



# Vertica: data management and data warehouse solutions



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## Vertica (business within Micro Focus): company summary

Vertica is an analytics database management software platform provider that is part of Micro Focus. Vertica uses column-orientated technology to create high-performance data queries when used as a data warehouse. Vertica can be deployed in the cloud, on-premises or as a hybrid solution.

Vertica provides a data warehouse that supports the growing need that operators have for developing and running analytics models with big data sets to optimise their businesses. The company claims that it is the fastest analytics data warehouse on the market.

Performance is delivered using:

- columnar storage, which enables quick access to the data features that are traditionally stored in each record
- compression of data, which reduces disk I/O and overall storage costs
- massively parallel processing (MPP), which allows multiple processing units to run in parallel for faster query responses and support more concurrent users.

Vertica sells to telecoms operators, either directly or via solution partners. Vertica's technology has been proven with the most demanding operators worldwide, such as AT&T. In addition, providers of solutions that need to analyse large data sets, such as service assurance solutions, have also selected as Vertica as their partner.

Figure 1: Key data

<b>Founded</b>	<ul style="list-style-type: none"> <li>▪ 2005</li> </ul>
<b>Head quarters</b>	<ul style="list-style-type: none"> <li>▪ Cambridge, Massachusetts, USA</li> </ul>
<b>Key customers</b>	<ul style="list-style-type: none"> <li>▪ AT&amp;T, China Mobile, Comcast, Elisa, KDDI, KT, Maxcom, Orange, OTE, RingCentral, Telia, Tuenti, United Group, Verizon and Vodafone</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>▪ <b>Solutions:</b> Amdocs, Anritsu, Empirix, Netscout, Radcom, Samsung, Sandvine, Spirent, SysMech and Viavi</li> <li>▪ <b>System integrators:</b> Deloitte, HPE, NTT Data, Tata Consultancy Services and Tech Mahindra</li> <li>▪ <b>Technology:</b> Alibaba Cloud, AWS, Dataiku, FICO, IBM, MinIO, Pentaho, Qlik, Red Hat and SAS</li> </ul>
<b>Staff</b>	<ul style="list-style-type: none"> <li>▪ Micro Focus has 10 000+ employees</li> </ul>
<b>Company background</b>	<ul style="list-style-type: none"> <li>▪ Acquired by HP in 2011 and sold to Micro Focus in September 2017 as part of the HPE software group.</li> </ul>
<b>Competitors</b>	<ul style="list-style-type: none"> <li>▪ Amazon Redshift, Cloudera, Databricks, Google BigQuery, Greenplum, Pivotal, SAP Hana and Snowflake</li> </ul>

