

TECHNOLOGY VISION FOR ORACLE

EXECUTIVE SUMMARY

**Bringing five key
technology trends to life
with Oracle technologies**

WELCOME

We are pleased to present the Accenture Technology Vision for Oracle 2018, our annual forecast of the trends unfolding in the next three years.

With it, we share the important strategic shifts companies must make to unleash the unprecedented potential of the intelligent enterprise. We are working and living in a time of unparalleled technology innovation and invention. This technology revolution is marked by a series of exponential technological advances—including cloud, artificial intelligence, blockchain, augmented and virtual reality, internet of things, robotics, quantum computing, and more—with Oracle technologies at the core of this change. Individually and collectively, these technologies represent vast potential for the future of business, and are creating the imperative to reinvent and reimagine the way we do business.

This future also comes with broader responsibility. In producing this year's report, the third in our People First series, we discovered a foundational shift in the role of enterprise, itself: It is moving closer

to the center of people's lives. As leading companies apply digital technologies and operate with ever-increasing intelligence, traditional boundaries between business and personal are dissolving. The very role of the enterprise in society is being redefined.

Accenture's year-long research into the technology trends driving this change resulted in this thought-provoking report: "Intelligent Enterprise Unleashed: Redefine your company based on the company you keep." Our forecast describes the widespread opportunities available to companies to use Oracle and other technologies at each level of the enterprise—from strategy through operations—to improve performance and move closer to the center of people's lives.

Through innovation-led research, deep insights and powerful examples, the Accenture Technology Vision 2018 helps enterprises around the globe succeed and grow in this new era. We look forward to supporting your digital transformation and helping you unleash the potential of your intelligent enterprise.



Terri Strauss
Senior Managing Director,
Oracle Business Group



Pat Sullivan
Managing Director,
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Technology is now firmly embedded throughout our everyday activities, but its reach is larger than that. Businesses are using their products and services to reshape, reimagine, and transform how our society works, communicates, and even governs—blurring the lines between business and personal. According to the global Accenture Technology Vision 2018 Survey, 84 percent of business and IT executives surveyed agree that through technology, companies are weaving themselves seamlessly into the fabric of how people live today.

Already we're seeing companies drive unprecedented changes in the way people work and live—such as making use of artificial intelligence (AI) to develop learning systems and deliver personalized and adaptive lessons to millions of people; virtual reality systems to help employees gain firsthand experience with challenging or potentially dangerous situations without real-world risk; and blockchain to enable fast, secure data-sharing between governmental agencies, while giving citizens insights into who is accessing what data and maintaining security.^{1,2,3}

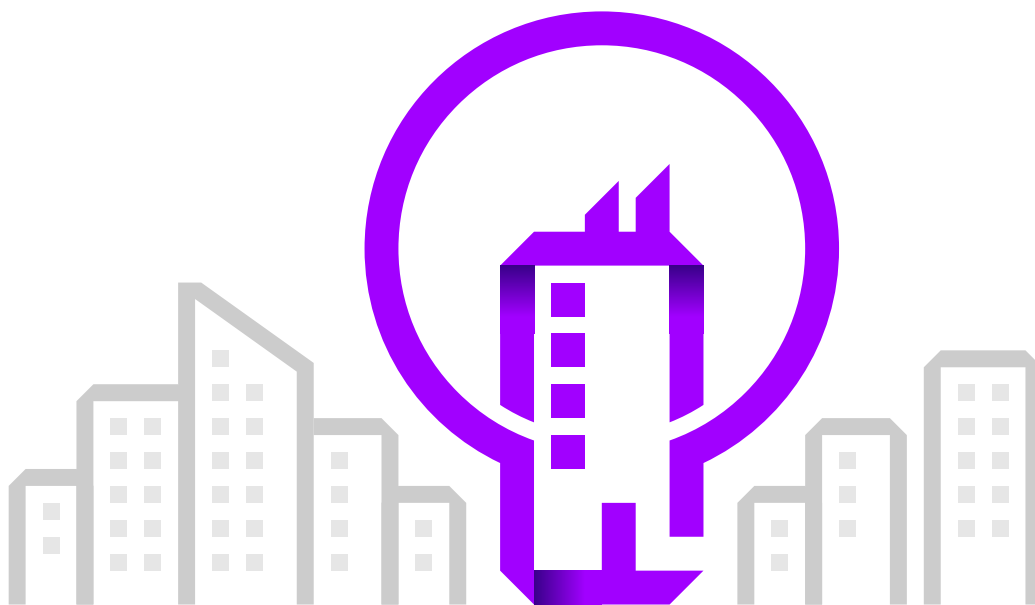
Advanced technologies like these all rely on fresh, accurate data, and Oracle's databases command more than 50 percent of the enterprise data globally—across every industry and including both business and consumer data. Millions of people also trust Oracle's family of clouds—SaaS, PaaS, DaaS and IaaS—every day with 25,000+ customers using 1,000+ cloud applications across 175+ countries to process a staggering 61 billion transactions daily.⁴ New innovations such as the Oracle Autonomous Database Cloud combines the power of cloud and machine learning to deliver unprecedented availability, performance and security—at a significantly lower cost.

What's more, for the first time in a technological transformation, the change is a two-way street. People aren't just using companies' products and services, but are feeding information and access back to them—adding to the data in the process. Savvy organizations that have Oracle at the core are realizing that this level of connection—and this degree of trust—will require a new type of relationship, based not only on a company's products, but its goals and values. In short: people are “reading the labels” of enterprise—and companies must define those labels for themselves, or have the labels determined for them.

Together, Accenture and Oracle are helping our joint clients strengthen their enterprise labels and accelerate their digital rotation to lead in the new with the power of the Oracle Cloud portfolio combined with Accenture's intelligence, innovation and industry capabilities. This includes helping our clients make the move to cloud-first strategies more quickly and with less risk, while using technologies like AI, virtual reality and augmented reality, internet of things, blockchain and more to create deeper partnerships with people in this new digital environment and achieve future growth.

UNLEASH THE INTELLIGENT ENTERPRISE

This year's Accenture Technology Vision highlights five emerging trends shaping the way technology is increasing businesses' impact across society—and how we see Oracle's unsurpassed database resources and continued investment in digital technologies as a catalyst for our clients to be at the heart of this change. In each chapter, you will see how expectations are growing, as customers, employees, business partners, governments and more seek formalized partnerships with enterprise to achieve their goals.





CITIZEN AI

Raising AI to Benefit Business and Society.

As artificial intelligence grows in its capabilities—and its impact on people’s lives—businesses must move to “raise” their AIs to act as responsible, productive members of society.

Accenture and Oracle are helping several clients to embed AI, inclusive of chatbots and predictive decision making, into operations to improve customer and citizen services.



EXTENDED REALITY

The End of Distance.

Virtual and augmented reality technologies are removing the distance to people, information and experiences, transforming the ways people live and work.

Accenture and Oracle are working together to deliver virtual and augmented reality using new immersive capabilities to enhance the overall customer experience while increasing business results.



DATA VERACITY

The Importance of Trust.

