

Donnez vie à vos Données L'Analytique de nouvelle génération

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En un mot...

1. La plateforme Oracle met à disposition une large variété de techniques analytiques de plus en plus intégrées...
2. ... et les rend de plus en plus accessibles aux utilisateurs business, de façon robuste, libérant une importante valeur ajoutée analytique



Improve Decision Making

15% increase in cash flow in 30 months

1000 risk days in 11 months

30% improvement in total cost of ownership and ongoing development and execution time of business analytics

CUSTOMER PERSPECTIVE
Oracle Advanced Analytics platform is our foundation for making quality decisions in time. Subrata Koushik, Head of IT Development, Zestibank Bank

Prevent Online Fraud

90% reduction in online fraud

180 million in fraud of M-Bank within 6 weeks

9 months time to market for analytics model development, to go live

CUSTOMER PERSPECTIVE
Big data is having a tremendous impact on how we run our business. Oracle Database and its various options—including Oracle Advanced Analytics—combine high-performance data-mining functions with the open source R language to enable predictive analytics, data mining, text mining, statistical analysis, advanced numerical computations, and interactive graphics—all inside the database. Mike Quirk, Senior Manager of Data Science, M-Bank

Improve Gaming Experience with Big Data Analytics

62% increase in revenue for leading managed esports tournament

300 users per day managed and analyzed

110 million players

CUSTOMER PERSPECTIVE
Oracle Big Data Appliance gives us unprecedented insight into game, business, and market health. The possibilities are endless with this highly extensible solution that enables us to gather, analyze, and use data, including social media data, in ways that were simply not possible before. Craig Wyle, Head of Esports Business Development, Esportsgame

Tame Big Data with Machine Learning

Increasing insight to improve outcomes public healthcare

1 Million patients, every 36 hours

-7% reduced antibiotic prescription

\$717M of savings in first 3 years, resulting in more cost effective treatments and better patient outcomes

CUSTOMER PERSPECTIVE
With Oracle Advanced Analytics, it is much easier to detect anomalies in behaviors. We used anomaly detection to discover where there might be evidence of inappropriate behavior in dentist claims, enabling NHS commissioners to follow up and challenge their activities. Nina Mouskova, NHS National Services Authority

Transform the Business with ML

50% sales increase through targeted offers

39% less than a month

50% through personalized, targeted messages

CUSTOMER PERSPECTIVE
Oracle's Big Data solutions outperform the options we considered from other suppliers while considerably reducing our total cost of ownership. Especially given our focus on customer-oriented innovation, our Oracle solutions enable us to focus on providing our customers with added value knowing our cutting-edge technology gives us a competitive edge. Leo Jordan Wolf, Chief Data Officer, CatalaBank

Deliver Better Analytics

70% faster

25% in six months

CUSTOMER PERSPECTIVE
With Oracle Cloud and Oracle Advanced Analytics, we have incredible amounts of data at our fingertips—115 million households with 260 million individuals and roughly 800 attributes for each consumer record—and can extract knowledge and discover new insights that help propel our business forward. Mikolaj Hecio, PhD Data Scientist, DIX Marketing

Modern Healthcare Experience

- Australian pharmacy serving over 350,000 members in over 100 stores
- Consolidated multiple order management systems to JDE on OCI without disruption
- Empower staff and members with real-time account and inventory view in ATP
- 80% of IT budget is spent on innovation for better patient outcomes

CUSTOMER PERSPECTIVE
Planning to develop a machine learning model (probably using ADW), and then load that model into ATP. Then as new transactions or events come in, determine fraud or identify an opportunity for a better patient experience.

Brazil's Largest Rail Logistics Company Predicts Maintenance

Oracle Analytics Cloud & Oracle Big Data Cloud

Challenges

- Unplanned repair stops cost \$30K+/hour
- Obsolete systems to collect and process data to prevent accidents and unexpected stops

Solution

- Equipped trains and tracks with sensors
- Use stream data to Oracle Big Data Cloud and Analytics Cloud
- Developed predictive analytics to prevent delays, improve route usage
- Prevent worker safety through proactive repairs and management

Quantifiable Results:

- Live in 3 months
- Predicted / prevented 4 incidents, saving over \$400K

Customer Behavior Analytics & ML

Provide a better and seamless experience for their 1.7M customers

CUSTOMER PERSPECTIVE
Energy Australia's architecture of Oracle's Big Data Solution is smart enough to leverage and utilize what Oracle Cloud can offer, to provide a better, seamless experience for the customer... It allows us to better understand when a customer will call us with regards to a bill cycle or an extension, or any other associated program... Gaurav Singh, Big Data and Data Warehouse Solution Architect at Energy Australia

Detecting Fraud with Graph Technologies

Providing online payment solutions—real-time payments, e-Wallets - 500,000 payments/day

CUSTOMER PERSPECTIVE
Only graph analysis can find patterns of fraud in payment flows fast, in real time. Protect customers from fraud while providing positive customer experience. Scalable graph analytics with Oracle Database

Map with Topographical Accuracy

2,000 geo-specialists with highly available and scalable hybrid cloud environment for processing native web spatial data

CUSTOMER PERSPECTIVE
SVB-GT selected Oracle for its superior performance in handling large volumes of topographical data compared to traditional GIS/CAO software. Oracle Database 12c and Oracle Spatial and Graph met the requirements to harmonize and update base map of The Netherlands daily. Jan Krijgs, Director, SVB-GT

