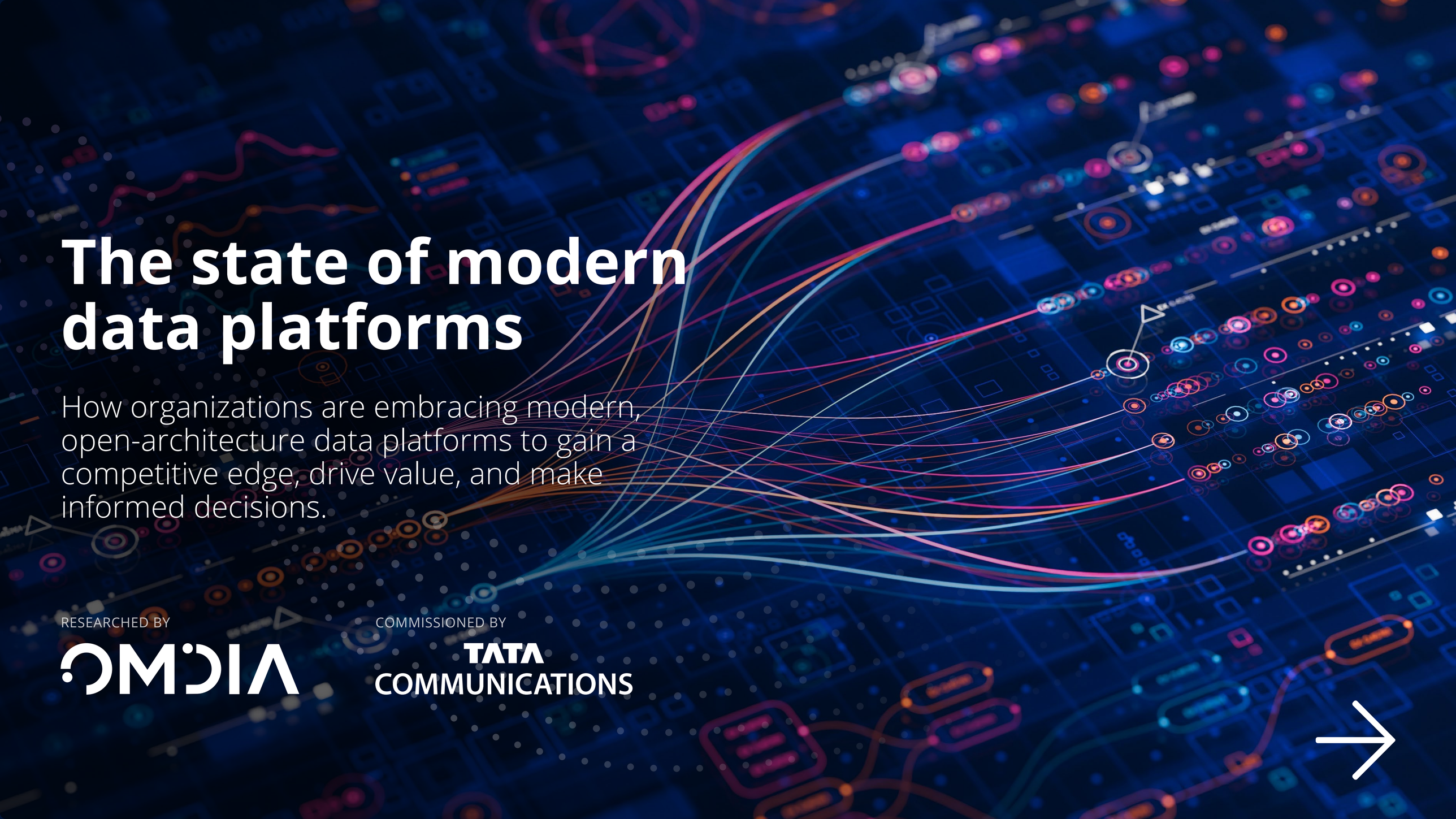
The state of modern data platforms

How organizations are embracing modern, open-architecture data platforms to gain a competitive edge, drive value, and make informed decisions.



RESEARCHED BY

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TATA COMMUNICATIONS

INTRODUCTION

In today's hyper-competitive landscape, data is no longer a basic byproduct of doing business. It is the very lifeblood of success. Companies capable of harnessing the power of their data stand to gain a significant competitive edge in a fast moving world of technological opportunities and competitive threats.

However, harnessing the volume, variety, and velocity of data available to decisions makers creates an unprecedented challenge, holding many organizations back from exploring emerging opportunities such as prescriptive analytics and generative AI (GenAI).

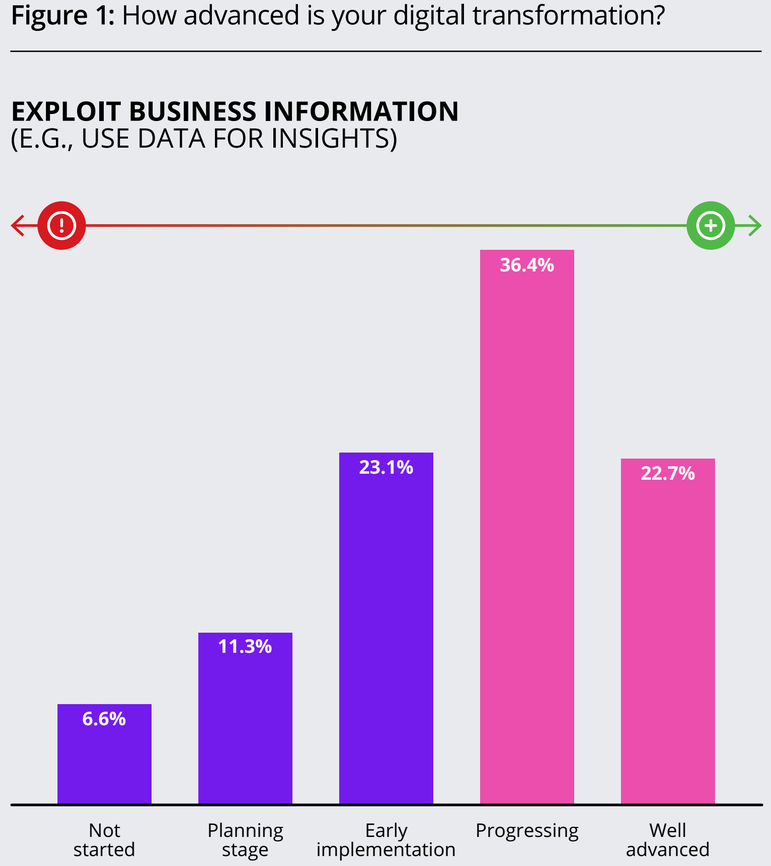
Building on Omdia research and an exclusive study of 200+ global data and IT professionals, this ebook explores how a new approach to data management – using a modern, open-architecture data platform – can help companies jump from being drowned by data, to drawing trusted and actionable insights from data instead.

