

451 Research's

2022 Research Agenda

Key topics, coverage and planned deliverables



451 Research

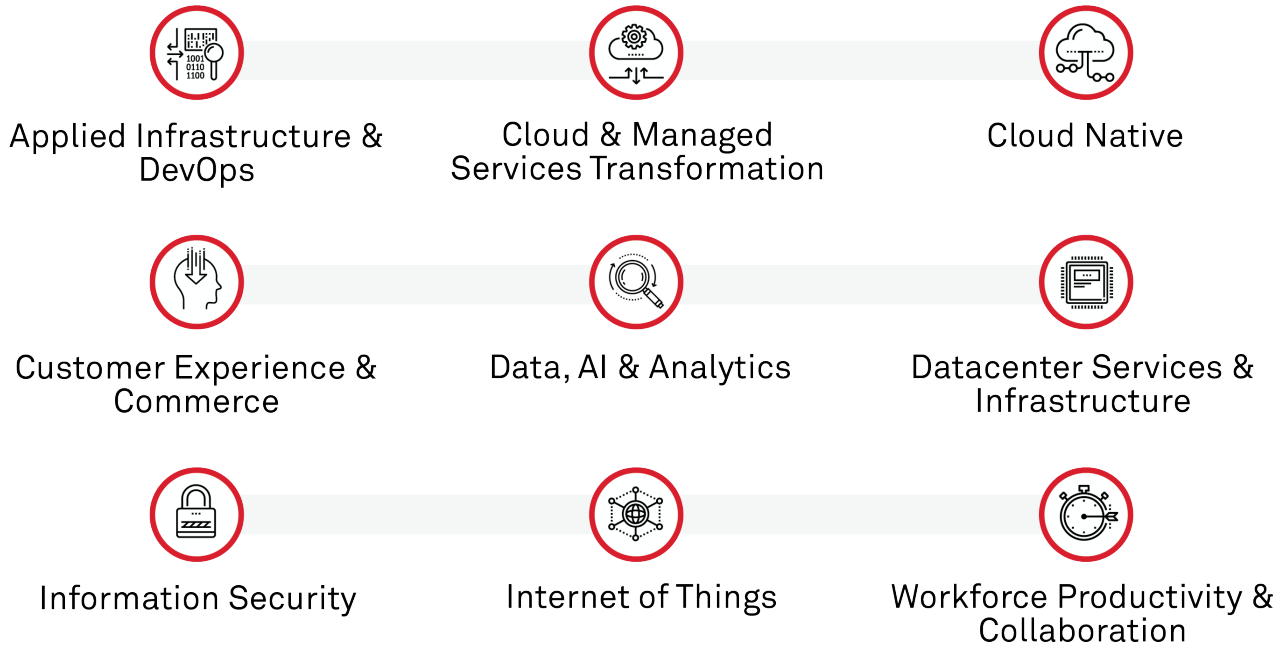
S&P Global

Market Intelligence

Your radar into **market disruption, innovation and digital transformation** in the IT space.

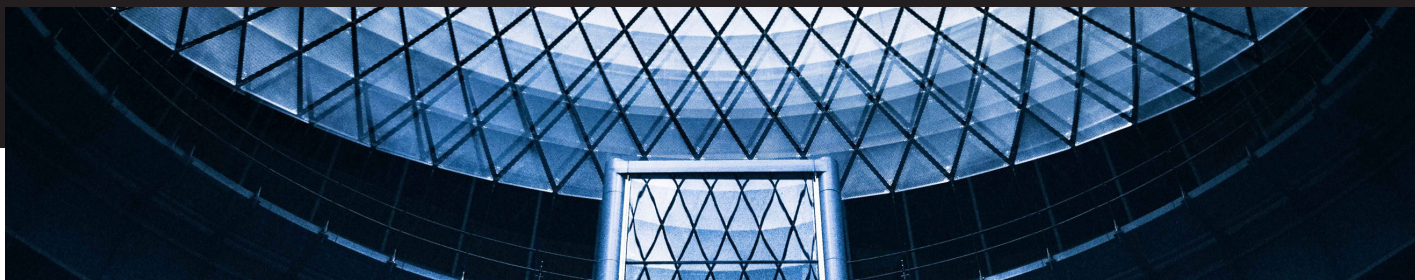
451 Research, a technology research group within S&P Global Market Intelligence, provides a holistic view of innovation across the entire enterprise IT landscape through a combination of expert analyst insight, backed by differentiated data. Our analysts interact with key industry decision-makers every day to deliver the essential intelligence necessary to understand the pivotal role that digital transformation is playing in reshaping our world.

Our research spans nine channels that align with the prevailing issues driving IT innovation, helping clients implement, invent and invest in digital transformation. The research agenda for each channel outlines key topics, analyst coverage and planned deliverables to support our clients' critical business decisions. The pace and extent of this transformation means that many trends span multiple channels; our research approach encourages analyst collaboration both within and between channels, allowing us to surface emerging trends before anyone else. Additionally, for a higher-level perspective on the key trends that will drive digital transformation in 2022 at a strategic level, please refer to our latest [Big Picture report](#).



