

IDC PERSPECTIVE

Oracle Innovation Manifests in a New Generation of Cloud Applications

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Oracle Innovation Manifests in a New Generation of Cloud Applications

A new generation of sophisticated users who expect more from the technology they rely on to get their jobs done exert greater influence over buying decisions. This includes smarter, friendlier data-centric applications and platforms that deliver the right information at the right time to guide decisioning. Oracle Fusion Cloud Applications characterizes a new breed of cloud applications for the digital economy.

Key Takeaways

- Businesses deploy digital technologies to increase agility, resiliency, and opportunities for innovation during periods of high-impact disruption.
- The digital enterprise needs a new generation of cloud applications that are smarter, are fully integrated, deliver faster time to value, and are easy to onboard and use.
- Oracle Fusion Cloud Applications exemplifies this new breed of business applications that are built for the cloud and infused with autonomous capabilities to fast-track a digital-first strategy.
- Workers need real-time access to information that can be applied as knowledge to create exceptional customer experiences. This is what creates a culture of action.

Recommended Actions

- Develop a business case for digital transformation that reflects the impact of improved use of data and information on business performance.
- Engage cross-functional stakeholders, especially heavy users of the technology, to identify the data streams needed to optimize processes and guide the transformation effort toward desired outcomes.
- Consider that your choice of products and services must address the operational needs of the business in the present while laying the groundwork for the future enterprise.
- Eliminate the cost and complexity associated with myriad point solutions by investing in a platform that simplifies integration, features a common data architecture, and supports multiple deployment options.

Source: IDC, 2020

SITUATION OVERVIEW

Market disruptions come in many forms, varying in impact and duration. The one constant is that change brought on by disruption is a persistent challenge. The disruption caused by digital transformation is high impact and long duration. The current pandemic has been enormously impactful, while the duration remains uncertain. The inescapable truth is that businesses need a new operating model that is more agile, scalable, and resilient to respond to changing conditions brought on by disruptive forces. We are seeing the acknowledgement of this as businesses fast-track their digital transformation to become more data driven and adaptable.

Cloud computing continues to help businesses and government institutions effectively navigate disruption with enhanced security and business continuity that allow organizations to operate smoothly and in the safest way possible. The exponential increase in remote workers exposed inadequate processes that were designed for physical presence. Workers need access to the right data at the right time to make informed decisions that guide the business or agency during periods of uncertainty and to ensure that customers experience the highest level of care and support. However, the volume and velocity of data are increasing at unprecedented rates – more data has been generated in the past 4 years than in the past 40 years. Data flow from everywhere and nearly everything is a potential source of new insight that will help businesses and government navigate economic uncertainty. Despite the significant toll of COVID-19, companies are leveraging SaaS and public cloud to make previously impossible adjustments to endure and, in some cases, thrive. These businesses prioritize better use of data for decision making at the edge with putting the customer at the center of innovation.

Organizations and government are coming to terms with the fact that digital innovation is a strategic imperative. Supply chains are stretched to their limits, virtually all commerce is now ecommerce, and virtual collaboration is and will most likely continue to be the norm. Time frames for adopting innovative cloud-enabled technologies like artificial intelligence (AI), Internet of Things (IoT), and advanced analytics have been compressed. It is time to consider a new generation of SaaS and cloud business applications that are intelligent, user centric, and portable.