The good news is that with the increasing move to hybrid/multi-cloud deployments, many organizations are well-positioned to make this leap (see figure 1).

But the modern data landscape presents several significant challenges, with many surveyed companies reporting difficulties even gaining access to fractured, isolated data coupled with an inability to build and integrate reliable data pipelines. For example, while 62% of organizations surveyed claim to have operational or fully realized DataOps programs, there are regional disparities. In India, 58% of companies are still striving to make their data platforms operational.

This guide therefore provides insights into the current landscape, explains the key components of a modern data platform, and highlights how enterprises can use this emerging data stack to embrace the future of data-driven intelligence without incurring risk or undue cost.

Figure 1: How advanced is your digital transformation?



SOURCE: OMDIA **NOTE:** N=5,099

Welcome to the data labyrinth: Navigating today's complex data challenges

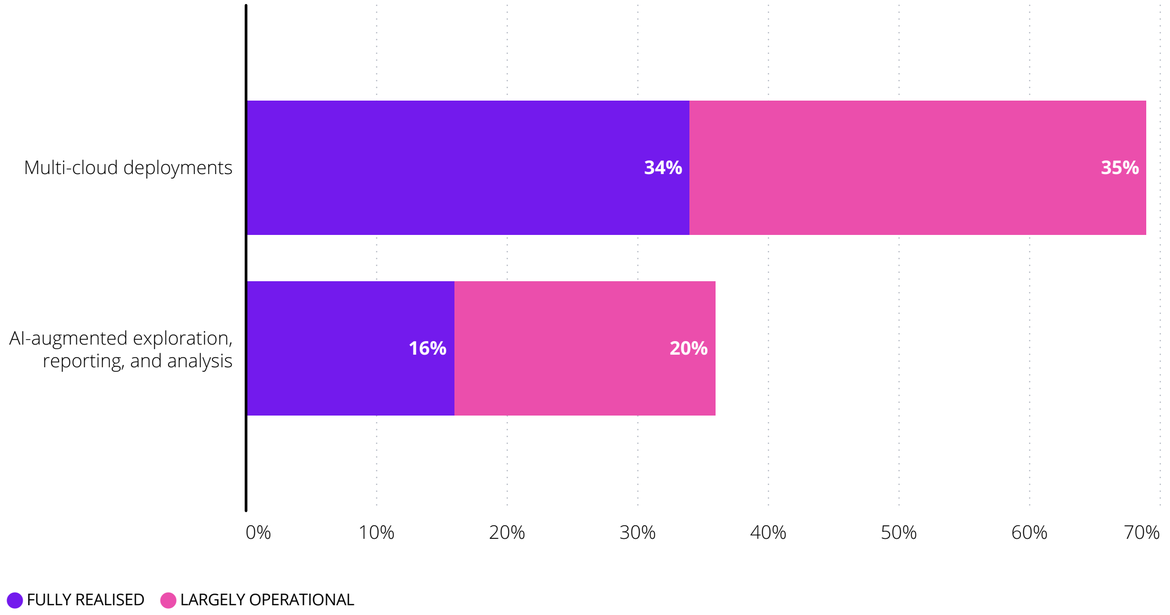
Businesses today have never had more information – living in an ocean of insight alongside an evolving ecosystem of data-driven objectives, risks, and responsibilities - yet many companies struggle to extract value from this vast resource. Data remains highly distributed across disparate systems, across structured/unstructured formats and data types, and grows increasingly faster rates.

The complexities here makes it harder to achieve efficient and effective data management, even for mature companies capable of following modern data management practices. For example, only 30% of companies surveyed have AI-augmented workflows in production, underscoring the difficulties businesses face in harnessing advanced data-driven capabilities (see Figure 2).

So how can companies make the most of their data opportunity, even those struggling to build expertise? Even those more advanced in modern software practices (such as cloud-native computing) can struggle to then support emerging use cases such as building highly personalized customer experiences using GenAI.

Figure 2: While companies have already picked up on advanced capabilities such as cloud-native architectures, they have yet to tackle future-leaning opportunities such as AI

WHAT IS THE CURRENT STATE OF MATURITY WITHIN YOUR ORGANIZATION FOR THE FOLLOWING AREAS OF INVESTMENT?



SOURCE: OMDIA **NOTE:** N=202

Shifting tides: Understanding the ever-evolving data management imperatives

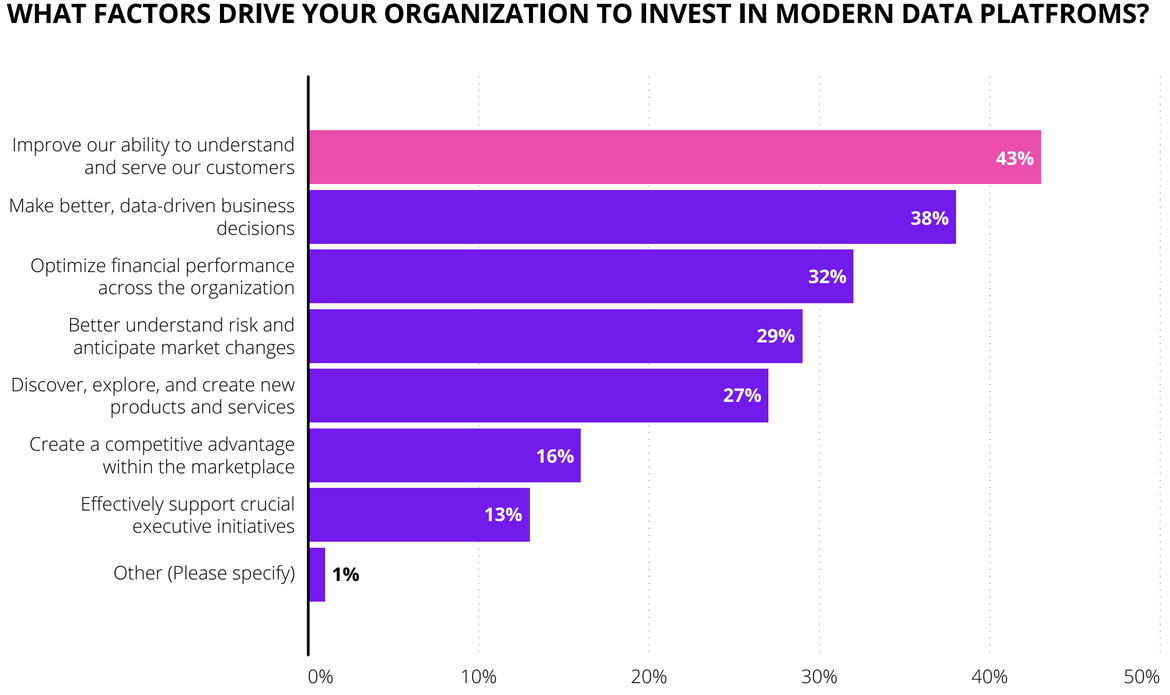
The landscape of data management is growing and evolving, as businesses now demand faster, more personalized, more insightful, and increasingly AI-driven experiences. Business leaders must keep up, exploring new ways of meeting longstanding requirements such as data privacy and security.

