

Transport networks: a technology and investment framework



Grace Langham and Caroline Gabriel

About this report

This report analyses the telecoms transport networks market, and introduces a technology taxonomy, a map of the ecosystem and the key investors. This will establish a framework for our future research and analysis.

The transport networks market is changing and being disrupted in response to new broadband demand patterns and new network architecture. We forecast that operator spending on transport networks will reach USD41.5 billion in 2023 and TCO will be USD54 billion. The vendors that are successful in this growing market, will be those that identify the biggest growth segments while understanding how spending will shift to new players and business models.

This report will help vendors and investors to understand these developments by establishing a research framework that sets out the taxonomy of this market and its ecosystem. The framework focuses on specific trends and technology categories, and will provide the structure for future forecasts and strategy analysis.

It is based on several sources:

- Analysys Mason's internal research, including capex and opex forecasts and total addressable market forecasts
- surveys and interviews with 78 transport network deployers
- interviews with other stakeholders including vendors and regulators.

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KEY QUESTIONS ANSWERED IN THIS REPORT

- How is the transport networks market structured and where are the biggest areas of spending growth?
- How will deployment and ownership of transport networks change in the period to 2027?
- How will the increasing capacity demands affect transport network architecture and product requirements?
- How will network convergence drive changes in transport architecture and operating models?
- How will the 5G xHaul market evolve in the period to 2027?



WHO SHOULD READ THIS REPORT

- Strategy, product marketing and marketing executives within transport network vendors, who need to understand changes in spending patterns and customer requirements.
- Strategy and planning executives within telecoms or wholesale transport network operators, who need to understand how their business model aligns with broader trends.
- Executives responsible for infrastructure investment strategies within financial institutions, development organisations or infrastructure owners, who need to understand the most promising partnerships and investment opportunities.



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Executive summary

The transport network market is growing; annual operator capex will peak at USD41.5 billion in 2023. Vendors need to diversify and those that are investing in new network architecture and technologies will improve their chances of success in the market.

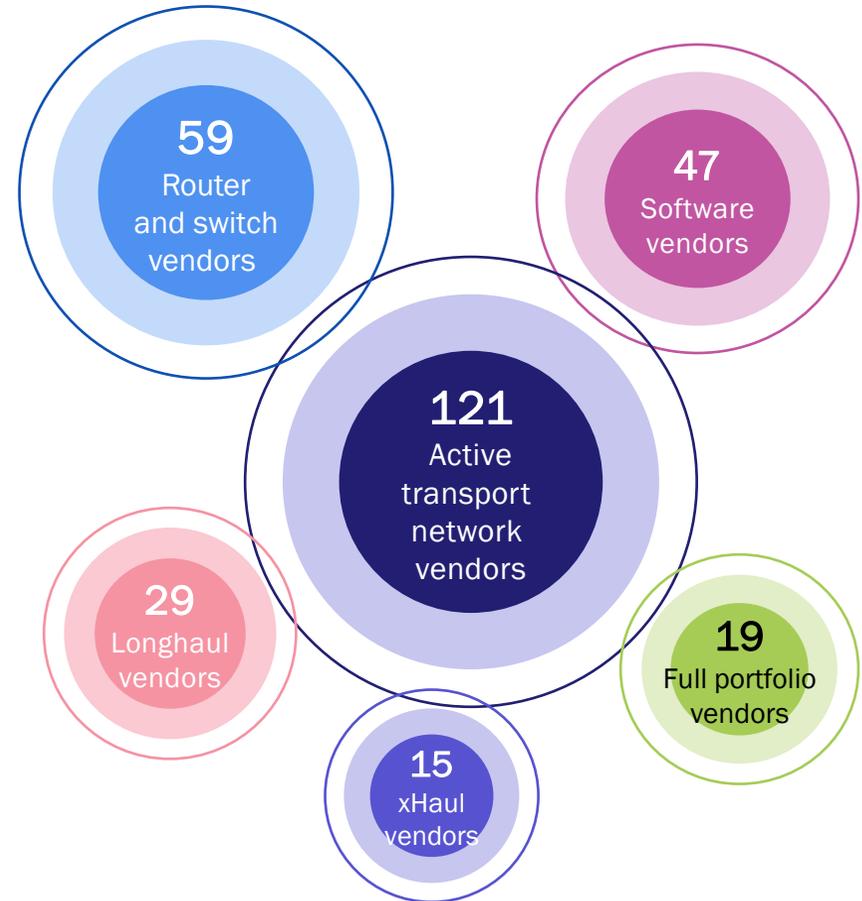
This report defines the transport network, the key players and the different types of architecture and technology. This will help vendors to identify their target markets and establishes a reference framework around which we will develop research on this important topic. It also assesses the impact that several key trends, such as 5G, virtualised RAN (vRAN), convergence and hyperscalers, are having on the ecosystem and market size.



