Rapid emergence of remote production on IP
- Multiplatform broadcast quality production at scale
- Manage personalized multiscreen user engagement lifecycle at scale

TELECOMS OPERATIONS AND IT

- Successful strategies for telco digital transformation
- Intelligent operations as a source of innovation
- Telco IT strategies to support 5G, IoT, and B2B

Network Infrastructure and Technology

The Market Challenge

With transformation, CSPs must make strategic decisions between investing in legacy systems or in newer (but nascent) network technologies. Moving too soon on change or betting on the wrong technology can have a drastically negative impact. However, being too slow to adopt new technologies can hinder the launch of new services making CSPs vulnerable to their competitors. Adding to this uncertainty, network changes can also lead to making bets on vendors with less established track records.

Transformation can be just as difficult for equipment vendors. They must balance resource between traditional solutions and emergent ones. Mistiming can leave them either too far ahead of the market or too far behind. Both of which can have devastating consequences.

Daryl Schoolar
Practice Leader

Ian Redpath
Practice Leader

How Ovum helps you

Explore which network technologies are hype and which ones will have a long and impactful life.

Size different network domains and learn which ones are growing and which ones are not.
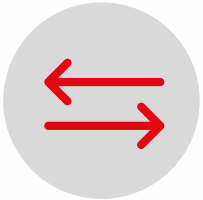
Learn how operators are applying and benefiting from new technologies and network architectures.

Help communication service providers navigate changes in network technologies.

Highlight key differentiating and winning vendor strategies such as bringing Purpose Built DCI products to market.

What's new for 2020?

Expanded coverage of **SDN/NFV and network orchestration, and private LTE and 5G networks**

Deeper assessments of **cable companies' broadband network investments**

A focus on ICPs (OTTs), their plans, strategies, and impact

Analysis on **disaggregated routing, deployment plans and progress; 5G spectrum issues and expectations; 5G MFH – MBH, new services will drive new architectures**

Key Deliverables

Quarterly equipment market share reports

Annual equipment forecasts

Technology trend reports – providing market updates and vendor activities.

Thought leadership pieces – based on new technology advances.

Industry baseline datasets including vendor contract database, and GDCA.

Key conference and event summaries and briefs.

Themes for 2020

5G impact on mobile operator network planning from the radio to the core
5G is now commercial and, in 2020, operators will start deploying the next evolution of 5G with standalone radios and dedicated 5G core network. This is the next major evolution of the mobile network and will not only impact radio access networks, but mobile core, radio fronthaul and backhaul (including copper to optics transition), as well as more advance network technologies around virtualization and edge computing. No part of the mobile network will remain untouched.

Optical Network Refresh: Core to Capillarity
The service upgrade catalyzed by next-gen radio will motivate a global optical network refresh. The optical network capillarity will extend to most every 5G tower at cost-optimized volume price points. The core network will move onto the 400G–800G era. The technology engine for high-speed transmission is the coherent DSP. More than a mere technology, the R&D cycle for the coherent DSP is driving industry structure change for both horizontal and vertical integration. The effect of the ICP community weighs in. Tuned to their specific requirements, the introduction of 400G ZR – a space and power-optimized solution – will further disrupt pricing and long-term industry structure.

FTTx and cable broadband locked into a fight for the home
Broadband data consumption continues to grow as consumers use fixed broadband access networks for delivery of high-definition video, online gaming, and home automation applications. Fixed broadband technologies continue to improve to meet those demands. FTTx and cable broadband technologies are key enablers of the home broadband connection and often find themselves pitted against each other as operators look to capture greater market share.