By transforming themselves to run on data, businesses have created a new kind of vulnerability: inaccurate, manipulated and biased data that leads to corrupted business insights, and skewed decisions with a major impact on society.

Working with Accenture, Oracle is well ahead of this trend with its Data as a Service offering, as well as new Autonomous Database Services, helping companies significantly improve the integrity and richness of their data while boosting relationships with people.

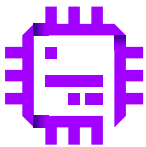


FRICTIONLESS BUSINESS

Built to Partner at Scale.

Businesses depend on technology-based partnerships for growth, but their own legacy systems aren’t designed to support partnerships at scale. To fully power the connected enterprise, companies must first re-architect themselves.

Accenture and Oracle continue to help companies rotate to the new, most recently with joint go-to-market products and services in banking and blockchain while supporting the accessibility and extending the lifetime of core legacy systems.

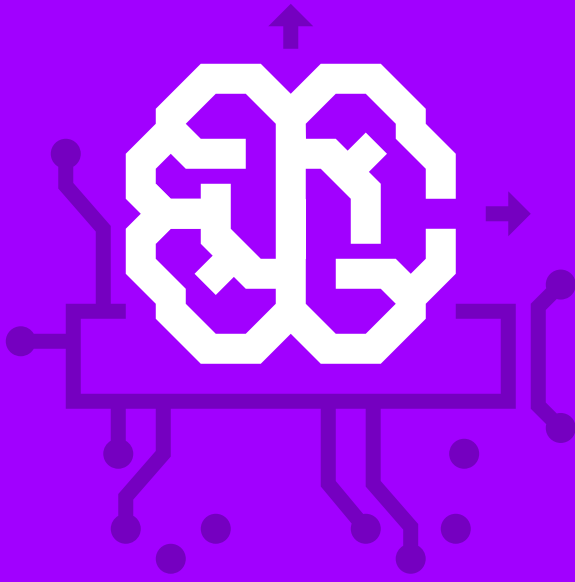


INTERNET OF THINKING

Creating Intelligent Distributed Systems.

Businesses are making big bets on intelligent environments via robotics, AI and immersive experiences. But to bring these intelligent environments to life, they must extend their infrastructures into the dynamic, real-world environments they want to reach.

From industry-specific platforms to workforce wearables, Accenture is supporting Oracle in powering this expansion with its deep investment in internet of things and the next generation of cloud computing, developed for AI and real-time data driven workloads.



CITIZEN AI

**Raising AI to Benefit
Business and Society**

With artificial intelligence (AI) growing in its reach throughout society, any business looking to capitalize on AI's potential must also acknowledge its impact. Much more than just a technological tool, AI has grown to the point where it often has as much influence as the people putting it to use, both within and outside the company.

For businesses, this means deploying AI is no longer just about training it to perform a given task. Similar to the way parents raise their children, it's about "raising" AI to act as a responsible representative of the business, and a contributing member of society. Many enterprises still treat AI as a software program—a tool to be used. No one would expect a tool to "act" responsibly, explain its decisions, or work well with others. But with AI systems making decisions that affect people, companies must teach AI to do these things, and more.

By recognizing the impact AI now has in society, and raising it accordingly, companies can create a collaborative and powerful new member of the workforce. Oracle is deploying the next generation of chatbots in Oracle Cloud Applications, using natural language processing, sentiment and image recognition technologies—as well as AI and machine learning to develop innovative customer-facing and citizen services.

Accenture worked with a large financial services company in Australia to create an innovative proof of concept (PoC), leveraging the Accenture Liquid Studio, to update employee information using a set of artificial intelligence technologies.

Human resources (HR) records contain information that is critical to managing the overall employee population, and there are several data points in the records that HR professionals rely on employees to enter and update, such as phone numbers, addresses and life event changes. In certain parts of the world, the bank was still leveraging custom applications to capture data from employees that would then need to be re-keyed into the global HR application by a shared service team—a process that took up to three days and carried an additional expense.

Accenture took several use cases from the bank to enhance an AI solution leveraging IBM Watson to interact directly with employees via a live text window. The AI is used to suggest the type of update the employee is looking to make based on location, history and role—thus saving time and improving the experience while also using existing HR information to validate the identity of the employee, ensuring security to employee information. The chatbot is integrated into Oracle's HCM Cloud via public APIs to update the records dynamically. In areas where additional information/documentation is required to complete an HR Transaction, the chatbot creates a case real-time in the employee case management application.

Due to the intuitive nature of the chatbot design, the client would not need to invest in employee training modules. The PoC has helped the bank rethink the role of technology in enhancing the employee experience, especially focusing on the key moments that matter that can have the biggest impact on employee engagement, and enabling the HR organization to focus on more strategic initiatives.

In a different example, Accenture worked to improve citizen services at a national family welfare agency in Europe, La Caisse Nationale des Allocations Familiales (CNAF), by leveraging the Oracle Policy Automation (OPA) platform that simulates subsidies and aids based on citizen profiles and embedded intelligence. Completed in five months, the digital transformation converted the client to a 100-percent digitalized process and user-centered solution through a revamped web portal offering 24/7 services to help increase the agency's adoption rate and obtain the expected social impact. Using OPA for the digital solution also provided the agency with built-in security, agility, scalability and interoperability.

Collaboration with artificial intelligence will be most successful if businesses ensure there are ways of understanding an AI system's outputs, whether by customers and employees, or other artificially intelligent systems.

Understanding for children begins with the use of symbols and signs before words—but ultimately, they must achieve the taxonomy of a language to scale their understanding of the world. Similarly, a company's AI starts from basic principles, but progressively builds its skills from set taxonomical structures.

