ORACLE

Oracle Analytics Server 2024

Technical Proposal

Version [1.0]

Public

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Table of contents

Introduction

Organizations currently do data analysis in dozens of ways, using spreadsheets, applications, desktop tools, long-standing data warehouses, and business analytics solutions. This means organizations manage multiple requirements for data, access, and visualization, not to mention the associated costs. In addition to this, organizations are continuously striving to innovate and have faster insights without sacrificing correct and consistent results. Achieving all this is a challenge that many organizations are facing.

So, how can organizations gain flexibility together with structure to drive accuracy speed to disrupt their competitors?

ORACLE ANALYTICS SERVER

The answer is easier than one might think. Oracle Analytics Server (OAS) is a comprehensive analytics platform with data preparation, data visualization, natural language processing, and data quality insights, with great new features including multi-table datasets, auto-insights, new mapping and visualization features, new data sources, hierarchy support for EPM and Essbase, and much more. OAS has Machine Learning embedded throughout.

Oracle provides deployment choice – customer managed on-premises or on Oracle Cloud Infrastructure via Marketplace.

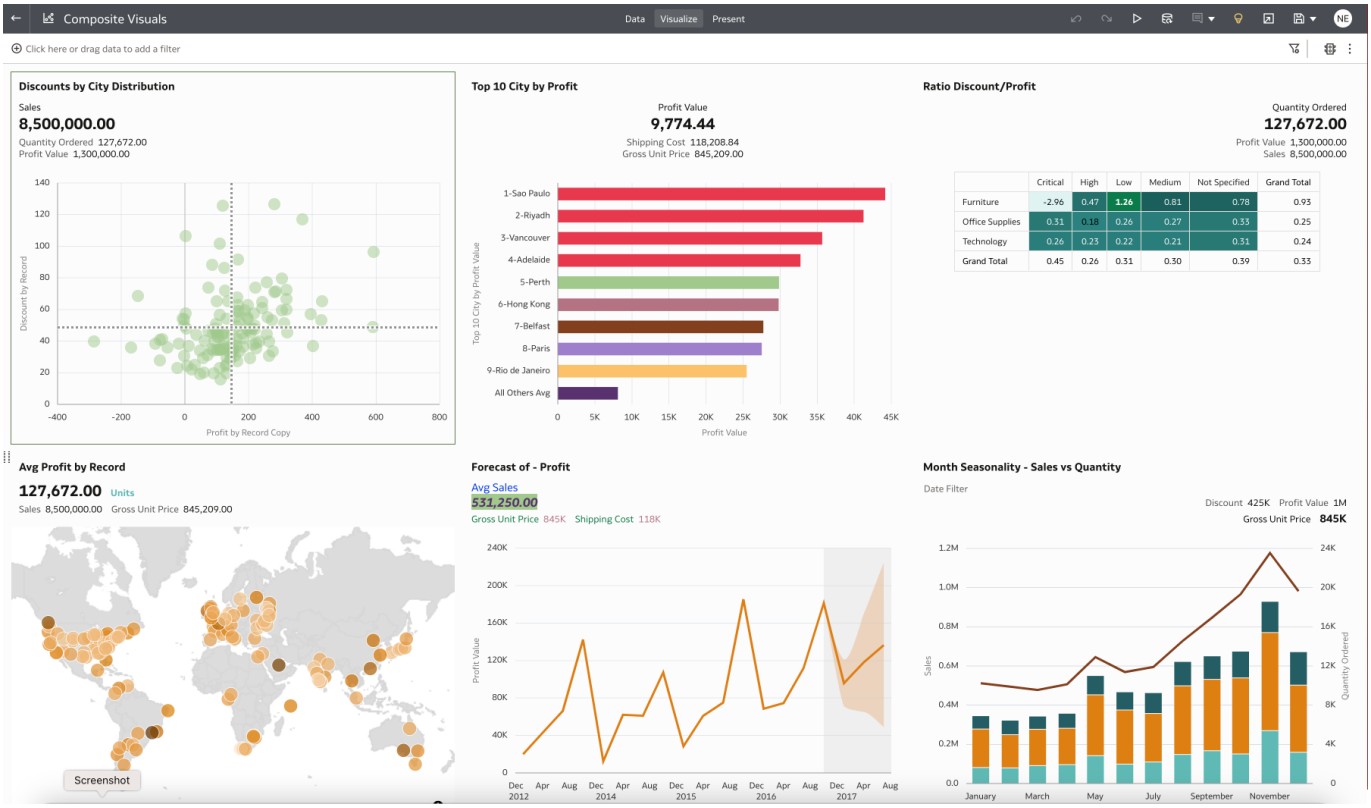

Figure 1. Sample OAS Canvas

Oracle Analytics Server

Overview

OAS is an unmatched and comprehensive business intelligence and analytics platform that delivers a full range of capabilities—including interactive dashboards, ad hoc queries, data visualizations, augmented analytics, mobile analytics, notifications and alerts, enterprise and financial reporting, scorecard and strategy management, business process invocation, unstructured search and collaboration, integrated systems management, and more. OAS is built on a proven and modern technological foundation that supports the highest workloads and most complex deployments, while providing timely insights to users across an enterprise at a low overall total cost of ownership.

Figure 2. OAS for all personas, workload

Key Business Benefits

Key Features

- Easy-to-use ad hoc query and analysis
- Self-service data visualization capabilities
- Augmented analytics
- Pixel perfect enterprise reporting
- Powerful geospatial mapping and visualization
- Common Enterprise Information Model

Key Benefits

- Drive innovation; explore and discover new insights by combining structured and unstructured data.
- Make insights accessible to anyone, anytime, and anywhere with mobile business intelligence.
- Provide extreme performance and lower total cost of ownership with Oracle engineered systems.
- Deploy OAS on-premises or in the cloud to meet your organization's specific needs and preferences

OAS has extensive features that address several personas needs from all personas such as data engineers, citizen data scientists, end users etc. It will run on any infrastructure with off-platform data sources.

