

# A Modern Campus, Emerging Technologies for Higher Education

**USG Interact**

**Brian Manning, Enterprise Cloud Architect**

**ORACLE**

**Platinum  
Partner**

**Cloud Standard**

Cloud Excellence Implementer  
North America



**ORACLE**

**Platinum  
Partner**

**Specialized  
Education and Research**



**MYTHICS™**

# Safe Harbor Statement

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# Examples of Automatic or Autonomous ?

Cruise control

Lane departure warnings

Emergency braking





# Examples of Automatic or Autonomous ?

No need to use the steering wheel or brake.

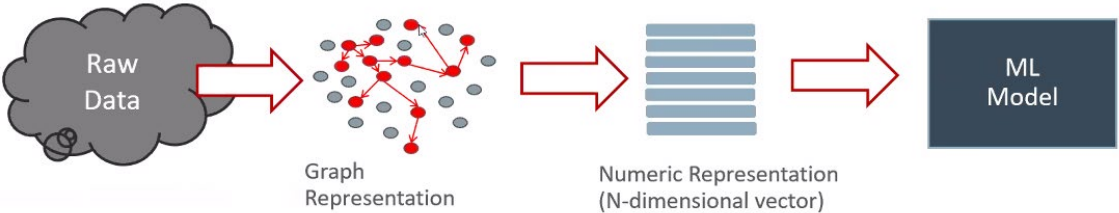
Simply tell the car where you are going.



# Examples of Machine Learning



<https://xkcd.com/1838/>





A woman with blonde hair is shown in profile, looking at a large digital display. The display shows a network diagram with blue lines and nodes. The background is a blurred city street at night with warm lights. A teal banner is overlaid on the bottom half of the image.

# Oracle: 40 Years of Leadership in Enterprise Data

Cern Research Utilizes Autonomous Data Warehouse

# Accelerating AI Adoption for Our Customers



## Business Teams

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### Challenge

AI is not accessible

### Opportunity

Build AI into SaaS applications that business teams use everyday

### Impact on Customers

Better business decisions faster, free up dev team resources



## Data Science/Dev Teams

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### Challenge

Building AI is not efficient

### Opportunity

Offer a unified platform that improves productivity for everyone involved (data engineers, data scientists, developers, etc.)

### Impact on Customers

More AI-powered solutions deployed faster with less resource constraints



## Database Admin Teams

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### Challenge

Create a new standard for performance, security, innovation

### Opportunity

Embed ML in our own services to automate operations and provide new intelligent capabilities

### Impact on Customers

Better products that create more business value while saving our customers time and money



# Oracle AI: Ready-to-Go, Ready-to-Build, Ready-to-Work



## Ready-to-Go

### Applications:

- Adaptive Intelligent Apps
- Intelligent UX
- Conversational Agents
- Smart Data



## Ready-to-Build

### AI Platform:

- Data Management
- Data Science & Analytics
- Application Development
- Cloud Infrastructure



