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Oracle Autonomous Database Value Realization Paper

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INTRODUCTION

As part of Oracle's ongoing commitment to our customers' success, we make investments in programs like Value Realization that are designed to help businesses unlock the full potential value from their Cloud investments. The Oracle Value Realization team works collaboratively with our customers to identify, capture and analyze their specific business outcomes from Oracle Cloud investments. This includes providing insights and best practices to help achieve the full potential of cloud investments, as well as quantifying and communicating the value customers experience from cloud investments.

Research for this paper involved collecting business value and benefit data from over 40 Oracle customers who have been live and in production on either Autonomous Data Warehouse (ADW) or Autonomous Transaction Processing (ATP) to understand types of benefits and business outcomes that customers have experienced with Oracle's Autonomous Database. The customer interviews were with business and IT leaders who experienced both the pre- and post-cloud environments. Improvements in KPIs related to the business benefits was collected from all participating customers, and then aggregated across the dataset to arrive at the estimated range of percentage improvements for each business benefit. All improvements are rounded off to end with a 0 or 5 percentage precision. The customers interviewed represent a mix of industries, as well as diverse company sizes ranging from large global enterprises to small/medium businesses.

For purposes of this report, customer data from participants is blinded and aggregated. All value benefits and process improvements listed here are intended for information purposes only and may not be incorporated into any contract. It is not a commitment to deliver any service, material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remain at the sole discretion of Oracle.

OVERVIEW

Today the world is facing an unprecedented data explosion. To keep pace with this data explosion, business teams are putting an increasing amount of pressure on IT as they are seeking to generate new insights that will drive profitability and growth, delight customers, beat competition and fend off disruption. This amplifies the need for efficient, secure database management that enhances data security, reduces downtime, improves performance, and is not vulnerable to human error.

The key challenges faced by the businesses include high cost of database services, slow speed of deployment and change, need for faster development of new business applications and poor database performance and availability.

It is with this context that we have interviewed and captured data from over 40 customers who have been live and in-production on either Autonomous Data Warehouse (ADW) or Autonomous Transaction Processing (ATP) to understand types of benefits and business outcomes that customers have experienced with Autonomous Database. Customers experienced several benefits such as maximum database uptime, performance, faster time to market and enhanced security—including automatic patches and fixes elimination of manual, error-prone management tasks through automation, reduced costs and improved productivity by automating routine tasks with both Oracle Autonomous Data Warehouse (ADW) and Autonomous Transaction Processing (ATP).

Based on customer evidence we have collected, business benefits from Oracle Autonomous Database include following major categories:

- ▶ **Improved Query & Loading Performance**
- ▶ **Accelerate Time to Market & Innovation**
- ▶ **Enhanced Staff & Reporting Efficiency**
- ▶ **Increased Provisioning & Scalability**
- ▶ **Cost Optimization**

Autonomous Database Value Benefits*

Improved Query & Loading Performance



70% - 90% faster data loading
2x – 15x faster query performance

Includes queries with in-built machine learning algorithms eliminating need to move data to perform analytics

Accelerate Time to Market & Innovation



40% - 70% faster time to market with new products & innovations

Deeper insights to enhance decision-making & identify new opportunities

Enhanced Staff & Reporting Efficiency



40%-60% improvement in DBA Productivity
70%-80% faster report generation

Automating all infrastructure and database management tasks

Increased Provisioning & Scalability



90% reduction in provisioning time
Autoscale to support few to million users simultaneously

