

HFS Horizons Report

Choosing the best provider for data modernization services, 2023

Converting legacy data architectures to cloud-native solutions needed to support modern applications, microservices, and governance

May 2023

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Excerpt for KPMG



In choosing a services partner for data modernization, an enterprise leader must understand the tools, talent, and technologies needed to meet their firm's goals across the three Horizons.

While many firms aspire to achieve a digital nirvana of ecosystem exchange, a focus must be on the best way to transition from today's data estate into a framework that supports better creation, consumption, collaboration, and control of your data.

Given an enterprise's existing data estate's complexity, leading services partners are crucial to bringing the resources, innovation, and cloud-centric data capabilities into context and setting up frameworks for future visualization, insight, and actionable tools.

—Joel Martin, Executive Research Leader, HFS Research

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1

Introduction and the HFS value chain

About this study and what HFS means by “data modernization”

The term “data modernization” spans a wide variety of projects, including migrating a legacy Oracle SQL database to an Azure-based PostgreSQL instance, adopting solutions from Snowflake or Informatica, and applying artificial intelligence (AI) or analytics to improve the relevance or usability of the data for employees and customers.

HFS defines data modernization services as a value chain of capabilities and professional services (see slide 14) across six areas:

1. Discovery and assessment
2. Platform architecture design
3. Migrate, create, and retire
4. Integrate, automate, and orchestrate
5. Govern and secure
6. Operate, run, and deliver

The goal of data modernization is to re-architect the data estate from siloed, federated repositories serving few into an integrated, accessible data architecture that business and technology teams can readily use to discover, build, manage, and securely access in order to build meaningful, actionable insights that deliver results.

This report will focus on the services provided to enterprise clients across the first 5 aspects of the data modernization value chain.

To develop a point of view on the role of each service provider, HFS conducted interviews, referenced ongoing research, collected customer and partner insights, and mapped each against similar criteria. The outcome of this study shows how we categorized (not ranked!) them against our Horizons [framework](#).

Each of the 23 services firms profiled has unique strengths and weaknesses, and each should be given due consideration based on technology and business objectives.

Why are data modernization services important?

Data is the key to an autonomous enterprise. For two decades, the modern enterprise has been on a forced march from super stacks of applications to complex cross-platform integrations, software-as-a-service, and robotic process automation. All these solutions focused on putting guardrails around data. However, data continued to multiply, and apps struggled to keep up.

Nonetheless, technology organizations continued to invest in databases, data warehouses, data lakes, and, recently, data lake houses. Technologies like Apache Hadoop clusters and NoSQL databases promise to enable organizations to harness their data. Now composable apps, low code, and microservices are pulling data modernization forward at a breakneck pace that many technology teams struggle to address.

Overcoming multiple layers of legacy solutions, some from decades past and others from just a few years ago, is a challenge few organizations can tackle alone. Yet, as they worked on digital transformation, cloud-native adoption, or application modernization, they too often put off managing the mountain of data piling up from technologies, applications, people, and machines.

Now, there is nowhere to hide from the daunting task of modernizing your data.

This report will profile several leading services providers and their capabilities for helping organizations with their discrete data modernization needs (**Horizon 1**), breaking down data silos to build higher levels of cross-organizational trust (**Horizon 2**), and a handful of providers paving the way for their customers to unlock new value from data and insights gained from their partners, customers, and supply chain (**Horizon 3**).

What you'll learn from our study.

The value proposition for data modernization services is moving from “migrate from legacy” toward what HFS describes as value creation across three Horizons:

- **Horizon 1:** The service providers delivered functional and optimized technical outcomes and demonstrated speed to results, cost optimization, and productivity improvements. These providers have been driving digital transformation for enterprise customers and building data architecture with their strong technical skills and compelling pricing models.
- **Horizon 2:** The service providers demonstrated all traits of a Horizon 1 player + improved customer experience (CX) and employee experience (EX) at the enterprise level. The providers helped streamline the flow of information and data across the enterprise customers' front, middle, and back offices.
- **Horizon 3:** The service providers demonstrated all traits of a Horizon 2 player + nurtured new sources of value to drive growth and manage risks at the ecosystem level. The providers synergistically deployed business and technology data capabilities of customers, partners, and businesses.

This HFS Horizons report for data modernization services examines the capabilities of 23 services providers and management consultants to capture a supplier landscape in the context of our three HFS Horizons.

We assessed these service providers across a defined series of criteria:

- **The Why:** Value proposition, evaluating a service provider's strategy and vision, data modernization offerings, and competitive differentiators.
- **The What:** Execution and innovation capabilities, evaluating breadth and depth of services, new and differentiated offerings, ecosystem partners, industry-specific technology innovation, and delivery capability.
- **The How:** Go-to-market strategy, evaluating a service provider's investments in data modernization, co-innovation and collaboration approaches, and creative commercial models.
- **The So What:** Market and client impact, evaluating the scale and growth of the data modernization business and voice of the customer.

Enterprise users can leverage these insights when developing shortlists for their data modernization journeys, focusing on why they need data modernization and what each vendor's “so what” may mean to them.

How we feel an enterprise needs to approach “data modernization services” versus “data insights and decisions”

HFS Research focus: In this data modernization services Horizons report, we are studying how enterprise customers and services providers work together to adopt a cloud-native architecture for their data estate. Through strategy, transformation, migration, and governance, technology and business teams improve how data is captured, monitored, secured, and promoted to improve access, usability, and value creation. **This is in scope for this report.**

HFS Research focus: In the data insights and decisions Horizons report, HFS will analyze how services and advisory firms design and implement services to help customers create a culture of data that drives new opportunities through interactions, insights, and predictive capabilities, giving clients the ability to access data at a speed that drives critical decisions for their business. **This topic is not in scope for this report. It will be covered in HFS’ data insights and decisions Horizons report in 2H2023.**

Services focus

- Data migration services
- Governance
- Multi and hybrid-cloud architecture design and implementation
- App and workload integration
- Workload optimization

Talent and skillsets

- Data engineer
- Data architect
- Cloud architect

Data modernization services
(1H2023)

Technology focus

- Databases
- Data warehouse
- Data fabric
- Data lakehouse
- Data mesh
- Data architecture

Core client outcomes

- Data provisioning and integration
- Data availability and access
- Data governance and security

Data insights and decisions
(2H2023)

Services focus

- Analytics software design, implementation, and support
- Data preparation and management
- Reporting and visualization
- Modeling and decision support services
- Advisory and consulting

Talent and skillsets

- Data and reporting analyst
- Data scientist
- UI/UX and design specialist
- Analytics consultant
- Business process SME or analyst

Technology focus

- AI and ML
- Business intelligence
- Data visualization
- Process intelligence
- Predictive analytics
- Generative AI

Core client outcomes

- Creating structures and processes that productize data to power decisions
- Embedding insights into workflows—automated and manual decision points
- Data-driven business performance

2

Research methodology

Study methodology and inclusion

About the study

The **Data Modernization Services, 2023** study is an HFS Research Horizons report, [a newly launched vendor evaluation research vehicle](#) designed to assess the **innovation and value potential** of vendor capabilities across three distinct Horizons:

- **Horizon 1:** The ability to drive **functional optimization outcomes** through cost reduction, speed, and efficiency.
- **Horizon 2:** Horizon 1 + the enablement of the OneOffice model of **end-to-end organizational alignment** across the front, middle, and back offices to drive **unmatched stakeholder experience**.
- **Horizon 3:** Horizon 2 + the ability to drive **OneEcosystem synergy** via collaboration across multiple organizations with common objectives around **driving completely new sources of value**.

This research effort will assess how well service providers help their **clients embrace data modernization innovation** and **realize value**. The study evaluates providers' capabilities across the HFS data modernization value chain model, based on a range of dimensions to understand the Why, What, How, and So What of service offerings.

