10 Benefits
of Oracle's Data
Management Platform

Maximize the value of data—
both in the cloud and on-premises

Accelerating business change begins with the proper management of an organization's data

Data is clearly a critical asset for every organization. However, putting that data to work efficiently with the right data management platform can be the difference between success and failure.

With Oracle's data management platform, organizations achieve freedom from business constraints, time-consuming manual administration, human error, and inefficient data silos that increase total costs.

Discover the benefits and new insights that your business can gain.

What to look for in a data management platform

Versatility - The data management platform must support a wide variety of workloads and users. It must support existing enterprise applications and new cloud-native deployments, as well as both analytical and transactional applications. Developers expect support for containerized development; data scientists need easy access to all data for building machine learning (ML) models; and analysts want to be able to continue to use their existing tools to answer important business questions.

Integration - Organizations need continuous access to the latest data, no matter where it's created or used. Integrating data enables better decisions, faster innovation, and ultimately business growth.

Automation – Ever-increasing data volumes and solution complexity continue to outpace the growth in IT budgets. Automation is essential to reduce the load on IT personnel. Scaling resources, tuning databases and queries, and above all, securing data, are among many manual tasks that can and should be automated.

BENEFITS

01 Support for enterprise applications

02 Security with confidence

03 Save time with automation

04 Scale without effort or downtime

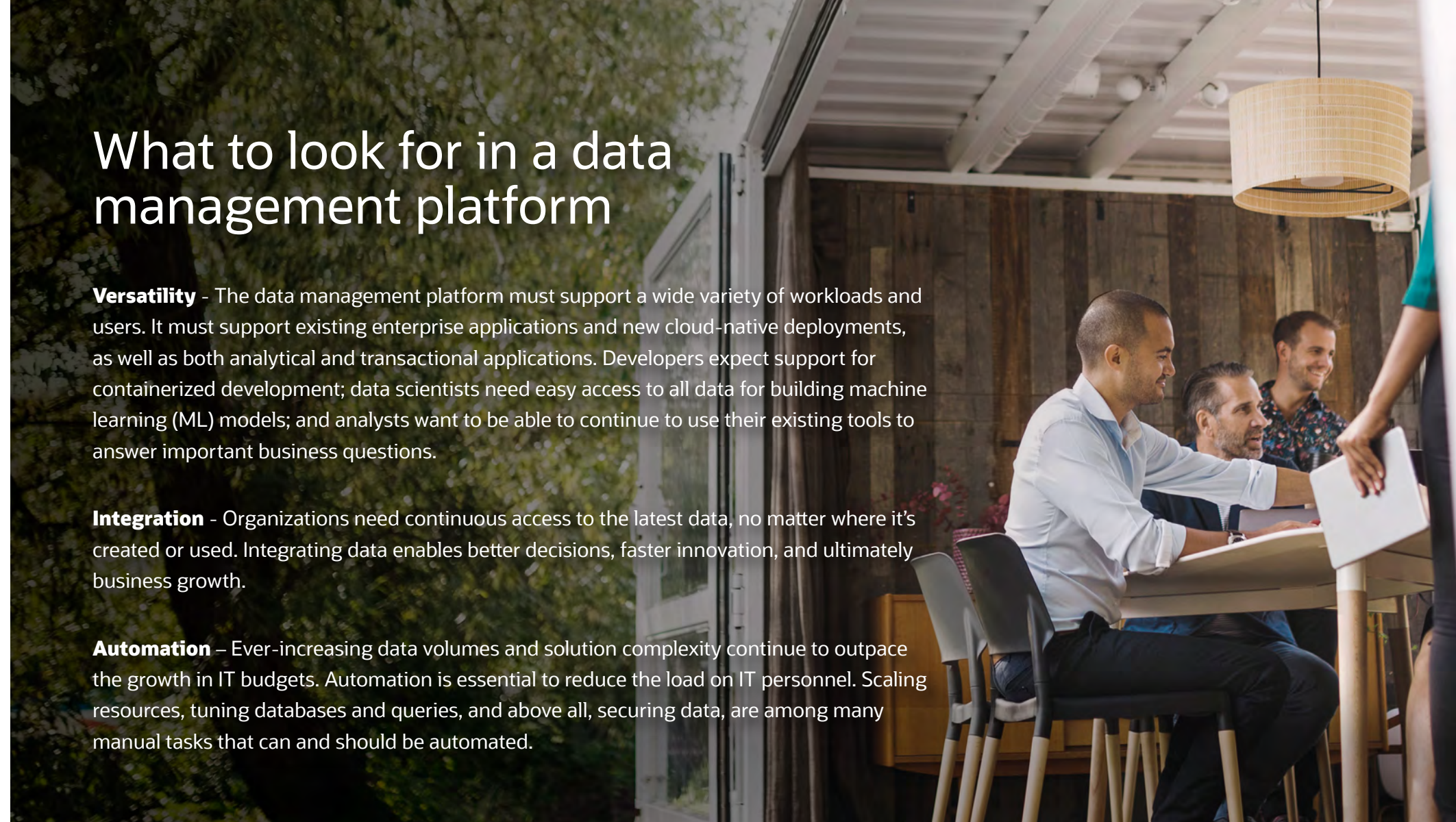**05** Put all data to work

06 Deploy anywhere

07 Easy access to analytics and machine learning

08 Accelerate application development

09 Choice of open-source resources

10 Less complexity and lower costs

Support for enterprise applications

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Enterprise applications make extensive demands on performance, reliability, and security. Oracle's data management platform delivers the strong support needed:

- **Consistent high performance even under heavy workloads, with complex tasks, and many concurrent users**

- **Comprehensive security that keeps all data safe from unauthorized access by both outsiders and insiders**

- **Maximum Availability Architecture (MAA)—offering up to 99.995% uptime, and available cloud-based disaster recovery**