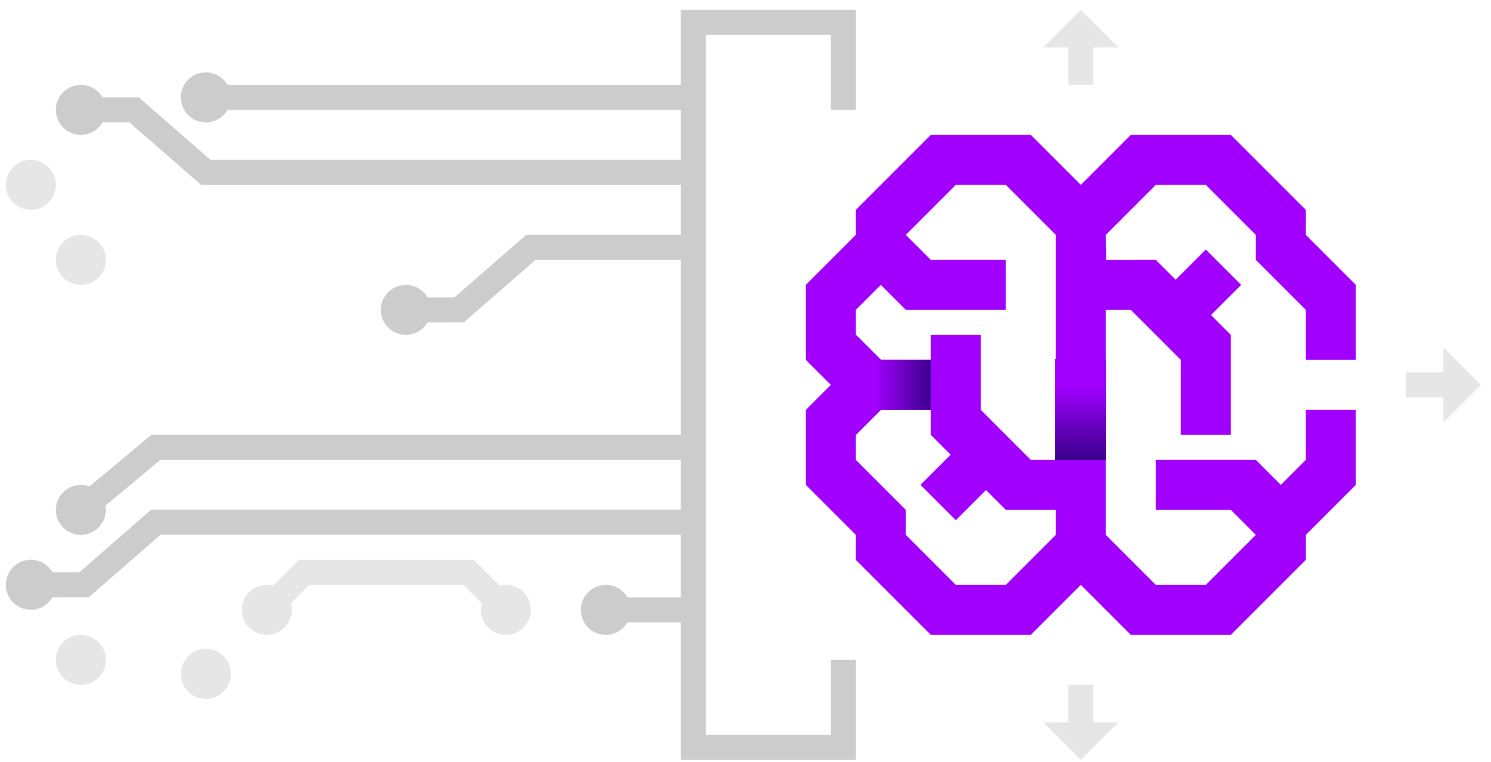
The companies with the best data available to train an AI how to do its job will create the most capable AI systems. However, a business's data scientists must use care when selecting taxonomies and training data. It's not just about scale, but about actively minimizing bias in the data. Building provenance into a library of models preserves a link between models and the data used to train the model. When data inputs are well documented, organized, and properly labeled, companies will build a strong library of AI models ready for reuse.

Executives realize that building and using AI present unique challenges; 88 percent of respondents state that it is very important for employees and customers to understand the general principles their organizations use to make AI-based decisions.

Regardless of the exact role an AI ends up playing in society, it represents its company in every action that it takes.

What happens if an AI-powered mortgage lender denies a loan to a qualified prospective homebuyer, or if an AI-guided shelf-stocking robot runs into a worker in a warehouse? The companies using the technology must think carefully about apportioning responsibility and liability for its actions.

Accenture is working with several companies to enable responsible customer interactions, improve quality of services and create customer loyalty by integrating an intelligent concierge robot with cognitive and social capabilities into back-office systems built on Oracle. The robot has two high-resolution cameras to recognize and track faces, capture photos and enable immersive video calling. Additional functionality includes AI algorithms to learn customer preferences, as well as 360-degree microphones and natural language processing to hear voice commands and communicate using social and emotive cues.



One area benefitting from this solution is the travel and hospitality industry, which must rotate to the new due to shifting customer expectations, changing competition and pressure on shareholder value. To provide an engaging, end-to-end experience that delights travelers while strengthening loyalty, Accenture has expanded the Accenture Hospitality Suite offering to include chatbots, AI, internet of things, wearables and digital marketing. Using the intelligent concierge as an in-room assistant, hotel guests will be able to interact directly with the robot to order meals, schedule a taxi, make spa reservations, check out from the hotel, book a future room, inquire about touristic options and more.

Similarly, the intelligent concierge could be used in a retail setting to answer routine customer questions, or in a financial services office to query customers and create or update user profiles before bank personnel begin working on an investment plan.

As AI becomes more firmly and widely integrated into society, it will have direct influence and impact on everything from financial decisions, to health, to criminal justice, and beyond.

Organizations that hesitate to consider their AIs as something that must be “raised” to maturity will be left struggling to catch up with new regulations and public demands—or worse, have strict regulatory controls placed upon the use of AI for failure of the group to take responsibility.



EXTENDED REALITY

The End of Distance

Virtual reality (VR) and augmented reality (AR) deliver immersive experiences that extend reality. Extended reality (XR) is the first technology to let people experience omni-present abilities, relocating them in both time and place—bringing about the end of distance.

Forays into XR are solving a tactical pain point that customers and businesses share: distance.

Think about the challenges brick and mortar retailers are facing with escalating pressure from online shopping. Oracle is addressing this by enabling virtual reality (VR) commerce using Oracle ERP Cloud to link banks and credit card networks to retailers on all types of transaction platforms. This approach, for example, is helping a global payment processor thrive by offering tools to enable purchases directly within immersive experiences. And, with APIs in Oracle Financials Cloud, the company can turn virtual transactions into real revenue and streamline transaction flows without manual processing.

The fundamental changes to enterprise and society are clear: the importance of place is disappearing. XR is removing the hurdle of distance, increasing access to people, information and experiences.

In an innovative move, Accenture is collaborating with Oracle to integrate AR and VR visualization technologies with Oracle Cloud Platform to enhance the traditional customer experience. These new capabilities showcase how XR technology can be used to supplement digital, screen-

based information with VR-based physical access to view device locations and malfunctioning machines as well as to conduct remote support and operation.