Methodology

- **Timing:** The study was executed from December 2022 to April 2023.
- **Data collection:** Requests for information (RFI) were sent to 30 services providers, inclusive of qualification questions, a scoring rubric, and a request for a one-hour call to review services, case studies, product offerings, and value propositions. Respondents were asked to provide detailed operational information and a slide deck as part of their response.
- **References:** Besides vendor data, each vendor was asked to submit three to five customer and partner contacts to be anonymously surveyed via an online tool.
- **Existing HFS research:** HFS analysts also used existing HFS data from previous studies, surveys, and briefings to provide insights and fact checks.
- **Third-party and web research:** HFS analysts also used publicly available records from internet research from subjects' websites, search engines, and other online reference materials, articles, and financial filings.

Inclusion criteria

HFS invited diversified IT and business process service providers with established business lines focused on data modernization services in this study. Participation guidelines include:

1. Participation in the HFS [Application Modernization Study, 2022](#), provided automatic inclusion criteria have been met.
2. If the subject did not participate in the Application Modernization Study, 2022, they were asked to provide the following:
 - a) Data modernization revenue where the criteria is an annual revenue of **at least \$250 million** or **10% contribution to overall revenue**.
 - b) A minimum of three client case studies of data modernization practices.

Sources of data

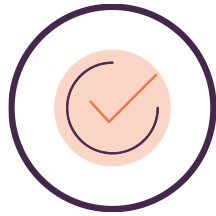
This report relied on myriad data sources to support our methodology and help HFS obtain a well-rounded perspective on the data modernization services capabilities of the providers covered in our study. Sources are as follows:



RFIs and briefings

Each participating vendor completed a detailed **request for information**.

HFS conducted **briefings** with executives from each vendor.



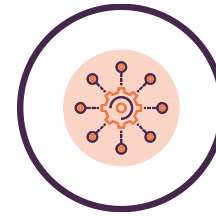
Customer and partner reference checks

We conducted reference checks with **37 active clients and 27 partners** of the study participants via phone-based interviews and detailed surveys.



HFS vendor ratings

Each year, HFS fields multiple demand-side surveys in which we include detailed vendor rating questions. For this study, we leveraged our fresh from the field HFS Pulse Study data featuring **~800 inputs** into adoption and prioritization of data workloads and architectures.



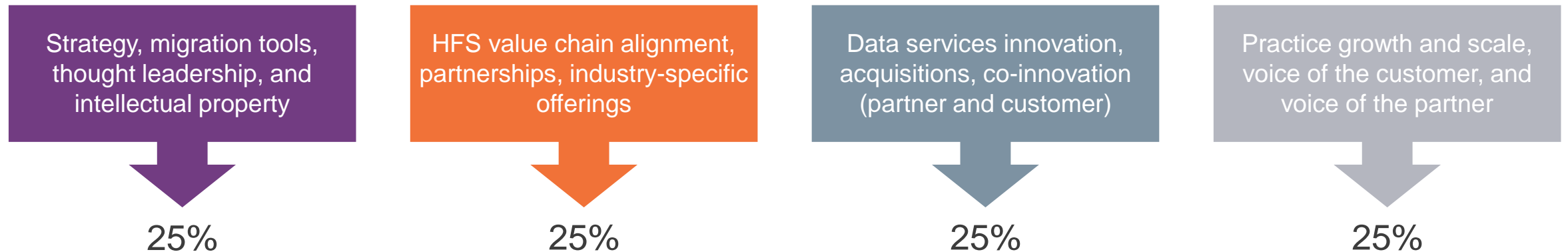
Other data sources

Public information such as press releases and websites.

Ongoing interactions, briefings, virtual events, etc., with in-scope vendors and their clients and partners.

How did we compare services providers' capabilities?

- Driven by cloud adoption and application modernization, organizations of all sizes face the challenge of improving their data estate's functionality. Any new solution will initially run alongside legacy solutions, and the complexity of databases, data storage repositories (data lakes), APIs, dashboards, and more presents a challenge. Resource costs, staff development (both IT and business), and selecting new software, SaaS, and cloud partners can be daunting.
- In this report, HFS compares the services of nearly two dozen services and advisory companies. Based on interviews with services and advisory firms, their customers, their partners, and our internal research, this study focuses on each provider's ability to bring thought leadership, tools, industry knowledge, talent, and pricing models to help solve customer talent, technology, and budgeting.
- We scored each report participant on the following:



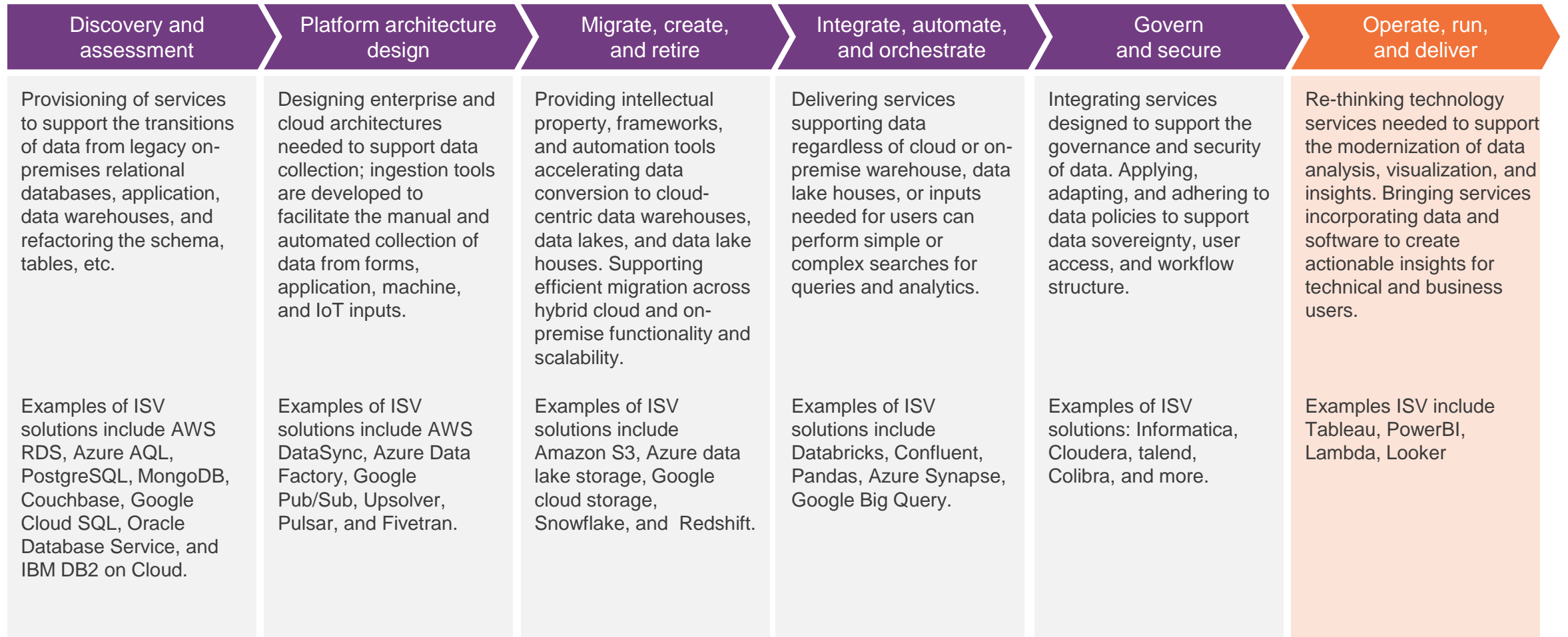
Most participants offered briefings and references; HFS included several that did not. However, they are important in the market, and we highlighted their services based on public records and our internal data and research.

