Build The Intelligent Enterprise With The Help Of In-Memory Platforms

Support Real-Time Analytics And Insights To Drive Business Outcomes

Get started →
Enable Data-Driven Intelligence With In-Memory Data Platforms

Enabling business transformation requires intelligent applications and analytic solutions that capture, process, and analyze large amounts of diverse data in real time. Unfortunately, enterprises today are struggling to derive value from the mass amounts and diversity of data at their disposal. This, compounded by the introduction of new and evolving technology platforms and deployment models — such as cloud — has created a real challenge over the past decade for firms that wish to become truly data-driven.

In 2019, SAP and Intel commissioned a custom study from Forrester Consulting to understand how firms are tackling their data management needs in support of their business goals.

Key Findings

Data is at the core of business success. Today’s firms are focused on enabling real-time business intelligence, but they need the right tools to help them succeed.

Firms struggle with system constraints and an overly complex tool ecosystem that isn’t user-friendly to the business, inhibiting their ability to derive value from data.

In-memory database solutions, with persistent memory technology, can help ease complexity, silo, integration, and downtime challenges. Firms that adopt these tools will see both technical and business benefits.
Data-Driven Insights Are Critical To Business Success

Respondents in our study were adamant that the ability to use data-driven intelligence to fuel business decisions is critical to their overall success. Capabilities like real-time analytics and insight, performance improvement, and AI- and ML-enabled intelligent business applications all ranked as some of the most critical, with about one-third of the sample agreeing that these were the most important factors impacting business success.¹

Firms also need their data management to be automated, simple, and enabling for business self-service without the involvement of heavy IT. Data management tools, which fail to deliver on these objectives, will be of no use to the intelligent enterprise.

---

¹Note: Not all responses shown.
Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019
Cloud Figures Heavily Into Most Firms’ Plans

As organizations move more of their infrastructure and storage to the cloud, a similar move is required within database management technology. Not surprisingly, nearly all respondents in our study are doing just that: Over 90% are either expanding, implementing, or planning to implement some form of a cloud-based database management system (DBMS). This adds a new level of complexity to an already complicated data landscape. The addition of cloud means that firms must now support any number of data workloads across a hybrid environment, making technologies that enable that work even more critical.

More than two-thirds of firms are investing in cloud as part of their infrastructure approach.

“Which of the following best describes your DBMS technology strategy?”

- Expanding or upgrading implementation: 33%
- Implemented, not expanding/upgrading: 25%
- Implementing: 21%
- Planning to implement in the next 12 months: 15%

Moving existing DBMS to cloud (private cloud/managed-cloud-as-a-service): 33%

Investing in the development of a data lake using cloud storage technology: 33%

Leveraging new database-as-a-service offerings rather than traditional database vendors: 32%
**Firms Need A Data Management Platform To Support Their Real-Time Analytics Goals**

When adopting a new data management platform, firms have specific requirements. Highest on the list is data virtualization capabilities, with 48% ranking it as a top five requirement. This is likely tied to respondents’ desire to prioritize real-time analytics. Data virtualization is a critical component to removing the insight bottlenecks that impede real-time analytics. Forrester defines data virtualization as the integration of any data in real time or near real time from disparate structured, unstructured, and semi-structured data sources. Other top requirements like security and data privacy, data consumption and storage flexibility, and translytical capabilities are also key to enacting their real-time goals in a safe and secure manner.

**Most Important Data Management Platform Capabilities**

<table>
<thead>
<tr>
<th>Capability</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data virtualization</td>
<td>48%</td>
</tr>
<tr>
<td>Security and data privacy</td>
<td>43%</td>
</tr>
<tr>
<td>Data consumption flexibility</td>
<td>43%</td>
</tr>
<tr>
<td>Data storage flexibility</td>
<td>36%</td>
</tr>
<tr>
<td>Real-time analytics on live transactional data</td>
<td>34%</td>
</tr>
<tr>
<td>Data quality and governance features</td>
<td>32%</td>
</tr>
<tr>
<td>Built-in ML/predictive algorithms/tools</td>
<td>32%</td>
</tr>
<tr>
<td>AI in the platform to automate data management tasks</td>
<td>32%</td>
</tr>
</tbody>
</table>

Note: Not all responses shown.
Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions.
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019
Deriving Value From Data Is Difficult For Enterprises

The road to becoming a data-driven business is not without challenges. Firms struggle with system constraints due to large volumes of data, tools and processes not friendly to the business which limit value, and a preponderance of data silos that necessitate integration. To overcome these issues and derive the most value from their data, firms will need to invest in tools which can simplify their complex systems and break through silos, without requiring too much heavy-lifting from IT teams. Without that, firms will continue to struggle to produce real-time, data-driven intelligence to drive business outcomes.

“What are the key challenges you encounter while attempting to derive value from your organization’s data?”

- System constraints when it comes to capturing or analyzing very large volumes of data (61%)
- Self-service access to data because existing data access tools/methods/reports are not business-friendly, requiring too much IT involvement and diminishing business value (55%)
- Integration across data silos due to data/application complexity (48%)

Note: Not all responses shown.
Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019
An Overly Complex Tool Ecosystem Doesn’t Help

Complexity is the name of the game when it comes to data management for most firms. Because organizations have vast stores of data that span various environments and types, they also often have a large collection of solutions to store, access, and integrate said data. This, coupled with the complexities of data lifecycle management tools and processes, data governance protocols, and the solutions needed to scale data management with the needs of the business creates an incredibly challenging environment for firms.

And all this complexity leads to a slew of issues for the business. Most notably, costs go up, risk levels increase (making data breaches more likely), and time-to-value increases leaving IT incapable of responding to business needs in real time.