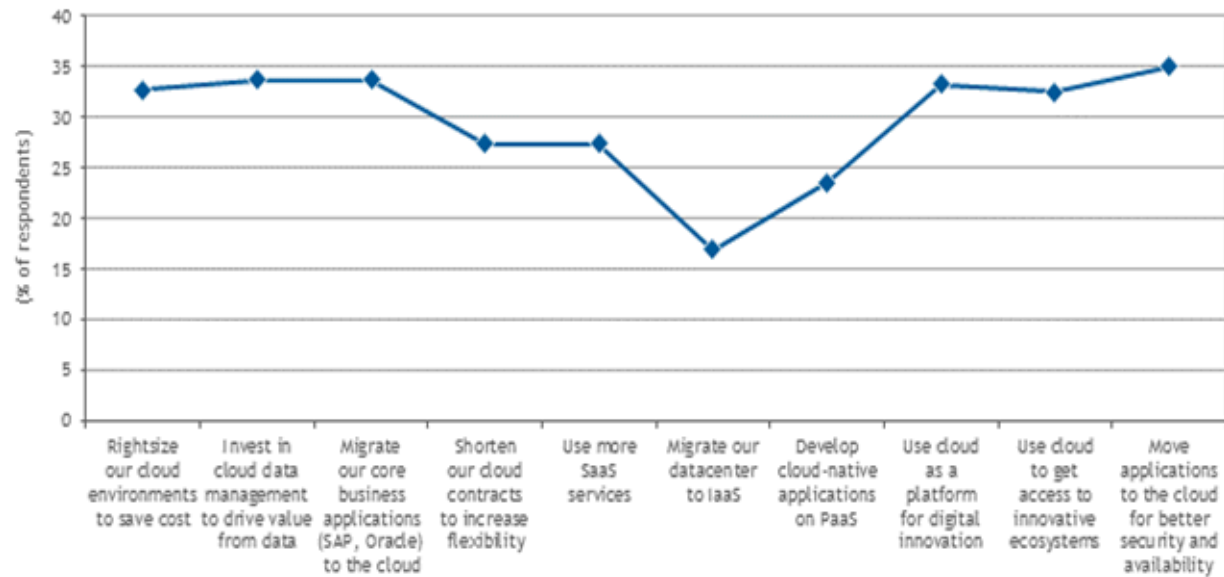
Technology investments have been reprioritized. The primary drivers are innovative new offerings with higher ROI that address operational weaknesses uncovered during the pandemic. Legacy technology investments have been deprioritized. Many organizations struggle with legacy ERP systems and manual processes designed for outdated systems of record encumbered by years of customizations and integrations. The operational challenges created by these systems serve as the primary driver for a move to cloud ERP.

While global IT spending is forecast to decline 2.7% in 2020 as organizations implement contingency plans and budget cuts, cloud investment strategies reflect current and longer-term priorities including SaaS and cloud as platforms for agility and innovation. Figure 2 highlights changes in cloud strategy, and Figure 3 shows changes in planned SaaS spending for 2020.

FIGURE 2

Impact of Pandemic on Cloud Strategy

Q. Which statements describe how your organization's cloud strategy is changing due to the pandemic?



n = 664

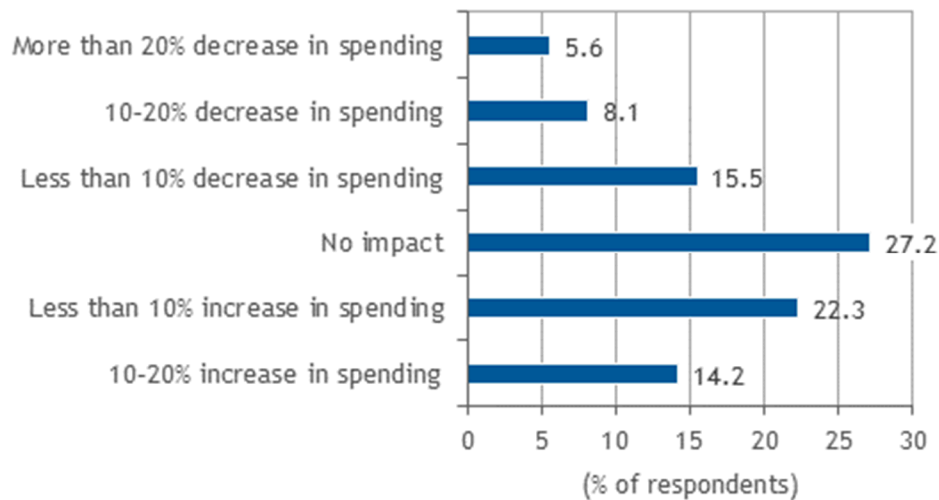
Note: The survey was conducted July 20-31, 2020.

Source: IDC's COVID-19 Impact on IT Spending Survey, July 2020

FIGURE 3

Impact of Pandemic on 2020 SaaS Spending

Q. How do you think your organization's actual 2020 spending on SaaS will be impacted by COVID-19?



n = 664

Note: The survey was conducted July 20-31, 2020.