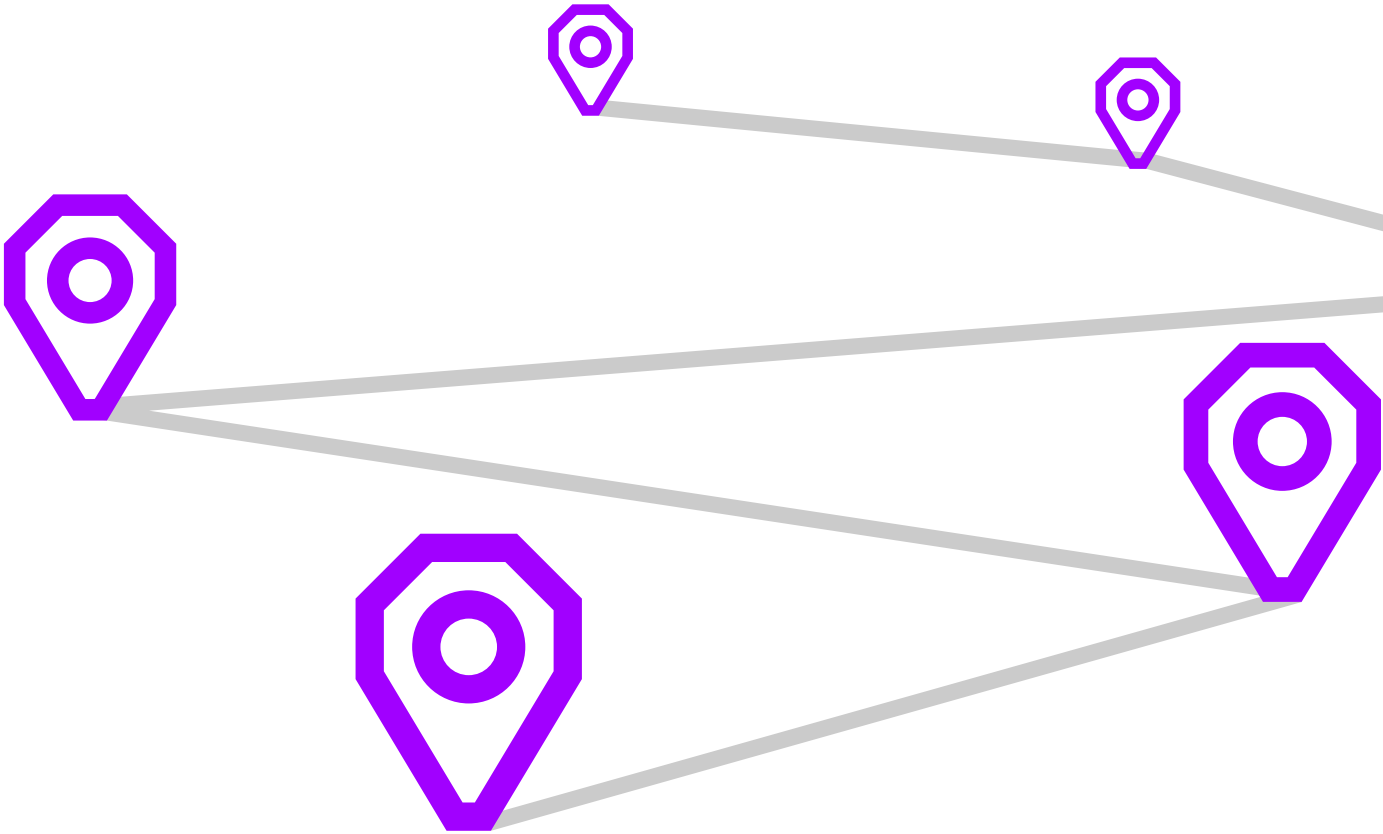
There are many more XR opportunities to consider, including XR-based training: companies can bring trainers “on-site” from anywhere, or have students virtually “travel” to an instructor; training scenarios can be set up anywhere, then run, re-run, and adjusted to give a firsthand experience of different situations. This eliminates the distance not just between student and teacher, but also concept and practice.

Extended reality is also closing the distance to new business insights for organizations. Emerging XR tools express data in 3D environments, closer to the way humans actually see and imagine scenarios. This clears the way for new types of visualizations—and new discoveries. For example, The Body VR creates interactive 3D builds of traditionally 2D medical imaging, like CT scans and MRIs, to provide a more intuitive view of medical conditions.

Similarly, Oxford researchers have created VR models of genetic data to better visualize what happens within living cells.^{5,6} Extended reality is changing the viewer's relationship to information: how people parse, communicate and extract value from data.

Today, XR is still evolving, and challenges around processing lag and content creation remain barriers to its full maturity. But thanks to the transformative potential of XR, our Technology Vision survey shows 27 percent of executives agree that it is very important for their organizations to be pioneers in XR solutions.

Making well-planned forays into immersive experiences now will help businesses build the capabilities needed to transform entire industries tomorrow. Extended reality is pushing companies to create new solutions that bypass many of the distance-based challenges they face today—a clear advantage for leading companies that embrace it. As XR becomes pervasive, immersive experiences will eliminate the most important distance of all: the distance between where businesses are today and where they want to be in the future.





DATA VERACITY

The Importance of Trust

Today, the global economy runs on live information: IDC forecasted global revenues of nearly \$151 billion for big data and analytics practices in 2017, up 12 percent from the year before.⁷ And companies around the world are betting big on advances in data-hungry technologies. In 2017 alone, AI investments were projected to reach \$12.5 billion, while internet of things investments were expected to top \$800 billion.^{8,9}

Eighty-two percent of executives responding to the Accenture Technology Vision survey report their organizations are increasingly using data to drive critical and automated decision-making, at unprecedented scale.

Accenture and Oracle recognize data veracity is the cornerstone of customer trust. That's why Oracle is continuing its work to secure the Oracle Cloud Platform and manage its Data as a Service (DaaS) sources. This includes qualifying and cleansing the more than 1 trillion terabytes of Oracle's stored enterprise and consumer data, as well as anonymizing it before generating and regularly updating a portfolio of 5 billion consumer profiles and 400 million business profiles.

Businesses can use Oracle's 45,000 built audience segments to better understand their customers' behaviors across channels and to guide their corporate sales and marketing decisions. More than 1,500 data providers and 15 million websites, from high-tech to consumer goods to advertising, depend on DaaS to analyze

their data sources using AI, machine learning and Oracle Identity Graph to enrich and consolidate information into a unified view of customers.

While business is more data-driven than ever, inaccurate and manipulated information threatens to compromise the insights that companies rely on to plan, operate, and grow. Left unchecked, the potential harm from bad data becomes an enterprise-level existential threat.

According to our survey, 79 percent of executives agree that organizations are basing their most critical systems and strategies on data, yet many have not invested in the capabilities to verify the truth within it.

Companies can address this new vulnerability by building confidence in three key data-focused tenets: provenance, or verifying the history of data from its origin throughout its life cycle; context, or considering the circumstances around its use; and integrity, or securing and maintaining data.

The skills and tools needed to build this confidence are within reach. Every business must build a data intelligence practice, drawing from existing data science and cybersecurity capabilities. The first step is to ensure that the right data is being used throughout decision support systems and processes. What's more, companies must be vigilant in uncovering and addressing ways stakeholders might manipulate data for their own benefit.

Organizations must ramp up existing efforts: embedding and enforcing data integrity and security throughout the organization, while adapting existing investments in cybersecurity and data science to address data veracity issues.

Whether it's a person creating a data trail by shopping online, or a sensor network reporting temperature readings for an industrial system, there's an associated behavior around all data origination. Companies must build the capability to track this behavior as data is recorded, used and maintained. With this knowledge, businesses can provide cybersecurity and risk management systems with a baseline of normal behavior.

Every business must build a data intelligence practice, drawing from their existing data science and cybersecurity capabilities.

With the objective to become a data-driven organization, a European bank launched a big data program, designed to convert information into value and exploit the capabilities and compute power.

Building on this initiative, the client began transitioning to the cloud and engaged Accenture to provide implementation and managed services for Oracle Cloud, Oracle Exadata, Oracle Big Data and Oracle PaaS.

The project includes significant organizational change, including: defining a Big Data Competence Center to capitalize on and transfer knowledge and best practices across the organization; identifying key profiles and experts for each area; and removing data and information silos. The bank's powerful new IT architecture allows for a seamless, flexible, reliable solution, and mobile-enabled sales force—while freeing staff to concentrate on building relationships and innovation.