From surveying the industry, the two primary reasons for adopting a data platform revolve around building reliable data pipelines and using those to access disparate data sources in real-time and in a highly performant manner. Both are necessary for companies to build a holistic and timely view of their business and customers (see Figure 3).

Simultaneously, they must also look forward to new value opportunities. Unfortunately, the two business challenges of meeting security requirements in an environment where technical skills are difficult to find can hold companies back from building their data culture. Nearly half (48%) of all enterprises worry about exposing data to the business in a secure manner through data collaboration and sharing. At the same time, 47% of small organizations and 41% of large companies currently struggle with a lack of technical skills.

Organizations are therefore rethinking the way they handle precious business data, moving beyond orthodox data centralization practices to instead take on an open platform approach, where data can flow freely between cloud and premises and across disparate data sources. In turn, they increasingly look to trusted partners to address their skills gap rather than build internally through training and hiring.

Figure 3: Building a better understanding of customers and making better business decisions drive investments in data, analytics and AI



SOURCE: OMDIA **NOTE:** N=202

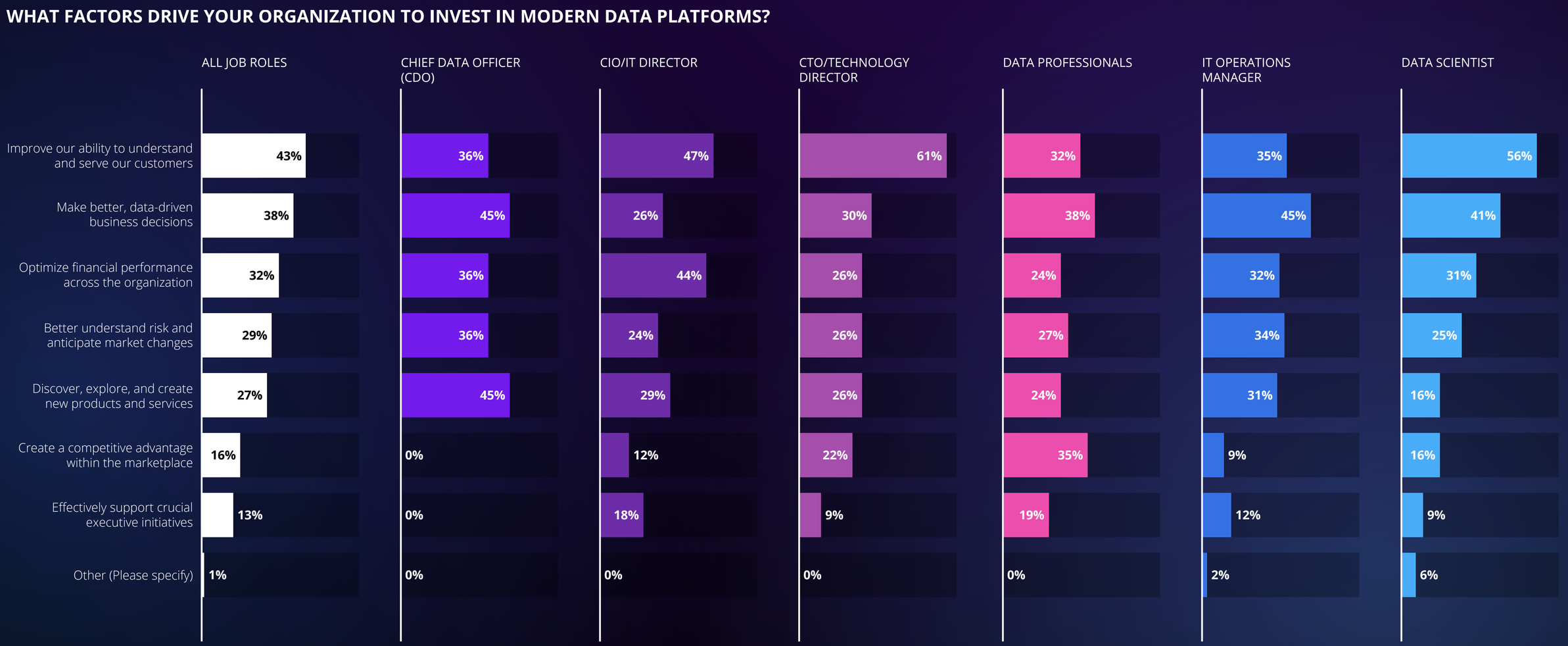
The modern data platform: A new foundation for data agility

Modern, open-architecture data platforms have emerged as a transformative solution in response to the growing requirements and complexities of data management. Standing as a true break from traditional data warehouse and data lake offerings, modern data platforms promote several core principles that align with enterprise practitioner demand:

- Strong data integration capabilities
- Ubiquitous security and data quality features
- Hybrid/multi-cloud deployment options
- Flexibility supported by open technologies
- Differentiated data sharing and collaborative facilities

When combined into a single solution and supported by a trusted partner, these capabilities can remove reduce risk and bring flexibility. For example, they can help by reducing technical debt – lowering the level of complexity that must be managed over time. Tackling universal issues like this can pay significant dividends across the entire organization, helping everyone from Chief Data Officer to the IT Operations Manager achieve their individual goals (see Figure 3.5)