Source: IDC's COVID-19 Impact on IT Spending Survey, July 2020

The business value generated by investments in SaaS and cloud software continues to be a bright spot in an otherwise dim IT spending outlook. There are examples in every industry and company size segment. Consider an automotive company that transitioned in weeks from manufacturing cars to building highly regulated respiratory equipment. This seemingly impossible pivot was made possible by the speed and agility of digital technologies like augmented reality and AI that converge in powerful cloud platforms on which companies build sustainable competitive advantage.

Businesses that have made the journey to SaaS and public cloud find that they are better positioned to respond to significant economic, social, and regulatory changes. They are prepared to reshape customer interactions by empowering remote employees with insights to deliver superior experiences. For example, retailers can rapidly scale ecommerce and enhance digital experiences with highly personalized online shopping to offset declines in in-store sales. Cloud applications help companies take an agile approach to strategy and planning, quickly scaling their response to new realities. Large, up-front capital investments are not required, which encourages testing and experimentation. Executives currently focused on business continuity and ROI will eventually reorient toward operational resiliency and innovation, as they progress from crisis response to recovery and a return to profitable growth.

To achieve the desired outcomes from a successful digital transformation, companies must democratize data-driven insights, particularly for frontline workers. The challenge is to identify the right data coming from myriad sources at a speed that surpasses most organization's ability to process. IDC predicts a 10x growth in data through 2025, largely driven by devices and sensors. Findings from IDC's

2020 *Industry CloudPath Survey* showed that 57% of businesses are using IoT and real-time streaming analytics through an event-driven architecture. SaaS providers are quickly becoming keystones for platform ecosystems built with cloud-native technology and featuring intelligent user-centric design and modern APIs for frictionless integration.

New Generation of SaaS and Cloud Applications

Changes in buyer and user expectations prompt a seismic shift in the design of enterprise business applications. Today's user has little tolerance for software that forces trade-offs between simplicity, power, and efficiency. Users and key influencers, and increasingly, buyers of business applications, and businesses cannot afford prolonged or limited adoption because of a bad user experience. In addition to the sea change in expectations, there is the need to make better use of information at scale. AI and machine learning (ML) provide the optimal way to promptly identify, ingest, and analyze data. The desire for increased agility and portability to address dynamic application workload and data requirements drives growth in connected cloud architectures. As a result, this new generation of SaaS and cloud business applications features cloud-native architecture to take full advantage of hybrid and multicloud deployments. In an expanding number of cases, these SaaS solutions run on powerful platforms that simplify integration, unify data silos with a common data architecture, and enable ecosystem partners to extend the core application's capabilities to address specific industry or business requirements. A new generation of cloud applications is intelligent, easy to use, and better positioned to meet the needs of today's IT and business buyer that expects a frictionless purchase and onboarding experience; a consumerlike, responsive interface that encourages user adoption; and faster time to value.

Customer-focused industry leaders that recognize the importance of bringing these elements together in SaaS and cloud platforms differentiate their position with buyers. While each of these elements has unique value, the ROI is amplified when converged in the applications and services users rely on to get their jobs done.

Table 1 shows the primary forces converging to create a new generation of SaaS and cloud applications.

TABLE 1

New Generation of SaaS

Force	Description
Changing buyer demographics	The workplace is increasingly digital and will continue in this direction as demographics change and millennials with considerably different attitudes and preferences become a greater presence.
Increasing volume and sources of data	Exponential increases in the volume and velocity of data necessitate new sophisticated capabilities to analyze and act on insights.
Cognitive technologies	AI and machine learning infused into business applications enable automation and augment human capabilities.
Unbundling of monolithic applications	Transition to agile and portable microservices and containers leveraging modern APIs and orchestrated with Kubernetes.

Note: See *The Velocity of Change Drives a New Generation of SaaS* (IDC #DR2019_T5_FDR, March 2019) for details.