A company's data intelligence practice must also consider given data within available context—in other words, recognizing when data presents findings that don't fit with accepted knowledge. Some companies are beginning to use data science capabilities to flag data that deviates from a known broader context. For example, an R&D group at Thomson Reuters has developed an algorithm that uses streams of real-time data from Twitter to help journalists classify, source, fact-check, and debunk rumors faster than before.¹⁰

As noted in Oracle Cloud Predictions 2018, Oracle provides an entire data ecosystem, allowing data management and the broadest set of related IaaS/PaaS services to work together automatically—and in many cases, autonomously. Today, Oracle Management Cloud has visibility across all operating platforms, and learns the normal behavior of every application. When anomalies occur or are predicted, root causes can be understood—and preventive or corrective action taken automatically.

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Accenture is helping a large automotive original equipment manufacturer (OEM) transform its digital marketing by using data to make automated decisions, increase share of sales that used digital channels at a lower cost of sale, and manage digital marketing for all markets and brands. Accenture implemented Oracle Eloqua, which provides marketing automation from Oracle Marketing Cloud, and Oracle BlueKai, which enables companies to personalize online, offline, and mobile marketing campaigns.

Accenture now provides end-to-end digital marketing services for the client, covering the full customer journey from sales prospect to customer across content, media management, search engine marketing / search engine optimization conversion, website and marketing analytics, and campaign management capabilities with an outcome-based pricing model. This new approach brings executional certainty and management simplicity to the client's distributed marketing network.

As a result, the client increased digital penetration more than 30 percent; increased the volumes of the campaigns executed by 75 percent; increased leads from digital marketing campaigns by 25 percent with a nine percent increase in leads converted; and increased digital sales by 60 percent.

THE SELF-DRIVING DATABASE

ORACLE AUTONOMOUS DATABASE CLOUD

Oracle has recently launched the world's first 'self-driving' database, the Autonomous Database Warehouse Cloud (ADWC), part of a new category of Cloud Platform Autonomous Services. The ADWC delivers automated patching, upgrades, and tuning including performing all routine database maintenance tasks while the system is running, without human intervention. The goal is to deliver unprecedented availability, performance and security—at a significantly lower cost.

An Accenture team, led by Paul Daugherty, Accenture's Chief Technology & Innovation Officer, ran a performance test of the beta version of ADWC on a real application—one Accenture uses to manage the skills, talents, and deployments of Accenture's Oracle resources. The team utilized an existing cloud-based analytics application, Platform Resource Enablement Tracking Tool, running on the Oracle Analytics Cloud Service. Data was replicated on the Oracle Database Cloud Service and the ADWC

to provide a real-life application usage experience. The data was then extrapolated and expanded to nine years' worth of data to test the performance.

Accenture's rigorous testing revealed the performance improved nine times running the Oracle workloads in the Oracle Cloud, and delivered a 14 times performance acceleration running these workloads. The Accenture team was able to load 500 million rows of data in less than three

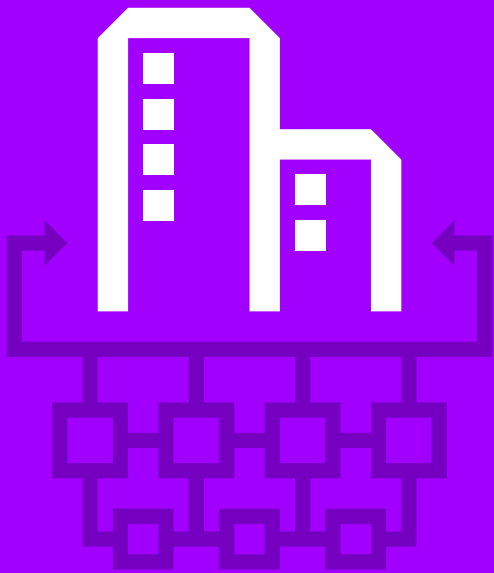
minutes, an increase of 10 to 15 times. Accenture tested scale by adding 12 times more data and saw stability and speed improve as more data was added.

“We were impressed by both the performance and ease of use, with just four fields required to create a database. This allows for the democratization of access to technology, where a broader set of business users can create and analyze data directly,” Daugherty said.

“From a security standpoint, the autonomous capabilities get us closer to the holy grail of being automatic, predictive and self-healing. Accenture can run a health check to determine the security and stability of the environment. With automated patches, something that may seem so basic, we can derive huge value in terms of security, and also free up human resources to focus on more innovative work,” he said. “Finally, with machine learning, we are better able to understand the correlation and nature of threats so we can be smarter about how to diagnose and defend.”

The results of the performance tests speak beyond numbers: with autonomous capabilities, Accenture is helping to enable intelligence in the enterprise and transform the way people live and work. The future is in the ability to process massive amounts of data—and Accenture’s Oracle data specialists can now focus on providing insights to the data, where the autonomous set of services provides exponential opportunity.

The tests were performed at multiple Accenture locations and innovation centers across the globe, and conducted by Accenture’s Oracle data specialists, who brought extensive real-world experience to the process. The group has one of the largest concentrations of senior talent in Oracle database and engineered systems in the world, and has completed more than 600 Oracle Exadata implementations worldwide. Accenture’s Oracle data team has more than 20,000 professionals, who aid in delivering 50 billion transactions a day across more than three exabytes of data for clients globally.



FRICITIONLESS BUSINESS

Built to Partner at Scale

Companies compete through strategic partnerships, and when these partnerships are technology-based, they can expand partner networks faster and into more ecosystems than ever before. But legacy business systems weren't built to support this kind of expansion, and soon, outdated systems will be major hindrances to growth. To build a strong foundation for technology-based partnerships, businesses must consider adopting microservices architectures and using blockchain and smart contracts. Those that invest in these changes today will redefine how businesses transact in the future.

Already, the Accenture Technology Vision survey shows 36 percent of businesses report working with double or more partners than they were two years ago. It's critical for business leaders to recognize that their organization's own technology will serve as the foundation for these strategic relationships—but could also be holding them back.

To spur a new wave of technology-based partnerships, companies must look inside their own walls, which starts with adopting a new approach to architecture: microservices. In addition to delivering internal benefits like application scalability and reliability, a microservices architecture will push organizations to clearly define the services they offer, allow them to discover new sources of revenue, and turn each service into a potential enabler of technology-based partnerships.

Accenture and Oracle are forging ahead in the microservices space with the launch of industry-as-a-service offerings, teaming with leaders in the industries, and powered by Oracle Cloud. These partnerships are built to scale and provide valued services for the people that matter the most—the customers.