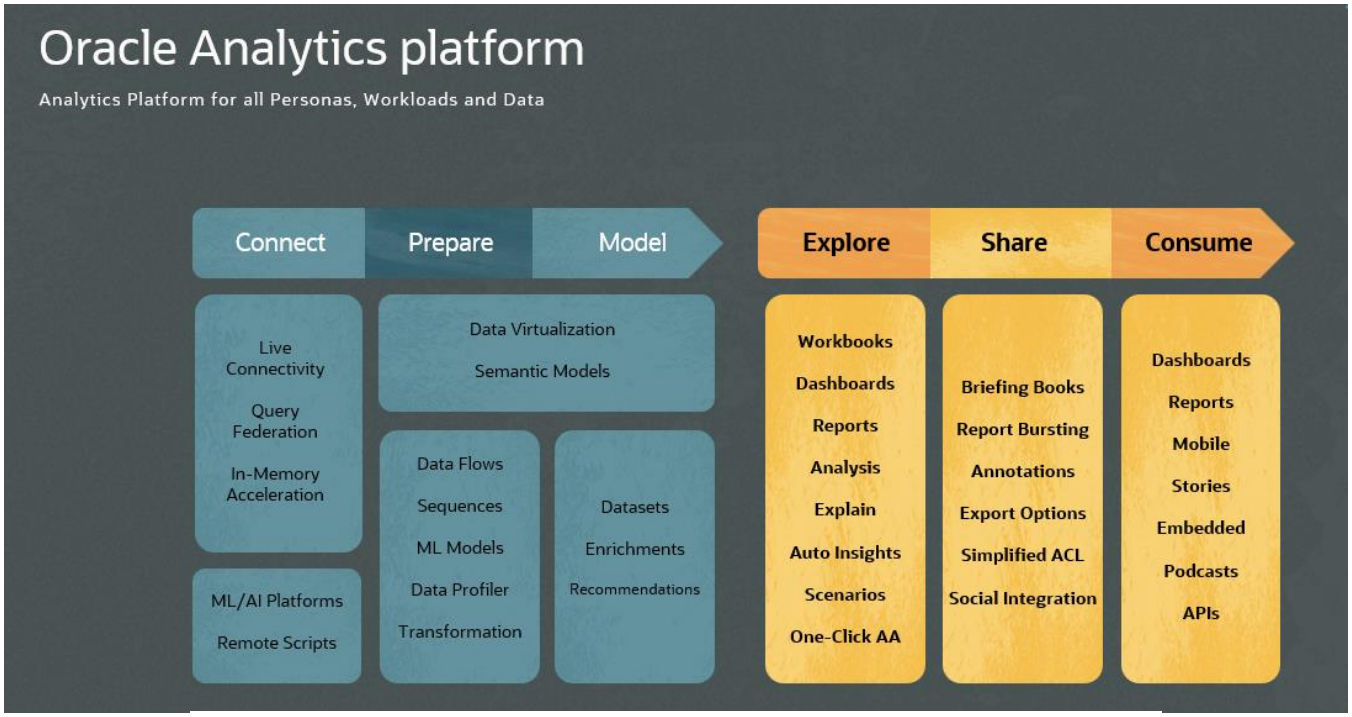

Figure 3. OAS Workflow Stages

Fast Insights with OAS

OAS makes easy yet powerful visual analytics accessible to everyone.

- **Stunning, smart visualizations – The self-service Data Visualization** displays the best visualizations for the data automatically - all that is required is drag and drop. As new attributes and filters are added, the visualizations change to best reflect new data and bring clarity to investigation. One can also change visualizations at any time, simply by clicking and selecting a type of visualization (no configuration required).
- **Automatic highlighting -** Related data is automatically connected - by selecting an area in visualization the tool will automatically highlight correlated data in every other visualization, showing patterns and revealing new insights.
- **Guidance and search -** Sometimes we know the data we are working with, and sometimes we do not. Powerful search, guided navigation, and sophisticated filtering work together intelligently to provide an easy, interactive path through data, helping users find exactly what they are looking for.
- **Everything connected -** A unified user experience blurs the lines between dynamic discovery, dashboarding and presentation, creating a seamless and richly contextual environment that keeps exploration fast and fluid.
- **Visual storytelling -** It is easy to capture insights as visual stories, saving story points (snapshots of the analytical moment-in-time) and adding comments to highlight key points and discoveries. This way organizations get improved decision-making and faster action.

Users will consume reports leveraging 50+ visualization types and additional extensions that can be incorporated. These visualizations cover any reporting requirement including displaying geographical maps and overlaying data on custom maps/images.

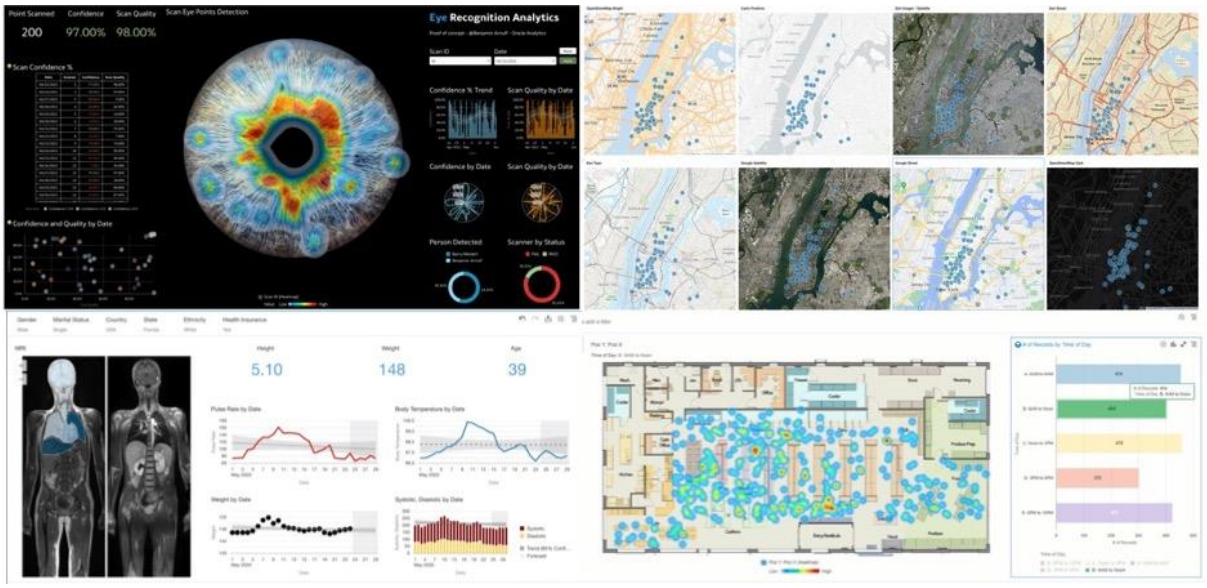

Figure 4. OAS sample visualizations

Data Preparation

OAS makes it easy to enrich and transform the data before it is made available for analysis.

Data Enrichments – OAS performs a column level profiling and brings out various recommendations that business users can leverage to perform single-click transforms and enrichments on the data. 'Delete columns containing sensitive fields', 'Column concatenations, for example, adding a column with the person's first and last name, 'Obfuscation or masking of sensitive fields (full and partial)' etc. are examples of few recommendations generated by OAS.

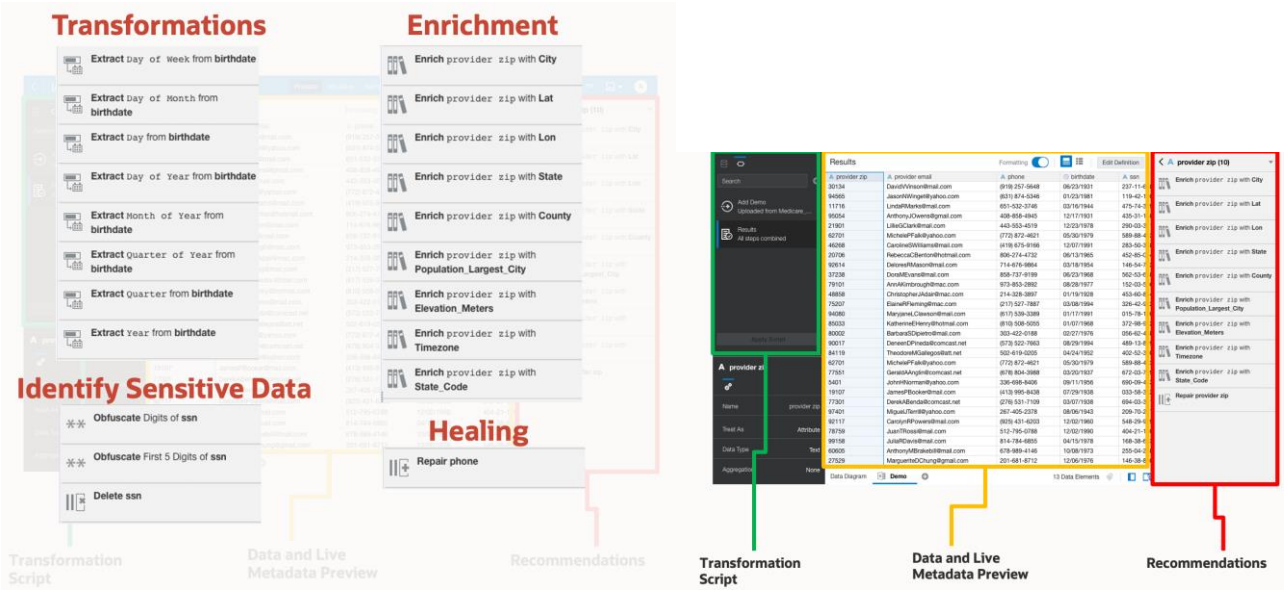

Figure 5. OAS Data Enrichments

Transform Data

One can use the transform editor to enhance the data. For example, one might convert text to uppercase or trim leading and trailing spaces from data. Transform the data to make it more useful and powerful for content consumers.