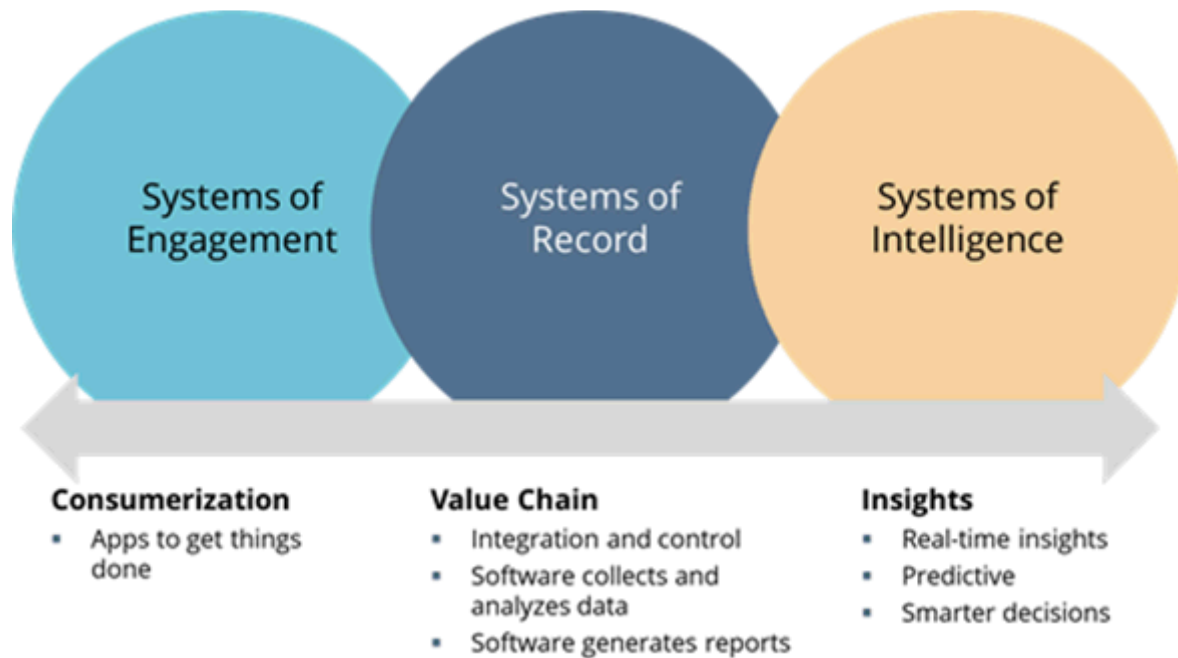
Source: IDC, 2019

This new generation of SaaS and cloud applications impacts the entire enterprise application ecosystem and increasingly include a fully integrated platform as shown in Figure 4:

- **Systems of engagement – customer-facing applications used by employees to deliver superior customer experiences (CXs).** Examples include self-service, call centers, field service, sales and marketing, and digital commerce. These systems are a significant enabler for digital transformation.
- **Systems of record – information-centric applications that collect and analyze data.** These applications provide data for other systems. A good example is ERP, which is accessed by more users and supports more business-critical workloads than most business applications. While many companies continue to operate with a legacy ERP, it is imperative that these workloads move to cloud to support a large distributed workforce. Access to a continuous flow of new cloud-only ERP capabilities fuels continuous innovation.
- **Systems of intelligence – insights for decision making that are delivered by systems that provide real-time analysis and predictive capabilities across the business and its supply chain.** These systems have become critical for executing a digital-first strategy and to ensure superior user and customer experiences. A prime example is the Customer Intelligence Platform (CIP), which builds unified customer profiles by integrating data from a variety of internal systems and external sources using public APIs that simplify integration. CIP combines data from first-, second-, and third-party sources, including systems of record and systems of engagement.

FIGURE 4

Enterprise Business Application Ecosystem



Source: IDC, 2020

Oracle's Historical Trajectory

This document features Oracle Fusion Cloud Applications as an example of this new generation of cloud applications. The remaining sections provide a concise view of the innovation underway across Oracle, guided by the goal to provide customers with a modern application and scalable integrated platform experience. Extracting business value from data aligns these workstreams in a common purpose. From its inception, Oracle has been a leader in industry efforts to help customers manage an ever-increasing volume and velocity of data. In 2016, the company introduced Oracle Adaptive Intelligent Apps, with machine learning, natural language processing (NLP), and predictive reasoning, to enable customers to make decisions at the point of need. Fast-forward to today, the entire suite of Oracle Fusion Cloud Applications is built on cloud-native architecture and infused with innovative technologies that shorten time to value. This suite of applications uses advanced data management capabilities to process large volumes of data in real time, another hallmark of Oracle's legacy.