- **Simpler, lower risk migration from on-premises to the cloud since it's the same database in both environments with the same APIs, SQL, and management techniques**

Oracle Autonomous Database automates the administrative tasks necessary to meet these goals, enabling IT organizations to meet the needs of the most demanding enterprise applications while saving time, effort and cost.

97% of the Fortune Global 100
run Oracle Database and 88% on Exadata Platform[1]

1. Oracle Makes Its Great Database Even Better—and Adds Low Code to It. Holger Mueller, Constellation Research
http://www.oracle.com/a/ocom/docs/constellation-oracle-database-apex-analysis.pdf

Save time with automation

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IT professionals provide invaluable services at all levels of an organization, and their essential work is never-ending. That's why Oracle has spent the past two decades investing thousands of engineer years into automating database operations so that IT experts can focus on strategic projects. Starting with automatic undo management and automatic query rewrite in Autonomous Database and Exadata, this has been extended to memory and IO management, storage tiering, clustering, disaster recovery, and compression—all of which were formerly very time consuming manual processes.

**68%
Less time**
spent on IT admin tasks with Oracle Autonomous Data Warehouse[2]

For instance, Oracle uses data collected from running databases to build and test machine learning models that help predict and prevent database failures, and automatically improve the performance of queries as underlying data and workloads change. Automated failure identification and tuning are two of the key reasons that only Oracle can offer the Oracle Autonomous Database, which employs machine learning and artificial intelligence to automate securing, patching, backing up data and configuring the database without manual intervention.

Many data management providers claim to offer some of these benefits. Here's the Oracle difference:

- **Ability to patch and update without any downtime**

- **Auto-indexing and auto-tuning, which replace time-intensive manual analysis, index creation, and continuous tuning that were required as applications and workloads changed over time**

- **Online auto-scaling with fine granularity and without arbitrary restrictions, to avoid over provisioning and provide a true pay-per-use model**

Together, Oracle Autonomous Database and the Oracle Exadata infrastructure it runs on, form the most complete, flexible, and automated database platform for both cloud and on-premises deployments. With Oracle, organizations have freedom from manually managing database infrastructure, resulting in higher operational efficiency and lower costs.