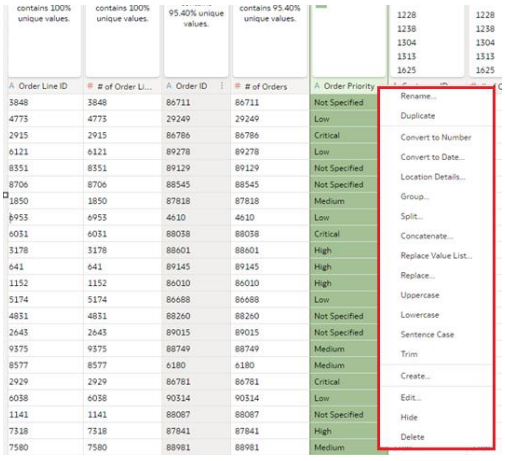

Figure 6. OAS Data Preparation Functions

Transform Data Using Data Flows

For complex data transformations, OAS has an in-built ETL tool that enables users to create data flows, by joining multiple data sources and creating data mashups in a user-friendly interface, as well as performing transformations on the chosen data sets.

It also offers users the capability to store newly created data sources and use them in future analysis either as standalone sources or together with other data models. These data flows can be scheduled to automate the data transformation process.

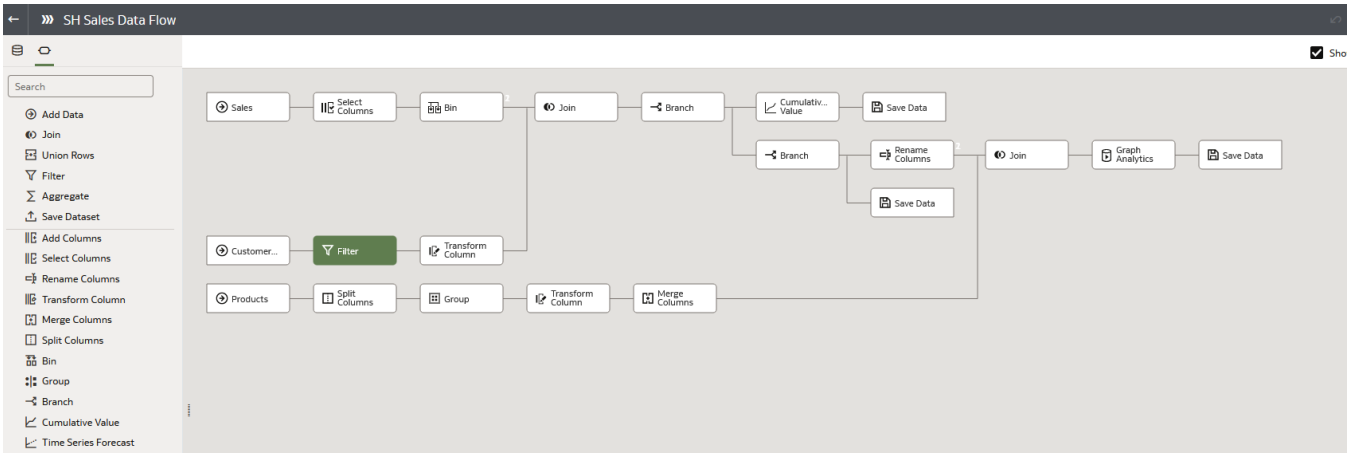

Figure 7. Sample Data Flow.

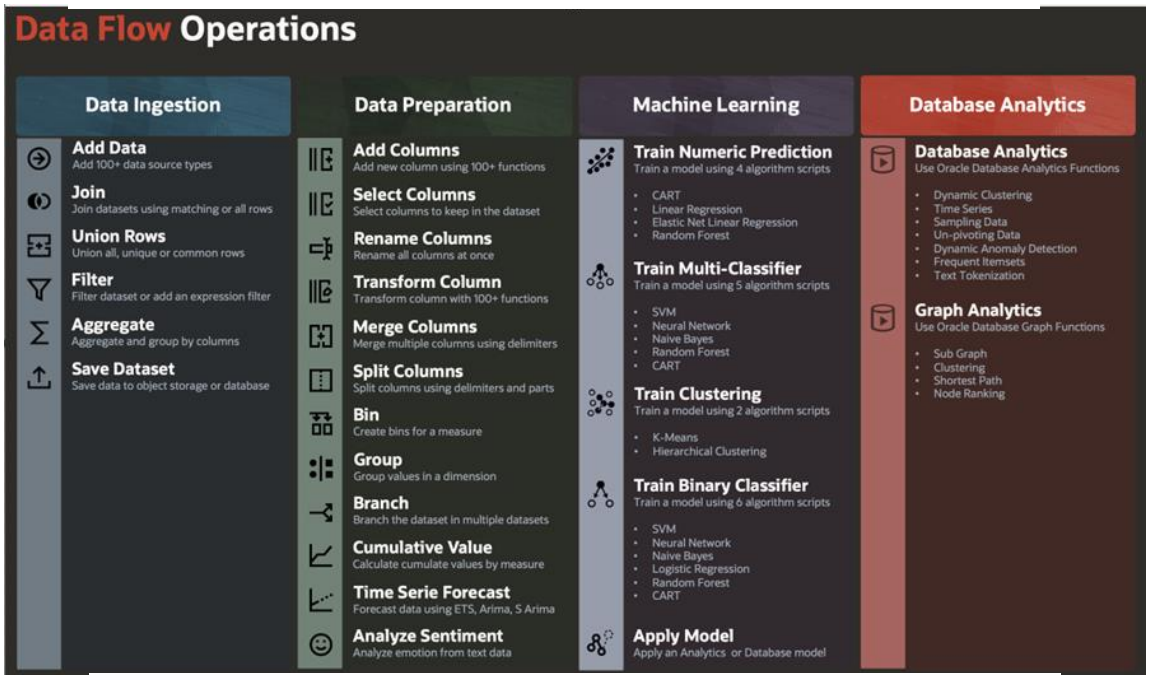

Figure 8. OAS Data Flow Operations

Semantic Model

A Web based semantic Model, allows data management and analytics architects to map the physical sources, create business defined logical views and business friendly presentation layer, while ensuring consistent definitions for KPIs, metrics and hierarchies. It can provide business partners within the enterprise a scalable, single source of the truth for business-critical data. Ensure trusted and consistent information across the enterprise with a business representation of data using a shared and governed semantic model. Enterprise users access data using common business terms, predefined hierarchies, consistent calculations, and metrics. Create seamless, federated views of data sources using native data source queries that deliver best performance.