## Ready-to-Work

### Autonomous Database:

- Self-driving
- Self-securing
- Self-repairing



# Ready-to-Go: Applications

# Oracle Adaptive Intelligent Applications

Ready-to-Go

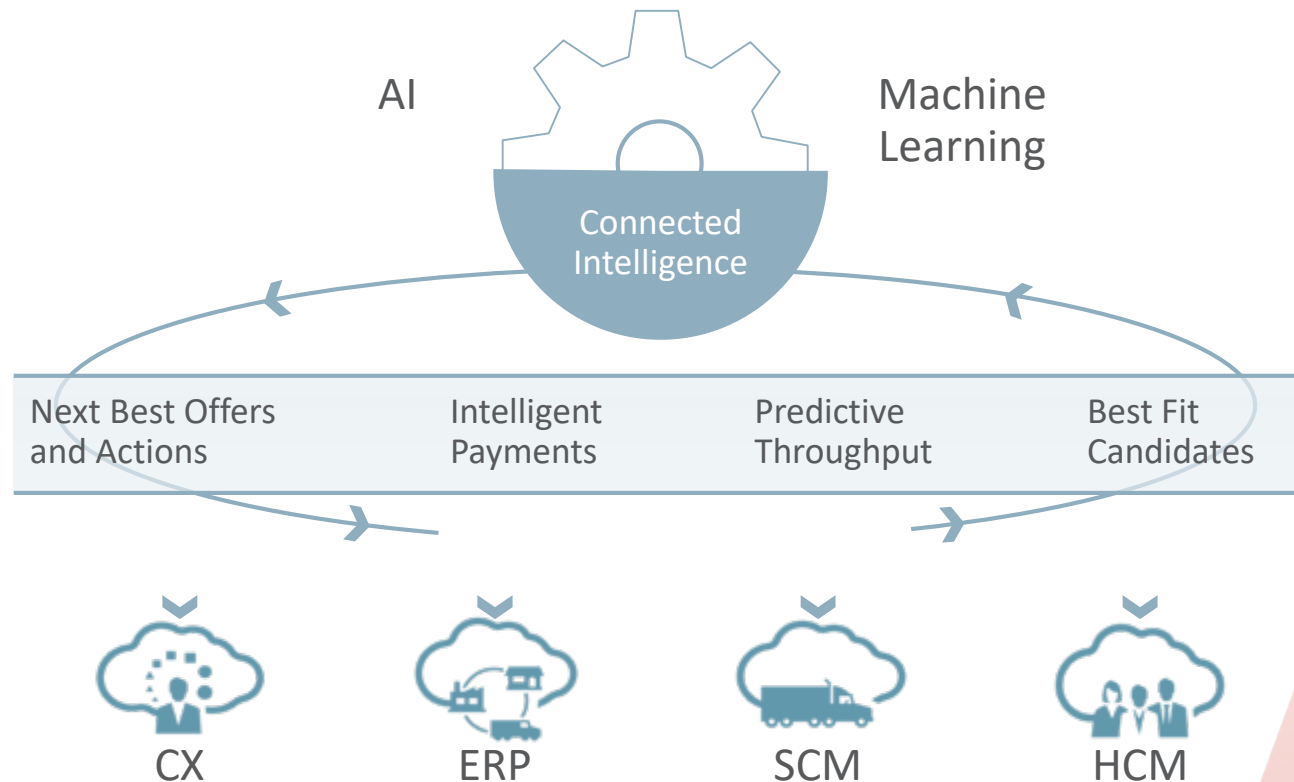
Company and Trusted Data

Oracle Modern Cloud

Connected Intelligence

Only Oracle Connects Outcomes Across Pillars for Even Smarter Business Results

## Company And Trusted Data







# Oracle's Cloud Applications Strategy: AI/ML Apps

## ERP/EPM

- Intelligent Payment Discounts
- Supplier Recommendations
- Intelligent Process Automation
- Advanced Access Controls

## Student Cloud/SFP

- Automation of process - SFP pulling 3rd party data
- Registration
- Course selection
- Intervention

## CX

- Next Best Offers
- Coordinated Open-Time Content
- Intuitive Search Experiences
- Connected Audiences
- Best Sales Actions
- Win Probability Scores
- Optimized Marketing Orchestrations
- Deal Acceleration

## SCM

- Patterns and Correlations Analysis
- Predictive Analysis
- Genealogy and Traceability Analysis

## HCM

- Best-Fit Candidates
- Advanced HCM Controls

## Intelligent UX

- Personalized Search
- Smart Nudges and Actions

Available Now

Smart Data

AI Applications Foundation

# Oracle Named A Leader

## CX

**Gartner**

**A Leader**

Gartner Magic Quadrants:  
Salesforce Automation  
(July 2018) and Sales  
Performance  
Management (Jan. 2018)