Source: Analysys Mason

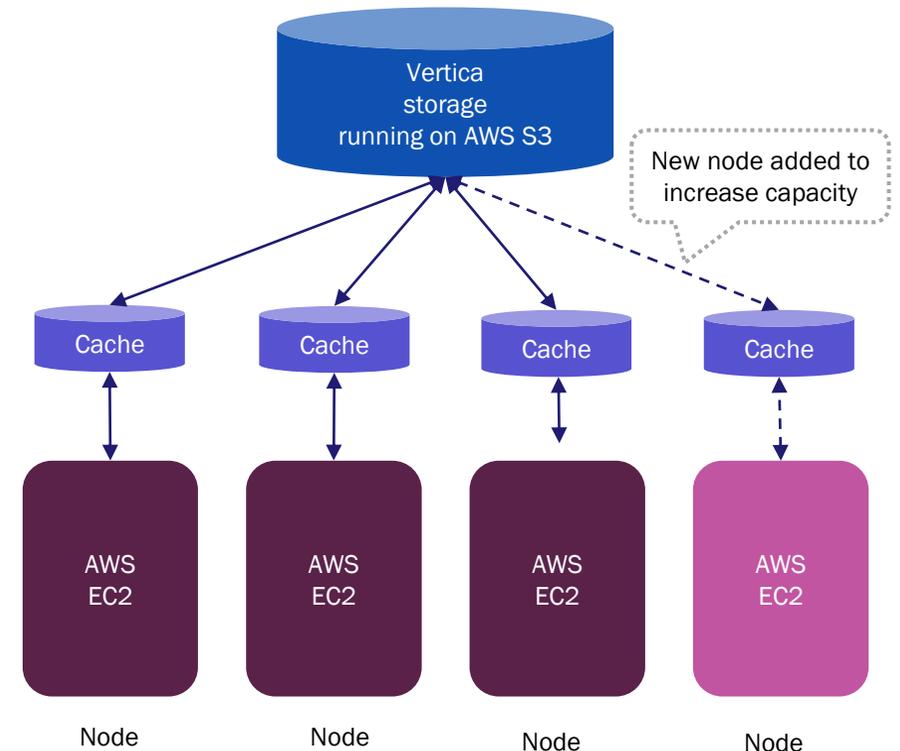
## Vertica: strategic direction

**Performance.** Vertica's core proposition to create a high-performance data warehouse remains central to its strategy and customers cite this as critical to their purchases, enabling data loading and queries to run faster than with rival technology. Columnar databases are ideal for analytics use cases because queries require the retrieval of data features that are typically held in many rows in transactional databases making them slower to respond.

**In-database ML.** Telecoms operators, like other large enterprises, are adopting machine learning (ML) to support automation that is needed to reduce operational costs and improve customer experience. Vertica's built-in data functions for time series, pattern matching, geospatial analytics and ML toolkits support data scientist workloads and processes. ML libraries are provided in R and Python, the industry's most popular programming languages, to create new data models and integrate with solutions from Vertica's technology partners.

**Cloud.** Cloud technology is enabling the digital transformation that operators are seeking. Demand is now to support multi-cloud and hybrid on-premises/cloud solutions to maintain flexibility and openness in terms of where storage and compute resources are located. Vertica, run in Eon Mode, creates a shared data store over different cloud instances, separating compute from storage, supporting different cloud and hybrid solutions with the same database. Uniquely, Vertica's Eon Mode also works with on-premises object stores, separating compute and on-premises storage when needed.