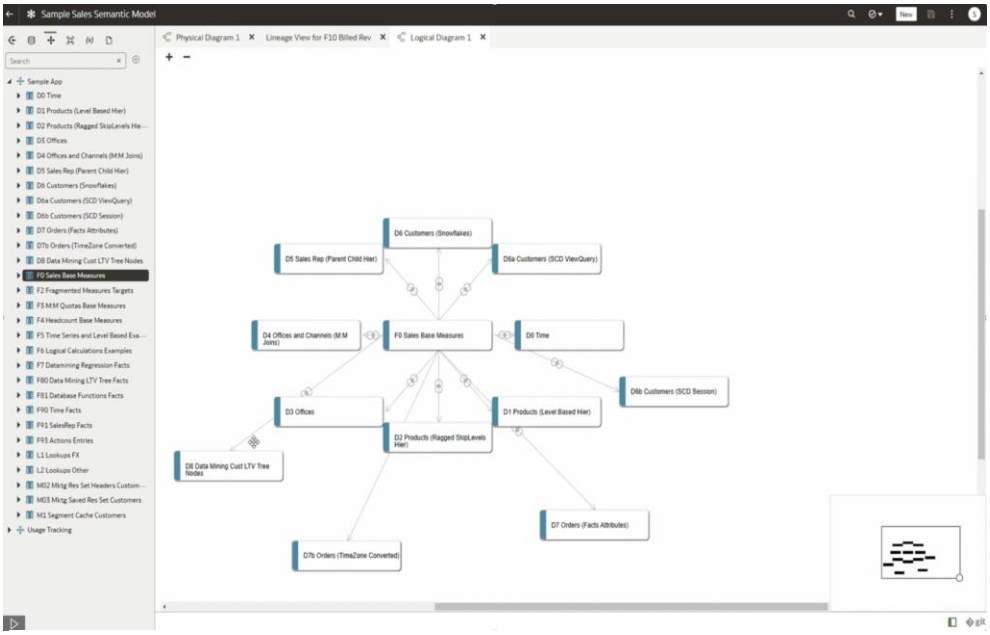

Figure 9. OAS Semantic Modeler

Data Discovery with OAS

OAS eliminates the complexity typically associated with blending and correlating data sets. Easy, automatic data blending allows organizations to combine data from a variety of sources — existing Oracle or other SaaS applications, on-premises systems, external sources, and personal files - and immediately gain new insights using visual analysis.

- **Data loading -** Loading data is as simple as browsing to a file and clicking to see a preview. Data Visualization automatically identifies attributes as part of the upload process and presents them in the guided navigation, so we can begin analyzing right away.
- **Mash-up** - Blending data is also a point-and-click process that includes automatically inferring connections between data sets, which are displayed in an easy interface so one can see how data is related and add or change connections as necessary.
- **Extending Analysis-** Visual analytics masks complexity, enabling very sophisticated data exploration by simply clicking to apply filters and drill, and dragging and dropping to create compelling dashboards. One can take analysis even further with an easy Expression editor, where prebuilt functions can be used to visually create custom filters and calculations, to quickly extend and enrich the data.

Ad-hoc Reporting or Low Code Reporting

Auto Insights

Users will use OAS low code analytics environment WebUI to create visualizations and undertake ad-hoc, self-service data analytics.

Auto insights are recommended visualizations that Oracle Analytics generates for users. Users can then add these visualizations to their workbooks.

Auto Insights does the hard data scientist work by recommending the best visualizations (or insights) based on your dataset's measures, attributes, and relationships. One can add the recommended visualizations to workbook to get straight to the most useful information in the data.

The insights results can be customized by specifying the columns that Oracle Analytics should consider analysing and by specifying the visualization types used by Auto Insights to display data.

Auto Insights also provides a natural language summary for every visualization that it generates. This summary explains the relationship between attributes and measures, and other points of interest.

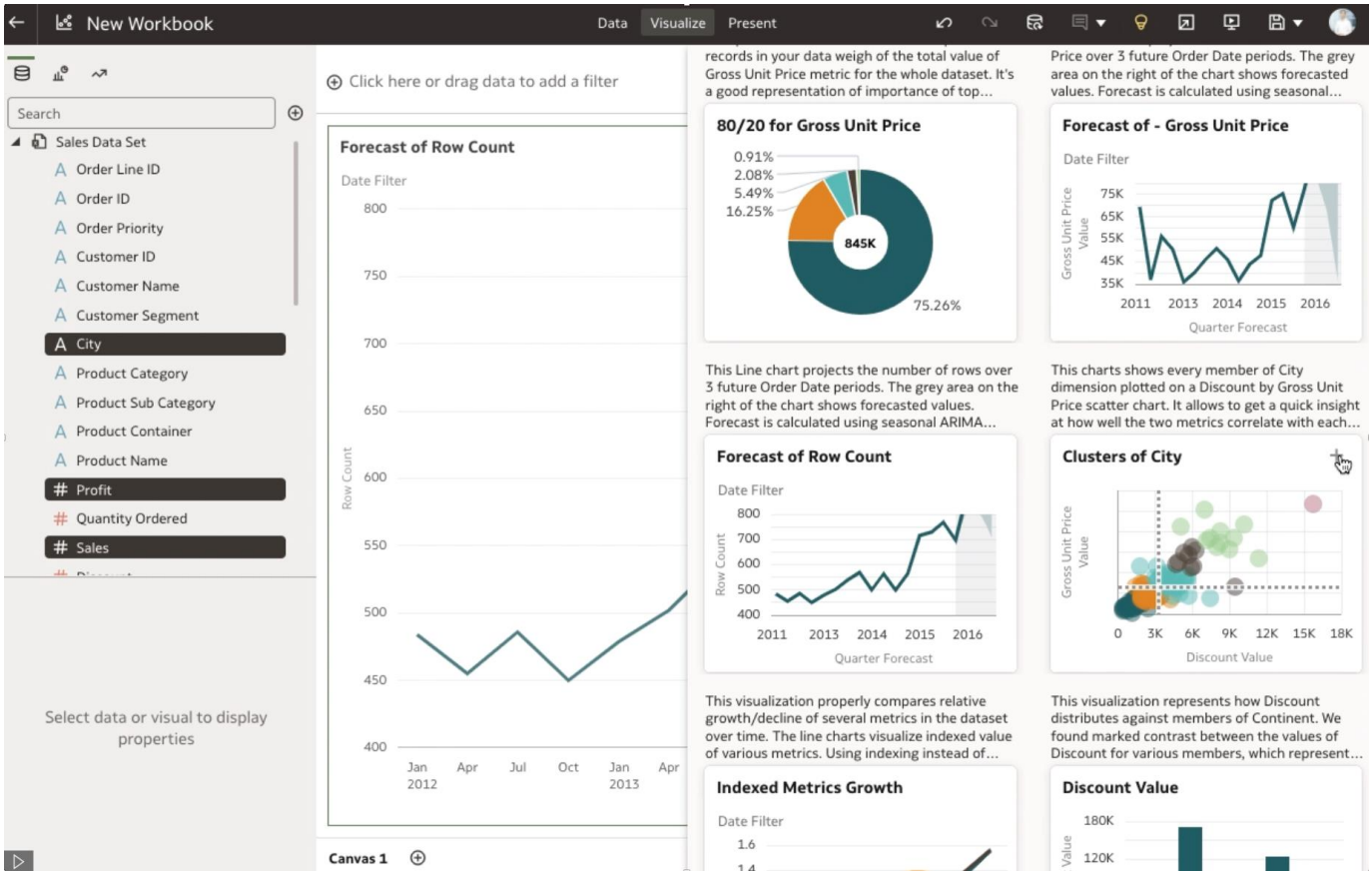

Figure 10. OAS -Auto Insights

Explain Feature

What if one could ask the visualization tool to **explain** an **attribute/metric** in context of the other attributes and metrics in the dataset? In Oracle Analytics Server, self-learning contextual insights anticipate questions and infuse data-based insights into daily activities.