2. IDC White Paper. The Real-World Business Value of Oracle Autonomous Data Warehouse. December 2020.
https://www.oracle.com/database/solutions/business-value-of-autonomous-data-warehouse/

Security with confidence

Data is one of an organization's most important assets, and it's crucial to provide it with the best possible protection.

Oracle offers data-centric security embedded in both the database and in Oracle Cloud Infrastructure (OCI), including:

- **User-focused security, including identity management and privileged user access controls**

- **Always-on monitoring and remediation of cloud security posture to protect data in the cloud from vulnerabilities and threats**

- **Security-first cloud architecture which includes isolated network virtualization and hardware root-of-trust to protect data in the cloud**
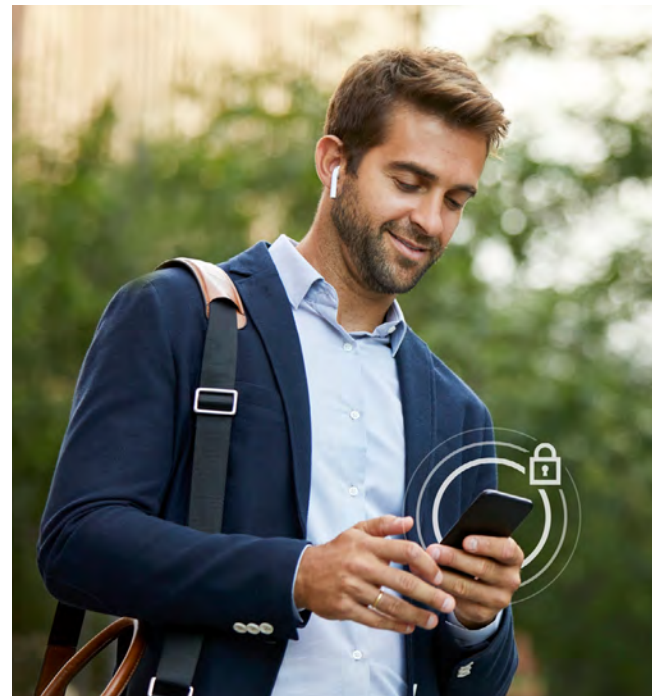
Oracle's data management platform relies on Oracle Autonomous Database to enhance security with always-on encryption and auditing, preconfigured separation of duties, and automated patching. A self-securing database is more consistently updated with the latest security patches than a manually secured one, without committing any human errors. Autonomous Database automatically protects itself when a threat is identified rather than having to wait for an administrator to understand an external or internal attack and manually attempt to defend against it.

OCI is built with a security-first architecture. Oracle helps customers reduce concerns over advanced, persistent threats with built-in capabilities including high customer isolation and automatic data protection and optional Exadata Cloud@Customer infrastructure enables customers to meet data residency and sovereignty requirements as a cloud

service on-premises, in a customer's data center or co-location facility. At the same time, cloud services such as Cloud Guard provide always-on monitoring and responses to address many common issues such as misconfigured resources and insecure activity across tenants. These services, combined with Security Zones and Vulnerability Scanning, help an organizations' most important data stay secure, while services such as Bastion and Identity and Access Management provide secure access to the right people at the right time.

Oracle Data Safe's unified security control center helps organizations quickly understand the security of their databases with security assessments, user risk assessments, activity auditing, sensitive data discovery and data masking, providing automated alerts for risks that may require attention. Oracle Identity Management helps IT organizations ensure that sensitive application data is not viewed by unauthorized users while Oracle Database Vault implements security controls that enable database administrators to perform necessary maintenance and administrative tasks without ever accessing the data itself. Oracle Advanced Security provides Transparent Data Encryption (TDE) of data at rest as well as the ability to redact sensitive data entirely.

Autonomous Database and OCI security provide organizations with freedom from manually securing hundreds or thousands of individual instances, enabling them to protect all their data in a strong and consistent way.