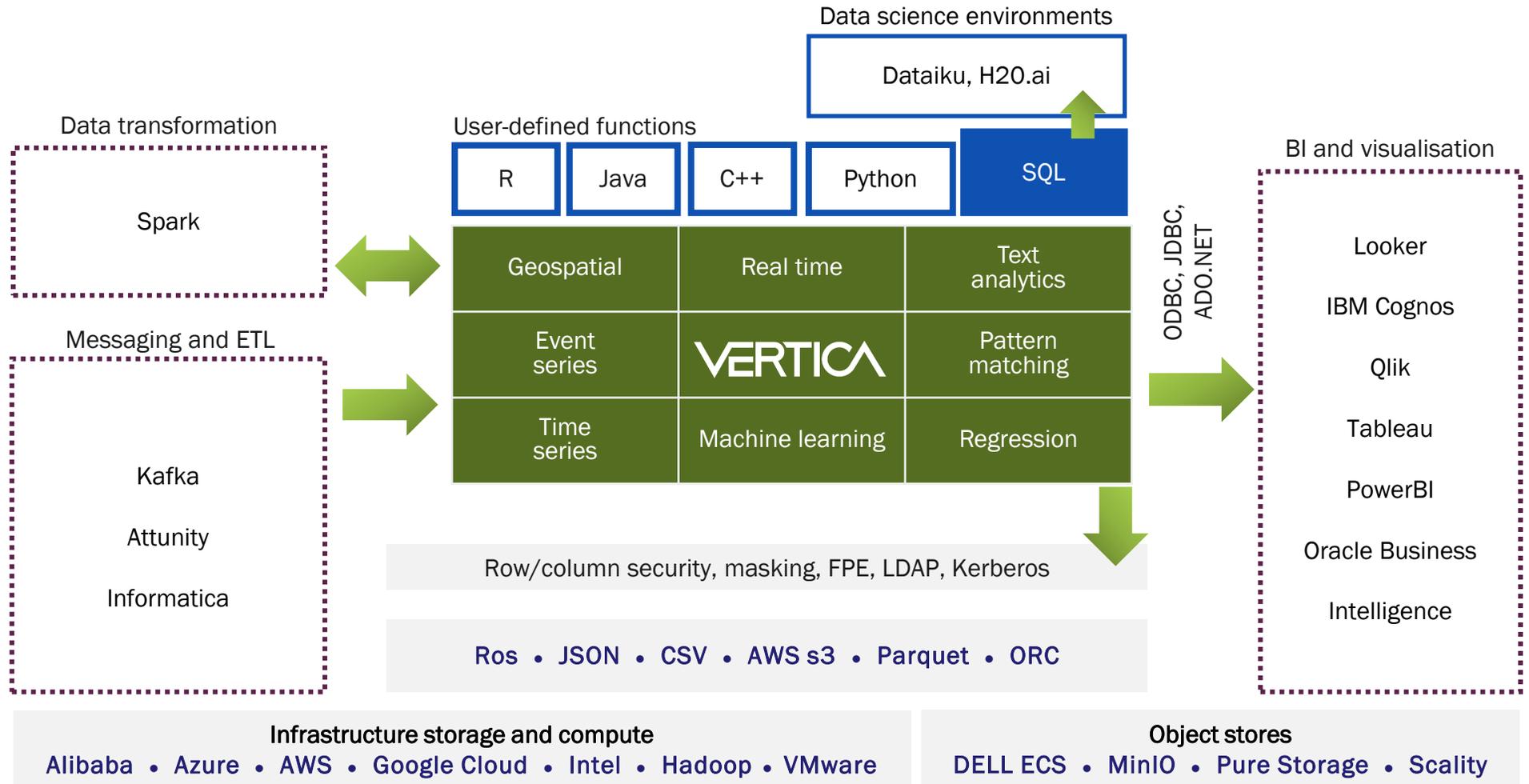
Figure 2: Vertica in Eon Mode example



Nodes can be on-premises or in-cloud (AWS, Google Cloud and MS Azure (beta))

Source: Analysys Mason

# Vertica architecture supports and integrates an ecosystem of technology partners



## Vertica: high-value use cases for telecoms processes and supporting 5G

The growth in data stored using Hadoop distributed file system (HDFS) has created valuable data lakes for operators. However, operators want to realise more value from their data.

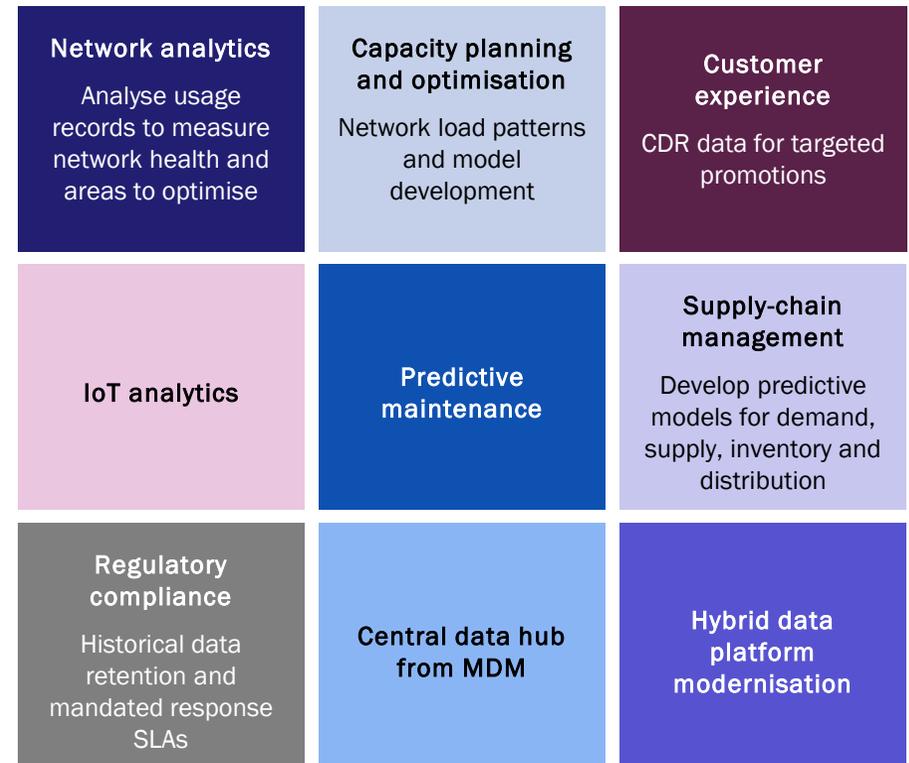
Data lake data is not readily understandable by data scientists for telecoms-specific use cases. Typically, data marts are created, which duplicates effort, loses associated meta data and creates different versions of the same KPI or datapoint.