The ongoing shift to a virtualized network
The move from hardware-centric to software-centric networks using SDN/NFV-driven solutions is on every communications service providers' and equipment vendors' radar. Major issues remain on how best to implement this transformation, especially when it comes to deploying and managing software as it replaces hardware, and timing of the change. Long-term strategic goals, state of legacy solutions, and company resources will all play important roles in this process.
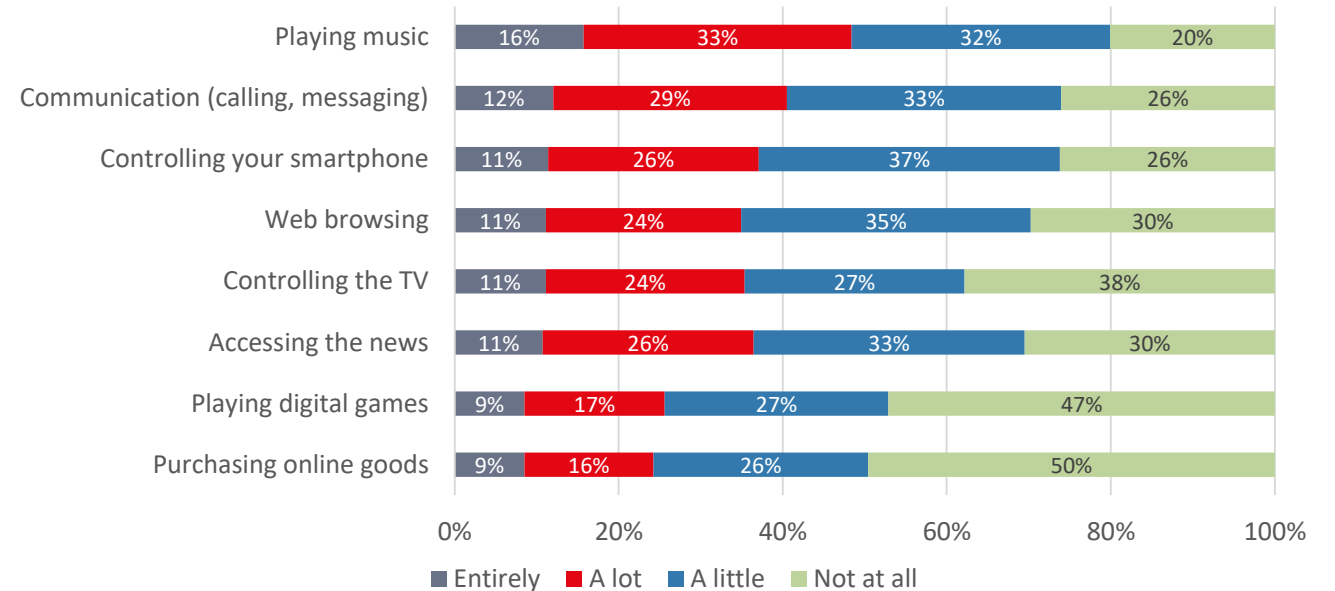
Themes for 2020, continued

Disaggregated routing applications for cell site backhaul and provider edge
Service providers are looking to lower the total cost of 5G backhaul on IP networks. Disaggregation of routing will be a theme in 2020 as new offerings of routing software with white-box hardware promises to lower the total cost of ownership. Ovum believes the key applications will be 5G cell site router, mobile backhaul aggregation, and tier-1 provider edge applications.

> *The interface that people use to access, consume, and purchase services and content is paramount to content and service providers. AI is as much an opportunity as it is a threat to their legacy core business.*

To what extent has voice control has replaced other means of performing the following functions?

Function	Entirely	A lot	A little	Not at all
Playing music	16%	33%	32%	20%
Communication (calling, messaging)	12%	29%	33%	26%
Controlling your smartphone	11%	26%	37%	26%
Web browsing	11%	24%	35%	30%
Controlling the TV	11%	24%	27%	38%
Accessing the news	11%	26%	33%	30%
Playing digital games	9%	17%	27%	47%
Purchasing online goods	9%	16%	26%	50%

■ Entirely ■ A lot ■ A little ■ Not at all

Source: Ovum

Optical Components

The Market Challenge

The optical components market has bifurcated between the communications service providers and the internet content providers. Traditionally, product development followed the well-defined path of catering to the leading CSP's needs. This model has now turned on its head. The ICP community is currently driving the technology agenda, pushing the system vendor and components communities and backing it up with growth revenue and capex.