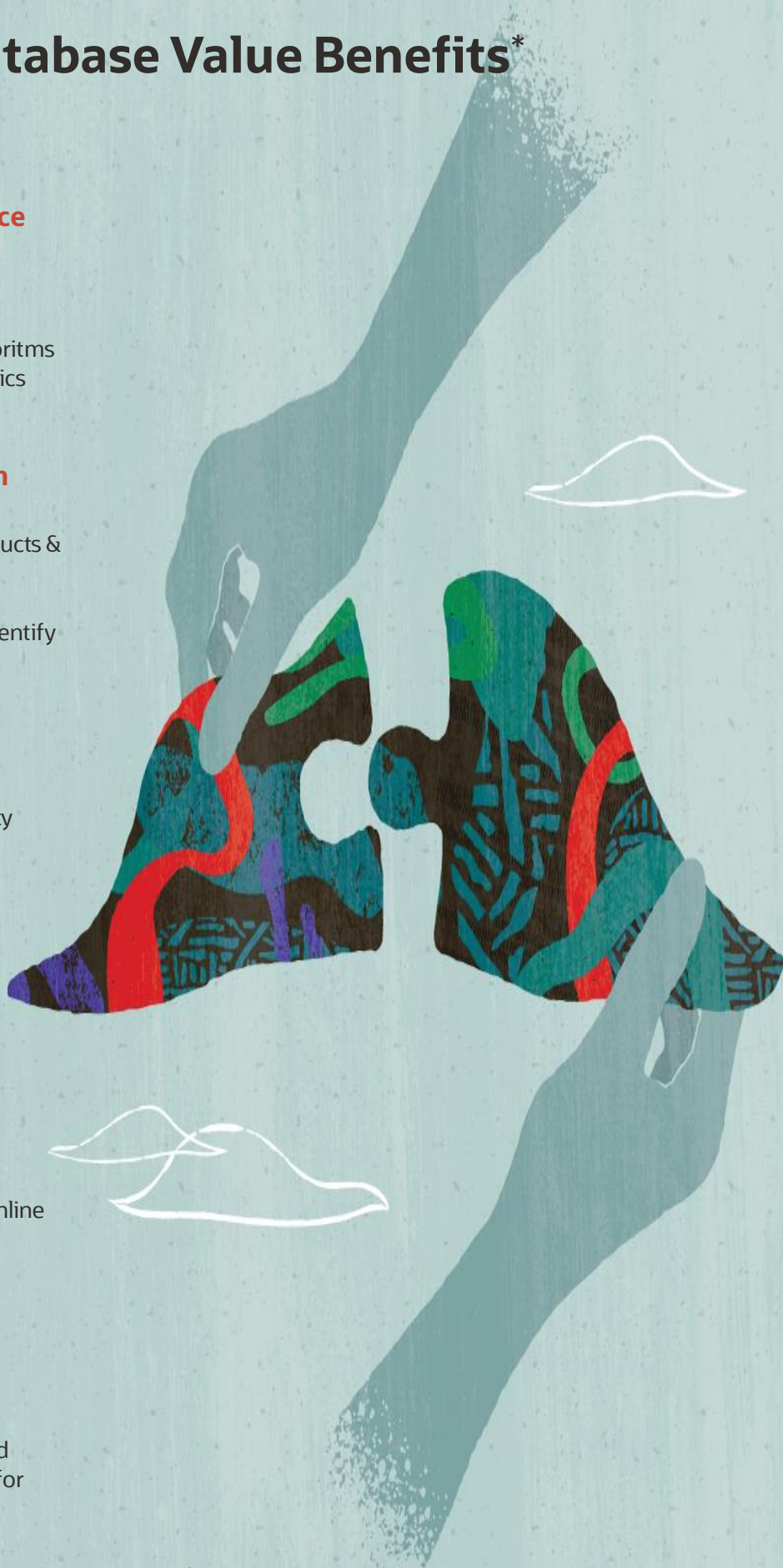
Rapidly creating scalable databases that scales online for highest performance and lowest cost

Cost Optimization



20%-40% reduction in infrastructure costs

Elastically scaling compute or storage as needed and eliminating need to purchase infrastructure for peak loads



IMPROVED QUERY AND LOADING PERFORMANCE

Oracle's Autonomous Database automates and optimizes online performance ensuring mission-critical, real-time workloads run seamlessly. Customers realized greater flexibility with high-performance queries and concurrent workloads, optimizing query performance with preconfigured resource profiles for different types of users. With Oracle Autonomous Database customers were able to reduce query time and turnaround time in the range of 70%-90% and automate data loading, ingest terabytes of data quickly and run workloads 2x-15x times faster.