Creating a single source of data, with an ability to scale to meet the rigorous demands of telecoms operators, without physically placing data at the same location, is central to Vertica's proposition. Vertica 10, for example, extends support for HDFS and AWS S3 stored data to run queries directly in them without replicating data back in Vertica.

The large data sets that are typical in the telecoms industry are time consuming and costly to move. Data volumes will continue to grow as IoT uses increase, digital twins are created for maintenance and network data is analysed for capacity forecasting.

Real-time data analysis and analytics use is increasing, requiring dynamic data processes to improve customer experience and optimise networks. Vertica delivers high-performance data analytics across a broad range of telecoms use cases by simplifying data management and predictive analytics tasks, providing support for highly scalable real-time use cases with the reliability that is required for mission-critical processes.

Figure 3: Key use cases for Vertica technology.



# Vertica: Analysis

## Why Vertica

Vertica provides a high-performance data warehouse solution that scales to support the analysis of complete big data stores that operators require.

Its 'infrastructure-agnostic' approach enables operators to avoid being locked into a single cloud service, and instead decide how to best use on-premises storage and compute resources to contain costs and keep suppliers competitive. Vertica's flexible data architecture can help to future-proof operators' needs.

Vertica is low cost, compared with other commercial solutions, and can support cloud and on-premises and hybrid installations.

Vertica is supported by Micro Focus. It aims to provide a consistent and open architecture, enabling support for changing data structures that operators are now supporting from Hadoop, Netezza, OLAP, the public cloud and more recently Snowflake. Vertica enables operators to elect where and how data is stored and processed.

## Competitive

Significant competition comes from the public cloud providers, such as Redshift from AWS, BigQuery from Google Cloud, Synapse from Azure. In addition, large operators are using Snowflake for cloud deployments with integrated offerings as part of larger infrastructure transformation projects.

Figure 4: Key strengths and weaknesses

Strength	Description
Performance	A column-based database coupled with in-database ML enables operators to analyse large data sets without sampling or it taking too long.
Trusted customer base	Used by the largest telecoms operators and in other highly demanding verticals. Of the world's 10 largest operators by revenue, 7 run Vertica.
Multi-cloud and hybrid cloud	Enables operators to keep their data on-premises and on multiple clouds, without significant operational overhead.
Unified analytics	Ability to use data from the data warehouse and from big data lakes.

Weakness	Description
Modest market presence	Vertica needs to increase its market presence to ensure wider support, better partnerships and continued R&D spend.
Cloud competitors	Cloud-based competitors provide more-closely integrated approaches that include ML and IaaS services, which are simpler to use for many operators.