Leverage Integrated Spatial Data Management Platform

Enable near real-time management of data

Enhanced reporting capabilities substantially

Reduced TCO by leveraging the Spatial Vector Acceleration

CUSTOMER PERSPECTIVE
The integrated spatial data management platform provided by Oracle Spatial and Graph on Oracle Database 12c enables us to continuously improve efficiency by focusing on our workflows without worrying about the underlying technology. Massimo Scavola, Network Engineer / GIS Coordinator & Team Leader, Electricity Authority of Cyprus

I believe a user can perform machine learning tasks directly in Oracle's Cloud Analytics within half the time taken to hand code it in Python, and get to same results

Hypothesis

The Toolkit

Contents, Tech, Scoring.

Problem

kaggle

Go-to data science playground.



Technology

ORACLE®
ORACLE ANALYTICS CLOUD

VS.



Evaluation

$$\text{RMSD}(\hat{\theta}) = \sqrt{\text{MSE}(\hat{\theta})} = \sqrt{\text{E}((\hat{\theta} - \theta)^2)}.$$

Models trained using both Python and Cloud-Analytics Technologies will be scored independently by Kaggle.

The generated predictions on the test dataset will be scored using **Root Mean Squared Error**.



Time to Complete Experiment
(Hours)

8

4

Accuracy
(RMSE)

0.124

0.128

Can iterate through columns with
a FOR Loop



Ability to use different imputation
methods for different columns

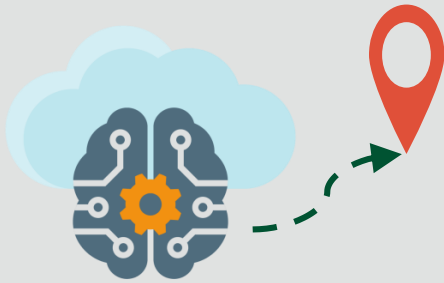


No skills
needed

Useful functionality such as
narratives and point and click
colours

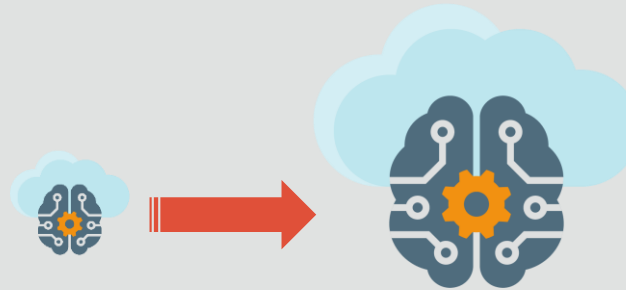
'Explain' functionality augments
manual data exploration
activities

Oracle Machine Learning **Key Attributes**



Automated

Get better results faster
with less effort –
even non-expert users



Scalable

Handle big data volumes using
parallel, distributed algorithms –
no data movement



Production-ready

Deploy and update data
science solutions faster with
integrated ML platform

Increase productivity | Achieve enterprise goals | Innovate More

Oracle In Database Analytics – Machine Learning

CLASSIFICATION

- Naïve Bayes
- Logistic Regression (GLM)
- Decision Tree
- Random Forest
- Neural Network
- Support Vector Machine (SVM)
- Explicit Semantic Analysis

CLUSTERING

- Hierarchical K-Means
- Hierarchical O-Cluster
- Expectation Maximization (EM)

ANOMALY DETECTION

- One-Class SVM

TIME SERIES

- Forecasting - Exponential Smoothing
- Includes popular models
 - e.g. Holt-Winters with trends, seasonality, irregularity, missing data

REGRESSION

- Linear Model
- Generalized Linear Model (GLM)
- Support Vector Machine (SVM)
- Stepwise Linear regression
- Neural Network
- LASSO

ATTRIBUTE IMPORTANCE

- Minimum Description Length
- Principal Component Analysis (PCA)
- Unsupervised Pair-wise KL Div
- CUR decomposition for row & AI

ASSOCIATION RULES

- A priori/ market basket

PREDICTIVE QUERIES

- Predict, cluster, detect, features

SQL ANALYTICS

- SQL Windows
- SQL Patterns
- SQL Aggregates

FEATURE EXTRACTION

- Principal Comp Analysis (PCA)
- Non-negative Matrix Factorization
- Singular Value Decomposition (SVD)
- Explicit Semantic Analysis (ESA)

TEXT MINING SUPPORT

- Algorithms support text columns
- Tokenization and theme extraction
- Explicit Semantic Analysis (ESA) for document similarity

STATISTICAL FUNCTIONS

- Basic statistics: min, max, median, stdev, t-test, F-test, Pearson's, Chi-Sq, ANOVA, etc.