KEY IMPLICATIONS

- The convergence of transport networks to support fixed and mobile access will present challenges for network providers and encourage vendors to transform their offerings.
- The densification of 5G and adoption of vRAN will create a new category, xHaul, which will disrupt the mobile backhaul market and provide opportunities for new vendors.
- The patterns of investment in longhaul and subsea transport networks will shift away from conventional telcos, and suppliers need to understand the new customers and their requirements.

Figure 1: Transport network vendors by type, 2022¹



Source: Analysys Mason

¹ A full list of vendors is available in the Excel file that is published with this report. We have mostly placed vendors in their main category but some may appear in more than one category.



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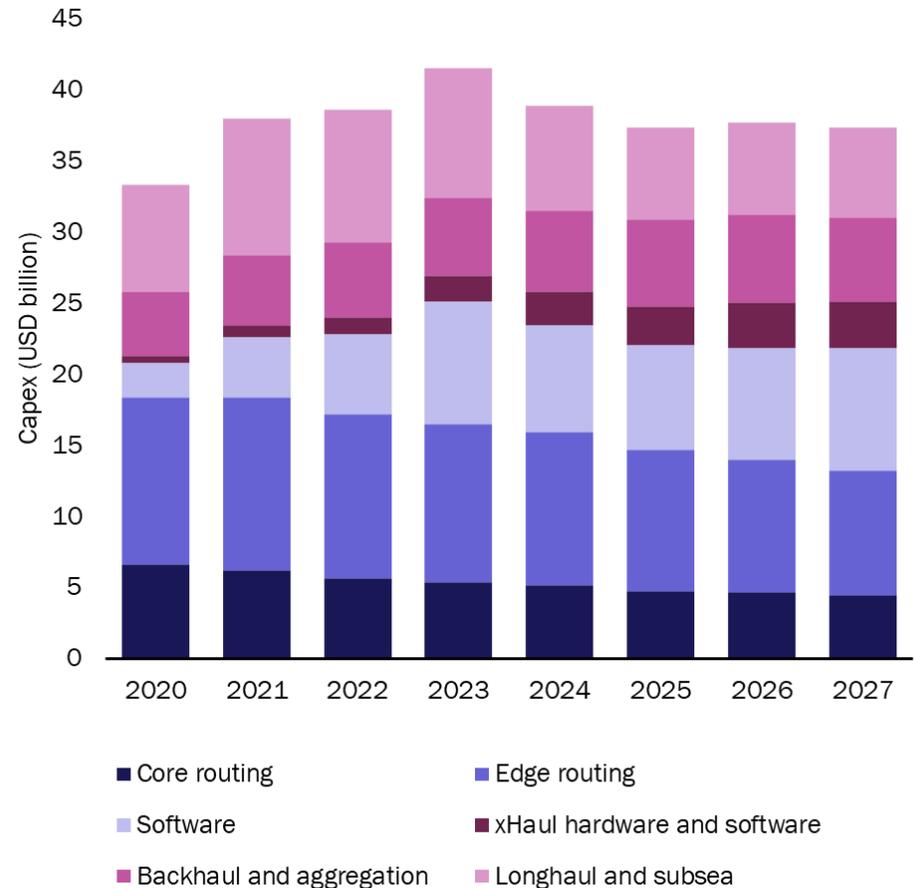
Market context: the transport network architecture and technologies are changing to support greater scalability, convergence, manageability and agility

Operators are transforming their networks and are expecting vendors to supply new technologies. The adoption of these technologies will be driven by the need for convergence and for the transport network to provide end-to-end, multi-access support for a wide range of enterprise use cases.

The transport network market is growing; operator annual capex will peak at USD41.5 billion in 2023, up from USD33 billion in 2020. Opex is expected to grow at a CAGR of 3.4% from 2020 to 2027, at around USD58 billion a year. We expect three main trends to drive spending.