Figure 11. Explain Feature

BI Ask search – Natural Language Processing

OAS leverages machine learning and natural language processing to ensure that users of all skill levels can extract insight from data quickly, even if they don't know exactly where to start. With this functionality users can simply 'ask' their data by using a familiar search interface. They can do this both structured and unstructured (speaking or freeform typing) and the tool just take care of the rest.

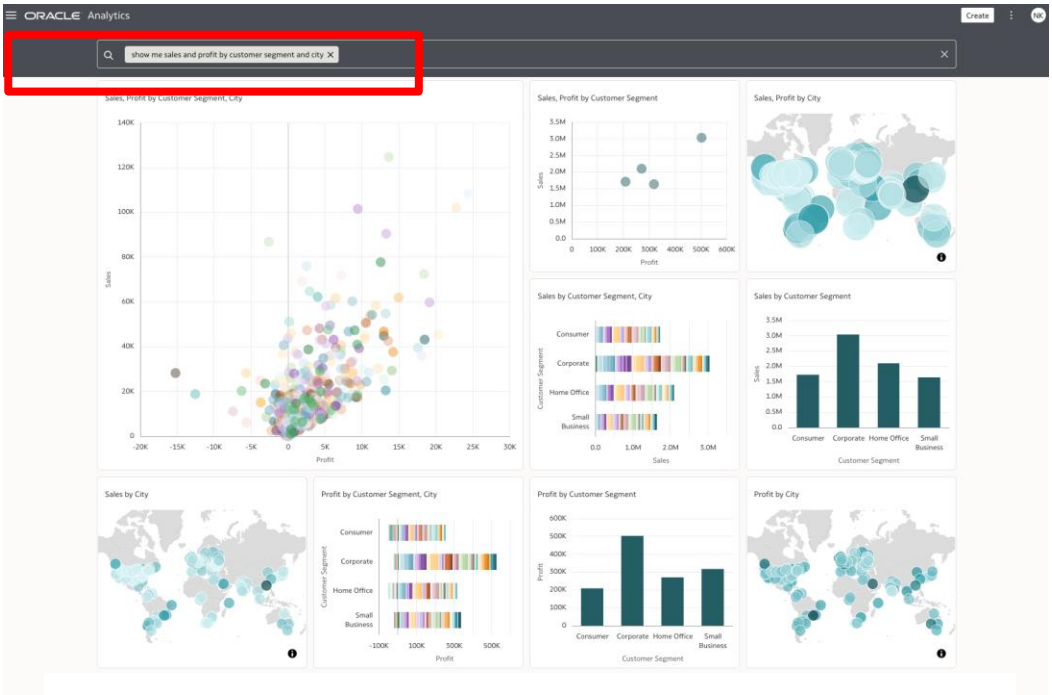

Figure 12. BI Ask – Querying data by typing queries.

Machine Learning

Oracle Analytics predictive models use several embedded machine learning algorithms to mine datasets, predict a target value, or identify classes of records. Use the data flow editor to create, train, and apply predictive models to data.

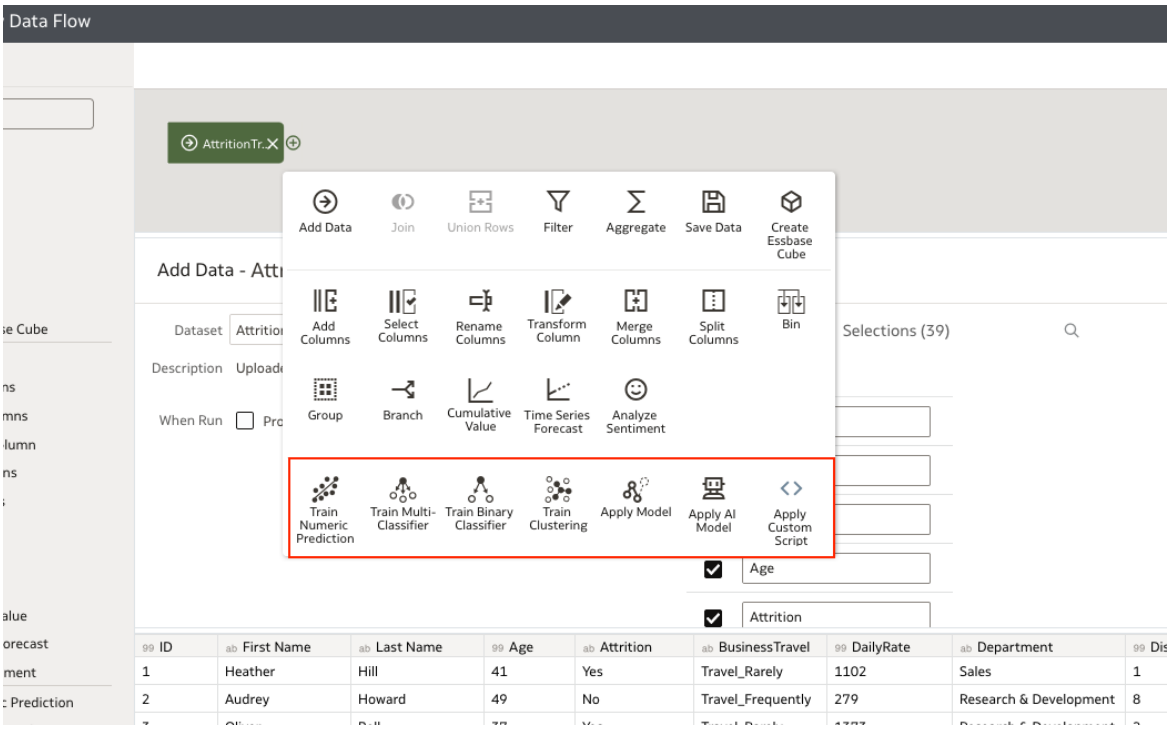

Figure 13. Predictive Models in OAS Data Flow

OAS has multiple **machine learning algorithms** implemented out of the box for each kind of prediction and classification required. Because of this, users have the luxury to create more than one model using these algorithms or using different fine-tuned parameters to those algorithms or using different input training datasets and then, choose the best model out of them.