"We can quickly move up from 2 CPUs to 20 CPUs and run a script in two or three minutes instead of five hours"

ACCELERATE TIME TO MARKET & INNOVATION

Oracle's Autonomous database automates patching, upgrades, and tuning without human intervention or downtime allowing customers to instantly create new databases and easily convert existing databases, dramatically reducing costs and time to market. With Oracle Autonomous Database, customers were able to accelerate time to market with new products, offering and innovations in the range of 40%-70%.



"Our time to market reduced by 60%, to just 3 weeks to implementation. We also now need less training to developers & business users"

ENHANCED STAFF & REPORTING EFFICIENCY

Autonomous database and transaction processing helped organizations transform IT operations to lower operating expenses, and enable customers to innovate more while using fewer resources. Customers found autonomous capabilities helped IT staff improve efficiencies by enabling them to focus on higher value activities in lieu of mundane, time-consuming report generation. With Oracle Autonomous Database, customers were able to automate and consolidate several DBA activities and improve DBA productivity in the range of 40%-60% and reduced report generation and analysis time in the range of 70%-80%.



"With Autonomous Database, financial analysis report that used to take 12 minutes to complete now takes just 41 seconds"

INCREASED PROVISIONING & SCALABILITY

Customers find automatic provisioning in the cloud as easy allowing them to set up databases in days or minutes vs months or years previously and with the same configuration as production saving even more deployment time. Oracle's Autonomous Database enabled scaling of compute and storage resources ensuring the database's capacity met fluctuating needs without interrupting operations. With Oracle Autonomous Database, customers were able to reduce time to provision instances by more than 90% and autoscale users simultaneously to meet changing business needs.



"Self-driving autonomous database was set up and in production in 90% less time than our previous on-premise environment"

COST OPTIMIZATION

Autonomous database and transaction processing enabled reduction in administration costs with full automation of operations and tuning, and reduced run time costs up by scaling only for what was needed. Auto-scaling enables to scale on demand for peak business cycles or periods to maximize performance then scale down or turn off to minimize costs for enhanced business model flexibility. With Oracle Autonomous Database, customers reduced their infrastructure acquisition and maintenance costs in the range of 20%-40%. insights to identify new opportunities, increase revenue growth, and support business and organizational transformation.



"We reduced cost involved in operating IT systems compared to an on-premises solution, the software/hardware costs are also reduced by more than 50%"

IMPROVEMENT RESULTS AND CLOUD CAPABILITIES

Business Benefit Category	Results ¹ % Improvements	Autonomous Database Value Capabilities ²
Improved Query & Loading Performance	<ul style="list-style-type: none"> 70% - 90% faster data loading 2x – 15x faster query performance 	<ul style="list-style-type: none"> Exadata Smart Query Off-Load to move the processing to the data instead of the data to the processing Flash cache over spinning disk storage with storage level indexing for efficient data partition pruning Hybrid columnar compression to enable an effective scan rate of 560GB/second
Accelerate Time to Market & Innovation	<ul style="list-style-type: none"> 40%-70% faster time to market 	<ul style="list-style-type: none"> Instantly create new databases and convert existing databases, dramatically reducing time to market In built APEX speeds development of custom & cloud native apps Reduce time and effort on onboard new customers
Enhanced Staff & Reporting Efficiency	<ul style="list-style-type: none"> 40%-60% improvement in DBA Productivity 70%-80% faster report generation 	<ul style="list-style-type: none"> Eliminating database maintenance frees database administrators and app developers to add more value to the business Integrated machine learning algorithms enable the development of applications that perform real-time predictions such as personalized shopping and fraud detection Administers security is automatic with self-patch and self-updates and no down time
Increased Provisioning & Scalability	<ul style="list-style-type: none"> +90% reduction in provisioning time Autoscale to support few to million users simultaneously 	<ul style="list-style-type: none"> Recovers automatically from failure and 99.995 percent uptime including maintenance Elastically scales compute or storage as needed, with no downtime. Instant scaling of compute and storage online as needed. Access is monitored and controlled, protecting from external attacks and unauthorized internal access
Cost Optimization	<ul style="list-style-type: none"> 20%-40% reduction in infrastructure costs 	<ul style="list-style-type: none"> Expand and/or shrink compute and storage independently without costly downtime No overpaying for partially used, fixed configurations Complete automation of database and infrastructure operations cuts administrative costs