- **Convergence of fixed and mobile networks.** Spending on transport networks to support converged access will exceed spending on single access by 2025; and will account for 62% of the total in 2027, or USD23.3 billion.
- **xHaul to support the capacity of 5G, and hence vRAN.** Fronthaul and midhaul links will be required to support the disaggregated architecture of transport networks. Operators will spend USD3.3 billion on xHaul by 2027 and almost USD100 billion on vRAN.
- **Ownership of longhaul transport networks.** The operator consortia that traditionally built subsea networks are looking to invest in hyperscaler-led wholesale networks, which could reduce the cost of building a transport network by around 50–80%, compared to those built by operators.

Figure 2: Operator capex on transport networks, by category, worldwide, 2020–2027

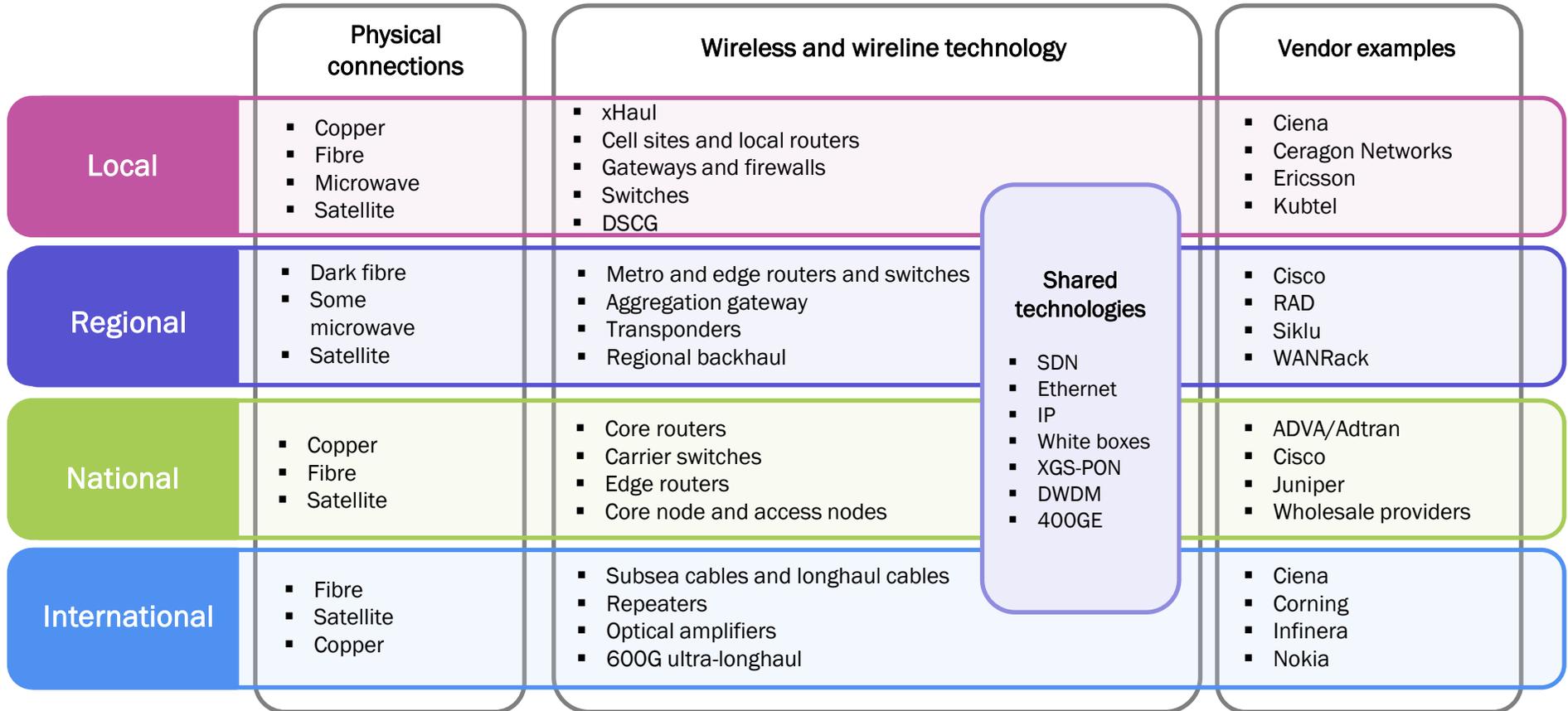


Source: Analysys Mason

¹ For more information, see [Telecom capex: worldwide trends and forecasts 2017–2027](#). Analysys Mason will publish a detailed forecast of the transport network addressable market later this year.