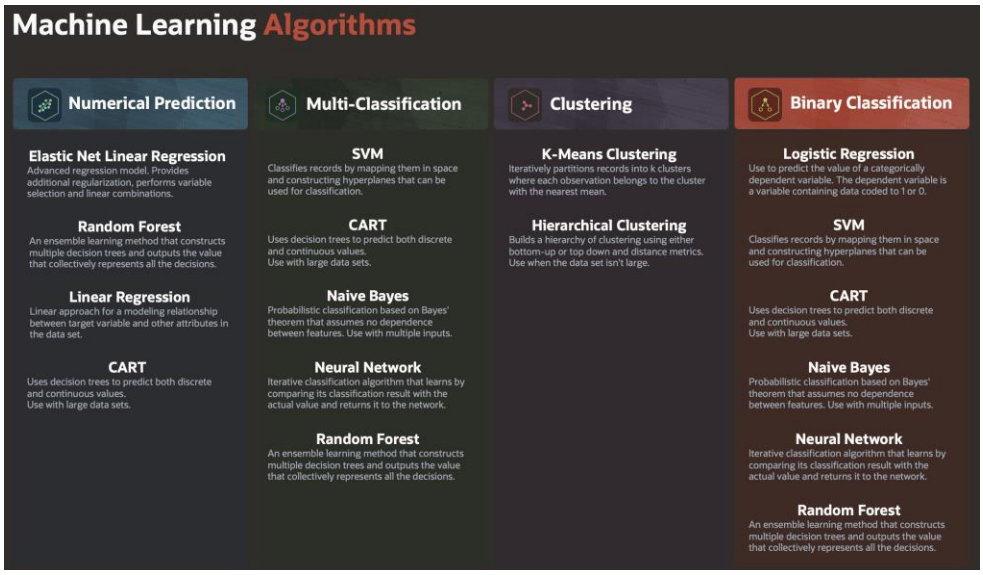

Figure 14. OAS Machine Learning Algorithms

In addition to above, OAS allows you to register and use Oracle machine leaning models from Oracle Database.

Using Oracle machine learning models with Oracle Analytics greatly increases the level of predictive analytics that one can perform on datasets because the data and the model reside in the database, the data scoring is performed in the database, and the resulting dataset is stored in the database. This allows users to use the Oracle machine learning execution engine to score large datasets.

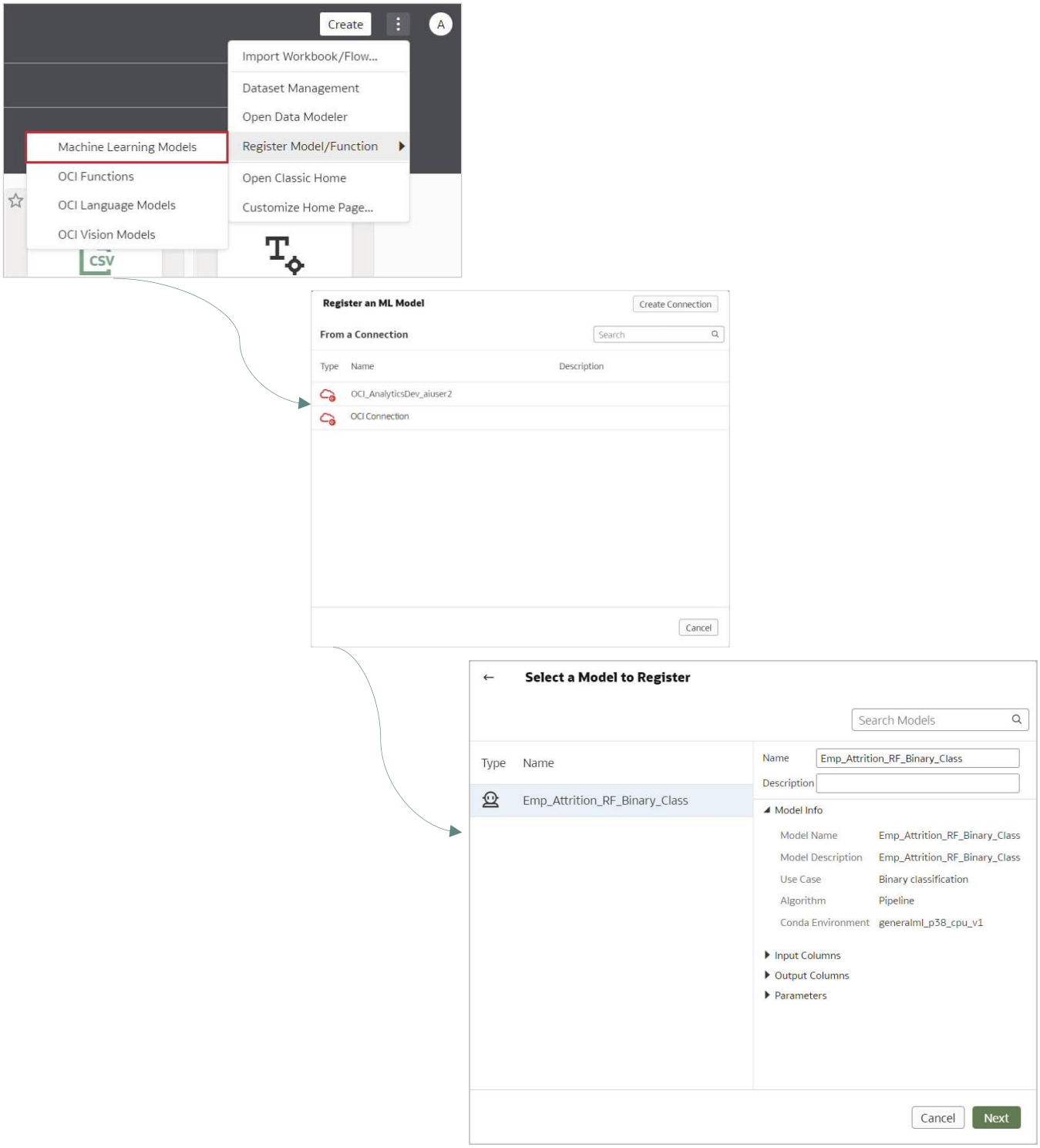

Figure 15. Registering ML model from Oracle Database

Integration with Oracle Cloud Infrastructure AI Services

Below mentioned Artificial Intelligence (AI) services provided by OCI can be leveraged directly from OAS. It gives the power to apply machine learning and artificial intelligence **without needing data science expertise.**

OCI Vision AI Service

Register OCI Vision **AI models** in OAS and execute them directly in data flows using a set of images. OCI Vision can perform **object detection**, **image classification**, and **text recognition** on images and return the results directly as datasets in Oracle Analytics Server.

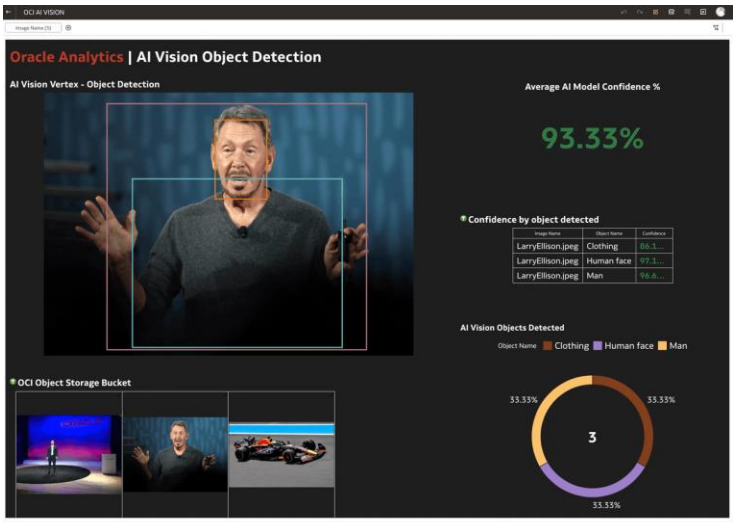

Figure 16. Sample report in OAS using OCI Vision models doing object detections.