The strategy behind Oracle's autonomous solutions is to streamline and simplify tasks, processes, and workflows with a single intelligent platform. Oracle Autonomous Cloud was launched in 2018 as the first self-driving, self-securing, and self-repairing high-performance cloud service featuring open interoperability for distributed deployments. AI and machine learning are applied to data integration and management, applications, and analytics to automate data flows and optimize business processes. Using intelligent automation, customers experience double-digit reductions in admin costs. Core capabilities range from dynamic data management with autonomous data warehouses and data lakes for structured and unstructured data to application design and development and an autonomous OLTP database capable of processing millions of transactions per second.

Oracle cloud services, a suite of business applications and platforms, are engineered to seamlessly work together to streamline integration, unify data, and deliver continuous innovation at scale. As noted previously, the value of individual services is amplified when converged in a new generation cloud platform that embeds services like AI, IoT, and advanced analytics in the fabric of Oracle's application portfolio.

Oracle Applied Innovation

This section presents an overview of the ongoing innovation across Oracle that culminates in a new generation of enterprise business applications and modern platform that helps customers fast-track digital transformation.

Oracle Fusion Cloud Applications is a fully integrated suite spanning virtually every functional market. Figure 5 highlights the portfolio of Oracle cloud applications. These applications are infused with AI-enabled autonomous capabilities that speed time to value and offer easy onboarding and a responsive UI to accelerate user adoption. The suite of applications shares a common underlying platform that customers and ecosystem partners can leverage to connect, extend, and enrich Fusion Cloud Applications with the same tools and frameworks used by Oracle developers.

FIGURE 5

Oracle Fusion Cloud Applications



Source: Oracle, 2020

Customer Intelligence Platform

Oracle's Customer Intelligence Platform is a modern system of intelligence. CIP's vision is to bring first-, second-, and third-party data together to build a single unified customer profile across front-office and back-office business processes. The platform consumes large volumes of data including behavioral, transactional, financial systems; POS; and other external sources in both real-time and batch modes based on the customer's understanding of the types of data that need to be unified. In one case, up to 25 sources of first-party data were mapped in a common schema, some through APIs, FTP locations, and batch. Oracle's CIP provides out-of-the-box capabilities like prebuilt industry schema, ingestion from any data source, normalization, deduplication, enrichment, and analysis. There are tools that allow customers to manage the data so that relationships can be observed and quality inspected. The platform is fully customizable. End customers are assigned a range of attributes, some from real data that has been cleansed plus derived data like enrichments, some of which have been enhanced with second- or third-party data to assign a derived score. There will eventually be thousands of these derivations that are industry focused. Predictive capabilities based on AI and machine learning models run on top of customer data. CIP enables sophisticated segmentation, facilitates the determination of causality, and provides a 360-degree view of the customer. There are native integrations with other Oracle products including Oracle Data Cloud for enrichment and advertising activation, as well as Oracle CX applications where the customer intelligence can activate marketing campaigns. Customers can eliminate blind spots between functional silos to manage and track the entire customer journey. This knowledge allows Oracle CIP customers to track customer interactions over time to determine the optimal engagement model while meeting expectations for personalized experiences that use real-time data. Users are also able to query the system to find customers that fit specific characteristics, thereby expanding business development opportunities (see Figure 6).

FIGURE 6

Customer Intelligence Platform



Source: Oracle, 2020

Artificial Intelligence and Machine Learning

Oracle has been innovating with AI and machine learning for several years. Oracle applications are enhanced with built-in intelligence in the form of robotic process automation (RPA), conversational AI, and digital assistants. These technologies coalesce in a single converged analytics platform to eliminate islands of insight and provide a single source of truth (see Figure 7).