R AND PYTHON PACKAGES

- Third-party R and Python Packages through Embedded Execution
- Spark MLlib algorithm integration

Oracle In Database Network & Graph Analytics

Property Graph Model

- Path Analytics
- Graph Analytics
- Detect patterns and anomalies

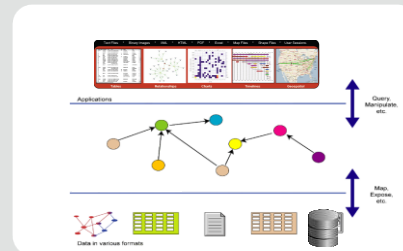


- Financial
- Retail, Marketing
- Public Safety
- Smart Manufacturing

Shipping for 3+ years

RDF Graph Model

- Data federation
- Knowledge representation
- Semantic Web



- Life Sciences
- Health Care
- Publishing
- Finance

Shipping for 12+ years

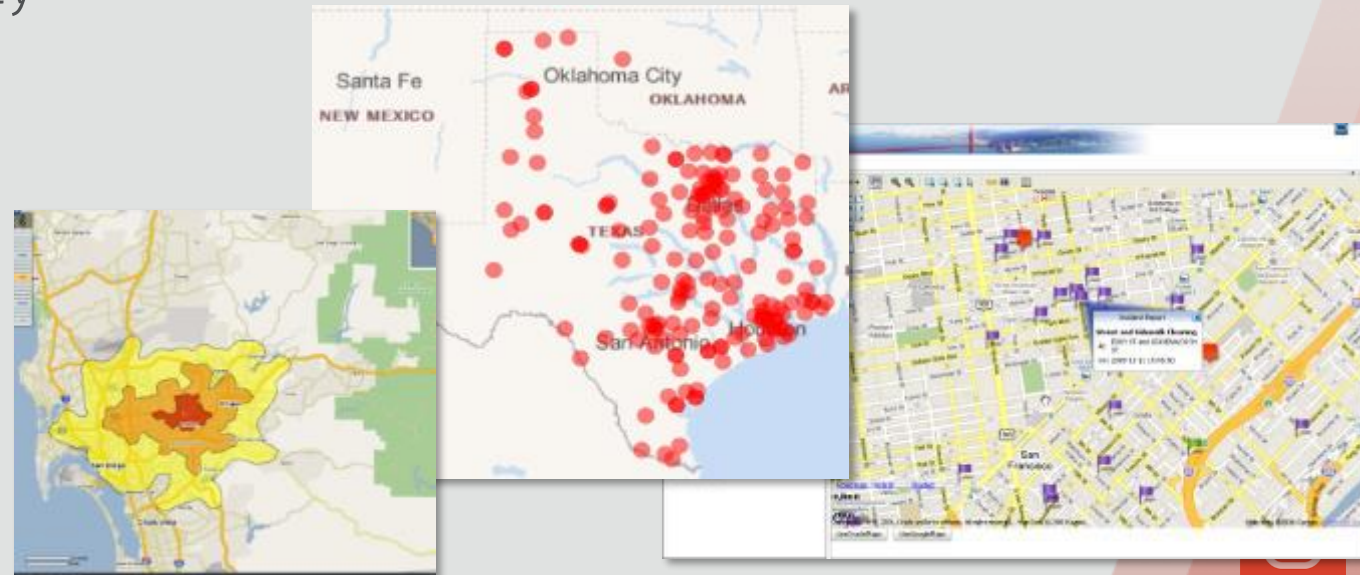
Graph Model

Use Cases

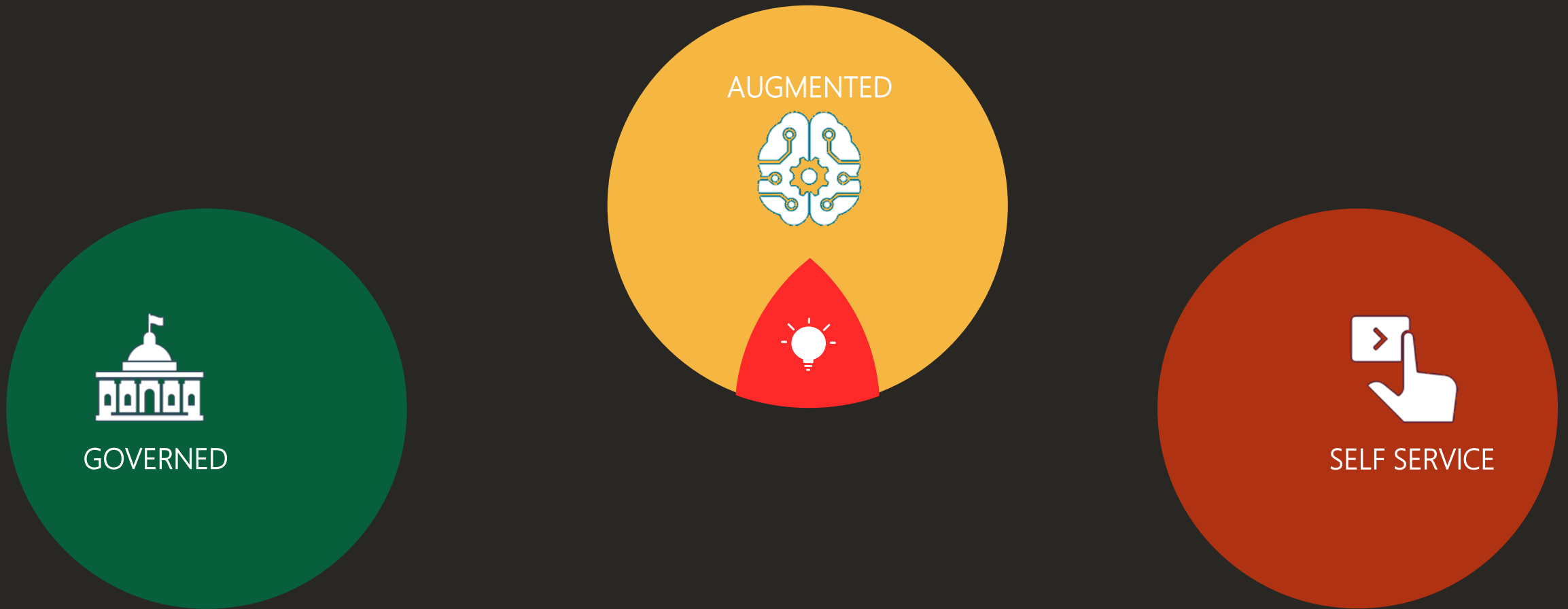
Industry Domain

Oracle In Database Spatial Analytics

- Vector Data (Points, Lines, Linestrings, Areas)
- Geo-referenced Raster Imagery (Orthophotos, Satellite Images, ...)
- 3D Point Cloud Data (Laserscanning, Photogrammetry)
- Network Data (Road Networks, Utility Networks)
- Topology Data (Land management)
- Streaming Point Data (Location tracking)
- Map visualization
- Geocoding
- Routing
- Publishing (OGC Web Services)
- Spatial Studio end user Interface
- ...



Oracle Analytics Multiple Axis



Oracle Analytics

Comprehensive Analytics Platform for Business Users, Developers & IT

Governed Analytics	Self-Service Analytics	Augmented Analytics
Dashboards	Data Visualization	Natural Language
Reporting	Data Preparation	Machine Learning
Semantic Models	Mobile	Discovery and Enrichment