OCI Document Understanding AI Service

Register prebuilt OCI Document Understanding models to build document classification and key value extraction into your OAS applications without machine learning (ML) or artificial intelligence (AI) expertise. For example, you might use document classification to identify passports, driver licenses, receipts, or invoices**.**

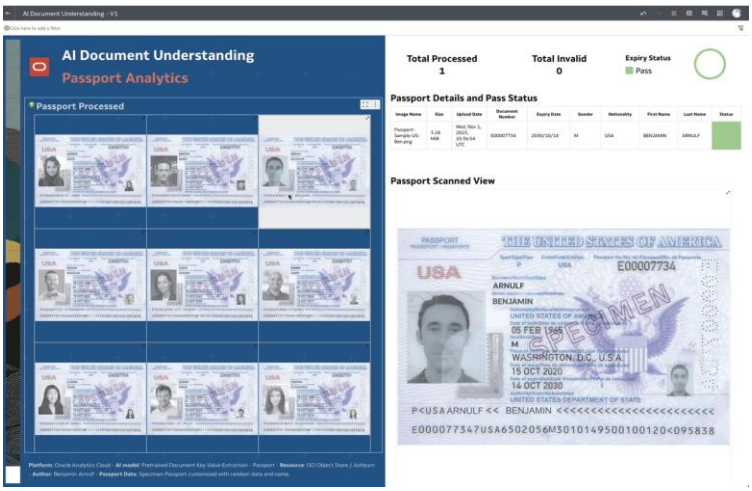

Figure 17. Sample report in OAS using OCI Language model.

OCI Language AI Service

Register OCI Language models to build key phrase extraction, sentiment analysis, classification, named entity recognition, language recognition, and obfuscation into your applications without requiring artificial intelligence (AI) expertise

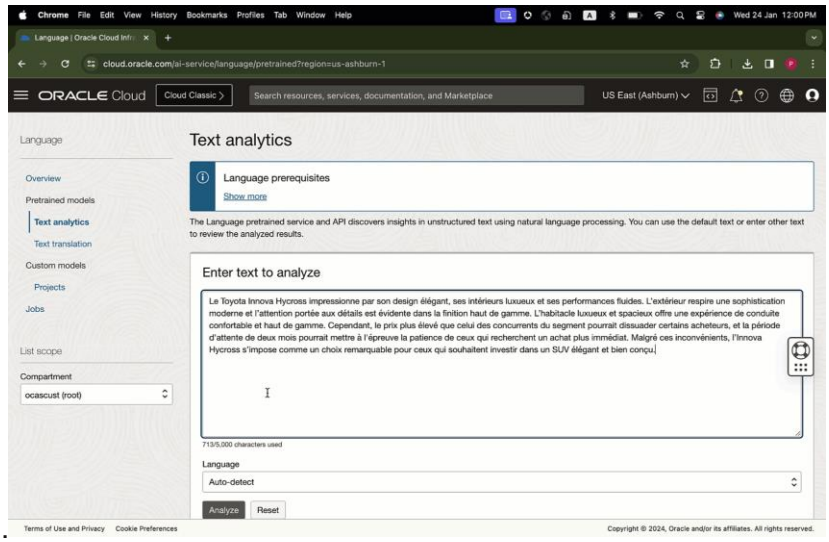

Figure 18. OCI Language Model

Reports & Dashboards

With OAS, users can choose from a large variety of options to show the data. It is highly interactive and easy to use, highly customizable (font, size, colors).

Report building in OAS does not require coding or specialized resources; it has been specifically designed to be accessible for business users and analysts. The solution is designed to be accessible to everyone anytime and anywhere, regardless of analytical or technical background. It is easy enough that any user will be able to load and prepare data, choose visuals, create analytics, and securely share results with co-workers.

The solution gives **advanced analytics** literally at the click of a button. Advanced analytics operations such as **clustering, outlier detection, trend lines, reference lines** and **forecast** are built-in, and they can be simply dragged dropped on to visualizations.

Figure 19. Sample Canvases

Users can create dashboards to include multiple analyses to give them a complete and consistent view of their company's information across all departments and operational data sources. Dashboards provide them with personalized views of information in the form of one or more pages, with each page identified with a tab at the top.

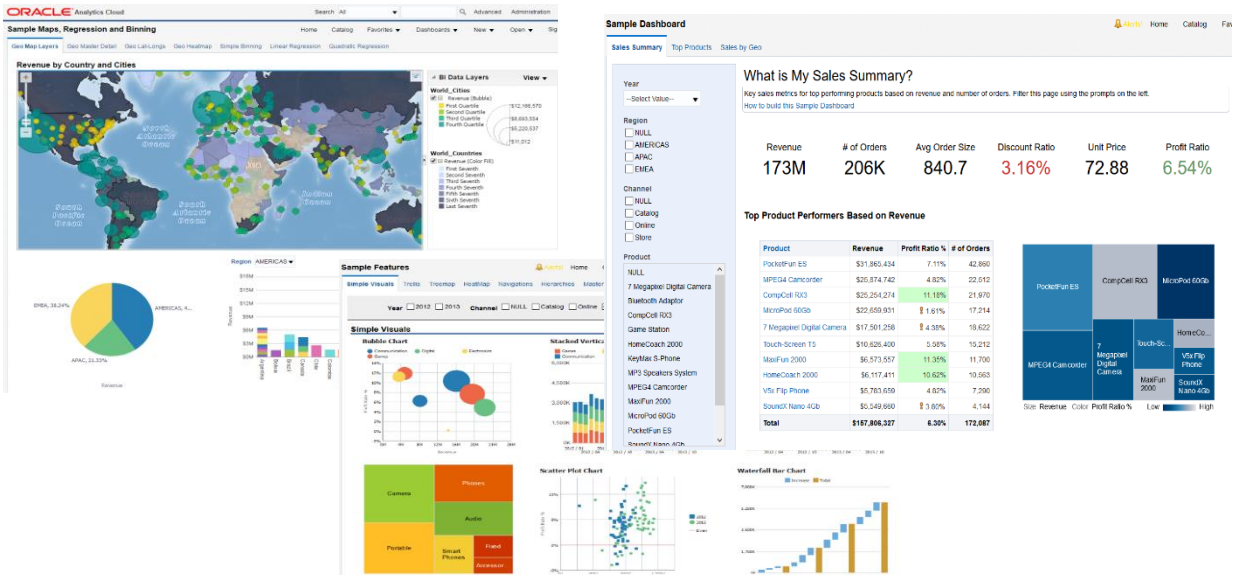

Figure 20. OAS Sample Dashboards

Analytics Publisher

Analytics Publisher is the pixel-perfect reporting solution for authoring, managing, and delivering all highly formatted documents, such as operational reports, electronic funds transfer documents, government PDF forms, shipping labels, checks, sales, and marketing letters.

Analytics Publisher (formerly BI Publisher) provides a Web based platform for authoring, managing, and delivering highly formatted business documents and interactive reports. Business users can easily design report layouts from a Web browser or by using familiar desktop tools, dramatically reducing the time and cost needed to develop and maintain reports. The IT staff and developers can create sharable data models against practically any data source and use Analytics Publisher APIs to build custom applications leveraging existing data sources and infrastructure. Built on open standards and a scalable architecture, Publisher can generate tens of thousands of documents per hour with minimal impact to transactional systems.