Half of firms experience increased security risk, costs, and time-to-value as a result of data challenges.

“How challenging do you find each of the following when managing data in your organization?”

- Very challenging
- Challenging

Dealing with hardware limits which require complex software solutions to scale out data management platforms and management overhead

- 26%
- 32%
- 58%

Need for different data management platforms to store/access data of different types require complex software solutions to scale out data management platforms and management overhead

- 24%
- 33%
- 57%

Complex data lifecycle management processes and tools require complex software solutions to scale out data management platforms and management overhead

- 22%
- 34%
- 56%

Note: Not all responses shown. Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions. Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019.
Firms Are Adopting In-Memory Databases To Support Their Data And Analytic Goals

Nearly 70% of firms in our study had at least started the implementation of an in-memory database to ease some of their issues. Another 28% are either planning or interested in the technology. This widespread interest is likely due to the value this type of technology lends to critical use cases. Approximately half of all respondents find in-memory capabilities helpful for AI- and ML-driven apps, streaming analytics and event processing, and real-time business insights on transactional systems. Recall that real-time insights and intelligent business applications (powered by AI and ML) are some of the most important data and analytic abilities for organizations. Essentially, in-memory capabilities are an important requirement for firms to move their data goals forward.

In-Memory Database Adoption

70% are implementing, have implemented, or are expanding adoption of an in-memory database.

“For which of the following use cases does/would your organization find in-memory capabilities most helpful?”

- High performance AI- and ML-driven apps: 51%
- Streaming analytics and event processing (e.g., internet-of-things analytics): 49%
- Real-time business insights on transactional systems: 48%

Note: Not all responses shown. Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions. Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019.
Persistent Memory Technology Adds Value

Persistent memory — i.e., non-volatile data storage in a DIMM form factor that provides increased memory capacity that is persistent (doesn’t lose data when the power goes out) and at a lower cost with near-DRAM performance — is an important new innovation. For respondents in this study, an in-memory database that employs persistent memory technology is valuable precisely because it supports their real-time needs. It does so, not only by supporting insights from transactional data, but by improving business continuity through rapid startup times and enabling a high-performance, large-scale analytical system.

“Which of the following ways would be most valuable to your organization, while leveraging an in-memory database with new persistent memory technology?”

- Improved ability to support real-time analytics on transactional data in the same system: 61%
- Reduce system downtime cycles through improved HA/DR operations through rapid database startup times: 61%
- Increased scalability for high-performance, large-scale analytical systems: 58%

Note: Not all responses shown. Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions. Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019
In-Memory Databases Drive Technical And Business Benefits For The Enterprise

As traditional data platforms fail to meet new business requirements that demand a no-compromises combination of real-time data, support for various data types (i.e., multimodel capabilities), performance, scale, integrated data, and security, a new type of solution is necessary. In-memory databases with persistent memory technology are easing common data challenges and supporting critical use cases, thereby leading to positive outcomes. Respondents in this study found both technical and business benefits from these databases. Eliminating the need for multiple tools to manage various data types and workloads allows for improved data integrity via translytical processing support, faster development, and improved process efficiency. These technical benefits in turn lead to business benefits, most notably, increased business process efficiency, improved employee productivity, and the all-important real-time access to data.

Top Technical Benefits
- Improved data integrity and consistency (single source of truth with translytical processing support) 47%
- Faster development due to real-time data transformation/calculations on the data 46%
- Process efficiency 45%

Top Business Benefits
- Increased business process efficiency 46%
- Real-time access to data 46%
- Improved employee productivity 43%

Note: Not all responses shown.
Base: 353 global respondents responsible for influencing or deciding on their organizations’ data management strategy and solutions
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, September 2019
Conclusion

With improved data processing capacity and the ability to store and retrieve large volumes of data at scale, the potential for true business innovation and competitive differentiation is possible. But keeping up with the pace of change and the many technology options available to deliver business value quickly and most cost-effectively is a major challenge.

In order to overcome these challenges, enterprises must adopt a data management platform that is capable of handling vast stores of data — in all its various formats — across multicloud and hybrid environments for multiple use cases, all while simplifying access and reducing IT complexity. Organizations that do this will not only be able to increase productivity, enable faster innovation, and decrease costs, but they will build the foundation for data-driven intelligence (ML/AI) that supports the intelligent enterprise.

Project Director:
Rachel Linthwaite, Senior Market Impact Consultant

Contributing Research:
Forrester’s Enterprise Architecture research group
Methodology

This Opportunity Snapshot was commissioned by SAP. To create this profile, Forrester Consulting conducted a custom survey of 353 data management strategy decision makers at enterprises in the US, the UK, France, Germany, Japan, and China. The custom survey began and was completed in September 2019.

Demographics

<table>
<thead>
<tr>
<th>GEOGRAPHY</th>
<th>COMPANY SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>42% UK, FR, DE</td>
<td>24% 100 – 499 employees</td>
</tr>
<tr>
<td>29% US</td>
<td>22% 500 – 999 employees</td>
</tr>
<tr>
<td>28% CN, JP</td>
<td>31% 1,000 – 4,999 employees</td>
</tr>
<tr>
<td>22% 5,000+ employees</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>RESPONDENT LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>61% IT</td>
<td>31% Senior IT/data leader</td>
</tr>
<tr>
<td>22% Enterprise architecture</td>
<td>6% VP of IT</td>
</tr>
<tr>
<td>17% Line of business</td>
<td>32% Director of IT</td>
</tr>
<tr>
<td></td>
<td>30% IT/data manager</td>
</tr>
</tbody>
</table>

ENDNOTES

1. ML: machine learning.