Research framework: a transport network taxonomy to help vendors to identify opportunities

Figure 3: A high-level taxonomy of the transport network’s physical underpinning, technologies and examples of major vendors by geographical reach of the network¹



Source: Analysys Mason

¹ A full list of vendors is available in the Excel file that is published with this report.

Implications

1

The convergence of transport networks to support fixed and mobile access will present challenges for network providers and encourage vendors to transform their offerings.

Converged transport networks are a cost-effective solution for dealing with the growing demand for high speeds and reliable connectivity. The flexibility to route traffic across multiple networks will require vendors to offer enhanced transport network technologies such as SDN, 400GE and XGS-PON. However, converged networks will present significant scalability and device communication challenges that vendors must be prepared for.

2

The densification of 5G and adoption of vRAN will create a new category, xHaul, which will disrupt the mobile backhaul market and provide opportunities and challenges for new vendors.

xHaul is designed to support the increase in new 5G service offerings. The more modular network architecture of xHaul offers greater flexibility to meet the higher data rate, lower-latency and packet-loss requirements of 5G. Vendors that offer xHaul-ready hardware and software are likely to be at a competitive advantage as operators consider new enterprise use cases for 5G technology.

3

The patterns of investment in longhaul and subsea transport networks will shift away from conventional telecoms operators, and suppliers need to understand the new customers and their requirements.

Hyperscale companies such as Facebook and Google are increasingly investing in longhaul transport networks. Hyperscale networks offer cost, speed and technology improvements compared to traditional telco networks. Telcos should consider their future role in longhaul transport networks and the cost benefits of investing in longhaul subsea cable ecosystems that are provided by hyperscalers or wholesalers.



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Grace Langham (Research Analyst) is based in the London office and is part of the Networks research practice. She holds an MChem degree in chemistry from the University of York. Grace's final year research project was based on pharmaceutical drug discovery, and she also worked as an analytical chemist.



Caroline Gabriel (Research Director) leads Analysys Mason's Networks research practice, as well as leading many 5G-related research activities across multiple programmes. She is responsible for building and running Analysys Mason's unique research base of mobile and converged operators worldwide. She works directly with Analysys Mason's research clients to advise them on wireless network trends and market developments. She has been engaged in technology analysis, research and consulting for 30 years, and has focused entirely on mobile and wireless since 2002. Her focus is on critical issues and trends related to mobile and wireless infrastructure, particularly operator deployment intentions for 4G, 5G, cloud-RAN and other technologies.