Horizons assessment methodology—data modernization services

The **2023 HFS Horizons report for data modernization services** evaluates service providers' capabilities across a range of dimensions to understand the **Why, What, How, and So What** of their service offerings supporting **data modernization**. Our assessment is based on inputs from clients and partners, augmented with analyst perspectives. The following illustrates how we assessed their capabilities:

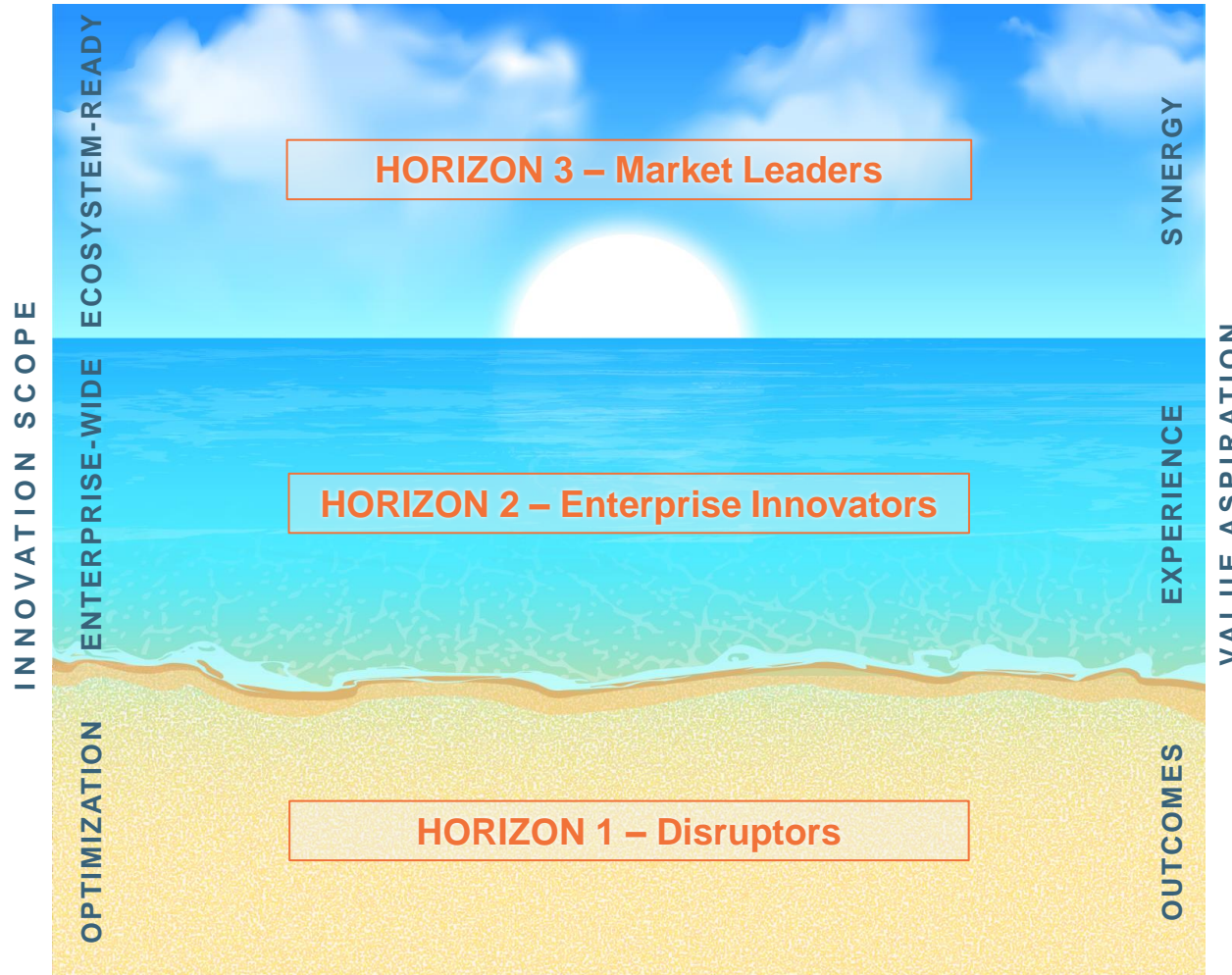
| | | ← Distinguishing characteristics → | | |
|--|--|---|--|---|
| Assessment dimension | Assessment sub-dimension | Horizon 1 service providers | Horizon 2 service providers | Horizon 3 service providers |
| Value proposition: The Why? (25%) | Strategy for data modernization and vision for the future of the market | <ul style="list-style-type: none"> Ability to drive functional optimization outcomes through cost reduction, speed, and efficiency | <ul style="list-style-type: none"> Horizon 1 + Enablement of the OneOffice model of end-to-end organizational alignment across the front, middle, and back offices to drive unmatched stakeholder experience (EX, PX, CX) | <ul style="list-style-type: none"> Horizon 2 + Ability to drive OneEcosystem synergy via collaboration across multiple organizations with common objectives around driving completely new sources of value |
| | Data modernization offerings aligned to top problem statements for the sector | | | |
| | Competitive differentiators | | | |
| Execution and innovation capabilities: The What? (25%) | Breadth and depth of services across the data modernization value chain and associated delivery capabilities | <ul style="list-style-type: none"> Functional domain expertise for segments of the data modernization value chain Primarily focused on either technology services or business services Offshore-focused with strong technical skills Emerging ecosystem of partners Limited industry-specific IP | <ul style="list-style-type: none"> Ability to support clients on their end-to-end data modernization journey Global delivery presence Comprehensive coverage across the data modernization value chain Strong industry-specific talent pool across IT and operations domains Talent, domain, technology, governance, and change management capabilities | <ul style="list-style-type: none"> Comprehensive coverage across the data modernization value chain IT and business services capabilities with strong consulting skills Robust ecosystem of partners integrated into the offerings Differentiated IP, frameworks, and technology assets |
| | New and differentiated offerings | | | |
| | Approach to and strength of ecosystem partners | | | |
| | Industry-specific technology innovation? Delivery capability? (off-shore, global delivery presence) | | | |
| Go-to-market strategy: The How? (25%) | Nature of investments in the data modernization business (M&A, non-M&A, R&D) | <ul style="list-style-type: none"> Established data modernization practice Clearly defined go-to-market strategy Mainly effort driven client relationships Investments aligned to functional optimization outcomes Optimization and point solutions | <ul style="list-style-type: none"> Data modernization specific investments Outcome-driven client relationships | <ul style="list-style-type: none"> Investments aligned to Horizons 1, 2 and ecosystem enablement Horizon 1, 2 + co-creation with customers and partners Horizon 1, 2 + new value creation Purpose-led relationships driving growth and innovation for clients |
| | Co-innovation and collaboration approaches with customers and partners | | | |
| | Innovative commercial structures | | | |
| Market impact: The So What? (25%) | Scale of data modernization business—revenue, clients, and headcount | <ul style="list-style-type: none"> Proven scale and growth driven by functional optimization focus Referenceable and satisfied clients Strong execution credentials Primarily a vendor-client relationship | <ul style="list-style-type: none"> Referenceable and satisfied clients for ability to innovate and execute Strategic partner | <ul style="list-style-type: none"> Referenceable and satisfied clients driving new business models Perceived as a thought leader |
| | Growth of data modernization business—revenue, clients, and headcount | | | |
| | Voice of customer | | | |
| | Voice of the partner | | | |

The HFS Research data modernization services value chain



In scope for Data and Decisions Horizons, 2023 coming in Q4.