ICPs desire quicker innovation cycles. The ICPs have driven the open agenda to avoid technology lock-in and capture benefits of each every innovation at its freshest point. Components companies are under intensifying pressure to compete. The new "lack of loyalty" environment is focused on best of breed at tighter and tighter intervals of time. Second best is quickly relegated. A wave of mergers and vertical integration events has further destabilized the environment with competition coming component companies from new directions.

Ian Redpath
Practice Leader

How Ovum helps you

Quantify component technologies and platforms volumes and revenue.

Size different component market segments and identify the high growth opportunities.

Identify new disruptive technologies and market threats.

Assess key differentiating and winning component technologies and vendor strategies.

Understand how CSPs and ICPs are planning for the introduction of new technologies and review leading CSP and ICP network target architectures.
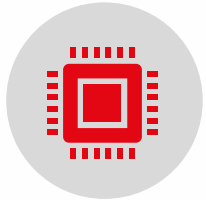
Make data driven decisions on markets, new technologies, product development, and manufacturing requirements.
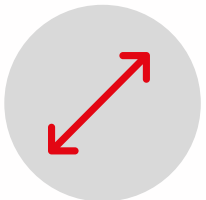
What's new for 2020?

Industry structure shifts – who is coming after us next?

Silicon Photonics – a 400G essential.

C, Super C, C+L – widening the highway.

2022 line-up of merchant and captive DSP suppliers

Key Deliverables

Quarterly optical components market share reports

Annual optical components forecasts

Technology trend reports providing market updates and vendor activities

Thought leadership pieces based on new technology advances.

Industry baseline datasets including vendor contract database and GDCA.

Key conference and event summaries and briefs.

Themes for 2020

ICPs recasting the industry structure and driving integration
ICPs are a heterogeneous group delivering social, search, cloud, and e-commerce capabilities. The ICPs applications, business, and territory growth drive an entire optical ecosystem worth billions of dollars. In addition, the ICPs are quick to adopt the next generation of technology. Ovum continuously engages with the network visionaries and the ecosystem to highlight to clients the next shifts in the sector. The reinvention of the sector also includes vertical integration; the ICPs have been investing in components companies, relegating others to a backup status. The system vendors have been investing in components companies: to compete, control the pace of innovation, and garner cost advantages. The non-aligned component suppliers will face even tougher conditions.

Maturation and scaling of silicon photonics
Components are the foundational elements for all global communications and data center interconnect networks. In the quest for enhanced performance, technology boundaries are constantly pushed. Silicon photonics holds the promise of further advances. The silicon photonics promise is CMOS-like manufacturing scale and cost structure for photonics functions. The silicon photonics promise has been with us for a decade plus and is now finally finding solid footing and beginning to scale and make commercial inroads. The ICPs and systems vendors have established significant financial stakes in silicon photonics technologies.

Amplification receiving overdue attention
Transmission technology receives the bulk of the industry press but amplification technologies are undergoing a refresh. The ICPs, which are fiber constrained, desire the most out of the limited fiber plant that they have under their control. C-band is evolving to super C-band and C+L. The more fiber-constrained an operator is, the more they will push the technology boundaries. Amplification is changing in subsea cables. Multi-carrier consortia have given way to single or dual ICP–owned cables. Without the need for strict wavelength separation, more bandwidth can be squeezed out of a cable.