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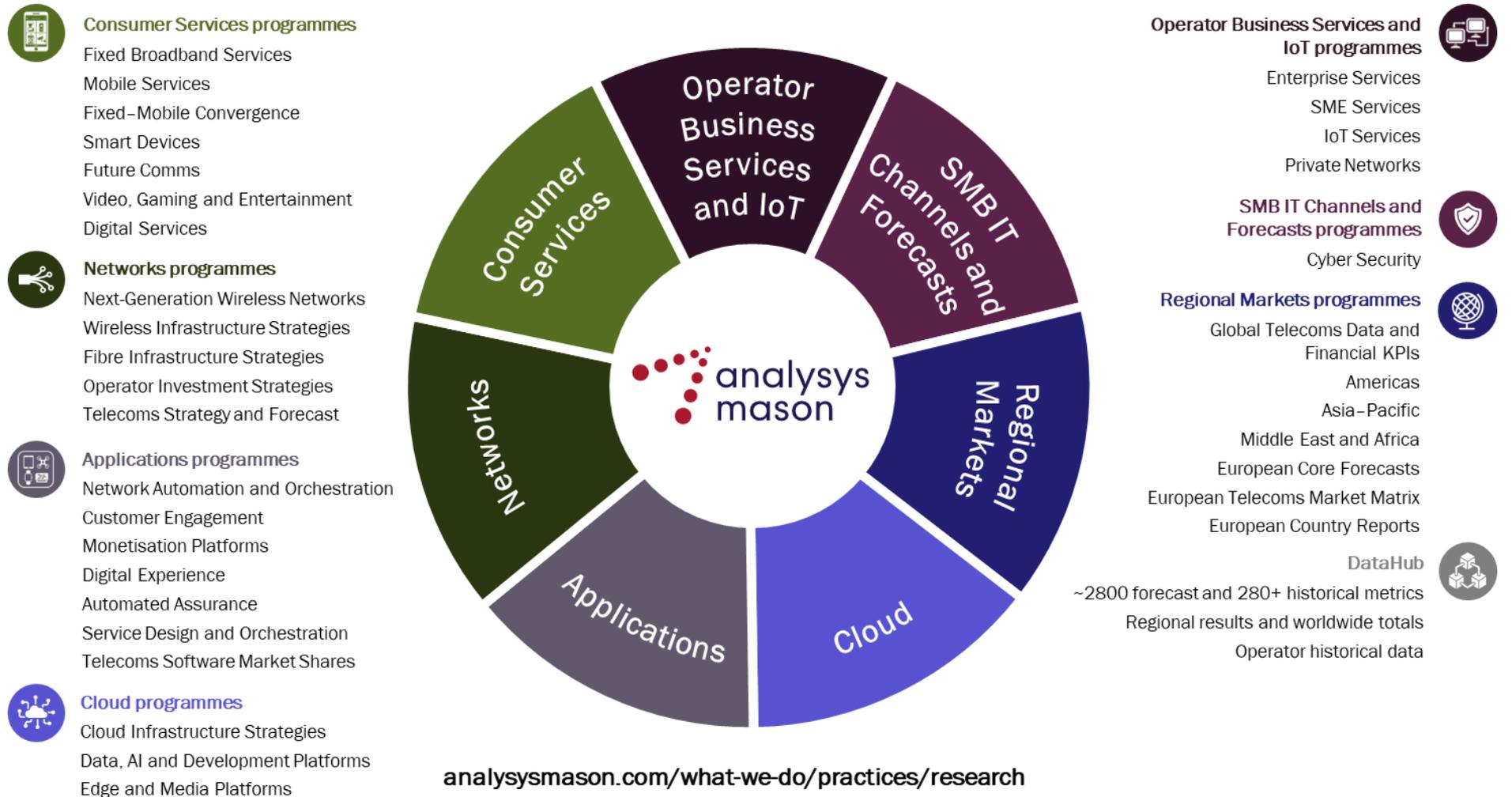
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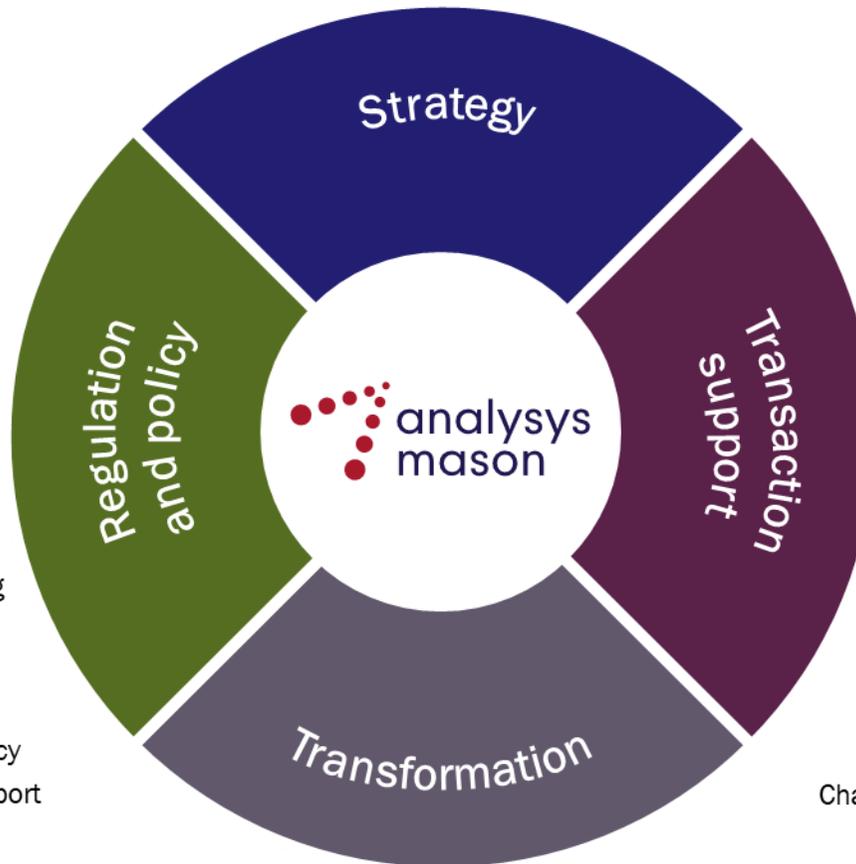
Strategy

- Corporate growth strategy
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