Open Connectivity Oracle SaaS, Autonomous Database, Big Data Third Party Cloud, Database On-Premises Apps, Database		

AI Powered Analytics

ML/NL infused into every aspect of the product

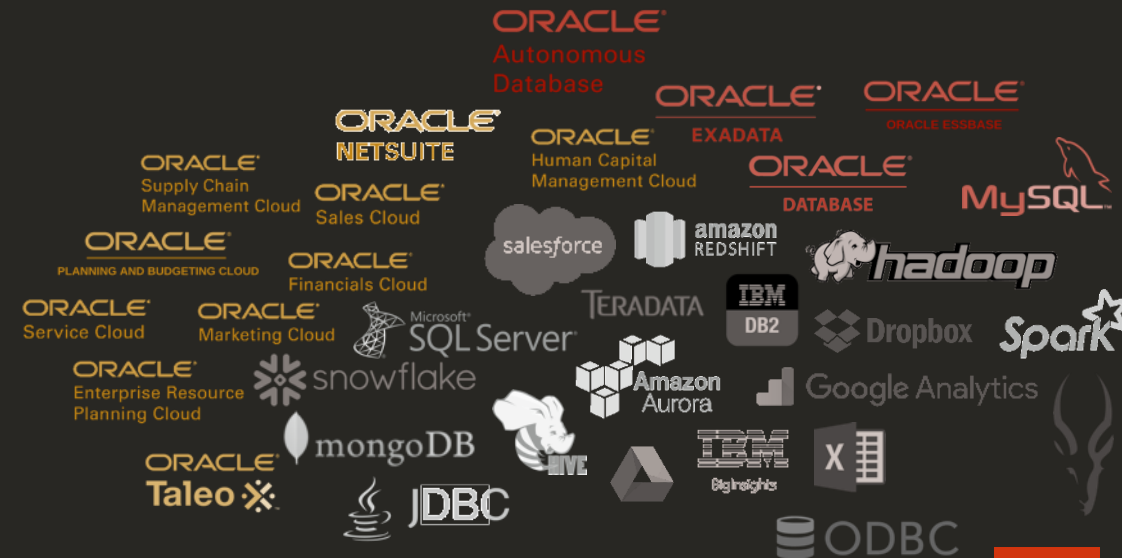
- **Ask Anything**
 - Interact with your data using Natural Language in the browser, mobile device, messaging app, or digital assistant
- **Data Enrichment**
 - ML algorithms analyze your data and suggest rules and transforms to improve data quality and reduce data risks
- **Uncover Hidden Insights**
 - ML algorithms analyze your data and offer visual insights and predictions
- **Adaptive & Personalized**
 - Insights and alerts adapt to user/group behavior learned over time



Open Connectivity

Connect to Any Data Source

- Dozens of built in connectors to all types of data
 - Relational, NoSQL, big data
 - SaaS applications
 - Oracle Cloud, third party clouds, on-premises
- Blend any data together regardless of source or type
- Smart connectors to Fusion apps
- Secure access to on-premises data
- Performant, scalable and resilient





Data Enrichment

Understanding the Semantics and Context of your data

- Patented deep data profiling identifies the specific role of each column
 - >30 built in semantic data types
- Deliver rich data transform and enrichment recommendations
 - Formatting, knowledge-based enrichments, obfuscation.
 - 20+ different enrichments built in
- Enforce sensitive data security on any sources including personal files