Scale without effort or downtime

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When the data needs of an organization change, their data management platform must adapt. Oracle Autonomous Database automatically scales up to [3 times the current base number of CPUs cores](#) without impacting availability or performance, and automatically scales back down when additional resources are no longer needed. This makes it easier to handle increased workloads and unexpected or fluctuating changes—ensuring that resources are precisely matched to workloads.

Autonomous Database and Exadata infrastructure are engineered for the most demanding database workloads and create a category-leading database platform in terms of elasticity, performance, scalability, reliability, and security[3]. Independently scalable compute and storage infrastructure with workload isolation allow customers to run OLTP, analytical, and mixed workloads with extremely high performance and no schema changes or tuning required.

High performance plus the ability to scale up and scale down CPU consumption without interrupting database operations allows customers to simultaneously meet peak demands and minimize costs with pay-per-use economics.

With Oracle, organizations have freedom from fixed resource limitations, and with fine-grained elastic scaling instantly respond to changes in workloads.

3. Gartner Critical Capabilities for Cloud Database Management Systems for Operational Use Cases
https://www.oracle.com/database/gartner-dbms.html

Put all data to work

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The best data in the world has less value if it can't be analyzed in combination with all relevant data from many different sources. Both data warehouses and data lakes are used to support analysis but in order to maximize the value of all data, these two different technologies need to work together seamlessly.

The key data management component for analysis is the lake house, which integrates data lakes and data warehouses, eliminating the data silos that prevent access to all data. A single data catalog enables discovery of needed data, regardless of where it's stored. Data integration tools can be used to move or transform data depending on the use case. And finally, managed open-source services provide additional flexibility for processing and analysis.

The lake house enables choice. If they want, teams can process data using Hadoop- or Spark-based applications and algorithms. Data can be queried via Autonomous Database, even if that data is stored in the data lake. Both analysts and data scientists can use their tools and languages of choice to analyze data, regardless of its location.

By making all data accessible to those who need it, Oracle's data management platform provides organizations with the freedom from having to make decisions with only a portion of the relevant information.

Deploy anywhere
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Oracle goes further than any other cloud provider by providing the same database capabilities in the cloud, on-premises, or in hybrid cloud environments. By using the same Autonomous Database and Exadata capabilities in Oracle Cloud Infrastructure public cloud regions and Cloud@Customer deployments in customer data centers, organizations can develop databases and applications in one location and deploy them everywhere they're needed—especially when data sovereignty or security is a concern.

Oracle brings together a comprehensive set of management, diagnostic, and analytics services for both multicloud and on-premises environments. The Oracle Cloud Observability and Management Platform further helps IT reduce complexity, decrease risk, and lower costs. It's also possible to deploy fully supported, multicloud solutions across Oracle Cloud and Microsoft Azure quickly and easily. There's no need to re-architect applications or compromise on performance or reliability.

Oracle Bring Your Own License (BYOL) program allows customers to use their current on-premises software licenses for equivalent, highly automated Oracle PaaS. With BYOL, customers can leverage their existing on-premises licenses with 100-percent workload compatibility. Oracle also provides Oracle Support Rewards, which enables customers to reduce their Oracle technology support bill by 0.25 for every dollar they invest in OCI—and this increases to 0.33 for every dollar invested in OCI by Oracle ULA customers.

> **Identical capabilities in the cloud and customer data centers provide organizations with freedom from being tied down to a single cloud or data center location.**

50% Easier to prevent and solve IT problems
with integrated functionality and automation for DevOps monitoring and IT operations [4]

4. Oracle Cloud Observability and Management Platform Launch. Michael Wolf, CEO, Promata. October 6, 2020

Easy access to analytics and machine learning
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Data is only useful if it's actually used, so IT leaders must constantly provide analysts and data scientists with new ways to discover patterns and unique insights to help their organizations become increasingly competitive.

Using Oracle Autonomous Data Warehouse and Oracle Analytics Cloud, business analysts can easily create a self-service data mart or data lab. By leveraging integrated data tools, analysts no longer need IT help to import data from a variety of sources, including object storage on OCI and other clouds, spreadsheets and laptops. Analysts and citizen data scientists can take advantage of built-in AutoML to create machine learning models and deploy them to their data marts. They also have access to spatial and graph analytics with no need to introduce specialized databases that increase complexity and overall costs.