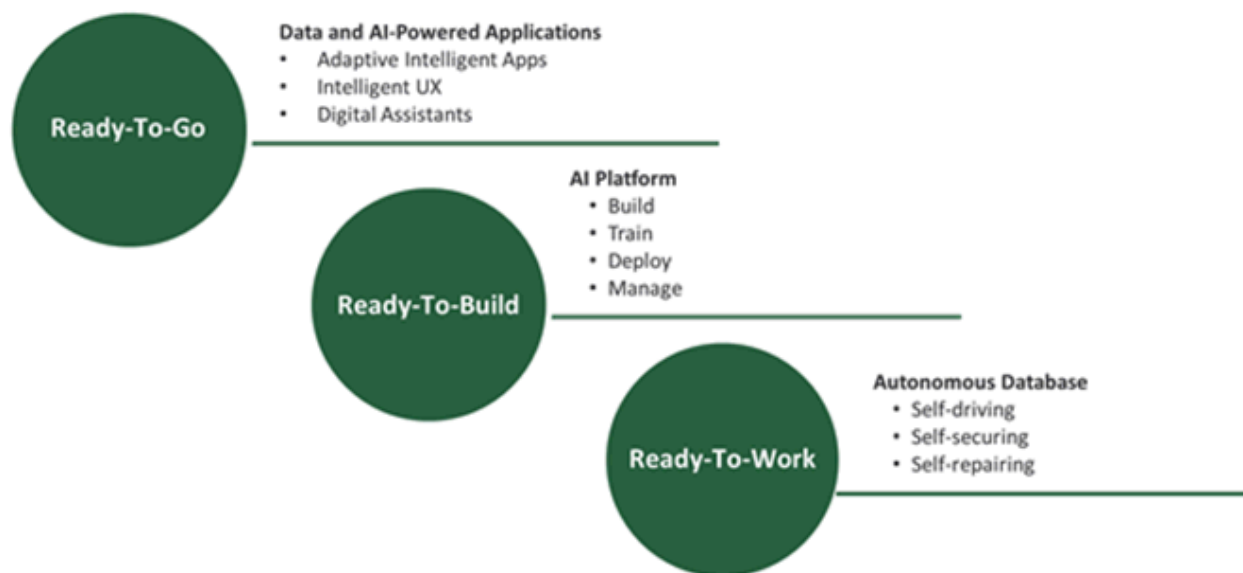
With the acquisition of DataFox, Oracle added a cloud-based AI and ML engine and derived business content for current and precise sets of company-level information for insight-driven business decisions. DataFox continuously extracts detailed data on more than 9 million public and private companies while continually adding new businesses annually. There are country-specific models to extract and standardize addresses from company websites to natively mine addresses. Businesses from large enterprises to SMBs use DataFox to prioritize accounts, identify prospects, enrich leads, and harmonize CX data.

When joined with Oracle Sales Cloud, users have the option to manually select an account to automatically get enriched DataFox data (firmographics and signals). Sales organizations benefit from rich company insights including smart talking points enabled by in-the-moment account intelligence. AI and ML are necessary to make sense of the enormous influx of data and, when embedded into traditional sales processes, transform them into agile workflows that enable sales to respond quickly to evolving business challenges, an absolute requirement in the pandemic era.

Satisfying demand for continuous innovation in a digital economy requires intelligent and adaptive ecosystems and supply chains that serve as a force multiplier, increasing flexibility and resilience, especially during times of disruption. Effective business strategy today is about managing assets that are not under the direct control of a single organization. Managers need visibility across business networks in the form of accurate, clean, and timely supplier records to optimize performance, manage risk, and respond quickly to disruption. DataFox provides active management of the AI data engine. When embedded in applications such as Supplier Intelligence, procurement data is monitored and attributes can be auto-populated, leading to centralization of supplier records with improved data quality and consistency. Supplier Intelligence for Procurement Cloud is integrated with DataFox for supplier search, creation, and registration. Customers can update, maintain, and enrich supplier records with smart matching and consistently monitor suppliers for risk indicators such as bankruptcy or changes in performance.