¹ Customer Evidence is based on KPIs collected during the customer interview process, and reflect benefits achieved post -go-live and are indicated for cross-industry & company size. Actuals vary for each customer participating in the interview process.

² Cloud capabilities listed here do not reflect a 1:1 direct mapping with the business benefit or % improvement, but instead indicate customers' perception of Oracle Cloud attributes/characteristics/capabilities that were essential in delivering value.

INDUSTRY PERSEPCTIVE – RETAIL & MANUFACTURING

Autonomous Data Warehouse (ADW) and Autonomous Transaction Processing (ATP) are databases built differently for complementary workloads or use cases:

ADW's strength for reporting queries allows customers to not only load more data (higher volumes in GBs to TBs to PBs) but also more variety such as clicks and 3rd party data for a big-data analytics platform that auto-scales on demand. The increasing volume of data from disparate sources is what drives the business value of greater, more comprehensive data-driven insights with faster query response times. ADW is also tightly integrated with front-end visualizations that make distributing the insights to a wider, less technical audience important. Data intensive industries such as communications, healthcare, retail, banking, and logistics are the most popular use cases for ADW.

ATP's strength is for improved mission critical workloads performance. Time savings and cost savings to on-boarding new customers or workloads apps and ongoing support with less labor, software and equipment vs traditional on-premise models are popular benefits with ATP. 24x7 industries that run mission critical workloads such as manufacturing, retail, banking, and logistics are the most common use cases for ATP.

Two industry showcases – for Retail and Manufacturing customers – are included to provide further details on typical use cases

Retail

The transformation of retailing now requires not just data, but actionable information for enhanced decision-making. There is a continuous need to improve inventory and logistics planning, enhance store and e-commerce operations, all the while managing data growth explosion, data protection & quality challenges with limited dedicated IT budgets and resources.

Use case 1: Drive Business Efficiency, Transformation & Growth : Reliable Real-Time Customer Data

Consumers now interact with retailers on their own terms. Understanding consumer preferences has become critical and complicated, particularly as static models give way to new-age disrupters.

Oracle ADW/ATP Benefits:

- Insight into customers' buying behavior and purchasing habits enabling faster time to offerings & campaigns
- Improved digital marketing promotions, email campaigns, and operational efficiency for further growth expansion
- Enhance security to protect data
- Automate many of the time-consuming processes that accompany database management

Oracle Customer Value Call-outs:

- Expansion of retail locations from 3,500 to 10,000 without adding IT support staff
- Analyze over 1M transactions per day including external demographic and social media data
- Centralize 10 data systems to 1 and reduce credit card risk from actionable intelligence

Use Case 2: Cost Optimization : Integrated Visibility of items, Orders and Shipments

The increasing presence of disruptive technology has given rise to new sales channels: online, in-store, or combination of both. In response, customers must update their capabilities for planning, optimizing, monitoring, and managing the flow of goods through a more complicated supply chain to deliver increased sales, profitable growth with reduced costs.