Oracle Cloud Infrastructure Data Science enables data scientists using Python to build models using data in a lake house, other clouds, and on-premises. They can use open-source libraries and frameworks of choice to rapidly build, train, deploy and manage machine learning models. Use of REST endpoints enables application developers to integrate those models into applications.

Connections to Oracle, third-party, and open-source business intelligence and data science tools allows organizations to easily customize their analytics environments. With Oracle, customers have freedom from the complexity of having multiple databases, analytics tools, and machine learning environments.
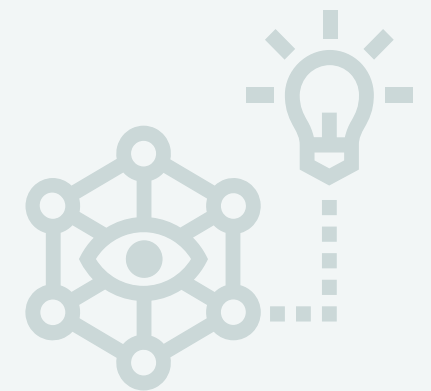
Accelerate application development

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Oracle's data management platform makes it easier and faster for application developers to create microservices-based applications with multiple data types. Developers can leverage standard SQL, CLIs, and APIs along with numerous cloud-native developer services including Kubernetes and serverless functions. Developers can start building applications using their preferred data type including JSON, graph, or relational, and upgrade with one click to a multi-model database if needed.

Oracle provides flexibility for accessing data in any format with REST APIs using Oracle REST Data Services (ORDS). Extensions to enterprise apps or custom apps can be created using the integrated APEX low-code application development environment. This saves time and errors by simplifying application code and automating essential development tasks including connection management, state management, and the mapping of database types to application types.

Oracle's data management platform enables IT organizations to both meet and exceed the expectations of developers, while implementing standardized data integration, data security, and data access policies. With Oracle organizations have freedom from limited developer productivity and can now focus on optimizing resources to support new business initiatives and get the most out of their data.

Choice of open-source resources

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The world of open-source technology is constantly changing and full of innovation—which is why Oracle invests significant resources to develop, test, improve, and support open-source technologies.

Analysts and data engineers can use open-source services like Hadoop, Spark and Elasticsearch to query data across relational data stores, object storage, in a lake house built with Oracle Autonomous Database. This enables data scientists to access the data they need without having to integrate additional sources. The lake house can then be processed or analyzed by open-source or commercial tools, as dictated by user preferences or use cases.

Data scientists can use Python to create machine learning models and run them with Oracle Machine Learning inside Autonomous Database, or to use their choice of open-source tools, libraries and frameworks like Pandas, Matplotlib and TensorFlow with the Oracle Cloud Infrastructure Data Science Service.

IT leaders can provide developers the Oracle MySQL Database Service, a fully managed database service to quickly develop and deploy secure, cloud-native applications using the world's most popular open-source database. It's the only MySQL cloud service with an integrated in-memory query accelerator—HeatWave—that enables customers to run analytics directly against their operational MySQL databases, eliminating the need for complex, time-consuming, and expensive data movement and integration with a separate analytics database.

Oracle enables analysts, data scientists and developers to use whichever software they prefer—Autonomous Data Warehouse or MySQL HeatWave—providing them freedom and choice in their database deployments.

MySQL Database Service with HeatWave[5]

up to

1,100X **faster** than Amazon Aurora

2.7X **faster** than Amazon Redshift at one third of the cost

5. Performance comparison of HeatWave with MySQL Database, Amazon Redshift, and Amazon Aurora.
https://www.oracle.com/mysql/heatwave/performance/

Less complexity and lower costs

In the cloud, time is money, and Oracle's data management platform helps customers lower costs with a combination of high levels of time-saving performance and automation.