## HCM

**Gartner**

**A Leader**

Gartner Magic  
Quadrant:  
Cloud HCM Suites for  
Midmarket and Large  
Enterprises (Aug.  
2018)

## EPM

**Gartner**

**A Leader**

Gartner Magic Quadrant:  
Cloud Financial Planning  
and Analysis Solutions  
(July 2018)

## ERP

**Gartner**

**A Leader**

Gartner Magic Quadrant:  
Cloud ERP for Product-  
Centric Midsize  
Enterprises (Oct. 2018)

## SCM

**Gartner**

**A Leader**

Gartner Magic  
Quadrant:  
Warehouse  
Management Systems  
(May 2018)

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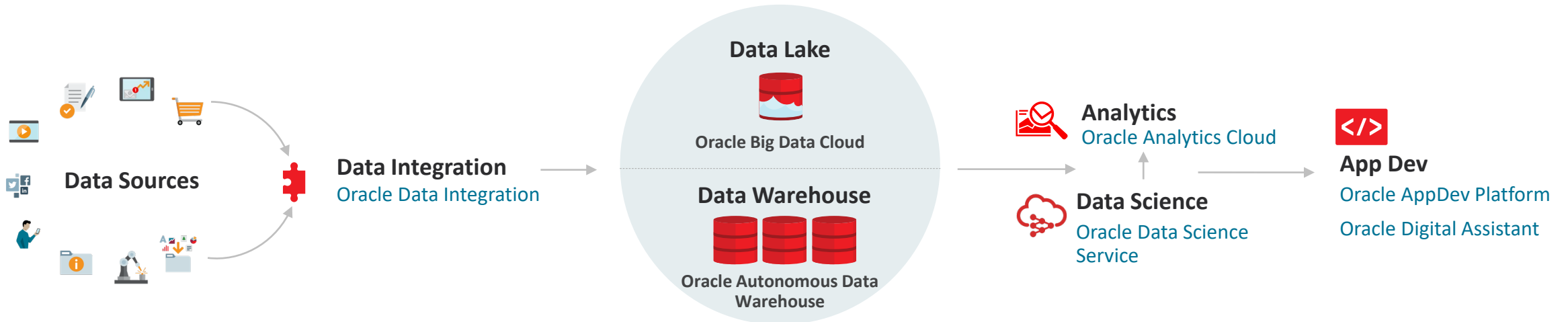