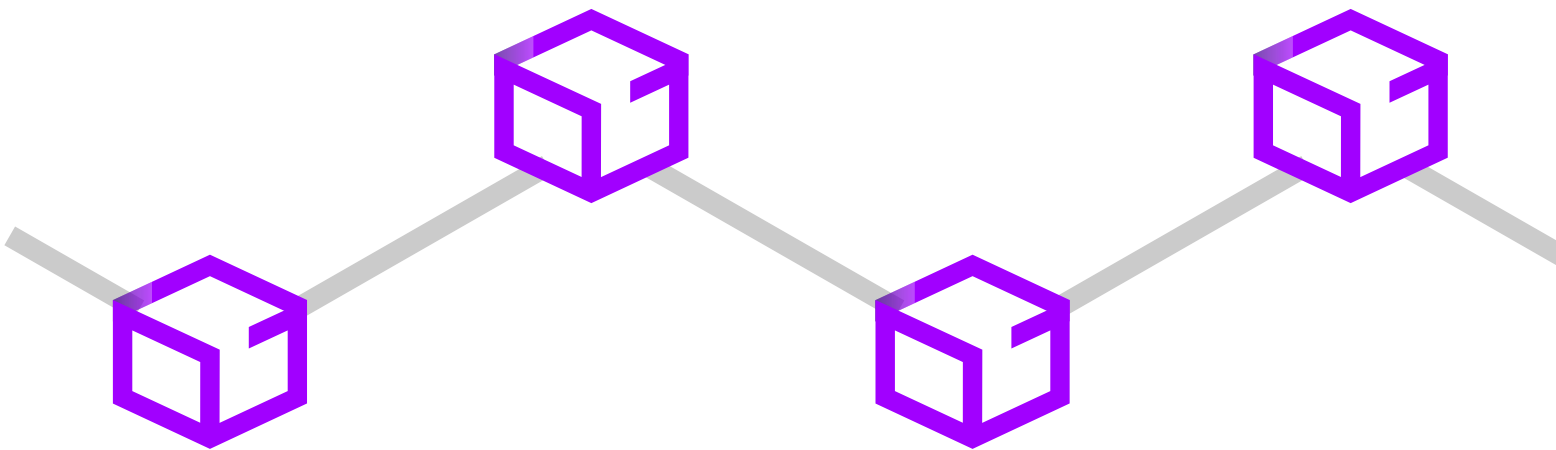
If microservices is the key to scaling and integrating partnerships, blockchain will be critical to managing and operating them. Businesses will be challenged to maintain a higher volume of partnerships than ever before, and even rapidly pivot between partners, without sacrificing the integrity or security of their products and services. Blockchain will address this complexity by acting as a surrogate for trusted relationships.

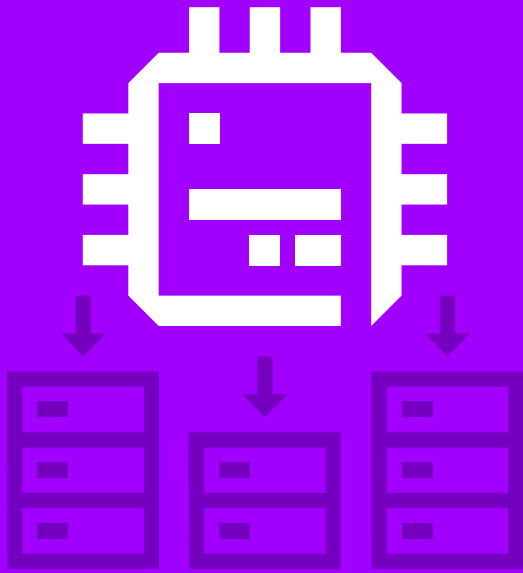
To bring innovative blockchain capabilities to clients, in late 2017 Oracle launched Oracle Blockchain Cloud Service, running Hyperledger Fabric on the high performing Oracle Cloud Platform. Through Accenture's blockchain solutions, customers can easily connect and integrate their Oracle database and Financial, HR, Supply Chain or Customer Experience modules in a platform-as-a-service model. Now Accenture and Oracle look forward to innovating with our joint clients on this powerful blockchain platform to enable future business transactions.

While many blockchain initiatives are still in early stages, 60 percent of executives Accenture surveyed report that blockchain and smart contracts will be critical to their organizations over the next three years.

Companies should begin to re-evaluate how they architect their applications and services, moving toward microservices to set the foundation and quickly build the relationships needed for growth.

For many, blockchain will become the future of how businesses transact, and leaders must begin investing in the relevant skills and tools today. Tomorrow's leading businesses will be those that enable partnerships through technology today.





THE INTERNET OF THINKING

**Creating Intelligent
Distributed Systems**

Robotics, extended reality, artificial intelligence and connected devices are bringing a new level of technological sophistication to the physical world. The next generation of technology demands an overhaul of existing infrastructures, with a balance of cloud and edge compute, and a renewed focus on hardware to deliver intelligence everywhere.

Accenture and Oracle have made strategic steps with Oracle's Internet of Things (IoT) initiative, including an end-to-end approach using Oracle IoT Cloud Service and comprehensive industry solutions for utilities, construction, engineering, healthcare and insurance. Accenture and Oracle have also developed a joint IoT reference architecture, which combines Accenture's base architecture for IoT, with the Oracle IoT Cloud Service and PaaS and SaaS capabilities.

Current infrastructures are designed around a few basic assumptions: enough bandwidth to support any remote application, an abundance of compute in a remote cloud, and nearly infinite storage. But the demand for immediate response times in physical-world applications defies this approach.

Current predictions suggest that by 2020, smart sensors and other internet of things devices will generate at least 507.5 zettabytes of data. Trying to do all of the computational heavy lifting offsite ultimately will become a limiting factor.¹¹ The resulting need for real-time systems puts hardware in focus: special-purpose and customizable hardware is making devices at the edge of networks more powerful and energy efficient than ever before.



Oracle has made great strides in developing new cloud-based infrastructure that is ready for the needs of intensive workloads, such as mapping data real time for medical diagnosis or powering autonomous vehicles.

Oracle Cloud Infrastructure (OCI) is now powered with NVIDIA's Pascal-based Tesla graphics processing units (GPUs), as announced at Oracle OpenWorld 2017. This architecture can provide the type of performance necessary to run workloads that require machine learning, AI and high-performance computing. Furthermore, Oracle is continuing this investment and working jointly with NVIDIA on its next generation Volta architecture. Accenture will leverage these technologies as we continue to pioneer solutions across AI, XR, internet of things and blockchain.

Across industries, the next generation of intelligent solutions are moving into physical environments, and key company strategies ride on pushing intelligence into the physical world. Oracle is helping set this standard through industry-specific internet of things offerings—to collect sensor data from distributed utility grids, schedule predictive maintenance of industrial equipment, monitor workforce safety, support healthcare patient engagement and research, and create new business models for insurance. Together, Accenture and Oracle stand ready to help companies extend their infrastructures to reach into the dynamic physical environments they want to serve.