Receipt ID	Customer ID	Zip Code	First Name	Last Name	POS Date
3117	325-10-3511	89,021	Joseph	Allison	02/10/2018
2463	119-42-1407	62,314	Darrin	Martin	01/09/2018
5492	306-46-5056	19,078	John	Morse	03/10/2018
1124	765-64-4483	66,402	Carole	Rosen	02/12/2018
3264	014-68-5353	50,135	Ethel	Curry	01/23/2018
5813	765-64-4594	21,810	Caroline	Duffy	03/03/2018
3048	283-50-3282	36,255	Peggy	Lanier	01/13/2018
6324	508-34-8340	43,556	Lloyd	Spencer	01/31/2018

Identify Sensitive Data

Knowledge Matching

Predictive Algorithms

Formatting Suggestions

Customer ID (8)
Obfuscate Customer ID
Delete Customer ID
Obfuscate First 5 Digits of Customer ID

Zip Code (9)
Enrich zip code with City
Enrich zip code with Lat
Enrich zip code with Lon
Enrich zip code with State
Enrich zip code with County

First Name (2)
Concatenate First Name and Last Name to first_last_name
Enrich first name with gender

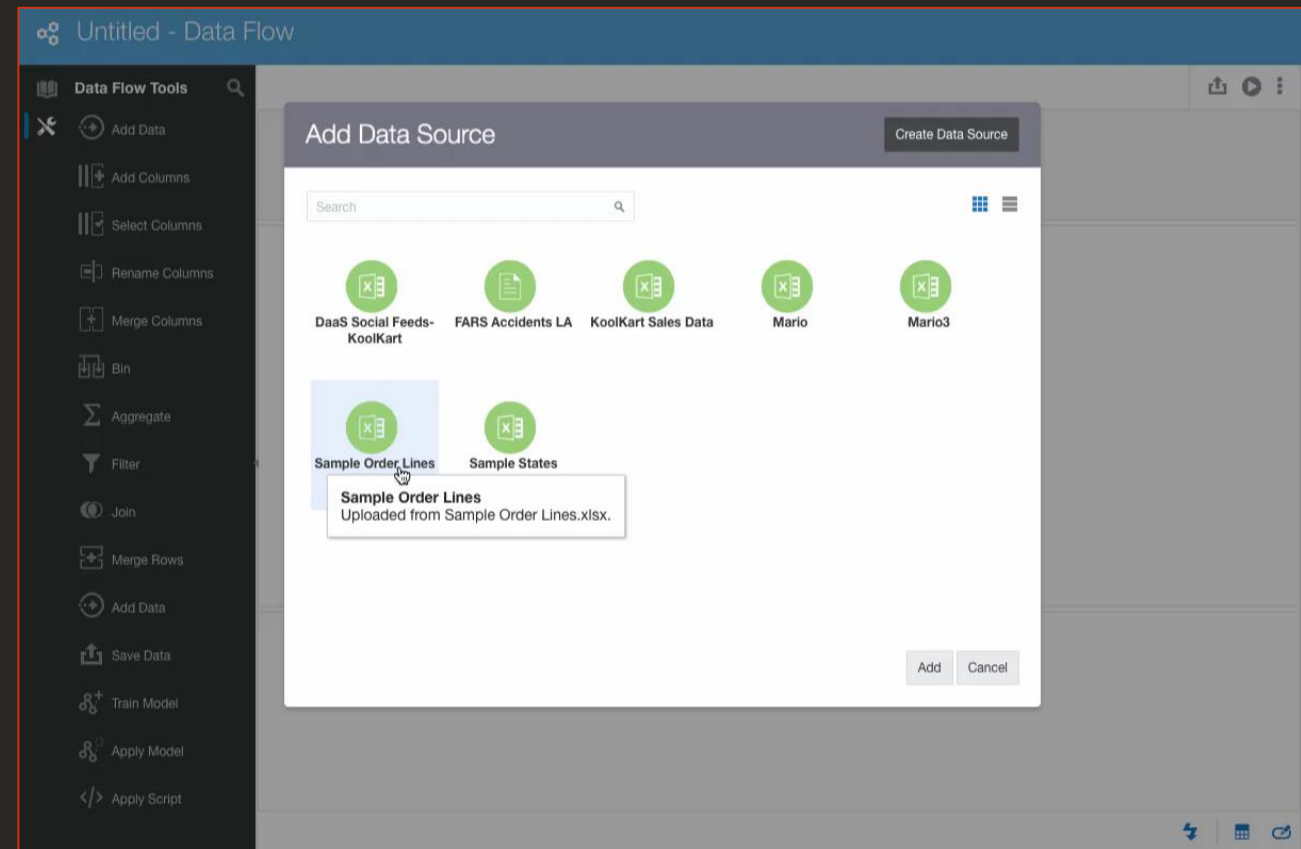
POS Date (7)
Extract day of week from POS Date
Extract day of Month from POS Date
Extract day of Year from POS Date
Extract Month of Year from POS Date