# Ready-to-Build: AI Platform

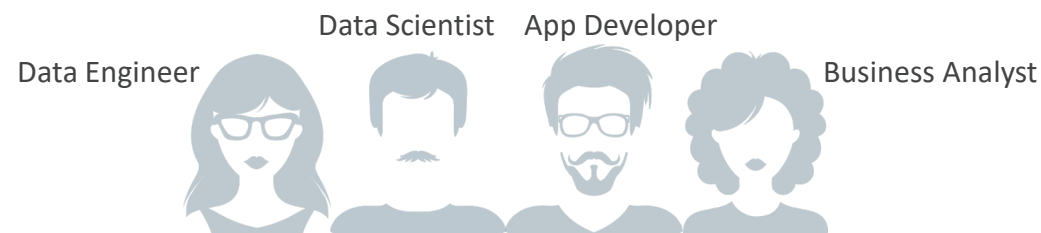


# Oracle's AI Platform: Ready-to-Build

## End-to-end platform to rapidly build AI-powered solutions



**Oracle Cloud Infrastructure: Built for Artificial Intelligence and High Performance Computing Workloads**



# Digital Assistants

AI Scientists NOT Required

Build and deploy chatbots with your current staff

Business users can train your bot. Apply your unique domain expertise

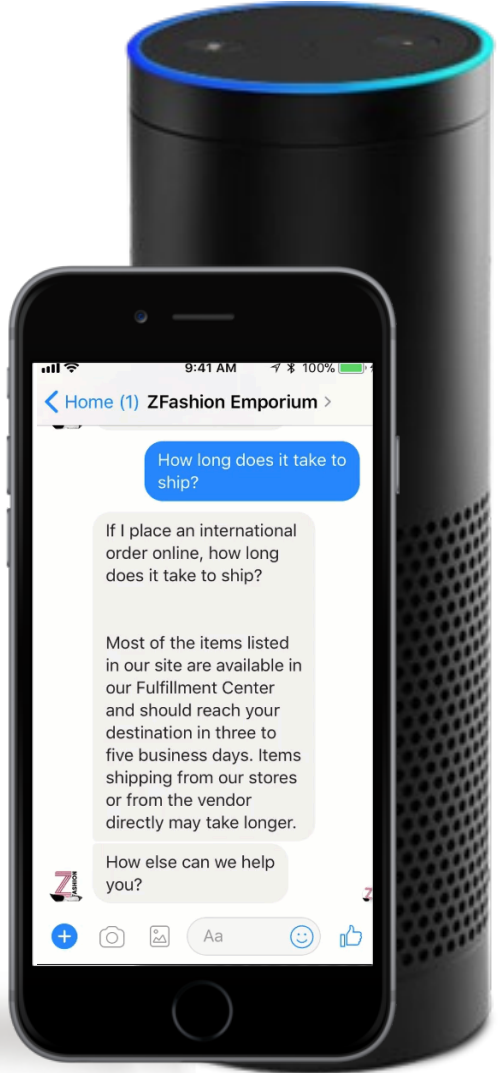
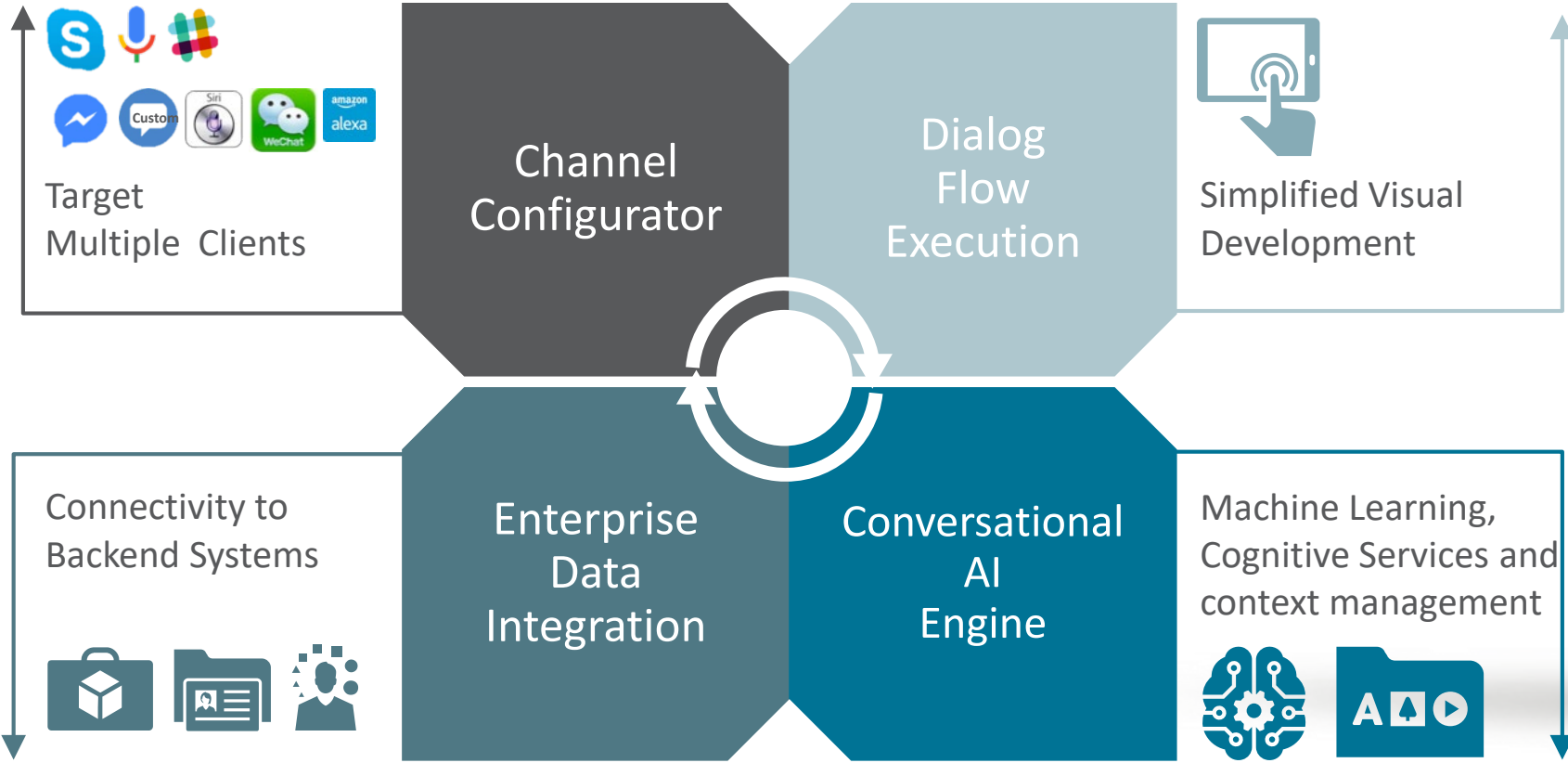
Easily develop your chatbot's dialog flow