FIGURE 7

Oracle Enterprise AI



Source: Oracle, 2020

IoT and Blockchain

Oracle's IoT and blockchain solutions deliver real-time tracking information and analytical insights for customers across a variety of industries and business cases. Many customers are using Oracle IoT Cloud technology in combination with Oracle Fusion Cloud Applications, while others are accessing it as a standalone solution and integrating the technology into existing bespoke and third-party applications (see Figure 8). Across business segments, predictive capabilities provide strong use cases with proven ROI, particularly around maintenance and operational visibility in manufacturing facilities. Sensors inform applications that equipment is likely to break down, and instead of waiting for a malfunction, technicians can intervene to take preventative action to eliminate downtime before there is any impact on customer orders. Smart Connected Maintenance leverages IoT sensor data, AI, and

machine learning to increase equipment reliability, uptime, and safety while reducing overall costs. Oracle Maintenance Cloud represents a new generation of enterprise asset management applications.

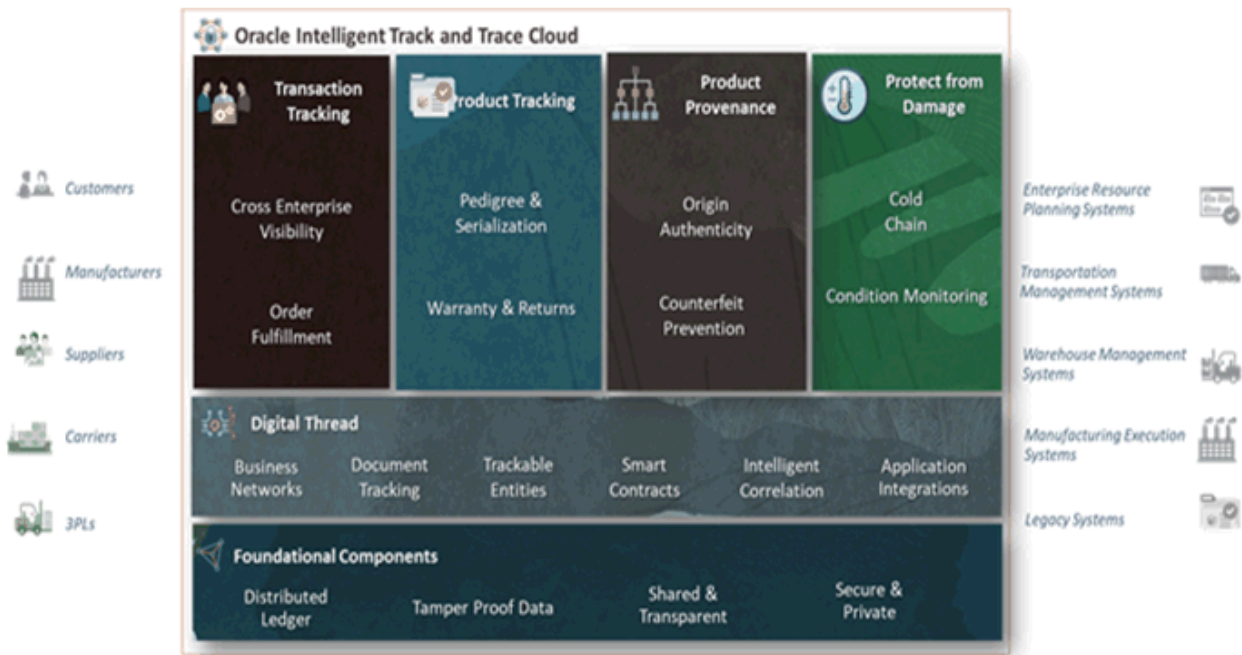
Supply chain tracking using Oracle IoT Cloud provides critical information about the movement of materials through the production process and extended supply chain. Upstream and downstream fleet management is more precise with real-time logistical data, enabling constant monitoring of location and condition of inbound materials and customer shipments. With this more direct connection between production and consumption, companies will not be so dependent on forecasts and could potentially move to a real-time consumption model. Combined with AI, sensor data could transform the forecasting process.

Oracle blockchain solutions enable customers to track products through the supply chain on a distributed ledger to increase trust in business transactions, get better visibility across a multitier supplier network, accelerate product delivery and contract execution, and improve customer satisfaction. Oracle's business-ready blockchain applications reduce barriers to the adoption of blockchain and provide immediate business benefits to customers by improving trust and transparency in their business network and transforming their supply chains.

During a crisis like COVID-19, IoT and blockchain offer especially critical supply chain tracking information to facilitate the management of goods and transactions. In addition, companies can perform fieldwork remotely, combining IoT with technology like augmented and extended reality to allow one remote employee to direct the actions of others in the field.