Source: Analysis Mason

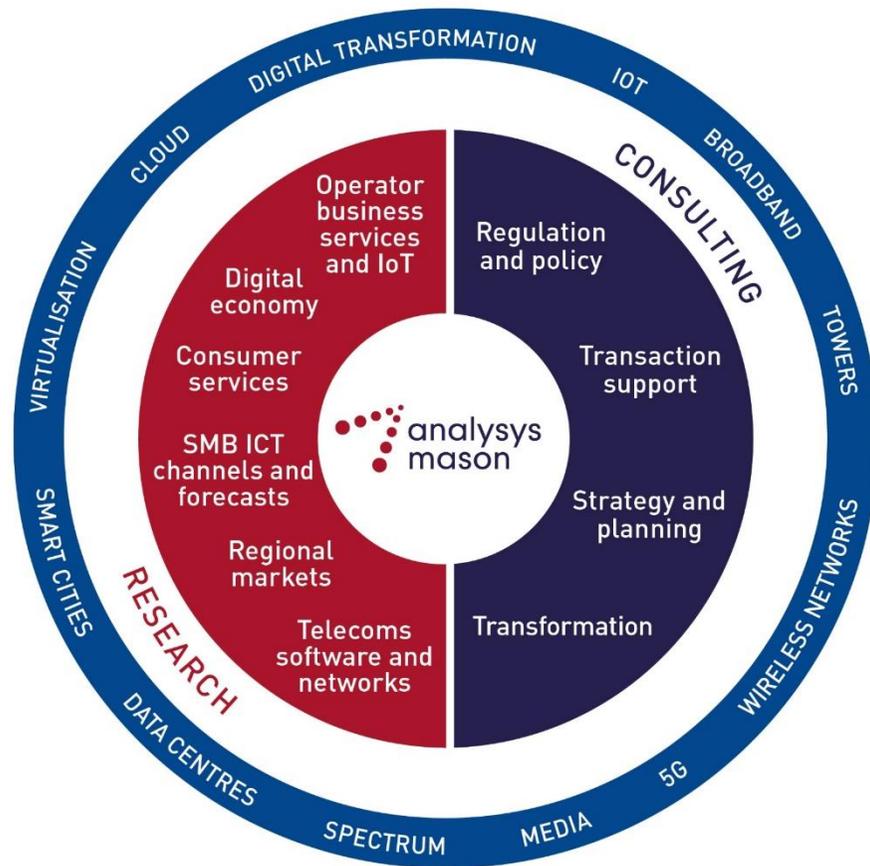
# Product summary

Figure 5: Vertica's products

Product	Analysys Mason segment	Description
Vertica – Enterprise Mode	Data management	In Enterprise Mode, the physical Vertica architecture is designed to move data as close as possible to computing resources and stores data in a read-optimised store (ROS). The data is segmented, sorted and compressed for highly optimised data store and retrieval.
Vertica – Eon Mode	Data management	In Eon Mode, Vertica can take advantage of cloud services and can be scaled and shrunk rapidly in response to changing workloads. It also facilitates the separation of data from the compute allocated to running queries on it. Eon Mode fails gracefully, even in volatile cloud environments. Eon Mode works on AWS, Google (GCP) and MS Azure.  Eon Mode separates the computational processes from the communal storage layer of an operator's database. This separation gives an operator the ability to store data in a single location (S3 on AWS, for example) and elastically vary the number of compute nodes connected to that location according to the operator's computational needs. An operator can adjust the size of the cluster without interrupting analytic workloads, adding or removing nodes as the volume of work changes.
VerticaPy	AI and analytics	VerticaPy is a Python library that supports data scientist requirements to manage data ingestion, exploration, preparation and use machine learning (Tensorflow) for modeling and evaluation.
Community Edition	Data management	Free version of the software
Pricing	Time-based	Provided from the AWS market place and charges on a per node used per hour basis.
	Volume-based	Optimisation to run on AWS, Microsoft Azure, Google Cloud, VMware, and Alibaba (in Enterprise Mode). In addition, the model enables corporations to deploy using their own licences to provide a clear transition between on-premises and cloud-based solutions.
	Volume-based	On-premises pricing is based on terabytes of storage with no other charges.