Define your business use cases

Connect to multiple systems



# Digital Assistant Components





# Transformational Technology

Industry Use Cases—Artificial Intelligence (AI)

ARTIFICIAL INTELLIGENCE

## AI IN EDUCATION/RESEARCH

### STUDENT ENROLLMENT



Improving admissions by matching students to programs

**US\$536**

per student is what public universities spend on recruiting.

### PERSONALIZED LEARNING PATHS



Personalizing student experience to improve student outcomes with virtual academic advisors and tutors

**45%**

of undergraduate students do not earn a degree within six years of matriculating into a college program.

### STUDENT SUCCESS



Identifying patterns of data that predict which students could become at-risk, enabling timely and personalized interventions

**#2**

priority among higher-education institutions is to improve retention and graduation rates for all students.

# University of Adelaide

## Improves Student Experience with AI

- Improved the speed of response time for prospective students by 13x using Oracle Digital Assistant
- Slashed the incoming call volume by 40%
- Gained 60% user satisfaction rating
- Achieved the flexibility to scale the services and quickly expand to other projects

### CUSTOMER PERSPECTIVE

We have an amazing relationship with Oracle, in terms of our CRM. So we use Service Cloud and Eloqua for our marketing automation. So bringing the Oracle Intelligent Chatbot into the fold was a kind of natural progression for us to expand our CX suite.

Catherine Cherry,  
Associate Director Student Recruitment, University of Adelaide

# Blockchain - One of Today's Most Disruptive Emerging Technologies

"The technology most likely to change the next decade of business is not the social web, big data, the cloud, robotics or even artificial intelligence. It is the blockchain..."

-*Harvard Business Review*

**10% of the Global GDP**  
will be stored in blockchain technology by 2027<sup>1</sup>

**\$176 Billion**  
business value-add of blockchain by 2025<sup>2</sup>

**9 out of 10**  
enterprises will do a blockchain project<sup>2</sup>



# What Is Blockchain?

"...blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value."