Figure 3.5: Defining IT priorities among differing job roles



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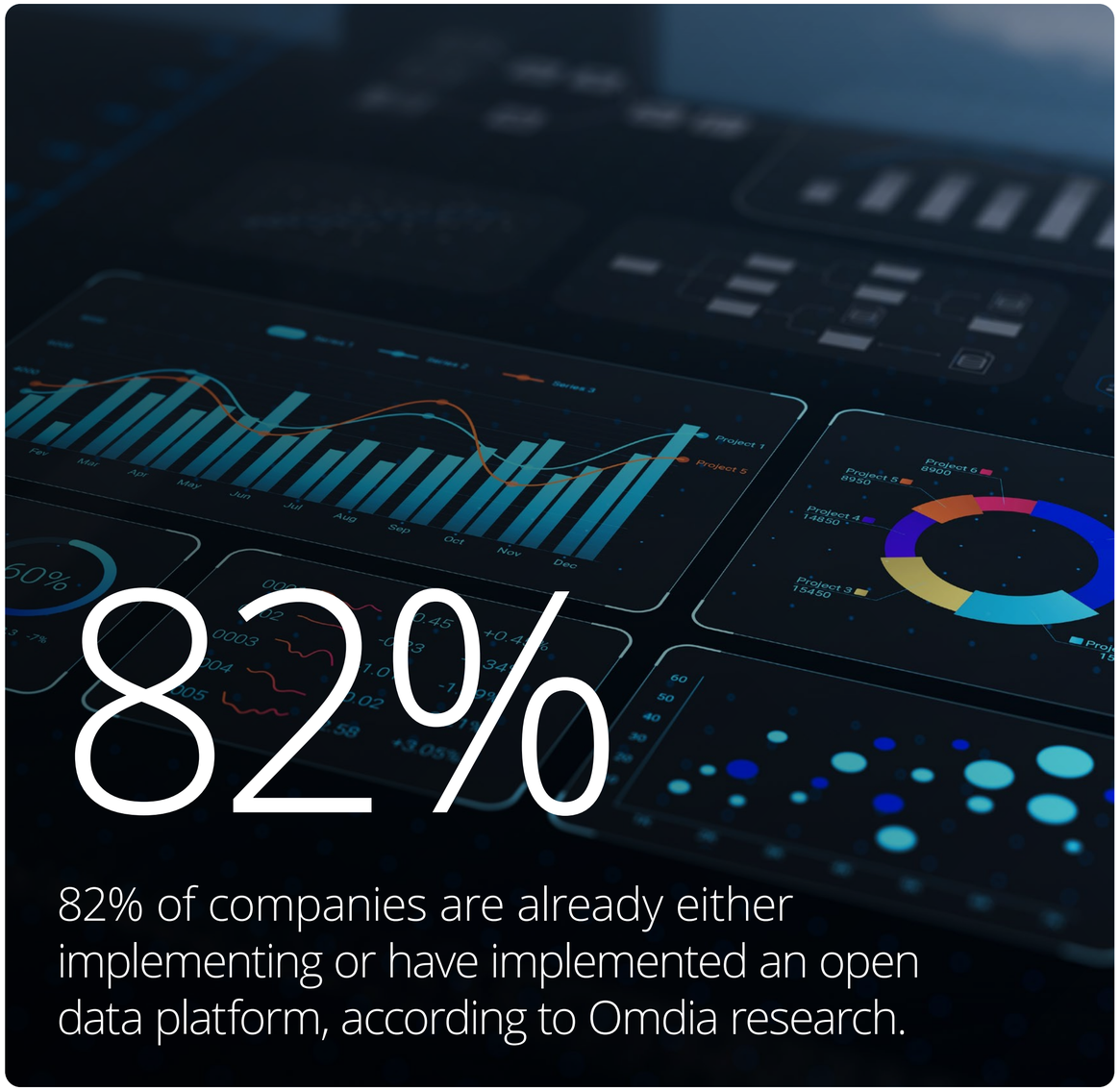
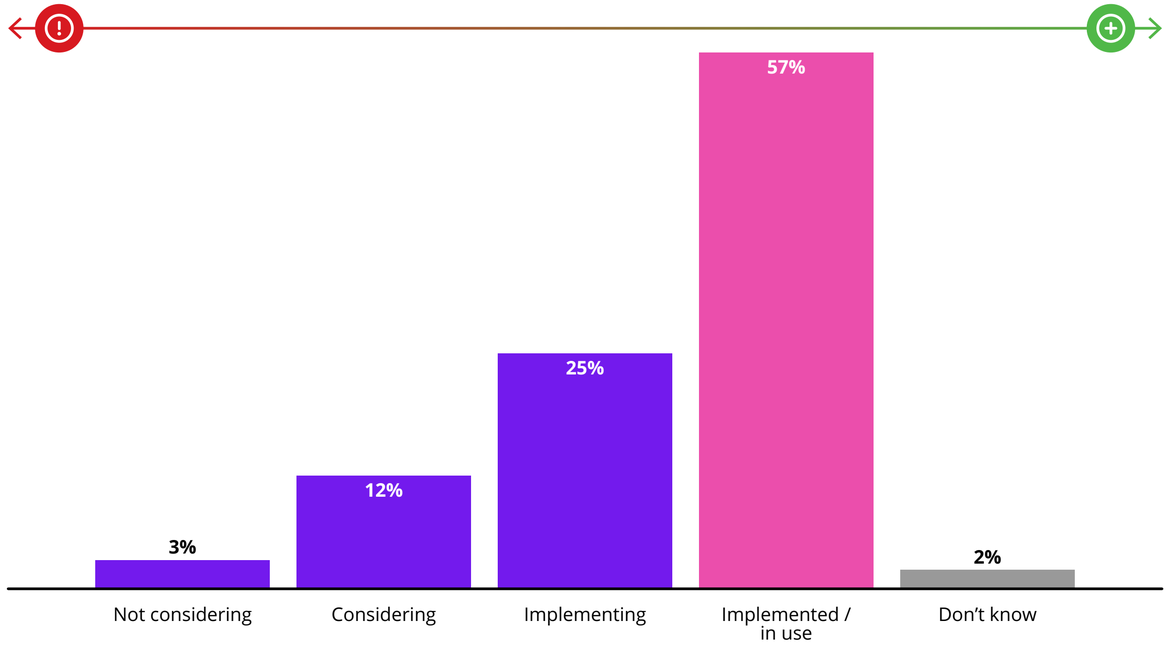


In this way, the adoption of a modern data platform can quickly turn a reactive organization into a highly responsive, data-driven organization capable of anticipating and capitalizing upon market changes. No surprise that most organizations are therefore embracing the idea of a modern, open-architecture data platform (see Figure 4).

Figure 4: The adoption of an open-standards data platform has become a market imperative

WHAT IS YOUR ORGANIZATION'S CURRENT POSITION ON OPEN DATA PLATFORMS?