HFS Horizons for data modernization services



SYNERGY is Horizon 3

Horizon 3 Service Providers demonstrate

- Horizon 2 +
- Ability to create **OneEcosystem synergy** by using data to create **new value sources**
- Strategy and execution for data estate and modernization at global scale
- Connecting business and technology data capabilities of customers, partners, and business
- Showing the ability to deliver AI/ML and automation to the enterprise
- Referenceable clients driving new business models with the partnership

EXPERIENCE is Horizon 2

Horizon 2 Service Providers demonstrate

- Horizon 1 +
- Drive a OneOffice model of end-to-end organizational alignment across the front, middle, and back offices to improve the flow of information and data
- Bring capabilities resulting in the betterment of customer and employee experiences
- Domain capabilities with strong business and technical consulting skills
- Proven and leading-edge proprietary tools, assets, and frameworks
- Referenceable and satisfied clients illustrating the ability to innovate

OUTCOMES is Horizon 1

Horizon 1 Service Providers demonstrate

- Deliver functional and optimized technical outcomes that serve the business
- Drive cost optimization, speed to results, and project efficiencies
- Complement talent with a breadth of software, cloud, and data partnerships
- Offshore-focused with strong technical skills and compelling pricing models
- Possess fundamentals of digital transformation, software engineering, and data architecture
- Referenceable and satisfied clients for ability to execute

3

The evolution of data: From data to decisions to the autonomous enterprise

IT departments have evolved from application centric to data centric

Phase 1: From network to monolithic applications: IT departments evolved from enabling a networked client and server model toward monolithic application stacks managing the data flow across pre-defined (and often customized) processes and workflows.

Phase 2: SaaS, 3G, virtualization, and early public cloud: From 2002 to 2009, organizations adopted services from the cloud. Led by the success of Salesforce, Amazon's EC2, and VMware, applications, compute, and virtualization began to leverage the scale and capabilities of the cloud to reduce IT complexity and provide new architectures to build apps. The software industry exploded.

Phase 3: Digital transformation and big data: For achieving "my data center" or "the public cloud," organizations moved quickly to learn how businesses could benefit from ubiquitous access to information from the core, supporting front-end applications. Mobile became the de facto consumption media. Data analytics, compute, and AI have led companies to seek new tools and build cloud-native tools and solutions to rapidly deliver information to employees, customers, and partners. Autonomous systems began to augment the capabilities, insights, and exchange of data.

Phase 4: Autonomous enterprise: 5G, low code, quantum computing, and generative AI are rapidly reshaping wireless data delivery, the ability to co-create and develop applications on the fly, and analyze, interpret, and use unimaginable amounts of data from man and machine to deliver personalized value.

Phase 1: From network to monolithic applications

Circa 1990
(Microsoft, IBM, Cisco)



Circa 1998
(SAP, Oracle, Peoplesoft)



Phase 2: From SaaS to virtualization and cloud

Circa 2006
(EC2/AWS, VMware)



Circa 2002
(SFDC, Ariba, Adobe)



Phase 3: From digital transformation to data driven

Circa 2010
(Azure, GCP, Celonis)



Circa 2020
(Snowflake, Appian, IBM, Open.ai)



Data modernization is about improving how the first five stages in the life of a data record evolve from generation through governance and becoming more cloud-centric to delivering value for the business

1. Generation

Some interaction, transaction, or event creates a data record to be considered. Its creation can come from man, machine, or a combination of events.

3. Processing

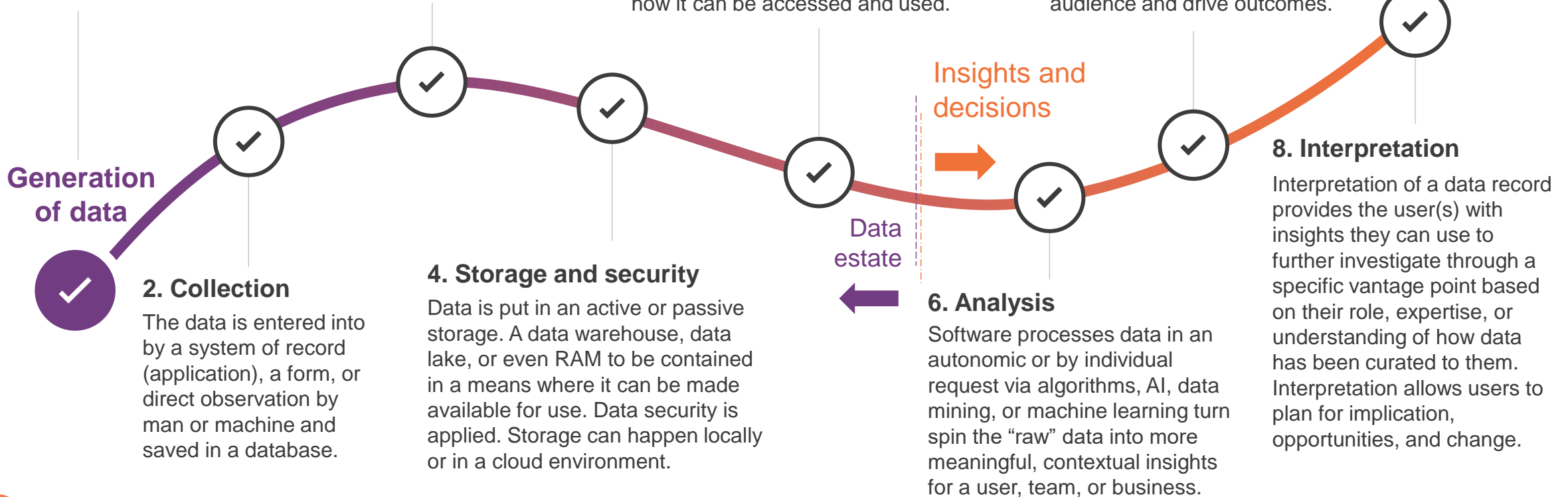
Data is processed, usually including automation being applied for directing the record into a table of a larger database or repository. The data can be configured, compressed, or encrypted to suit the policy mapping at this stage.

5. Management and governance

Rules or policies are applied to manage the data. This involved how the data record is organized, stored, and retrieved. Further governance policies are applied based on the factors encapsulated with the data and how it can be accessed and used.

7. Visualization

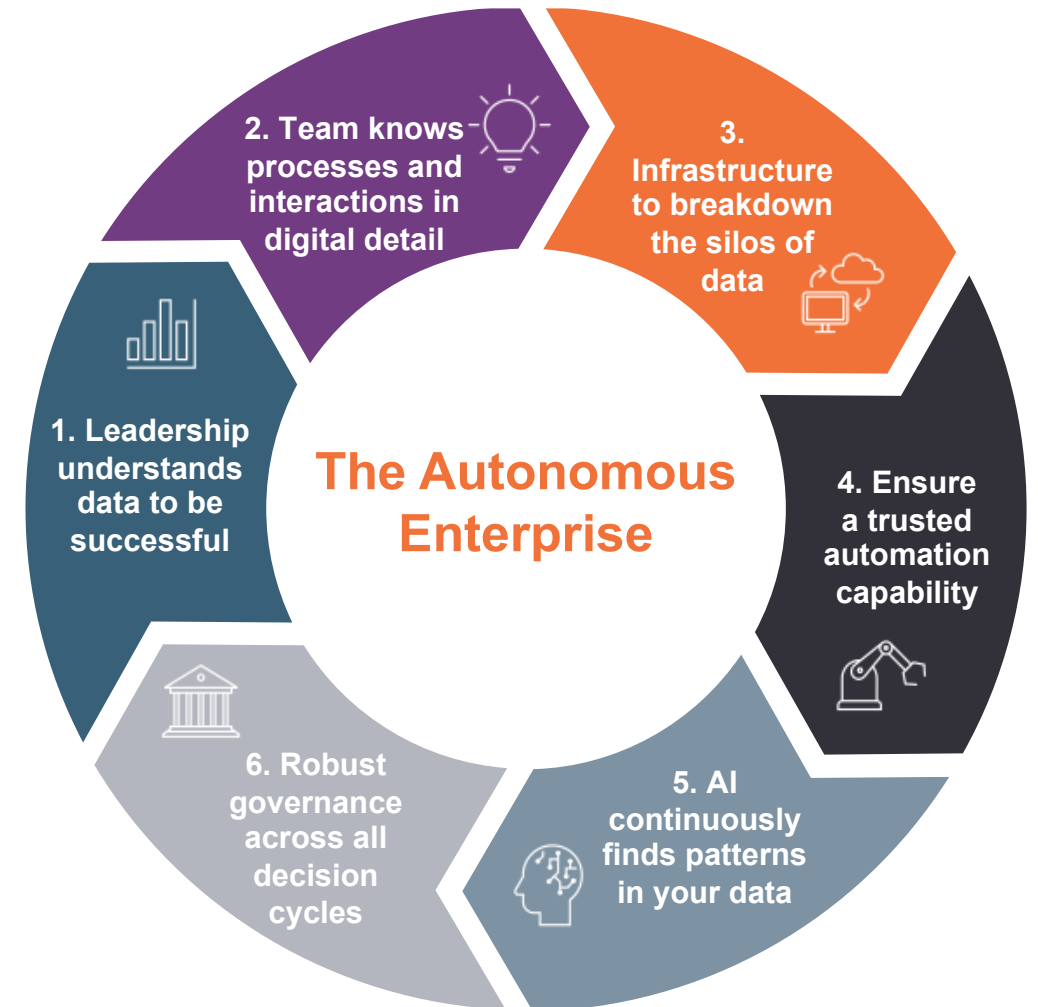
Analyzed data is processed into creating graphic “human eye friendly” representations of information. Visualization makes it easier to communicate large sets of data records to a wider audience and drive outcomes.