Oracle ADW/ATP Benefits:

- Reverses store inventory losses
- Provide precision inventory across both sales floor and backroom, monitor store-level demand in real time and assure availability for on-line and in-store

Oracle Customer Value Call-outs:

- Reduced inventory labor requirements by >20%
- Increased operating profit by > 1.5% of total store sales
- More predictive ordering of replenishments for server over 800,000 customers every day
- Reduce storage capacity by 10x

- Reduce time and resources in managing inventory, with error free automated processes
- Improve operational performance across all channels.

- Minimize human interaction

Manufacturing

Manufacturers are funding innovation by reducing costs. Increasing productivity, insight into product and parts failure before it happens, improving time to market, product development life cycles and improving product margins are priorities for Manufacturing companies. The internet of things (IoT) and industrial internet contributes to big data and analytics that manufactures rely on fueling the next generation in manufacturing advancement.

Use case 1: Improved Query & Loading Performance : Accelerate Product Quality & Innovation

Visibility across the entire product lifecycle enables full traceability to find, isolate and resolve quality issues. Data across all functional areas are integrated to perform prescriptive analytics. The ability to use and integrate big data from simulation results with quality data can reduce product development time and cost while improving manufacturability and margins

Oracle ADW/ATP Benefits:

- Analytics enables quicker data-driven decisions for more business agility and less risk
- Fast data loading and query performance for concurrent workloads
- Improve time to set up new development projects
- Zero downtime for mission-critical apps

Oracle Customer Value Call-outs:

- 40X report performance improvement versus on-premises and set up in days
- Reduced data loading and reporting from hours to minutes
- Quickly adopt new technology and onboard new customers at zero upfront costs
- 50% reduction in customer complaints and defects

Use case 2: Enhanced Staff & Reporting Productivity : Focus IT Staff on Higher Value Analysis

Administering mission-critical databases is traditionally very expensive because it requires manual provisioning, securing, monitoring, patching, backing-up, upgrading, recovering, troubleshooting, testing, and tuning of complex highly available scale-out deployments with disaster recovery protection. Freeing up DBAs to focus on tasks that support innovation and increasing IT agility to keep up with the requirements of business users, helps deliver actionable insights meeting demanding business goals and uncovering unique new opportunities

Oracle ADW/ATP Benefits:

- Self-tuning and self-patching
- Empower IT staff to focus on business critical service while saving time and money
- Zero maintenance and auto-scaling
- 100% compliant with automatic disaster recovery, enabling reduction in compliance and regulatory burden

Oracle Customer Value Call-outs:

- 75% reduction in DBA workload
- Ingest 1 TB database while reducing costs 40%
- Reports that used to take 12 minutes to complete now takes just 41 seconds
- Fully automated all data management tasks, so resources can focus on new projects with emerging technologies such as artificial intelligence (AI) and blockchain

CUSTOMER SPOTLIGHT – MESTEC OPTIMIZES MANUFACTURING WITH ORACLE ATP

MESTEC optimizes manufacturing for some of the largest capital equipment makers such as submarines, missiles, micro semiconductors, orthopedic hips, and pies. MESTEC leverages Oracle Autonomous Transaction Processing (ATP) along with Azure web apps platform as a service, to support mission critical areas for their manufacturing customers.

Mestec provides intelligent SaaS solutions to optimize the lifecycle from planning to execution for some of the world's most prestigious manufacturers leveraging Oracle's ATP solution along with Azure web apps. Mestec's cloud-based software connects to a customer's ERP system and integrates with other manufacturing and automation systems to monitor labor and other processes —giving customers detailed, timely information about things such as labor effectiveness and material usage. Companies use that data to refine processes, raise quality, and make their people more productive.