SOURCE: OMDIA **NOTE:** N=202

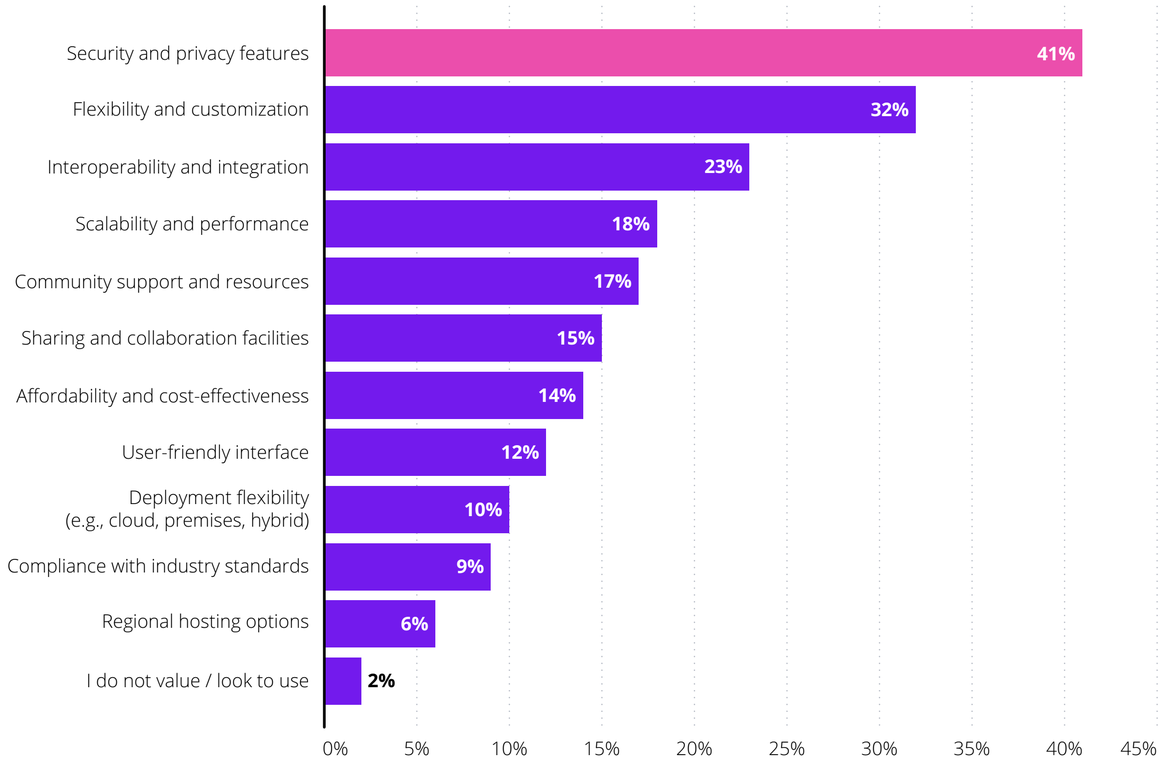
Modern data platforms under the covers

The overall needs for a data platform may not be new, but the current technological landscape favors the adoption through hardware-agnostic software architectures and open data standards. But what does the architecture of a modern data platform include, across the data and analytics lifecycle? (see Figure 5).

Put simply, the architecture of a modern data platform integrates seamlessly across the lifecycle, collecting diverse data via integration pipelines, storing that data efficiently with scalable, distributed systems, and then processing it rapidly using streaming engines like Flink. Ontology tools then ensure consistency, while robust governance frameworks secure compliance and metadata-driven accessibility. Hardware-agnostic designs, enabled by containerization layers, allow deployment across environments. And MLOps/DataOps practices automate data and AI workflows for continuous improvement, reinforcing adaptability in a modular, scalable ecosystem.

All together, these capabilities create a modular architecture that emphasizes scalability, flexibility, and integration. By incorporating DataOps and MLOps capabilities, for example, these platforms ensure efficient data management and machine learning workflows. Additionally, their hardware-agnostic design and robust governance mechanisms make them adaptable to various use cases and environments. Such adaptability is critical, since flexibility (32%) comes a close second to security as the most desired aspect of a data platform among surveyed companies.

WHICH TWO FEATURES DO YOU VALUE MOST IN AN OPEN DATA PLATFORM?



SOURCE: OMDIA **NOTE:** N=190

Figure 5: Modern data platforms emphasize open integration at each step in the data and analytics lifecycle

1 Data ingestion
Gathering diverse data (databases, APIs) with integration for timely access

2 Data transformation
Furnishing high quality data; enhancing data to take on new opportunities

3 Data storage
Providing scalable storage using distributed/object systems for varied data types

4 Data operationalization
Enabling scale by defining and quantifying measurable data products

5 Data privacy, security and governance
Ensuring confidentiality, integrity, and availability of data through access controls, encryption, and auditing tools

6 Data insights and AI outcomes
Delivering measurable value across the business through contextual, timely, and accurate knowledge

SOURCE: OMDIA

Closing the gaps: Addressing key data management pain points

Modern, open-architecture data platforms are not an abstract idea or a collection of data warehouse and data lake features. They're capable of solving real problems in data management, such as bringing AI closer to supporting data assets, navigating fragmented data silos securely, and addressing the skills gap between experienced data professionals and business users (see Figure 6).

Figure 6: Capabilities that make up a modern data platform

SOURCE: OMDIA

ELEVATING DATA LITERACY

Addressing the technical skills gap for experienced data professionals and business users alike is a key pain point for businesses. Modern, open-architecture data platforms help bridge this gap by providing self-service analytics capabilities that increasingly employ AI to augment and automate workflows. This empowers non-technical users to perform basic data analysis tasks, thereby reducing dependency on IT departments.

AI INTEGRATION OPPORTUNITIES

Moving AI closer to the data within a data platform offers several significant benefits, both for supporting AI assets (such as models, features, and metadata) and for running inference at scale. For example, consider the growing need to scale new data types such as vector embeddings, which are used to ground GenAI models via techniques like retrieval augmented generation (RAG). Here, Omdia research shows that more than 44% of enterprises globally are actively investing in this data new, vector type.

More than just performance, bringing AI closer to data can improve end-to-end visibility of data pipelines, which will make it easier for companies to better ensure data integrity. It also facilitates rapid experimentation by streamlining access for data scientists, and can improve user experience by reducing latency for both data retrieval and model inferencing.

SECURITY AND GOVERNANCE

Security and governance are paramount when dealing with sensitive data, where the complexity of managing regulatory and compliance issues grows alongside the data itself. Companies demand a data platform that can unify data transparency, data privacy, and data security across the entire data life-cycle, and do so at scale. Key capabilities include:

- Data encryption both at rest and in motion
- Granular, often role-based access control
- Data versioning, audit trails, and full data lineage options
- Data masking and anonymization tools (Note that 61% of companies are investigating new privacy-enhancing techniques like homomorphic encryption)
- Metadata generation and management

By tackling these challenges head-on, organizations can unlock the full potential of their data assets, driving innovation and competitive advantage. The journey towards implementing an effective open-architecture data platform may have its hurdles, but the rewards in terms of improved data accessibility, enhanced decision-making capabilities, and operational efficiency are well worth the effort.

Charting the course: Emerging trends shaping the future of data platforms

The world of data is constantly changing, and modern data platforms can help companies solve entrenched problems and adapt to unforeseen market changes through the rapid adoption of emerging trends (see Figure 7).