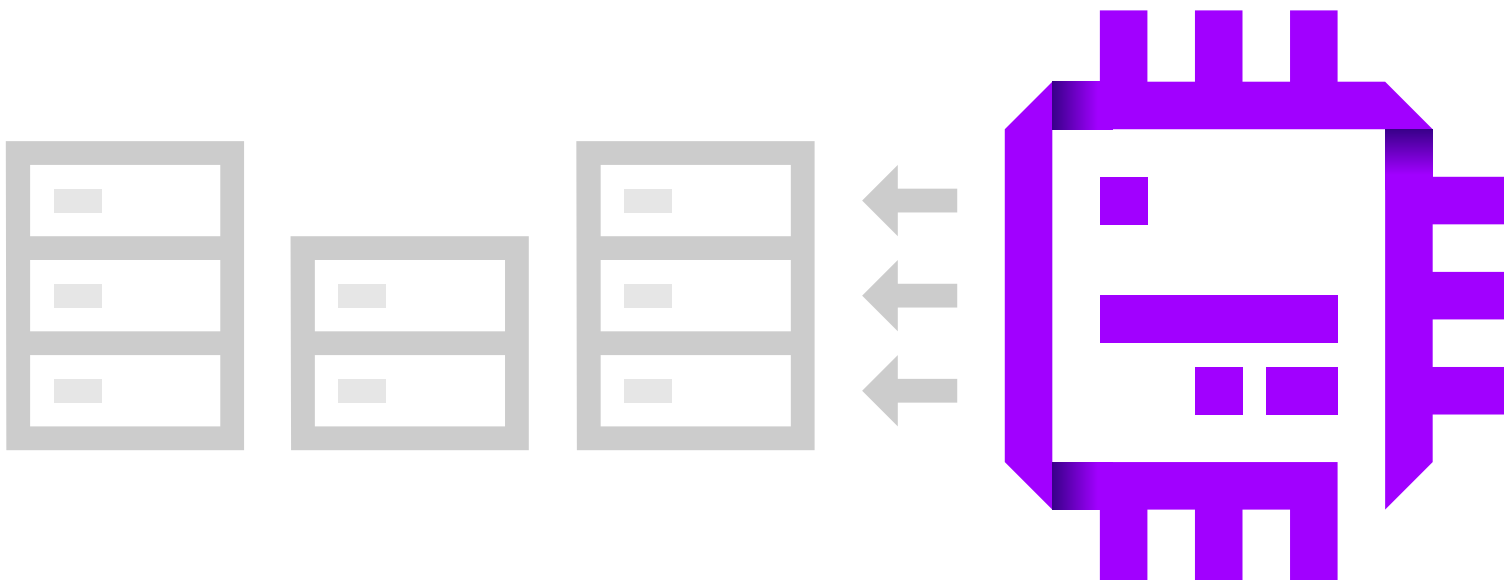
Accenture helped a European facilities management company, VINCI Facilities, increase its competitive advantage by transforming operations with leading-edge technologies and disruptive digital services. As one of the core projects, the team helped define, expand and modernize the client's IoT use cases on the Oracle IoT Cloud Service including intelligent sensors to measure workspace temperature and presence, provide a higher comfort to occupants, and optimize cleaning interventions or energy consumption costs.

Accenture also helped develop a wearable device solution to remotely monitor the client's workforce, reduce liability and promote safety by ingesting data from workers' wearable devices. The solution monitors worker vitals and maps employees based on altitude and other factors to mitigate risk and improve working conditions.

Additional Accenture projects included implementing a responsive portal on Oracle Service Cloud and Oracle Configure Price Quote (CPQ) Cloud to increase client satisfaction; and integrating with Power BI data visualization module and a hypervisor tool through the Oracle SOA Suite to create value from data. As a final step, Accenture leveraged its global network of delivery centers to maintain the entire solution.

Now, VINCI Facilities is better able to take care of building facilities, occupants and environmental impacts to help its end-customers enhance their property assets, improve the work environment of their occupants, and control energy and operating expenditure.

In a different example, for the hospitality industry, Accenture created a wearable offering that can enable intelligent staffing and reduce churn among employees. The device can be plugged into an existing back-end system, such as Accenture's Hospitality Suite solution targeted at hotel and resort companies, which is built on Oracle's PeopleSoft and HCM Cloud software. After the housekeeping staff has cleaned and prepared a room for the next guest, a simple press of a button on the wearable tells the front desk the room is ready for inspection, or for immediate occupancy.



By automating part of a daily routine in the hospitality industry, this wearable application not only improves operating efficiency but also customer service. It also provides better information on time taken to clean rooms; dynamic scheduling, which enables flexible work patterns; and more effective deployment of housekeeping staff, based on metrics obtained for room size, area and the staff's prior performance.

This extended infrastructure calls for a renewed focus on hardware, at a time when many companies have grown accustomed to software-driven solutions as their go-to strategies. Companies are taking note: our Technology Vision 2018 survey indicates 63 percent of executives believe it will be very critical over the next two years to leverage custom hardware and hardware accelerators to meet the computing demands of intelligent environments.

Businesses must act today to incorporate hardware-focused skills into their workforce—an added challenge for those whose cloud-first mentality may have deemphasized this need. Building or leveraging custom and specialized hardware is a shift from the one-size-fits-all tasks approach that proved popular in enterprises during the last decade.

Eighty-three percent of executives we surveyed agree that edge infrastructure will speed the maturity of many technologies.

To drive AI, robotics and other revolutionary technologies to their full potential, businesses must make a significant effort across key areas of business processes and strategy, from service design, to infrastructure transformation, to hardware considerations—all the while maintaining the veracity of the data driving these systems. The well-earned result will be truly intelligent environments that meet people where they are.

MAP YOUR UNIQUE JOURNEY TO CLOUD

Accenture's latest investment and innovation is the **Accenture Cloud Suite for Oracle**, which forms the basis for the creation and delivery of the full range of Accenture's Oracle Cloud-based solutions—including **Software-as-a-Service (SaaS)**, **Platform-as-a-Service (PaaS)**, **Infrastructure-as-a-Service (IaaS)**, **Data-as-a-Service (DaaS)**, **internet of things**, **analytics**, **automation**, **blockchain**, **functional and industry-specific topics**.

The **Cloud Suite** taps into Accenture's extensive investments in cloud technology and experience in helping countless clients reinvent themselves by taking advantage of the new innovations possible with cloud.

Designed to deliver rapid, predictable and tailored deployment of cloud solutions, the Accenture Cloud Suite for Oracle includes an extensive catalog of 500+ intelligent, automated assets, including architectures, accelerators, cloud journeys and offerings focused on providing a unique and personalized journey for clients moving to the portfolio of Oracle Cloud offerings, as well as material end-to-end savings and liquid application management.