Integrated Data Preparation

Transform your data in a visual and intuitive experience

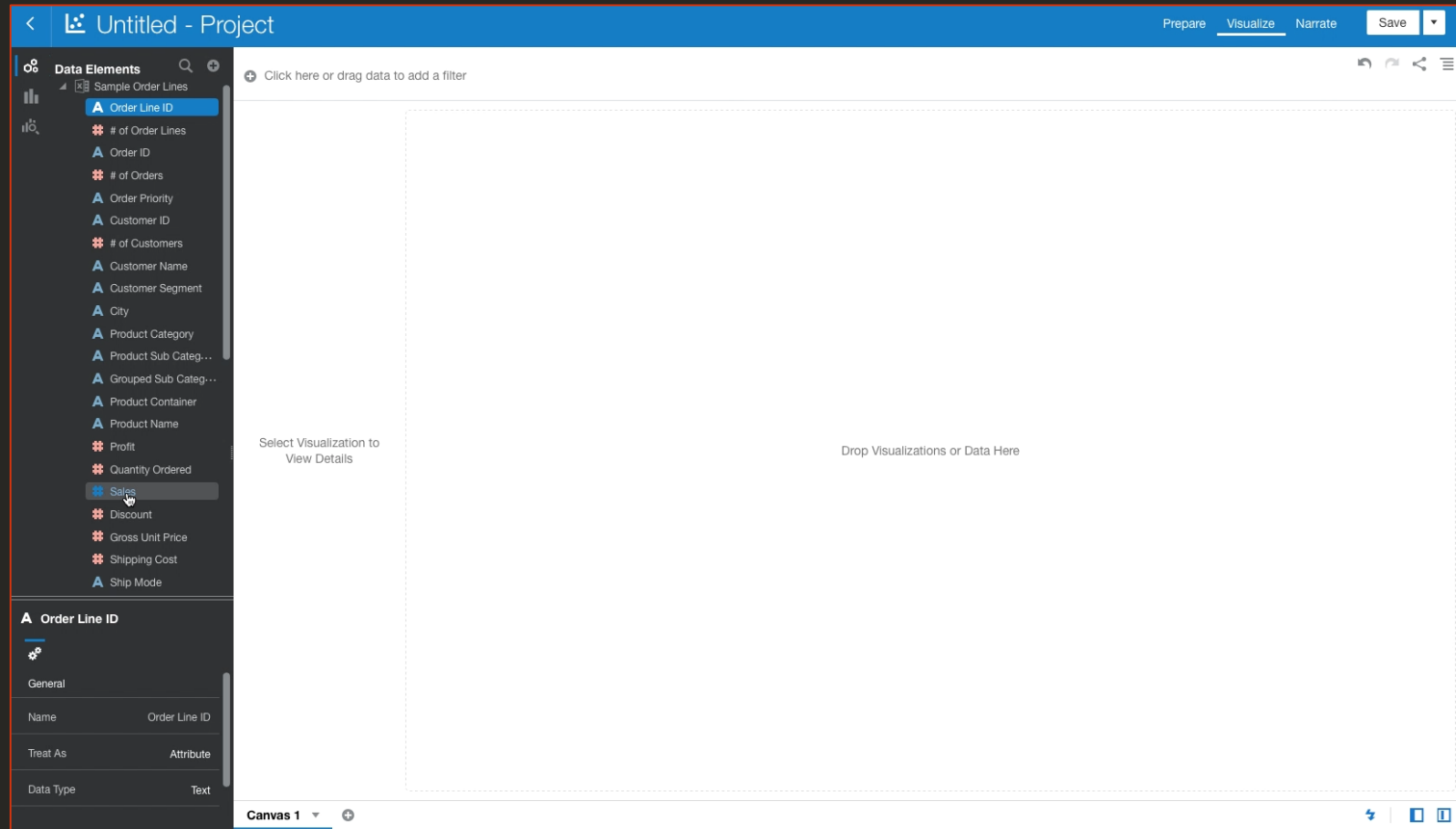
- Ingest, cleanse and transform data from multiple sources
- Empower analysts to prepare data in a visual experience and avoid Excel clutter
- No coding skills required
- Group values, join data sets, sub-select rows/columns, aggregate, calculated fields, etc.
- Schedule and trace your Data Flows in production



Intuitive and Interactive Analytics

From Simple Charts to Custom Visuals and Multi-layered Maps

- Stunning visualizations and interactive presentations
- 50+ built-in visualizations
- Adaptive chart type suggestions
- Single-click trending and forecasting, clustering and outliers
- Geospatial analysis with built-in and custom map layers
 - Function-ship geospatial queries into the Autonomous Database
- Optimized for web and mobile





Uncover Hidden Insights

Machine Learning Driven Analysis and Insights

- With one click, ML algorithms analyze your data to create predictive models
 - Identify behavioral correlations between columns
 - Segmentation and market basket analysis
 - Anomalies and outliers
- No PhD Required
 - Explain is designed for users of any level
- Got a PhD?
 - Bring or train your own models in OAC

Explain my Customer Churn

What causes Employee Attrition in my company?

What type of deals do we usually close?