One such emerging trend is the use of synthetic data - artificially generated data that mimics real-world data without exposing any sensitive information. This approach allows for robust testing and development without compromising privacy or security.

Another emerging trend is edge analytics, which brings data processing closer to where the data is generated (e.g., IoT devices), reducing latency and speeding up decision-making, which can be particularly important in industries that require real-time insights such as manufacturing, automotive, healthcare, and logistics. No surprise that industries like manufacturing have prioritized the adoption of modern, open-architecture data platforms -- 14% higher than the average for other industries.

Across all use cases, the support for and use of open source software is driving data platform innovation itself. Open-source technologies foster innovation by enabling collaboration across a global community of developers. The transparency and community-driven aspect of open source software also works to improve the security and reliability of the data platform as a whole. For example, it can help companies address bugs and security vulnerabilities much more rapidly. Omdia research supports this value proposition, revealing that 90% of all companies are using open source in some form. Interestingly, 13% of companies not only use open source, but also contribute to open source projects.

Lastly, innovations such as differential privacy are also beginning to create new opportunities for security-conscious companies. This technique involves adding noise or randomness to data in order to protect individual data points while maintaining the overall accuracy of analytical results. Like synthetic data, differential privacy is particularly valuable in highly regulated industries, where balancing data utility with privacy compliance is paramount.

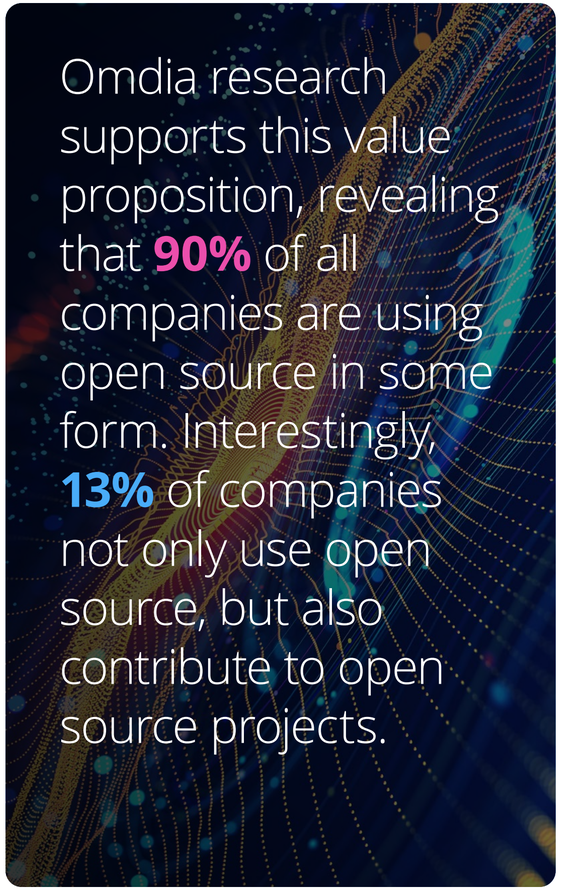
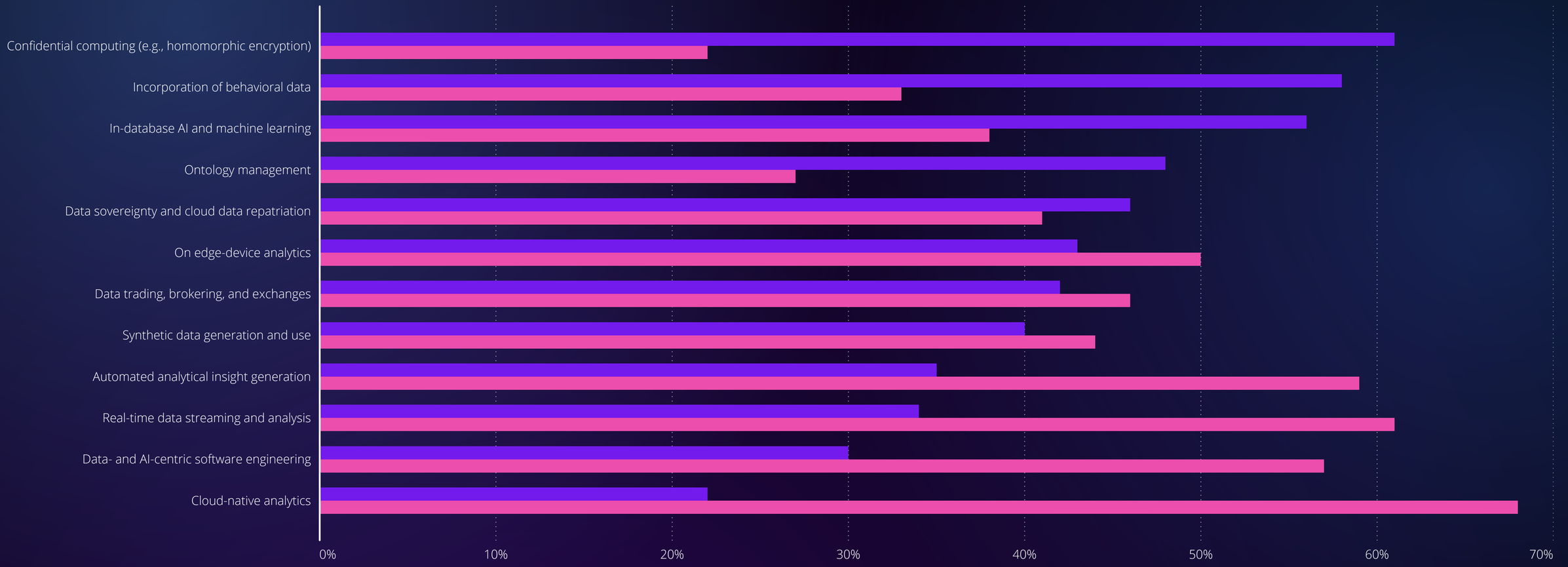


Figure 7: The next wave of enterprise innovation will focus on privacy, profiles, and performance

WHICH OF THE FOLLOWING EMERGING MARKET TRENDS WARRANT INVESTIGATION AND INVESTMENT?