BUSINESS VALUE REALIZED

- **Improved Business Efficiency:** One of the features that impressed MESTEC was the ease and speed of onboarding new customers. With Oracle ATP as part of their technology platform, they can onboard new customers for zero upfront costs at a much faster implementation speed of ~8 week. MESTEC now has greater flexibility to auto scale capacity up and down in seconds depending on demand.
- **Improved Staff Productivity:** With Oracle ATP, MESTEC has zero headcount for database administration, which reduces the need to pay for third party managed service providers.
- **Improved System Performance:** MESTEC have noted that their manufacturing customer workloads runs 5x faster with ½ number of CPUs, compared to pre-Oracle ATP.
- **Reduced Infrastructure Costs:** With Oracle ATP, MESTEC was able to reduce their infrastructure costs by 50%, compared to an on-premise environment. They also estimated that the cost of implementation would have been 2x times more, compared to alternative solutions
- **Improved System Availability:** MESTEC supports customers manufacturing environments, which operates 24-7, and with Oracle ATP's high-availability environment, they achieve zero downtime. No down time allows their customers to focus on innovations to improve manufacturing quality, optimize cost, and delivery performance.
- **MESTEC's other Manufacturing related KPI's** – MESTEC's customers are seeing a wide-range of benefits from embracing Mestec's SaaS solution built on Oracle's autonomous technologies throughout their manufacturing processes including:
 - 60%-90% increase in manufacturing labor utilization
 - 50% reduction in customer complaints and defects
 - 49% reduction in cycle times due to reduced lead-times and improved OTD
 - 20% cost optimization due to a reduction in working inventory



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**Oracle's
Autonomous
Transaction
Processing is the
foundation of our
solution.**

**Mark Carleton,
Director, MESTEC**

Read full customer story here: [Oracle Cloud helps MESTEC lift factory performance](#)

CONCLUSION

Data Management is a key and necessary business function that most companies require to run effectively. Convenient and timely access to data is key to not only ongoing operations but also new business opportunities and expansion. Traditional data management platforms require extensive knowledge and maintenance, which typically increase faster as the size and demand for data increases. Compromises reached when deciding on IT vs. business investment, can put business at a severe disadvantage. Oracle Autonomous Database provides a fully autonomous, cloud based data management solution that eliminates high expenditure needs for infrastructure and maintenance of your data management while providing the most proven, reliable and fastest access to your data.

Oracle hopes this study provides some insight into the kind of value customers could expect from Oracle Autonomous Database and the kind of metrics customers may want to use to gauge success.

Below are recommended industry-standard KPIs to measure performance along your Autonomous Database transformation journey.

Industry Standard KPIs

Improved Performance	Improved Productivity	Improved Provisioning & Scalability	Reduced Costs	New Value Creation
<ul style="list-style-type: none"> • Query Performance • Additional Data Workloads Ingested • Development Cycle Time • Time to Market - New Products 	<ul style="list-style-type: none"> • Number of DBA FTEs • Average % of Time Spent on Data Administration • % of time spent waiting on system-based information • Total number of helpdesk tickets • CPU Utilization % • Labor Utilization 	<ul style="list-style-type: none"> • Average % of Time Spent on Provisioning Activities • Number of System Users • Hours of planned downtime • Hours of unplanned downtime • Improved Scalability 	<ul style="list-style-type: none"> • % of IT Budget for Integration • % of IT Budget for Infrastructure Acquisition • % of IT Budget for Infrastructure Maintenance and Support • Annual Compliance Costs • Average Cost of SLA Non Compliance • % of sensitive records utilizing encryption, data masking, or security policy • Operating Margin 	<ul style="list-style-type: none"> • Customer Retention Rate • Sales Win Rate • Up Sell/Cross-Sell Rate • Time to Onboard new customers • Campaign Time-to-Market • Inventory Carrying Costs • Manufacturing Cycle Time • Order cycle time • Material Spend

If you would like to learn more about this report, other available reports, or if you are an Oracle Cloud customers who would be interested in taking advantage of the Oracle Value Realization Program, please get in touch with us at: customer_value_realization_ww_grp@oracle.com.

Wherever you may be in your cloud journey, Oracle can help.

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