Data analysis using Machine Learning Algorithms

- Drivers
- Decision tree
- Data distribution
- Anomaly detection

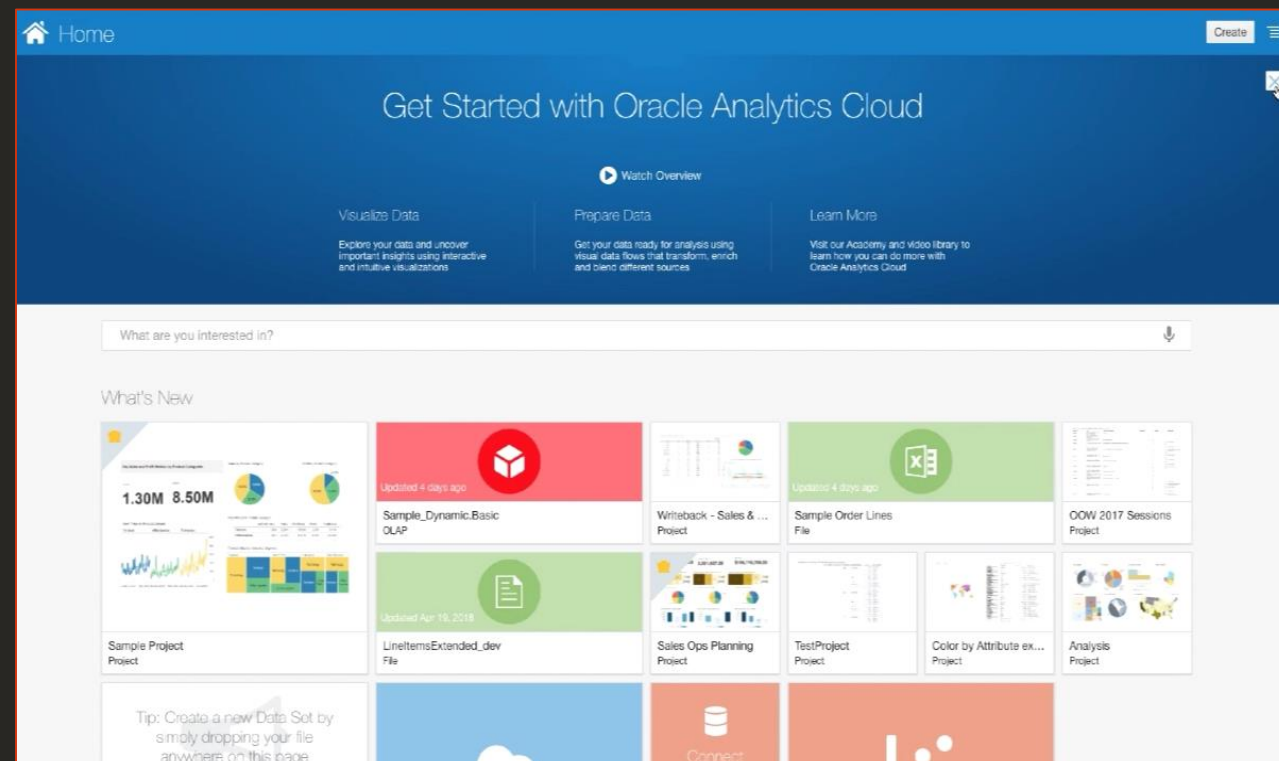
Deep Data Insights



Ask Anything - NLP

Interact with your data using Natural Language

- Intuitive and natural way to interact with data
- Voice-enabled, 28 supported languages
- Integrated into the Oracle Digital Assistant
- APIs to integrate into 3rd party messaging apps
- Upcoming support for Plurals and auto corrections



The screenshot shows the Oracle Analytics Cloud home page. At the top, there's a blue header with a 'Home' button and a 'Create' button. Below the header, a large blue banner reads 'Get Started with Oracle Analytics Cloud'. Underneath the banner, there are three columns of links: 'Visualize Data' (Explore your data and uncover important insights using interactive and intuitive visualizations), 'Prepare Data' (Get your data ready for analysis using visual data flows that transform, enrich and blend different sources), and 'Learn More' (Visit our Academy and video library to learn how you can do more with Oracle Analytics Cloud). Below this is a search bar with the placeholder text 'What are you interested in?'. The main content area is titled 'What's New' and displays a grid of project cards. The cards include: 'Sample Project' (with a bar chart), 'Sample_Dynamic.Basic OLAP' (Updated 4 days ago), 'Writeback - Sales & ... Project' (with a bar chart), 'Sample Order Lines File' (Updated 4 days ago), 'OOW 2017 Sessions Project', 'LinItemsExtended_dev File' (Updated Apr 16, 2018), 'Sales Ops Planning Project' (with a bar chart), 'TestProject Project', 'Color by Attribute ex... Project', and 'Analysis Project'. At the bottom left, there's a tip: 'Tip: Create a new Data Set by simply dropping your file anywhere on this page'. At the bottom right, there's a 'Connect' button with a database icon.