- Don Tapscott, author of Blockchain Revolution

## TRADITIONAL SYSTEM



## BLOCKCHAIN



Can be Private/ Public

Trusted audit records everywhere

Minimizes (or eliminates) the middleman

Unalterable distributed transaction logs



Encrypted for confidentiality



Immutable and Non-repudiable



Smart Contracts

# Oracle Blockchain Platform

Securely extend business processes and accelerate B2B transactions

Enterprise Grade PaaS offering

Managed by Oracle to simplify operations

Hyperledger Fabric open source technology + Oracle enhancements

Global Scale, Extend Apps with REST API and SDKs

Highly secured and protected transactions & data

Extend enterprise boundaries with Oracle ERP and SaaS, PaaS, & apps in cloud & on-premise



# Transformational Technology

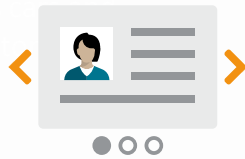
Industry Use Cases—Blockchain

BLOCKCHAIN

## BLOCKCHAIN IN EDUCATION/RESEARCH

### STUDENT RECORDS

Capturing, authenticating, and storing student-owned, lifelong-learning records—including badges, credentials, degrees, and certifications



**111**

graduates from MIT were the first to receive digital diplomas via smartphone app based on blockchain technology in 2017.

### DIGITAL RIGHTS MANAGEMENT

Enabling secure publication, distribution, and content tracking—including rights management—in digital libraries and scholarly publications



**\$145**

is the cost increase to Harvard over the past six years for access to academic journals.

### LEARNING MARKETPLACES

Creating an on-demand distributed learning ecosystem into a seamless network where students can earn/transact tokens of educational value



**23M**

students signed up for a massive open online course (MOOC) for the first time in 2017.



# Internet of Things



50

Billion devices  
by 2018

8

Zeta bytes  
of data today

\$3

Trillion market  
by 2020



IoT is at the top of  
the Hype Cycle



60% of IoT  
Projects Fail



# IOT: Challenges

## **NOT FOCUSED ON RESEARCH OUTCOMES**

Priority misplaced on devices and connectivity, not research efforts;

## **PROJECTS STALL AND FAIL**

Complexity due to several moving parts

IoT data not being converted into business insights

## **LACKS ENTERPRISE CONTEXT**

Not integrated with Supply Chain, Transportation, and ERP processes





# Oracle IOT Cloud

Embedding domain expertise and data science for powerful business outcomes

## Focused on Business/Research Outcomes

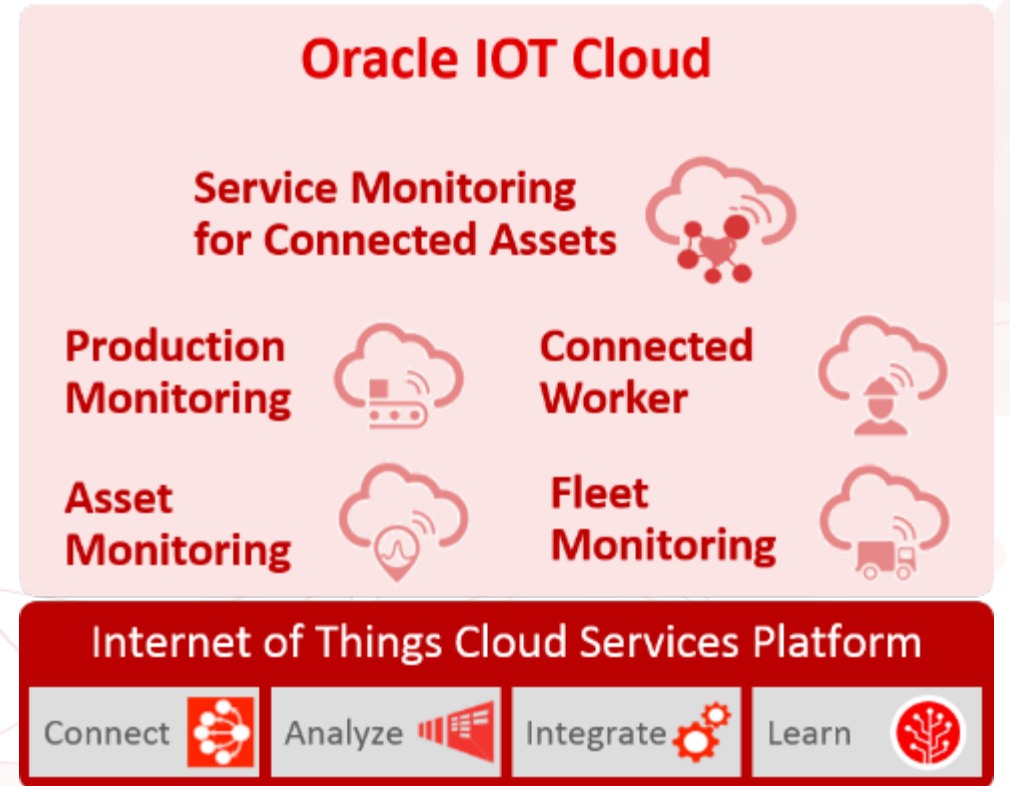
- Improve asset utilization, factory performance, fleet operations, and reduce workplace safety incidents