Data, AI & Analytics

The Data, AI & Analytics sector has a critical role to play in driving digital transformation through the shift toward intelligence-driven decision-making. Data science, machine learning, self-service analytics, DataOps, data governance, cloud databases, data warehouses, data lakes and data marketplaces each have a part to play in making pervasive intelligence a reality and enabling the development of agile real-time applications and data-driven decision-making that will drive the next wave of digital transformation.



Analysts



Nick Patience

Research Director

[BIO >](#)



Paige Bartley

Senior Research Analyst

[BIO >](#)



James Curtis

Senior Research Analyst

[BIO >](#)



Rachel Dunning

Senior Research Associate

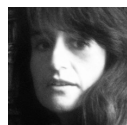
[BIO >](#)



Liam Eagle

Research Director, Head of Voice of the Enterprise & Voice of the Service Provider

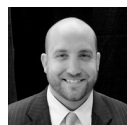
[BIO >](#)



Krishna Roy

Senior Research Analyst

[BIO >](#)



Greg Zwakman

Research Director

[BIO >](#)

Key Research Topics and Themes for 2022

● **Vertical alignment: AI/ML current and future use cases in six key industries**

As AI adoption gradually takes hold, use cases are often industry-specific, driven by the unique data sets of each organization. We track detailed use cases in six industries: financial services, manufacturing, telecommunications, retail, energy/oil & gas, and healthcare/life sciences, and we expect increasing take-up of more advanced use cases.

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● **Convergence of data security, data privacy and data governance**

No longer distinct or pure categories of functionality, technological overlap is inherent across data security, data privacy and data governance as providers enter the fray with different architectural approaches to meet the needs of similar use cases: primarily facilitating the safe and compliant leverage of data.

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● **A serverless database really is a matter of 'less is more'**

Serverless does not mean no servers. It means there is no server infrastructure for the consumer to manage. A serverless database translates to reduced database administration and a reduction of the challenges that come with managing cloud database infrastructure.

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● **Assessing workload venues for AI – the rise of the edge**

Machine learning model generation involves three basic stages – data gathering/prep, model training and model inference. These can happen in the cloud, in corporate datacenters, on on-premises machines and edge devices. The distribution of these jobs is changing, and we will explore its evolution in 2022.

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● **It's alive! Machine learning models present new management challenges**

Machine learning models make predictions based on new data, which is usually similar to the data on which they have been trained. But data can change, and models can evolve and become less effective. MLOps is the set of tools and techniques to manage this process.

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● **Graph technologies target emerging relationship-based data challenges**

Graph technologies, which include embedded data platform capabilities and stand-alone databases, are built on a data model that organizes data based on relationships instead of data based on topics in relational tables. This approach caters well to data use cases such as knowledge graphs (object relationships), identity graphs (people and devices) and fraud graphs (criminal relationships).

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● **Pervasive enterprise intelligence requires new roles and techniques**

In seeking to establish enterprise-wide data culture, organizations must consistently ensure the availability of high-integrity data as a resource for a vast array of data consumers. Doing so requires a robust data 'supply chain' increasingly supported by specialized roles and techniques that avoid bottlenecks in responsibility or technology.

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● **Proposed regulations will start to influence enterprise use of AI**

AI will eventually become a regulated set of technologies around the world. But we are not at that stage and won't get there for years. However, in 2022, we expect enterprises to begin to take pending regulations in the US, EU, UK and China much more seriously and factor them into their decision-making as they roll out AI-driven applications.

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The data lake is maturing, but is the water getting clearer?

The data lake has evolved considerably since the term was coined over 10 years ago. It has become a key component of enterprise data management strategies, used to store raw data from multiple sources that can be accessed by multiple users for multiple purposes, reducing data migration and movement complexity, and enabling analytic queries to be applied to a combination of structured, semi-structured and unstructured data.

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The evolution of the AI application development process

AI application development is a complex, costly and time-consuming process, and organizations take a variety of approaches to it.

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ESG: How can AI aid sustainability?

How can we use AI and machine learning to help reach and beat sustainability goals? The ability to identify patterns in massive and disparate data sets opens new possibilities and could lead to a more sustainable future.

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Breaking down walls: realizing the value of data exchange and sharing

We often think of business data as a proprietary resource strictly bound by the protective walls of the enterprise. But there is increasing pressure to externally monetize informational assets and share data safely with third parties and partner organizations. Doing so requires consistent controls for data, as well as effective models and technology for data access and navigation.

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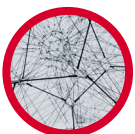
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CONTACTS

The Americas
+1 877 863 1306
market.intelligence@spglobal.com

Europe, Middle East & Africa
+44 20 7176 1234
market.intelligence@spglobal.com

Asia-Pacific
+852 2533 3565
market.intelligence@spglobal.com

www.spglobal.com/451-research

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