FIGURE 8

Oracle Internet of Things



Source: Oracle, 2020

Cases in Point

Oracle Customer Case Studies

The following case studies highlight the compound business value accruing to customers engaged with Oracle across the portfolio. In each case, Oracle partners with customers to apply innovative solutions, remove complexity, and ensure customer success through the implementation of a new generation of SaaS and cloud applications:

- A large, diversified global equipment manufacturer partnered with Oracle to establish a central platform and implement a shared services model using Oracle Fusion Cloud Applications including Cloud ERP Service. The outcome included a secure, stable, enterprise-grade field operations solution, which enabled a consolidation of the workforce, invoice and report automation, and requisition management including global supplier data management.
- A large telecom company turned to Oracle to help manage its customers, including customer acquisition and retention. Oracle's Customer Intelligence Platform was implemented to consolidate account data from dozens of internal and external sources to create a unified customer profile. When combined with historical transaction and interactions data, the sales organization was able to achieve a 360-degree view of the customer to increase the accuracy and velocity of segmentation and customer insights and therefore increase new sales and customer retention.
- An SMB industrial components manufacturer needed increased visibility into the availability of finished goods. With Oracle Cloud ERP and SCM integrated with Oracle IoT, the company was able to track product in real time off the production line and automate shipping transactions. Timeliness and accuracy were the primary drivers for the initiative, which resulted in a digital workflow that enabled real-time shipping transactions, better inventory visibility, and satisfied customers.
- A large real estate services company partnered with Oracle to design an end-to-end portal with Oracle Service and Engagement to connect the front office and back office, allowing the company to standardize, automate, and centralize operations and provide analytical capabilities. The solution includes a guided selling and mobile experience to optimize agent effectiveness.
- A large manufacturing company serving the energy services sector sought a technology solution to manage corrective and preventative maintenance of its machinery throughout its life cycle. The company decided to implement an Oracle solution that would enable it to manage all business processes across resourcing, activities, and billing on one integrated platform. Oracle cloud-based Field Service and ERP applications provide a unified platform to manage customer engagement, asset management, and field service activities.

ADVICE FOR THE TECHNOLOGY BUYER

- Include in your digital priorities the design of a common data architecture that enables the business to consolidate diverse data streams for analysis and insight. Evaluate suppliers that clearly articulate and demonstrate dynamic data management as a core competency. This should be clearly reflected in the supplier's messaging and value proposition and evident across the portfolio.
- Engage cross-functional participation, especially the heavy users of the product or service, to identify the data streams needed to optimize end-to-end processes and workflows and guide the transformation effort toward the desired outcomes.

- Eliminate the cost and complexity associated with a myriad of point solutions by investing in a technology and business platform that unites public cloud infrastructure with a new generation of cloud applications and developer tools and framework for extending functionality while simplifying data and systems integration.
- Superior customer experiences rely on digitally enabled processes and workflows that span functions and systems. Evaluate options for investing in a modern business platform with autonomous capabilities for optimizing end-to-end processes and workflows together in a unified workplace.

LEARN MORE

Related Research

- *Worldwide Software as a Service and Cloud Software Forecast, 2020-2024* (IDC #US46644119, August 2020)
- *Worldwide Software as a Service and Cloud Software Market Shares, 2019: A New Generation of SaaS* (IDC #US46646419, July 2020)
- *Dynamics of Platform Services from Software-as-a-Service Vendors* (IDC #US46467020, June 2020)

Synopsis

This IDC Perspective details Oracle and its innovation in a new generation of cloud applications. A new generation of sophisticated users who expect more from the technology they rely on to get their jobs done exert greater influence over buying decisions. This includes smarter, friendlier data-centric applications and platforms that deliver the right information at the right time to guide decisioning. The current crisis accelerated the future of work, as most, if not all, employees work remotely, and processes must be optimized for a distributed enterprise. A new breed of intelligent cloud applications is well suited for the rapidly changing market conditions.

According to Frank Della Rosa, research director, SaaS and Cloud Software for IDC, "Oracle Fusion Cloud Applications characterizes this new generation of business applications and cloud services that are imperative for dealing with disruption from a position of strength."

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