## Complete IOT Platform Made Simple

- Partner ecosystem for device and gateway integration
- Train models with device simulations (Digital Twin)
- Extensive predictive analytics using enterprise and IOT data

## Connect to Any Enterprise Software

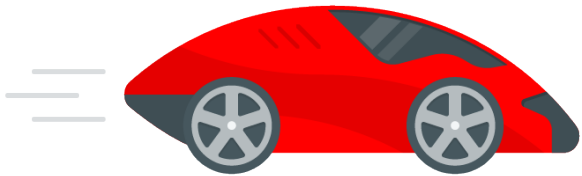
- Integrated with Oracle ERP, SCM, CX, HCM apps





# Ready-to-Work: Oracle Autonomous Database

# Oracle Autonomous Database: Ready-to-Work



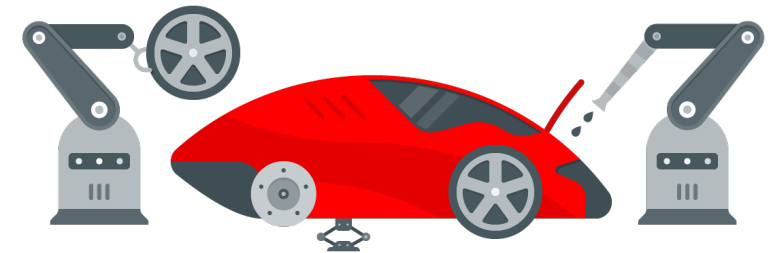
## Self-Driving

Automates all database and infrastructure management, monitoring, tuning



## Self-Securing

Protects from both external attacks and malicious internal users



## Self-Repairing

Protects from all downtime including planned maintenance



# Autonomous Database | Optimized by Workload



## Autonomous Data Warehouse

### All Analytic Workloads

- Data Warehouse, Data Mart
- Data Lake, Machine Learning

## Autonomous Transaction Processing

### Online TP and Mixed Workloads

- Transaction, Batch, Reporting, IoT
- App Dev, Machine Learning

# Using Machine Learning to Drive Autonomous

Diagnostics, recovery and optimizations for each layer of the deployment stack

## Database Infrastructure



Detection and recovery of failed/sick server, storage or switch/link

## Database Operations



Hang Management  
Anomaly Detection  
Bug Identification and Prioritization

## Workload Optimizations



Query Optimizer  
Real-time statistics  
Automatic Indexing



# Oracle a Leader in Data Management Solutions for Analytics



Oracle placed furthest for completeness of vision and highest for ability to execute

- Gartner January 2019 Magic Quadrant for Data Management Solutions for Analytics

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# Integrated Cloud

## Applications & Platform Services



ORACLE®