Consolidating data management with Autonomous Database in OCI regions or Cloud@Customer solutions allows organizations to run Oracle Database instances faster, with high availability, and at lower overall costs. In addition, the automation of common DBA tasks with Autonomous Database's auto-tuning, auto-scaling, and auto-securing capabilities reduce operational costs by up to 90%.[6]

Gartner rates Oracle Autonomous Database #1 on all 4 operational Use Cases, including Traditional Transactions, Augmented Transactions Processing, Stream/Event Processing, and Operational Intelligence.[3]

In parallel, MySQL open-source databases with in-memory HeatWave technology run at the highest possible performance, reducing infrastructure costs by a factor of 3 or more compared to leading alternatives.
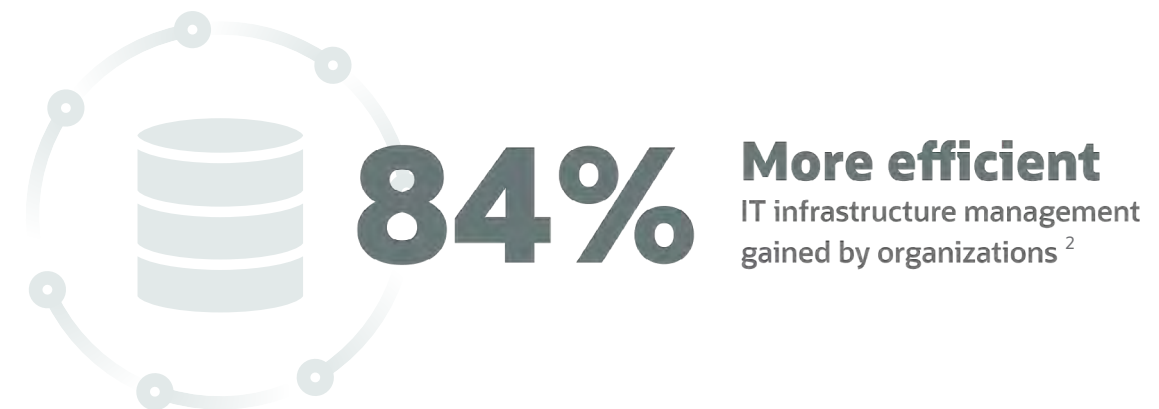
Oracle's data management solutions provide customers with a wide choice of highly automated, integrated, and performant tools that deliver freedom from the complexity and costs of having to integrate various stand-alone solutions. With Oracle, IT organizations, developers, data scientists, and end users all have easy access to the data they need, increasing productivity and enabling a new generation of business insights.

> *"The unique capabilities makes Autonomous Data Warehouse a "must-buy" for any organization wanting to shorten the time from data to decision."*
>
> **Moor Insights & Strategy**

84% **More efficient**
IT infrastructure management gained by organizations [2]

3. Gartner Critical Capabilities for Cloud Database Management Systems for Operational Use Cases
https://www.oracle.com/database/gartner-dbms.html

6. IDC report. Ensuring a Fast, Reliable, and Secure Database Through Automation: Oracle Autonomous Database. Carl W. Olofson, March, 2020. PDF.
https://www.oracle.com/a/ocom/docs/database/fast-reliable-secure-database-through-automation.pdf

2. IDC White Paper. The Real-World Business Value of Oracle Autonomous Data Warehouse. December 2020
https://www.oracle.com/database/solutions/business-value-of-autonomous-data-warehouse/

Get started with Oracle

Oracle's data management platform changes and optimizes how data is accessed and used throughout an organization. Oracle simplifies the infrastructure and process for data management while enabling high-speed transactions, richer analytics, always-on security, an integrated lake house, and fast application development. Oracle delivers more automation and integrated capabilities than any other platform, and makes those capabilities available in OCI regions around the globe or customer data centers for the ultimate in deployment flexibility.

The Oracle data management platform provides freedom from budget and time constraints, reducing complexity and costs while gaining more time to innovate and grow revenues.

View how customers are using Oracle's data management platform

Learn More

See how Oracle data management means freedom from the complex and costly

Take a look

Explore self-paced labs to get hands on experience with Oracle Cloud Infrastructure

Explore workshops

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