When embracing the autonomous enterprise model, data comes first

The six principles of the autonomous enterprise

1. **Your leadership must understand the data** needed for your enterprise to be successful.
2. Your teams must know your **processes and interactions in digital detail** and have a continuously updated audit trail of these digital interactions and processes.
3. You must have the **right infrastructure to break down the silos of data** across your enterprise and its ecosystem.
4. You must ensure a **robust and scalable automation capability that is trusted** internally and externally.
5. **Artificial intelligence** (machine learning, deep learning, and decision engines) must continuously find patterns in your data to keep you ahead of your market and empower your **leadership to make rapid, low-risk decisions**.
6. You must establish a **robust governance system** embedded across all decision touchpoints to ensure the effectiveness of your autonomous enterprise.



Technology challenges are only one of four pillars in a data modernization journey

To achieve the full benefits of data modernization, a firm must see the technology challenges as only the tipping point; the whole organization needs to be engaged. This further amplifies the need for the business to work closely with technology teams to share a desired state of how data will be used once transformed.

Technological

1. Unwind decades of data architecture, systems, analysis and reporting tool debt.
2. Simplify the data architecture to be cloud native.
3. Plan for emerging, data-centric, rapidly evolving technologies (data mesh, low code).
4. Anticipate the need for change based on as data sources and repositories change (data mesh).
5. Manage the high cost of data storage, compute, and resiliency.
6. Attract and retain highly skilled data professionals.

Business

1. Ensuring access to data meets changing governance, regulatory, and security policies.
2. A need for sector- or industry-specific data tools.
3. A need for business agility in using data relevant to making customer decisions.
4. To put data in context of individual stakeholder needs.
5. Understand what data as an asset versus data as a product means for the business.
6. Filtering through ever-increasing amounts of data from OT, IoT, and IT.

Operational

1. Merge data from fragmented data silos across business and technology.
2. Break through the silos of data to unlock clarity in decision making.
3. Govern the data as hybrid clouds become the de facto operating model.
4. Prepare employees to ensure they can access, understand, and use data based on new ways of working.
5. Use data for new programs, ESG, DEI, AI-based predictive learning, etc.
6. Overcome the trust issues in their data.

Cultural

1. Recognize and adapt to the new way of working, new talent, and growing data fluency, and recognize success.
2. Accept the growing digital fluency in your workforce and embrace the adoption of data automation and manipulation tools (e.g., low code).
3. Understand and motivate the different and unique skills and mindsets at play.
4. Reward and recognize how employees use data to innovate how they work and serve their customers or improve how they work.
5. Encourage collaboration of data-drive products and services.

4

Customer and partner insights
on their data modernization
journey and partnerships

Executive summary

- 1 The drivers of data modernization with a services provider**

As firms continue their data modernization journey, they require various services to design, implement, and secure their data estate. Based on the interviews associated with customer references, HFS found the top three factors sought included access to talent with industry knowledge that can be applied to process, governance, and data modernization; strong SaaS/ISV partnerships where the firm and its partner can collaborate on identifying the right technology fit; and an expectation the services provider will bring hybrid cloud expertise into optimizing data capture, compute, and consumption.
- 2 The challenges**

The primary challenge cited by firms dealing with data modernization programs is the need for resources, talent, and budget to migrate legacy to cloud-native solutions (39%). This was followed by regulatory (16%) and security concerns (11%). Thus, without the aid of partners, many data modernization projects are at risk of not progressing because of a lack of internal resources or budget. Many of our leading service providers' key discussion points concerned the importance of starting the data modernization journey to identify business outcomes while improving how data remains compliant.
- 3 How are services providers partnering to deliver outcomes?**

Modernizing a data architecture across the estates of databases, warehouses, lakes, storage, and applications is more than centralizing data or migrating data repositories to the cloud. Rather, data is a strategic asset for a firm. As such, services providers are a lot more likely to engage at an advisory level to focus on usage and outcomes at a much earlier strategy than cloud migration or application modernization. In our interviews, we found that most services firms focus on the importance orchestrating data from IT, IoT, and OT (operational technologies) across hybrid (on-premises and cloud) architectures. The result is a modern federated model that uses logic to improve how data flows across the organization, supports the growing need for composable applications, integration AI, and analytics, and does so in a secure, governed manner.
- 4 Where are enterprise customers getting value?**

Enterprise reference customers cited that the leading impediment they faced was the time and resources required to transform their legacy data model into their target data estate. With talent, training, and knowledge tied to legacy SQL, data management, integration, and analytics tools, it was critical to partner with services providers with the capabilities to automate the discovery and conversion of large data sets. Additionally, service partners with incumbent knowledge of business processes are often at an advantage. Still, due to the need to ingest data from operational technologies, IoT, IT, and transactional systems, many firms seek additional partners to incorporate market and customer data into their products and services.
- 5 What stood out to HFS?**

Two themes stood out in our interviews with services firms: the need for complementary strategies for using data-as-an-asset and mining that asset to create data-as-a-product solutions. This is an important consideration that we cannot underscore enough for enterprises beginning or in the middle of their data modernization journeys. Have you asked yourself where your improvements in your data landscape can lead to unleashing the untapped value of your data assets? Can this asset allow your teams to make better, faster decisions? Or is improving your data estate leading to data becoming further ingrained or extracted as a product? Data-as-a-product is well understood in the technology industry and sought in mainstream enterprises; however, planning for how data is structured, managed, and made available differs based on your chosen model.

Customers say they need their services providers to deliver data and AI services

- **Talent and resources:** Customers must retain the talent they have to maintain current data estates through any data modernization project. Partners are essential in bringing skills and resources to augment, train, and support these efforts.
- **Knowledge of our technology (apps and data) architecture:** Incumbency is important, its hard for an existing partner to be unseated in data modernization as they often have intimate knowledge of business and IT processes.
- **Knowledge of our business needs:** In order to unseat any incumbent (or to further protect the account), a partner must go beyond IT, systems, or workflow process knowledge. Helping bridge the needs of the business with the strategy of IT is crucial.
- **Industry or domain knowledge:** As leveraging ecosystem data becomes more popular, knowledge of the industry or the domain the customer operates in is the key.