SOURCE: OMDIA **NOTE:** N=202

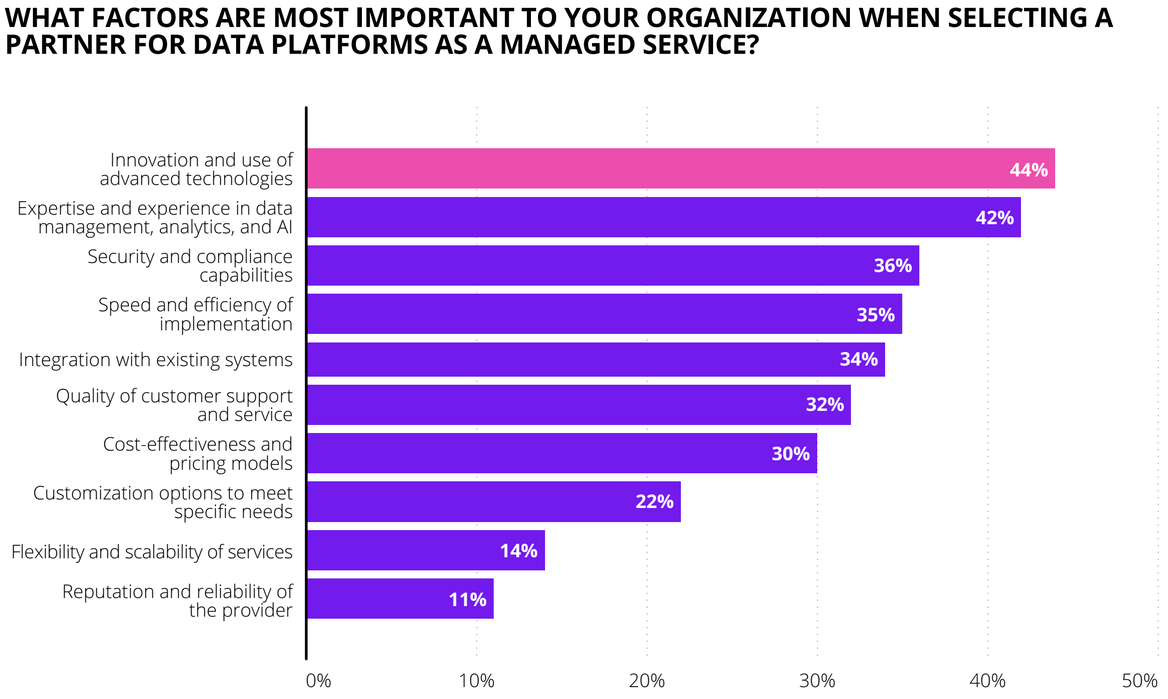
Choosing the right path: Selecting a partner to maximize data value

Implementing a modern data platform is a complex undertaking, and partnering with a suitable vendor can provide organizations with the resources, expertise, and support necessary for success. Only 12% of companies want to build their own data platform, while 52% would rather engage the services of a trusted partner, according to Omdia research. More companies would also rather close their skills gaps with the help of a partner (53%) than do so internally (38%). The trick is to find a partner capable of driving success in the long term.

Companies must balance between self-reliance and over-dependence upon technology partners. Putting too much on the partner's shoulders could make it harder to adapt to future demands. Conversely, taking on too much internally can dampen innovation and lengthen the amount of time it takes to bring a solution to market. The best partner is one capable of finding this balance point, freeing both parties up to build for the future (see Figure 8).

At the most basic level, trusted partners bring insights into current market trends and provide the tools necessary to embrace data-driven innovation without incurring undue risk or cost. This proactive approach helps organizations stay ahead of the curve, turning reactive strategies into highly responsive, data-driven initiatives.

Figure 8: Increasingly companies turn to trusted partners capable of helping them adopt impactful innovation more rapidly



SOURCE: OMDIA NOTE: N=202

For example, consider scaling up data operations - a reliable partner can help organizations anticipate future performance requirements through hybrid/multi-cloud deployment options, robust data integration capabilities, unified security and governance mechanisms, along with resilient data pipelines. This frees the customer to look to the future without getting distracted by present-day execution.

Expertise and experience: Look for partners with a proven track record in data management, particularly in support of AI. They should have experience working with specific industries and be well-versed in the latest technological advancements.

Technology agility: Ensure that the partner's platform supports hybrid/multi-cloud deployments, providing flexibility and scalability. This capability is crucial for managing technical debt and reducing complexity over time.

Security and data quality: Trusted partners prioritize security and data quality features to protect sensitive information and ensure the integrity of insights derived from data.

According to Omdia research, when choosing a partner, companies prioritize time to market, innovation, and expertise/experience over vendor reputation and stability by a factor of three!

When choosing a partner, companies should consider the following criteria:

Collaboration and support: Choose a partner that offers robust collaboration facilities and comprehensive support services, enabling seamless integration with existing systems and processes.

Future-proof solutions: Partnering with vendors committed to continuous innovation ensures that customers can stay at the forefront of technological advancements, ready to capitalize on new opportunities as they arise.

Embracing the data-driven future: Conclusion and recommendations

The journey to becoming a data-driven organization starts now with an investment in a modern, open-architecture data platform. So equipped, companies can harness the power of their data to gain a competitive edge, drive innovation, and make informed decisions. Key benefits include:

Enhanced Data Accessibility: A modern data platform enables seamless access to disparate data sources, ensuring that decision-makers have timely and relevant insights.

Increased Agility: Open technologies and hybrid/multi-cloud deployment options allow organizations to scale efficiently and adapt quickly to changing market conditions.

Improved Data Quality and Trust: Prioritizing data trust and quality ensures that the insights derived are reliable, fostering a culture of data-driven decision-making.

Future-Ready Innovation: By capitalizing on emerging trends such as in-database AI and GenAI-fueled workflows, companies can stay ahead of the curve and capitalize on new opportunities.

To embrace this data-driven future, Omdia recommends taking the following actions:

1

Prioritize open standards and platforms that support hybrid/multi-cloud environments, ensuring flexibility and scalability.

2

Promote a culture where data is valued as a strategic asset, encourage data literacy across all levels of the organization to drive innovation and efficiency.

3

Collaborate with trusted partners who have the expertise and resources needed to support each individual journey towards data-driven success.

DON'T WAIT FOR PERFECTION; START SMALL, LEARN, AND ITERATE. INVEST IN A FUTURE-PROOF, FLEXIBLE MODERN DATA PLATFORM SUPPORTED BY A TRUSTED PARTNER.

About Tata Communications Vayu Data Platform

Tata Communications Vayu Data Platform is a unified, cloud-to-edge-agnostic solution designed for seamless data management, analytics, and AI workloads. It enables organizations to process big data, generate insights, and manage machine learning workflows with end-to-end lifecycle management—from data ingestion to AI-driven decision-making.

Built on open-source technologies with no vendor lock-in, it reduces TCO and future-proofs investments by continuously evolving with new capabilities. Its flexible architecture supports structured, semi-structured, and unstructured data, ensuring effortless integration with existing tools.

With advanced MLOps automation, self-provisioning, and connected intelligence, the platform accelerates AI adoption while enhancing efficiency, security, and scalability.

With the proposition of “secure by design” the Vayu Data platform offers advanced features like fine-grained access control, data masking, consent management, and PII protection to safeguard sensitive organization data. The platform also takes care of data governance and compliance requirement for the organization, through metadata management classification, and lineage tracking, adhering to privacy regulations such as PCI DSS, CERT-In, and HIPAA, that helps organizations to meet security and compliance requirements necessary for being AI-ready data.