> *Intel shipped its one-millionth 100G silicon photonics based module, validating the silicon photonics market.*

Silicon photonics–enabled, high-speed market revenue forecast
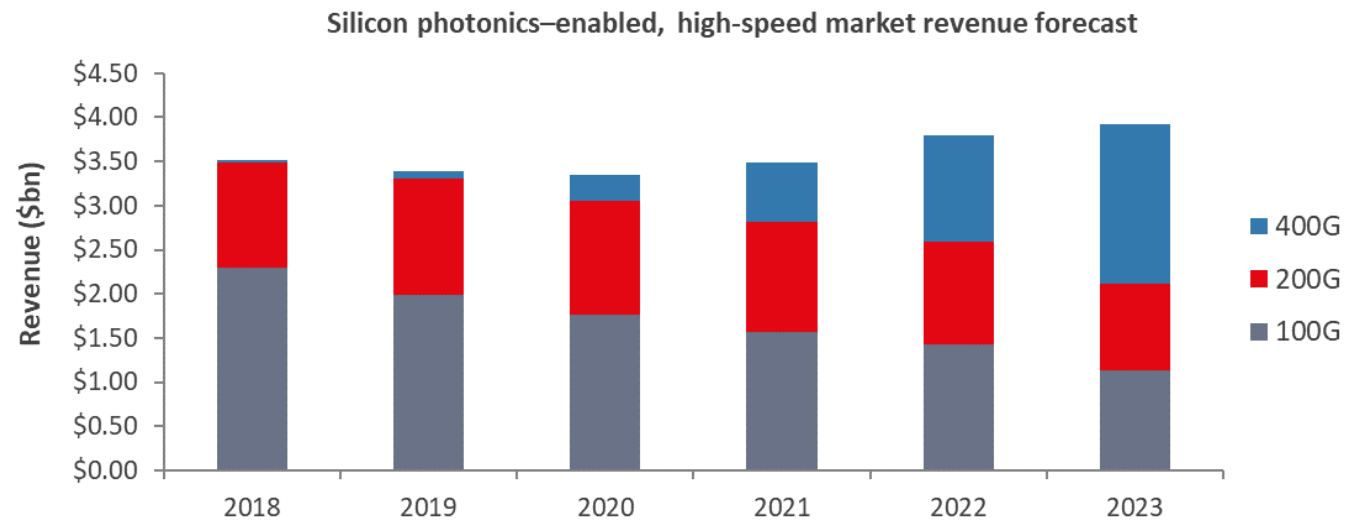
Source: Ovum

Media Technology

The Market Challenge

There is strong industry demand for agile workflows that can lower inefficiencies across the existing content supply chain ecosystem and accelerate multifaceted monetization and engagement. Vendors need to build modular and highly scalable connected digital TV and video services portfolios to support this requirement.

In 2020, the top media business priorities will be operational excellence, time to market, and lower inefficiencies across media distribution and preparation workflows to improve both regional and local market penetration along with audience cost of ownership. This will gradually push premium content owners to leverage agile, modular, converged, and automated technology stacks as well as to simplify their content supply chain and explore new monetization avenues.

Kedar Mohite
Practice Leader

How Ovum helps you

Understand media technology adoption trends across both the upstream and downstream content supply chains.

Evaluate partner ecosystems in the connected digital TV & video services 2.0 era.

Identify new market opportunities in niche media segments such as enterprise video, outdoor advertising, and theme parks.

Media Companies: Assess which vendors are most appropriate for your workflow unification, automation, and orchestration needs.

Media Companies: Identify the most appropriate media preparation and distribution technologies to lower TCO and inefficiencies.

Media Companies: Develop business and technology roadmaps across the media content supply chain.

What's new for 2020?

Ovum Decision Matrix – remote production on IP

SWOT analysis – cloud TV & video production platforms

Forecast of global premium media content protection technologies – including technology stacks such as DRM, watermarking, fingerprinting, and paywalls

Key Deliverables

Innovation case studies – TV and video production workflows across premium media asset segments, including coverage of broadcast TV & video, sports franchises, and digital service providers.

On the Radar reports – TV and video search, discovery, and syndication, and technologies that streamline the content supply chain ecosystem such as microservices toolkit.

Media transformation ICT Services forecast – encompassing TV & video broadcasters, sports franchises, and digital service providers, as well as new theme parks segment.

Strategic assessment and SWOT analysis – vendors in the workflow unification, automation, and orchestration segments

Opinion and short research notes – next-generation technology stacks such as cognitive services (AI), block chain services in the media and entertainment vertical.