Top three desired qualities of service partners

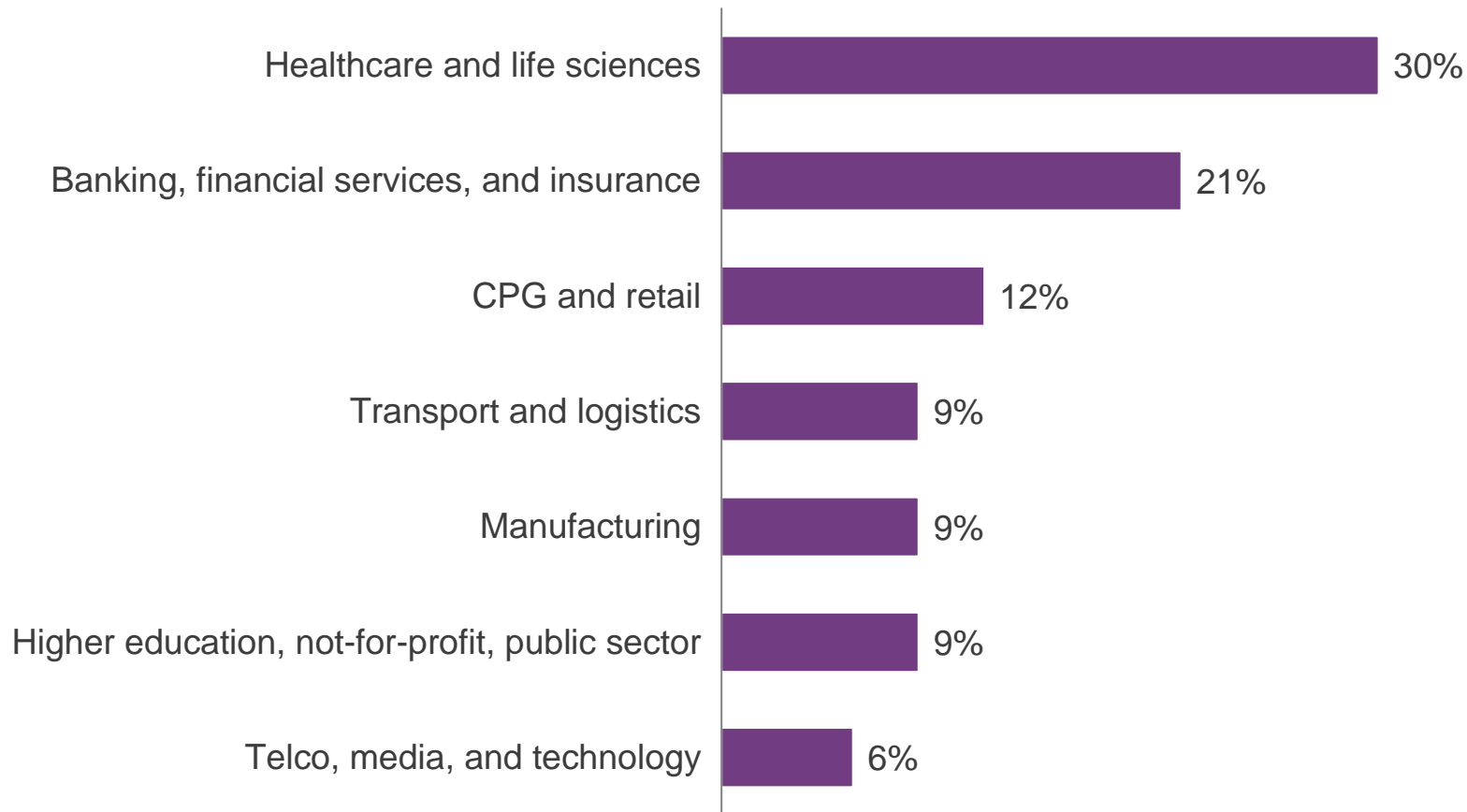
1. Show a willingness to work as a collaborative partner (not constrained by commercial considerations) to co-innovate to craft a solution that makes data more actionable
2. Provide talent and industry experience that can help define and achieve business outcomes
3. Help optimize how enterprise service catalog (apps) use data and allow the better management of investments and resources

Top three areas service providers need to improve

1. The partner needs to show a deeper understanding of business needs and be proactive in making suggestions
2. Ability to innovate and keep the platform relevant and cost effective for the long-term
3. Stay on top of emerging data technologies from SaaS and ISVs and help firms understand how to adopt to maximize budget and technology-driven outcomes

Customer references—demographics

Industry



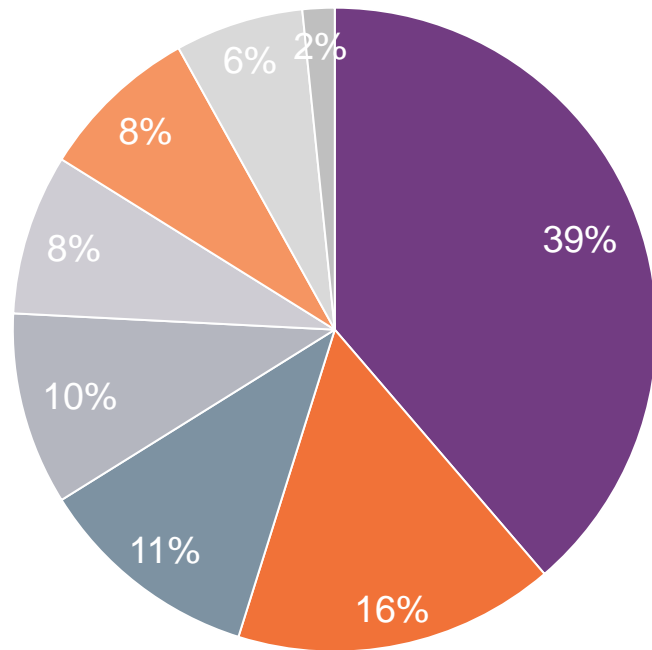
There were 44 customer references provided, of which 33 customers of data modernization services responded to our web-based survey. These made up a variety of industries with global and regional operations.

The respondents were from North America (17), Europe (3), UK (11), India (1), and LATAM (1).

Moving away from legacy data architectures and systems is the toughest part

What do you see as your top data modernization challenge?

Percentage of respondents



- Our legacy data estate is holding us back
- Adherence to regulatory requirements is critical
- Security and governance are key concerns
- Need to define outcomes
- Multi-cloud architecture is important
- We lack budget
- We haven't chosen our platform(s)
- Our services partner lacks the resources