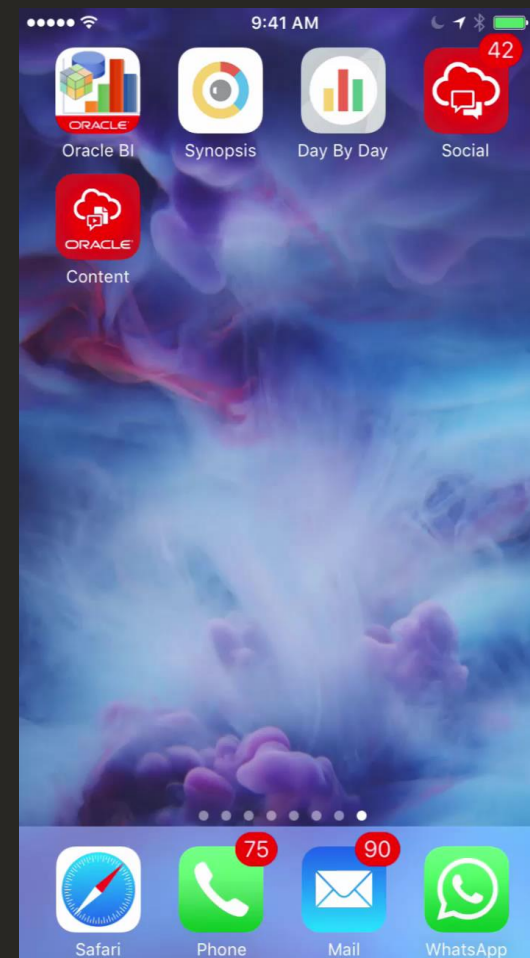
- The screenshot displays the Tableau Desktop interface. The top navigation bar includes 'Prepare', 'Visualize', and 'Narrate' tabs. The left sidebar shows a list of data fields under the 'Data' section, including 'Sample Order Lines', 'Order Line ID', '# of Order Lines', 'Order ID', '# of Orders', 'Order Priority', 'Customer ID', '# of Customers', 'Customer Name', 'Customer Segment', 'City', 'Product Category', 'Product Sub Category', 'Grouped Sub Category', 'Product Container', 'Product Name', and 'Profit'. The main workspace contains three visualizations:

 - Visualization by KPI Partners:** A treemap visualization showing a hierarchical structure with a central node and three branches.
 - Visualization by G.Adashek & D.Flores:** A horizontal bar chart comparing values across four categories: Consumer, Corporate, Home Office, and Small Business. The x-axis ranges from 0M to 3M.
 - Sales by Customer Segment, Product Sub Category:** A network diagram showing relationships between various product sub-categories and customer segments. The central node is labeled 'Corporate'.

Adaptive & Personalized

Customized alerts and insights based on your interests

- Predictive, personalized, and proactive analytics alerts directly to your mobile device
- Infuse insights into daily activities based on your interests, when and where you are, and who you collaborate with
- Anticipates your needs and delivers appropriate information throughout the day
- Use your voice to obtain answers



Oracle Analytics



Oracle
Analytics
Cloud



Oracle
Analytics
Server



Oracle
Analytics for
Applications

Oracle Analytics for Applications



Packaged analytics for Fusion Apps

No database design, tuning, ETL, modeling, etc.

Just “turn it on” and start analyzing your Fusion data

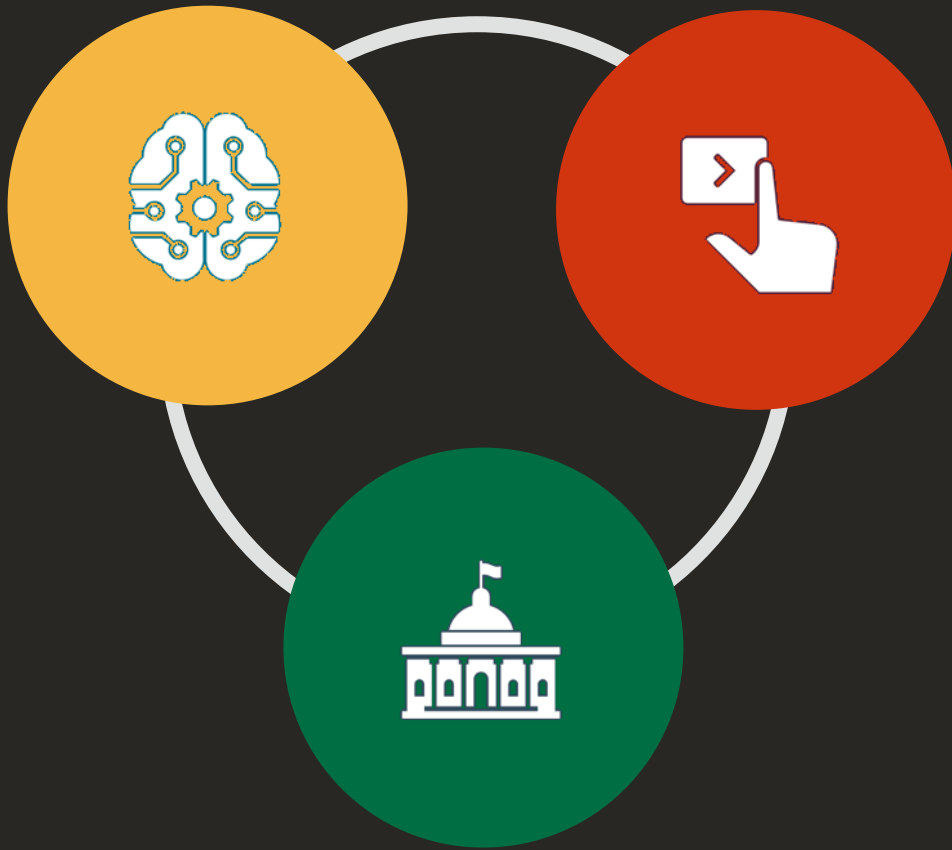
Ready-to-use dashboards, reports, KPIs

Fully extensible & customizable

Bring additional data into Autonomous Data Warehouse

Extend semantic model and content using Oracle Analytics Cloud

Oracle Analytics



Oracle Analytics is the industry's most complete augmented analytics solution combining self-service, data preparation, mobile, collaboration, dashboards, reporting and packaged applications. Access any data and deploy anywhere you choose: cloud, on-premises or hybrid.