Themes for 2020

Rapid emergence of remote production on IP
Market pressures are increasing the need for content owners to build niche premium content repositories at lower cost, so that they can simultaneously improve their operating margins and enhance their digital user lifetime engagement rates. The traditional live production workflow – encompassing legacy outside broadcasting (OB) vans, technical human capital, and on-site facilities – is inefficient, lacks cost-effective real-time work group collaboration, and has higher set-up configuration costs. The shift of focus to multidimensional content enrichment, monetization, and reach will be a pivotal factor in the adoption of IP-based remote production workflows in the years ahead.

Multiplatform broadcast quality production at scale
As the majority of these enterprises focus on delivering a seamlessly integrated premium QoS/QoE to every user across multiple platforms, reduced production quality will result not only in the loss of subscribers, but also in lower ARPU. Utilizing legacy broadcast supply chains to repurpose linear assets on digital platforms will be costly and inefficient in the short to medium term. Therefore, these enterprises are being pushed to embrace digital TV & video workflows, especially for production, monetization, and engagement, to enhance personalized monetization and UX/UI.
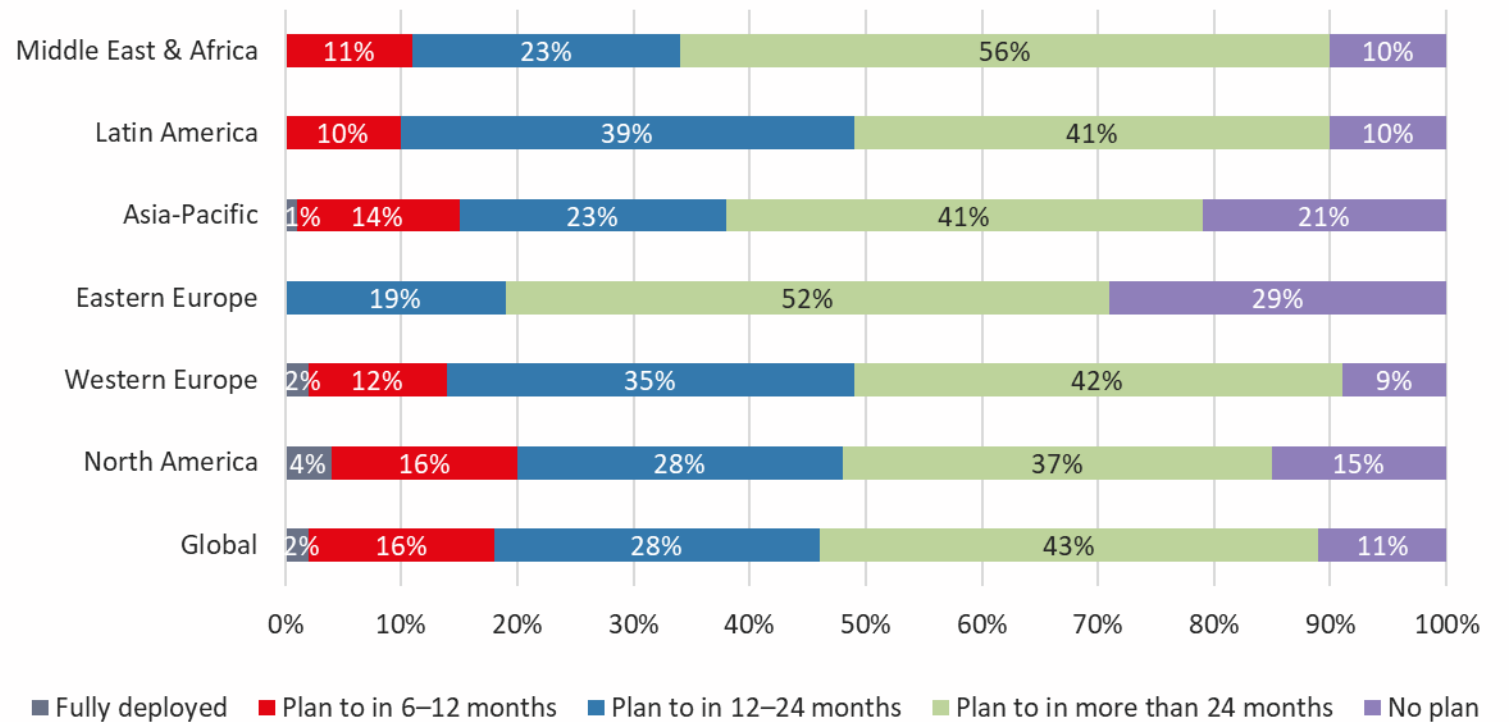
Manage personalized multiscreen user engagement lifecycle at scale
The multiscreen TV and video segment is maturing, resulting in an increase in premium content investments to safeguard profitability and digital user share. This is paving the way for spending on technology stacks that lower inefficiencies across the content search, syndication, and discovery workflows to enable hyperpersonalized engagement on multiple screens and devices. This will gradually push enterprises to leverage not only integrated cloud-based solutions but also pre-embedded cognitive services (AI) functionalities to strengthen their incremental ARPU and ARPA, along with profitability.