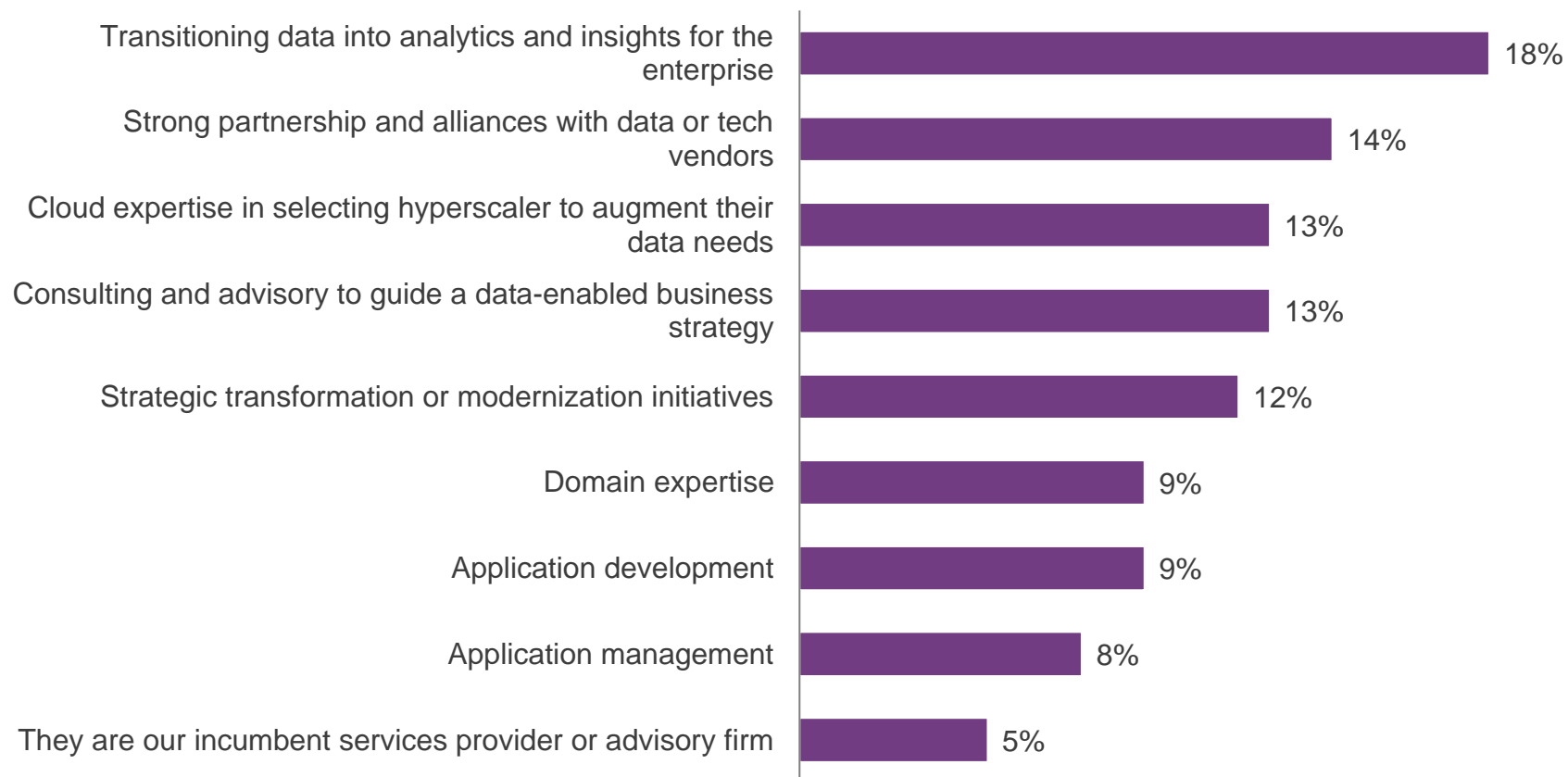
- For data modernization, enterprises must begin by addressing the enterprise customers needs to overcome the challenges in Horizon 1.
- More than 50% of customers highlight how important it is for services providers to deliver functional and optimized technical outcomes. Customers cite limitations on talent and budget needed to address the changes required to re-architect their legacy data estate.
- Additionally, service providers must be able to help address regulatory requirements as part of the larger data modernization strategy.

N=33
Source: HFS Research, 2023

Service providers must be ready to help customers go beyond data into analytics and insights

Why are you using this service provider for your data modernization needs?

Percentage of respondents



- Partners bring talent, skills, and an ecosystem of ISVs and hyperscalers to help customers evolve from legacy data technologies.
- In our study references, they highlighted the need for partners to help with cloud-based solutions from the likes of Snowflake, Azure, AWS, Informatica, and GCP.
- Being the chosen partner for a firm's application modernization doesn't ensure selection for data modernization.

N=33
Source: HFS Research, 2023

Partners speak, and they need their services partners to provide...

- **Industry or domain expertise:** ISVs, hyperscalers, and SaaS firms expect their services and advisory partners to bring industry knowledge and thought leadership as part of their go-to-market relationship.
- **Global delivery and implementation:** The service or advisory partner is expected to provide a wealth of implementation, training, advisory, and support talent and resources.
- **Integration skills:** Given the complexity of multiple technologies and services, the services and advisory firms are seen as key for ensuring multi-solution implementation, management, and support.
- **Co-innovation:** A strong partnership should lead to co-innovation and the development of complementary intellectual property across both software and services offerings.

What partners see are core service provider strengths

- Increase in the number of certifications on new solutions, ISVs are continued to focus on partners who can deliver their complete portfolio.
- The service provider's knowledge of customer data platforms and challenges
- Partners are seen as crucial in bringing business users into the conversation

What partners see as common service provider challenges

- Engaging cloud and ISV partners earlier in the sales cycle
- More co-development efforts of software and services go-to-markets
- Provide uniform delivery across regions and markets they serve and closing gaps in the ISVs delivery and support models.

Emerging data brands dominated partner ecosystem references

| Cloud migration and re-platforming | Cloud database | Analysis and data management | BI, processing, and integration | Governance, security, and policy |
|---|---|---|---|---|
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  | |
|  |  |  |  | |
| Other partnerships of note | | | | |



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Horizons results: Data modernization services, 2023

Service providers covered in this report

 **accenture**

Atos

Capgemini 

Coforge

 **cognizant**

Deloitte.

 **EY**

 **genpact**

 **HEXAWARE**

 **Hitachi Vantara**

IBM

Infosys[®]
Navigate your next

KPMG

 **LTIMindtree**

 **Mphasis**
The Next Applied

publicis
sapient

SONATA

SONATA SOFTWARE

tcs **TATA**
CONSULTANCY
SERVICES

Tech
Mahindra

U ■
S ■
T

virtusa

 **wipro**

zensar[™]

Note: All service providers are listed alphabetically

HFS Horizons—Data modernization services, 2023



SYNERGY is Horizon 3

Horizon 3 Service Providers demonstrate

- Horizon 2 +
- Ability to create **OneEcosystem synergy** by using data to create **new value sources**
- Strategy and execution for data estate and modernization at global scale
- Connecting business and technology data capabilities of customers, partners, and business
- Showing the ability to deliver AI/ML and automation to the enterprise
- Referenceable clients driving new business models with the partnership

EXPERIENCE is Horizon 2

Horizon 2 Service Providers demonstrate

- Horizon 1 +
- Drive a OneOffice model of **end-to-end organizational alignment** across the front, middle, and back offices to improve the flow of information and data
- Bring capabilities resulting in the betterment of customer and employee experiences
- Domain capabilities with strong business and technical consulting skills
- Proven and leading-edge proprietary tools, assets, and frameworks
- Referenceable and satisfied clients illustrating the ability to innovate

OUTCOMES is Horizon 1

Horizon 1 Service Providers demonstrate

- Deliver functional and optimized technical outcomes that serve the business
- Drive cost optimization, speed to results, and project efficiencies
- Complement talent with a breadth of software, cloud, and data partnerships
- Offshore-focused with strong technical skills and compelling pricing models
- Possess fundamentals of digital transformation, software engineering, and data architecture
- Referenceable and satisfied clients for ability to execute

Note: All service providers within a “Horizon” are listed alphabetically

Note: Not all vendors actively participated in the briefings and reference. In these cases, HFS leveraged on-going research, past research related to data, and our own end-user and partner surveys. For vendors that did not participate actively, there is a note of sources and research in their profile.

HFS Horizons data modernization services—summary of providers assessed in this report

| Providers (alphabetical order) | HFS point of view |
|--------------------------------|---|
| Accenture | Delivers business advisory and technical data modernization services built around industry, acquisition, cloud, and deep analytics and AI solutions |
| Atos | Takes a modular approach to modernization by delivering business results via a transition from legacy data to hybrid cloud data architecture |
| Capgemini | Brings hybrid cloud and engineering capabilities to build democratized data models for organizations needing a highly adaptable data estate |
| Coforge | Offers data accelerators to aid in customer transitions from siloed, legacy data architectures to data solutions, driving employee-friendly visualization and analysis |
| Cognizant | Provides cross-industry best practices across the data value stream to deliver modern data estate management and governance |
| Deloitte | Works with business leadership to define data-driven outcomes and guide IT teams to match investments to user outcomes |
| EY | Drives business transformation through digitally enabled services and innovation frameworks by overcoming inefficient process and data management |
| Genpact | Offers expertise in architecture design and implementation across the entire data ecosystem with end-to-end capability for cloud migrations |
| Hexaware | Provides a suite of automation tools coupled with experts to deliver powerful discovery, assessment, and automated data migration capabilities |
| Hitachi Vantara | Applies industry and domain expertise to facilitate data modernization efforts across IT, IoT, and operational technologies (OT) to give clients a holistic view of their data estate |
| IBM | Uses innovation labs and global consulting delivery models to enable customers to re-think how modern data architecture can improve business outcomes |