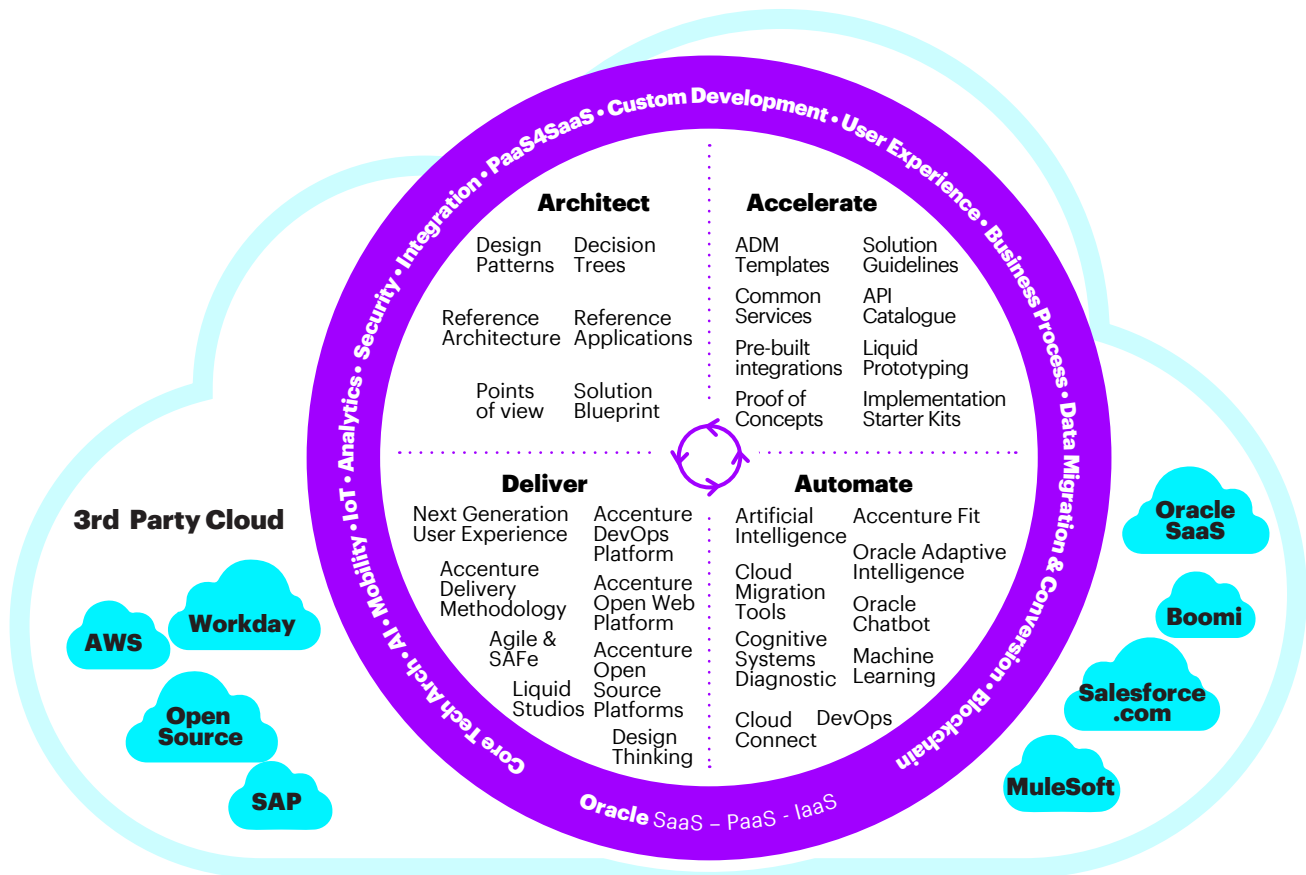
The Accenture Cloud Suite for Oracle, which integrates with organizations' architectures at multiple levels, includes focused industry resources and a range of preconfigured industry offerings, eliminating the need to design, test and build solutions from scratch.

To date, Accenture has used its robust Cloud Suite to help more than 200 clients drive significant business results and operational efficiencies, leveraging Oracle's industry-leading cloud solutions and Accenture's unrivaled integration capabilities.

Purpose-built to provide a flexible bridge to help enable cloud-to-cloud, cloud-to-on-premises, and cloud-to-custom architectures and solutions, the Cloud Suite encompasses four key areas that support rapid adoption of Oracle's cloud technology (see diagram on page 30).

500+ ASSETS in the Accenture Cloud Suite for Oracle, including...

- Journeys to Cloud
- Data diagnostic and migration assets
- Cloud Migration Factory for Oracle
- Accenture Rapid Prototype Builder
- Robotic Process Automation (RPA) proof of concept
- Accenture Cloud Connect for Oracle
- Accenture IaaS Cloud Accelerator for Oracle
- and more to help your organization become faster, smarter, more agile and more responsive—to become an intelligent enterprise.



Architect – Provides reference architectures, models, decision trees, point of views, blueprints and more to help build robust, scalable, secure and mature architectures.

Accelerate – Speeds up planning and execution with starter kits, common services, pre-built integrations and solution guidelines, along with industry-specific and cross-industry process flows, configurations, testing and training assets. It also has a rapid prototyping proof of concept kit that hosts a library of tools to speed development, with the ability to stand up client ready environments in a matter of days.

Automate – Removes manual work from implementations and migration tools such as Accenture Cloud Connect, testing and environment provisioning. Automate also features new artificial intelligence and robotic process automation tools and solutions.

Deliver – Combines Accenture’s experience in industrialized delivery methods with agile and liquid delivery for cloud solutions. This work is backed by Accenture’s in-house design agencies, such as Fjord, and delivered by a network of Oracle-focused global delivery centers, Innovation Centers and Liquid Studios.

REFERENCES

- 1** Millward, S. (2017, July 27). "AI English teacher" gets \$100m. Retrieved November 7, 2017, from <https://www.techinasia.com/ai-english-teacher-100m>
- 2** Rao, Leena. (2017, June 2). Walmart is Looking to VR to Prep Workers for Black Friday. Retrieved from: <http://fortune.com/2017/06/02/walmart-vr-black-friday/>
- 3** X-Road. (n.d.). Retrieved October 13, 2017, from <https://e-estonia.com/solutions/interoperability-services/x-road/>
- 4** Retrieved from www.oracle.com
- 5** The Body VR | Anatomy Viewer. Retrieved from <http://thebodyvr.com/anatomy-viewer/>
- 6** Jones, B., & Bergan, B. (2017, September 22). Virtual reality headsets might help cure genetic diseases. Retrieved September 28, 2017, from <https://futurism.com/virtual-reality-headsets-might-help-cure-genetic-diseases/>
- 7** Goepfert, J. (n.d.). Worldwide Semiannual Big Data and Analytics Spending Guide. Retrieved October 13, 2017, from http://www.idc.com/getdoc.jsp?containerId=IDC_P33195
- 8** Worldwide Semiannual Cognitive/Artificial Intelligence Systems Spending by Industry Market 2016–2020 Forecast. (n.d.). Retrieved November 1, 2017, from <http://www.idc.com/getdoc.jsp?containerId=US42749817>
- 9** Worldwide Spending on the Internet of Things Forecast to Reach Nearly \$1.4 Trillion in 2021, According to New IDC Spending Guide. (n.d.). Retrieved November 2, 2017, from <http://www.idc.com/getdoc.jsp?containerId=prUS42799917>
- 10** Liu, X., Nourbakhsh, A., Li, Q., & Shah, S. (2015, October). Real-time Rumor Debunking on Twitter. <https://doi.org/http://dx.doi.org/10.1145/2806416.2806651>
- 11** Shacklett, M. (2017, July 21). Edge computing: The smart person's guide. Retrieved September 8, 2017, from <http://www.techrepublic.com/article/edge-computing-the-smart-persons-guide/>

ABOUT ACCENTURE

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions – underpinned by the world’s largest delivery network – Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With approximately 442,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at www.accenture.com.

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