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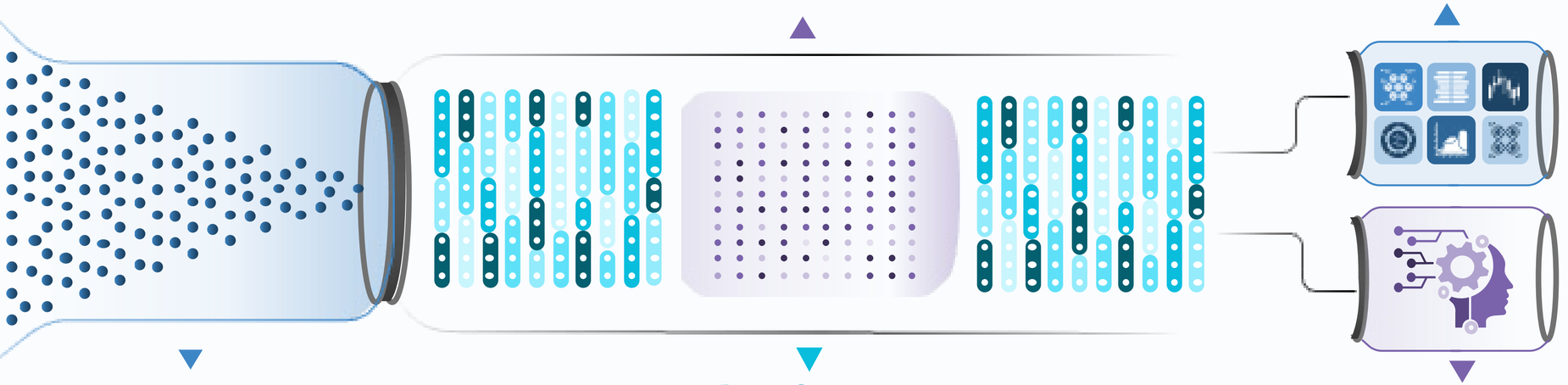
SECURITY & GOVERNANCE

Tools for ETL, scheduled and event-based data pipelines, CDC, low-code tooling for pipeline building

Data Transformation

Tools to run queries to build business insights, generate customisable reports

Data Analytics and Visualisation



Data Ingestion

Easy access to various data sources through **built in connectors** for ingestion to cloud

Data Storage

Highly available, scalable, and reliable storage options for all types of data

ML Ops and LLM Ops

Platform to build ML models, Training and inference of Models, Model Registry

END-TO-END PROFESSIONALLY MANAGED USING ENTERPRISE CLASS OPEN-SOURCE CAPABILITIES

Omdia

Omdia is a global technology research powerhouse, established following the merger of the research division of Informa TechTarget (Ovum, Heavy Reading, and Tractica) and the acquired IHS Markit technology research portfolio*.

We combine the expertise of more than 400 analysts across the entire technology spectrum, covering 150 markets. We publish over 3,000 research reports annually, reaching more than 14,000 subscribers, and cover thousands of technology, media, and telecommunications companies.

Our exhaustive intelligence and deep technology expertise enable us to uncover actionable insights that help our customers connect the dots in today's constantly evolving technology environment and empower them to improve their businesses – today and tomorrow.

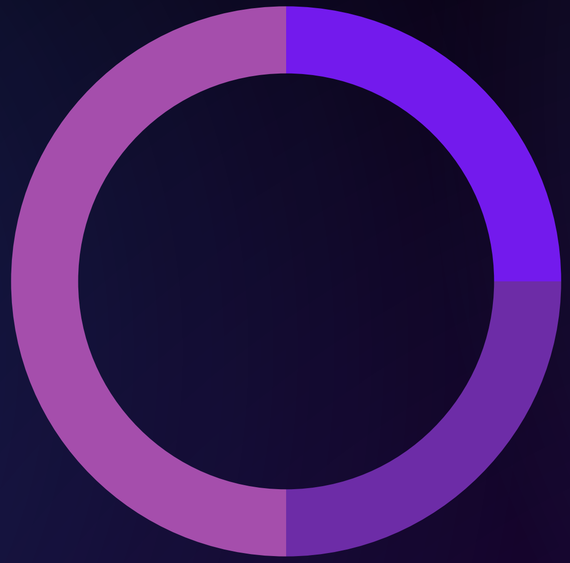
*The majority of IHS Markit technology research products and solutions were acquired by Informa in August 2019 and are now part of Omdia.

Data Platform Survey – Methodology and sample details

The Data Platform Survey was fielded and analyzed in Q4 of 2024 by Omdia, covering large enterprises in manufacturing and retail industries in the US, the UK and India. The survey was commissioned by Tata Communications.

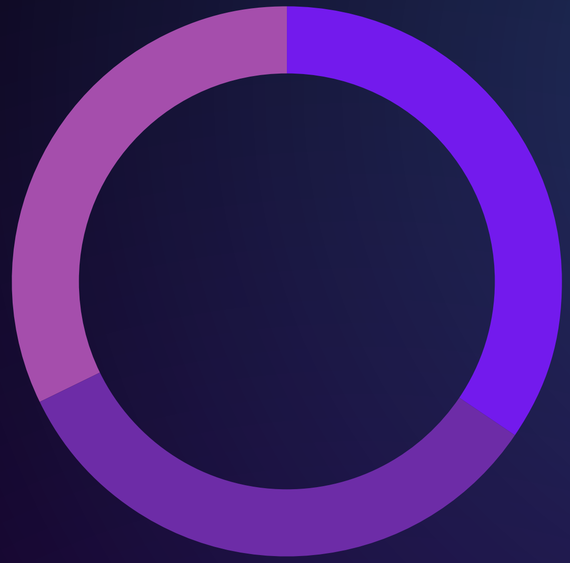
A total sample of 202 enterprises was split across a range of countries, industries, and company sizes (by annual revenue).

The respondents had to be immediately relevant to the company's analytics and data management efforts either by being **(a)** directly involved in decision-making, **(b)** directly involved in technical design or operations, **(c)** influential in the organization's strategy, or **(d)** familiar with the organization's strategy.



COUNTRY

- US — 51
- UK — 50
- India — 101



INDUSTRY

- Commerce — 70
- Manufacturing — 67
- Governmental organization/public sector — 65

COMPANY SIZE (ANNUAL REVENUE)

- Less than $50m — 1%
- $50m to $199m — 1%
- $200m to $499m — 18%
- $500m to $999m — 28%
- $1bn to $4.9bn — 26%
- $5bn to $10bn — 18%
- More than $10bn — 6%

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