| Providers (alphabetical order) | HFS point of view |
|--------------------------------|---|
| Infosys | Approaches data modernization by helping customers transition legacy models into a more adaptable hybrid cloud model for their data estate |
| KPMG | Applies industry knowledge alongside data management and governance capabilities to deliver data estate modernization ready for complex AI and analytic solutions |
| LTIMindtree | Provides end-to-end data modernization capabilities to empower organizations to adopt cloud-based data strategies |
| Mphasis | Helps enterprises perform data-modernization efforts to transition from siloed models to cloud migration, data integration, and industry tools |
| Publicis Sapient | Brings technology, media, and data strategy skills to enable customer-centric data transformation |
| Sonata Software | Offers solutions for discovering, assessing, and migrating business application processes to reduce decision lag caused by ineffective legacy solutions |
| TCS | Brings a complete set of solutions, migration tools, domain knowledge, and partnerships to help customers modernize their data estate in a timely manner |
| Tech Mahindra | Provides fully managed and scalable data modernization services deployed and supported on a customer's preferred cloud model to meet business and regulatory requirements |
| UST | A supplier of automated data migration that reduces complexity and delivers desired business outcomes aligned with customers' time and budget requirements |
| Virtusa | Delivers combined cloud, software engineering, and data modernization solutions by focusing on the unique needs of an industry |
| Wipro | Links digital transformation effort into a complete data modernization in a simplified model for customers |
| Zensar | Focuses data modernization practice on target industries and customer profiles to ensure a high-output delivery based on close customer collaboration |

For data modernization, services providers are tuning their offerings to deliver results

| Modernization theme | Service provider offering | Solution examples—representative only |
|------------------------------|---|---|
| Strategize | Analyze business needs and existing data architecture, workloads, and outputs. | <ul style="list-style-type: none"> • Accenture: Industry Data Model (AUDM) • Capgemini: Industrialized Data & AI Engineering Acceleration (IDEA) • IBM: Garage |
| Transform | Assist with the adoption of hybrid cloud architecture for data to address use cases for the business. | <ul style="list-style-type: none"> • Atos: Next Gen Enterprise Data Fabric • Hitachi Vantara: Composable Cloud Data Lake • Infosys: Cobalt • Wipro: Data Discovery Platform (DDP) |
| Migrate and modernize | Transition from legacy data solutions to hybrid-cloud architecture, data-as-a-service, and analysis-as-a-service capabilities and partners. | <ul style="list-style-type: none"> • Coforge: MigXpress • Hexaware: Amaze for Data & AI • LTIMindtree: PolarSled • Sonata Software: LightningCloud • Mphasis: NextSTEP platform |
| Govern and manage | Apply security, policy, and management tools to protect data as it traverses the modern life of a data record. | <ul style="list-style-type: none"> • Cognizant: Data Management Studio • Deloitte: Data Governance and Management Framework • KPMG: Ambient Data Management • Virtusa: Smart Data Governance Accelerators |
| Innovate | Unlock the value of data by incorporating domain, user, customer, and ecosystem inputs to create real-time feedback and insights. | <ul style="list-style-type: none"> • EY: Insurance Insights Platform • Genpact: CORA Data Engagement Platform • Publicis Sapient: Customer Data Platform • TCS: Business Analytics Solutions |

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KPMG profile: Data modernization services, 2023

KPMG: Applies industry knowledge alongside data management and governance capabilities to deliver data estate modernization ready for complex AI and analytic solutions



| Strengths | Development opportunities |
|--|--|
| <ul style="list-style-type: none"> • Leading with protecting business value: KPMG delivers “data for value,” driven by data literacy and culture building, automation and productivity, insight generation, assets and new business models, and metric transparency. • Focusing on how data enables products: KPMG Connected Enterprise helps accelerate enterprise journeys toward becoming customer-centric and digital enabled. It comes with a sector-tailored integrated suite of preconfigured enablers. • Resilience in the business: Business first—Its Data Management and DOTS+ framework helps enterprise align data and analytics strategy with their business goals. Customer intimacy—KPMG links business value and outcomes to IT and data investment priorities and budgeting advise. Governance and automation—KPMG takes a data-led approach to helping clients plan for automated data workflows that deliver real-time value and comply with regulatory and security policies. • Outcomes: KPMG delivered data and analytics strategy, proof-of-concept, and socialization kick-start for an oil and gas company. Designed and implemented data governance office for a major life insurance services provider. • Customer kudos: Clients feel KPMG’s key strengths are its partner ecosystem, industry knowledge, and knowledge of business needs and technology architecture. • Partner kudos: Industry knowledge, willingness to work with partners, and width of its expertise internally from technical to commercial. KPMG’s Connected Enterprise helps alignment from business to technology stack. | <ul style="list-style-type: none"> • Be more global minded: Leverage more of the firm’s non-US IP to address a global customer base. • Link data governance to data engineering: Clients feel KPMG can bring more of their innovation practices into how to create hybrid data estates. • Regional coordination: Partners would like to see improved coordination between different regions. |

| Key offerings | |
|---|---|
| <ul style="list-style-type: none"> • Data and cloud readiness assessment and discovery: DOTS+ framework, benchmarking. • Data governance and security: Data management and assessment, cyber analytics. • Data AI, analysis, and outputs: Ignite, ESG, Signals Utility, DAS, KPMG Accelerators. | <ul style="list-style-type: none"> • Data platform design: KRIS connected platform, data fulcrum, intelligent forecasting. • Data warehouse data lake migration and pipelines: Data migration, global lighthouse. • Data transformation, processing, and automation: MDP Databricks accelerators. |

| Ecosystem | Key clients | Global operations and resources | Flagship internal IP |
|--|--|--|--|
| <p>Relevant M&A (2020 – 2023)</p> <ul style="list-style-type: none"> • ShardSecure: Cloud data security and resilience software (2023) • Rubicon Red: Application development, data platforms, APIs, and integration (2022) • Context Labs: Enterprise data fabric technology company (2022) <p>Partnerships</p> <ul style="list-style-type: none"> • Databricks, Informatica, SAP • Snowflake, Google Cloud, Microsoft, Oracle, Coupa, IBM, Salesforce, ServiceNow, Workday | <p>Number of clients: 3,500+</p> <p>Key clients</p> <ul style="list-style-type: none"> • Leading healthcare provider in the US • Large financial services company in the US • Department store retail chain in the US • US department of transportation • Large global investment bank in the US • Global mobile network provider • Global food and beverage provider | <p>Headcount: 22,000+</p> <p>Delivery and innovation centers</p> <ul style="list-style-type: none"> • 10 locations <ul style="list-style-type: none"> – USA – Latin America (2) – Europe (3) – Australia – Asia (3) | <ul style="list-style-type: none"> • Ignite: Patented AI/ML capability suite • Signals: Transforms data into signals powering ML-based based analytics • Modern Data Platform: A scalable, cloud-native infrastructure-as-code service catalog • Ambient Data Management: Automated anomaly detection, ML-based data quality • Advanced Data Management • Intelligent Cyber Analytics Platform: Transform CISO orgs to adopt AI technologies |

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About HFS

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HFS is a unique analyst organization that combines deep visionary expertise with rapid demand-side analysis of the Global 2000. Its outlook for the future is admired across the global technology and business operations industries. Its analysts are respected for their no-nonsense insights based on demand-side data and engagements with industry practitioners.

HFS Research introduced the world to terms such as “RPA” (Robotic Process Automation) in 2012 and more recently, Digital OneOffice™ and OneEcosystem™. The HFS mission is to provide visionary insight into the major innovations impacting business operations such as Automation and Process Intelligence, Blockchain, the Metaverse and Web3. HFS has deep business practices across all key industries, IT and business services, sustainability and engineering.

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