> *Only 2% of content owners globally have fully deployed time-bound remote production workflow projects, although 16% are planning to do so in the next 12 months.*

Premium content owners' remote production workflow deployment plans globally and by region, 2018–20

Region	Fully deployed	Plan to in 6–12 months	Plan to in 12–24 months	Plan to in more than 24 months	No plan
Middle East & Africa		11%	23%	56%	10%
Latin America		10%	39%	41%	10%
Asia-Pacific	1%	14%	23%	41%	21%
Eastern Europe			19%	52%	29%
Western Europe	2%	12%	35%	42%	9%
North America	4%	16%	28%	37%	15%
Global	2%	16%	28%	43%	11%

Source: Ovum

Telecoms Operations and IT

The Market Challenge

Service providers are under intense pressure to transform their IT systems, operations, and business processes to compete in the digital world. Digital service providers will need to deliver a personalized customer experience, bolstered by improved customer engagement and partner management systems. Digital transformation will also require the adoption of cloud-based delivery models and cloud-native architectures. To support these, CSPs will need to streamline and automate telco IT systems and make effective use of AI and advanced analytics tools. These changes will have a fundamental impact on CSP operations, requiring them to adopt DevOps, microservices, and cloud-native practices.

Kris Szaniawski
Practice Leader

How Ovum helps you

Help telcos understand their business and digital transformation needs and support their IT investment and buying decisions.

Identify telcos' decision criteria for selecting platform and service partners to enable digital transformation.

Help telcos to leverage the right vendors to assist with their network analytics and automation needs.

Understand the main growth opportunities across the complex telco IT landscape.
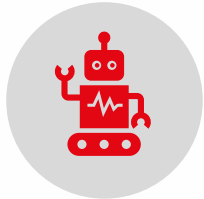
Evaluate vendor competitive positioning and identify new product, service and partnering opportunities in key solution areas.

What's new for 2020?

Research into the **IT platforms required to enable and monetize 5G, IoT and B2B services**

Exploring the **network AI applications** supporting specific areas such as wireless or fixed access

Investigating CSP adoption of **microservices, containerisation, DevOps**

Telecoms operations transformation case studies

Regular analysis of telco IT adoption trends based on Ovum's OSS/BSS Contract Analytics Tool

Key Deliverables

Annual forecasts covering Global Telco IT spend, IT vendor revenues including OSS/BSS and vendor services.

Reports on the role of AI & analytics in improving and automating CSP operational efficiency and service delivery.

Reports on the strategies and platforms required to manage complex customer and partner ecosystems.

Market reports evaluating leading telco IT vendors and solutions.

ICT Enterprise Insights in the telecoms industry – investment plans and trends in key telco IT areas.

Telco IT contract tracking, including analysis of OSS/BSS contract trends.