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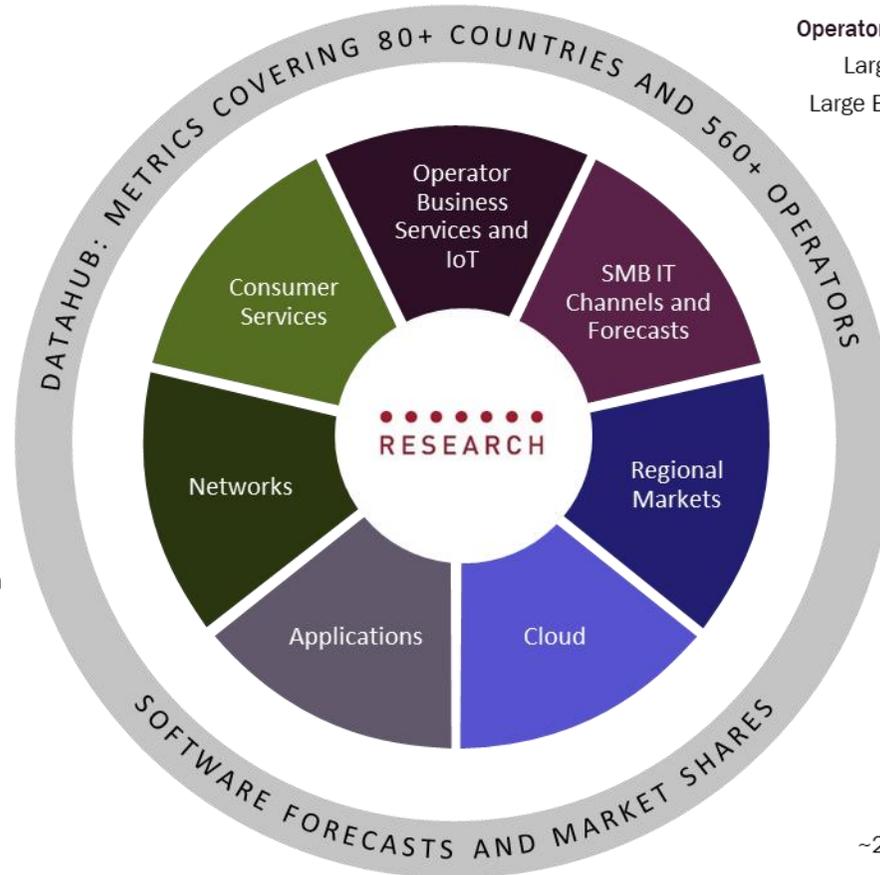
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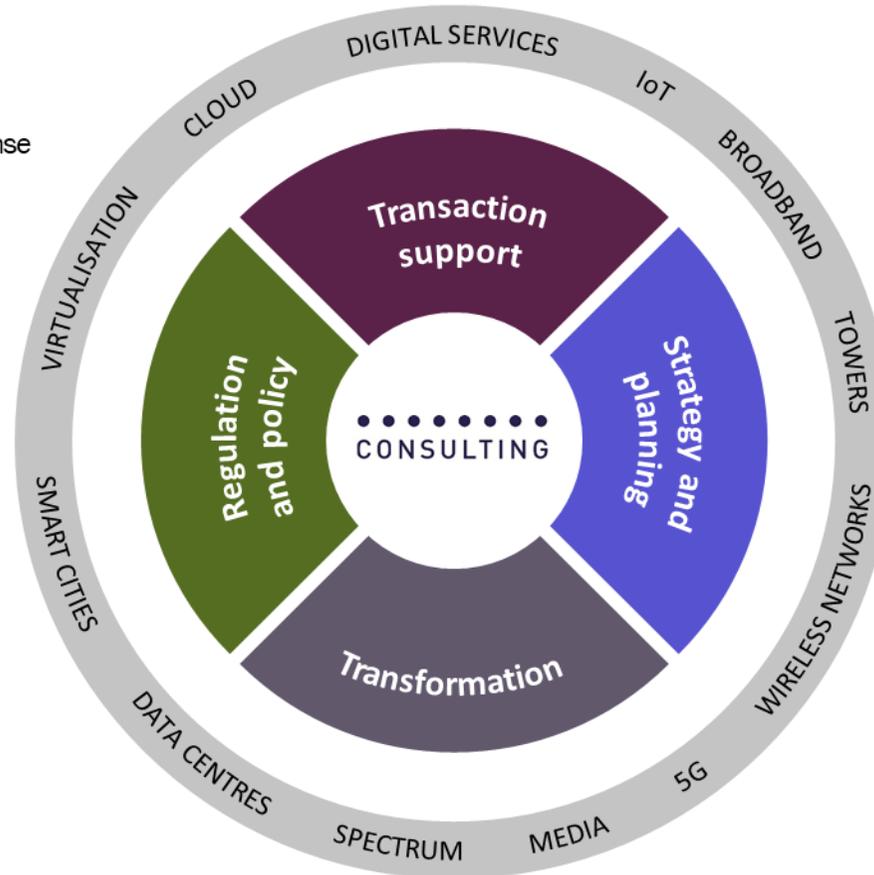
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**PUBLISHED BY ANALYSYS MASON LIMITED IN APRIL 2021**

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