Key conference and event summaries and briefs.

Themes for 2020

Successful strategies for telco digital transformation
Digital transformation has become a priority for telcos, but many are still uncertain of which enabling technologies and operational changes to prioritize as part of this journey. Through case studies and thought-leadership pieces Ovum will provide guidance on how CSPs can transition to digital service providers. This will include research identifying technology and operational priorities spanning customer enablement, intelligent operations, automation, and cloud-based delivery models.

**Intelligent operations as a source of innovation**
Intelligence and automation is playing an ever more critical role in transforming CSP operations. Ovum will explore the impact of AI and analytics on customer experience, operational efficiency, and security in the telecoms sector, as well as their role in supporting new business models and technologies linked to IoT, 5G, and digital services. We will profiles vendor solutions, strategies, and use cases focused on the telecoms sector.

Telco IT strategies to support 5G, IoT, and B2B
The imminent arrival of 5G adds urgency to the need to transform telco IT and operations. These will have to be capable of supporting dynamic scaling, network slicing, and help monetize new B2B and IoT business models. Topics will include cloud-based delivery, service management and orchestration, automation, and open APIs, as well as how to coordinate charging, policy, and analytics to better manage and monetize the network. Ovum will explore CSP strategies, the changing role of vendors and services companies, and how their capabilities and offerings are evolving to support this new world.

> *Telco analytics service revenue will grow to $2.1bn 2023 as CSPs invest in SaaS and integration capabilities for real-time decisioning.*

Analytics revenue by service (2018–23)
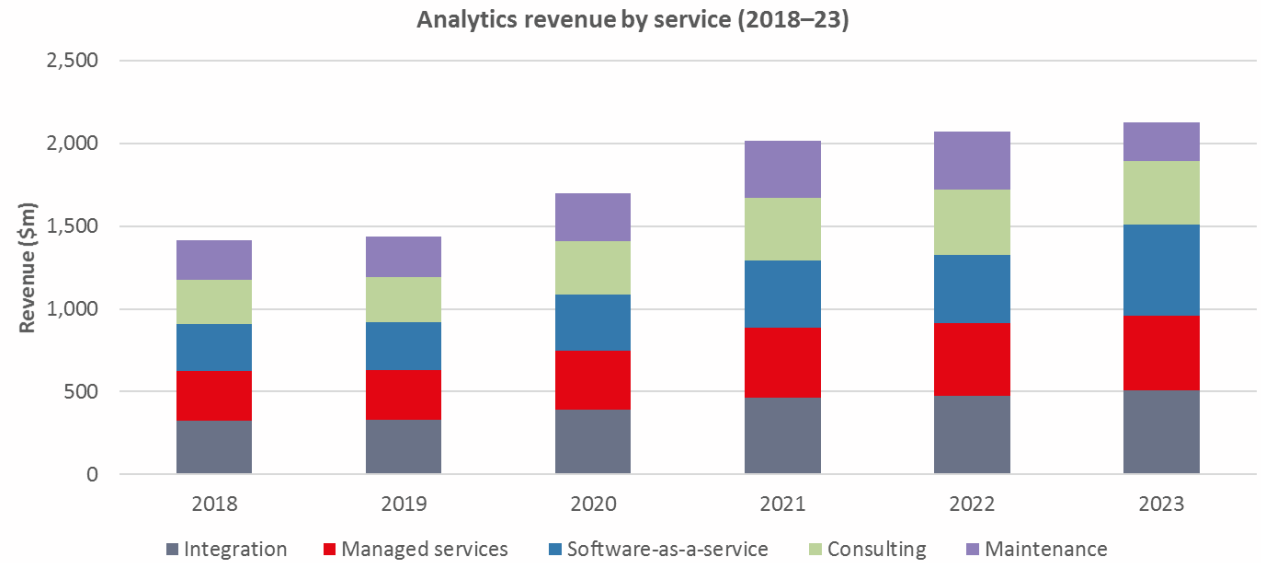
Source: Ovum

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