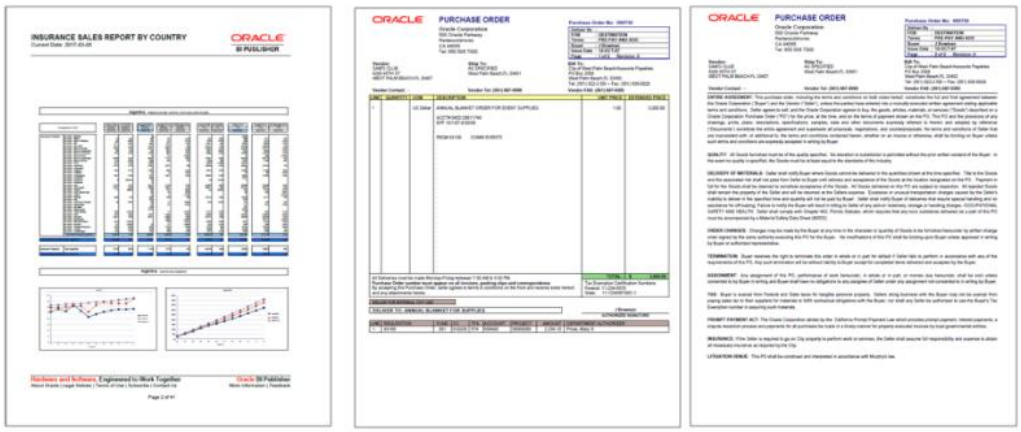

Figure 21. OAS Pixel Perfect Reports

OAS Developer Mode

- Use OAS's built-in Developer Mode to audit and tune issues with visualizations.
- Spot slow or problematic queries and identify potential fixes.

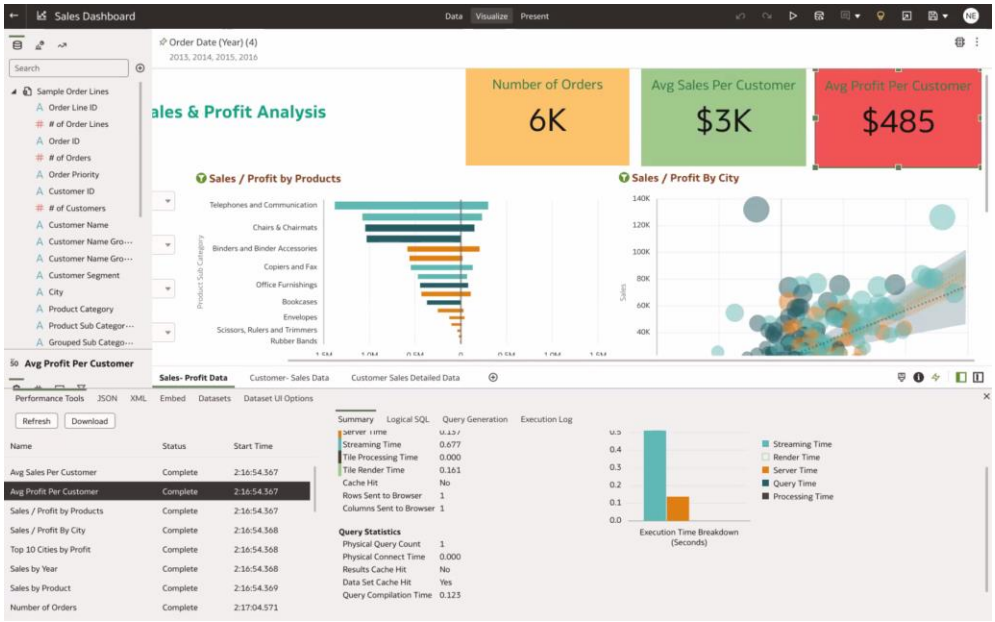

Figure 22. OAS developer options.

Embedding Analytics

OAS content can be embedded on APEX, the low-code development platform, or any web application. With the ability to have OAS content in a web application, users can transact with it having analytics KPIs on the same page, hence improving decision making with contextual analytics, while enforcing complete data security.

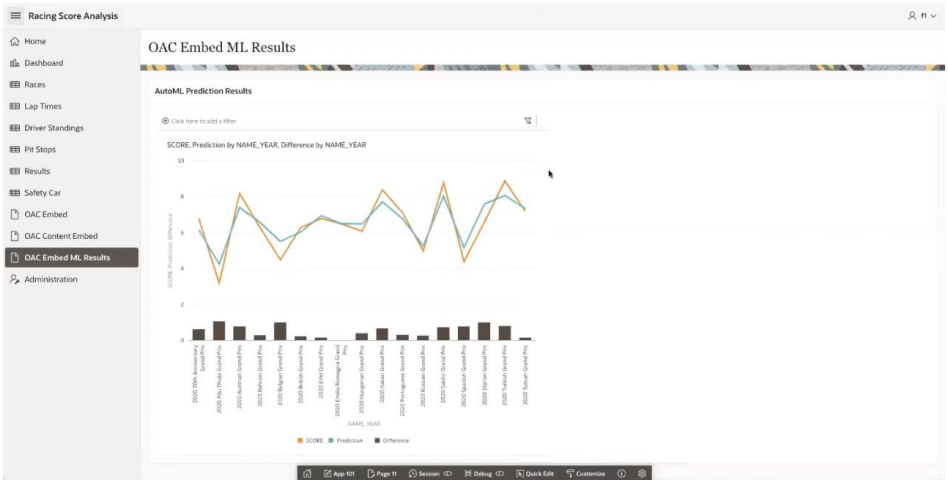

Figure 23. Embedding Analytics

Usage Tracking

- Gain performance metrics at the Oracle Analytics instance
- Monitor resource usage to know when to scale up and down the analytics instance.
- Track user activity and trends about most popular queries and content
- Proactively correct poor performing queries.
- Identify underused content.

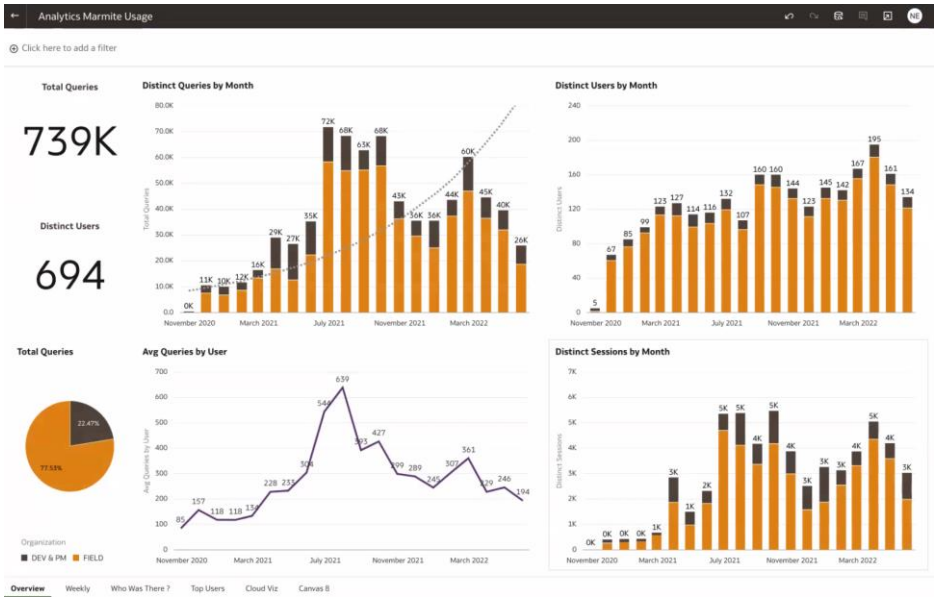

Figure 24. Sample Usage Tracking Report in OAS.

Experience

- Consume across any device.
- Responsive web design delivers same experience on any device.

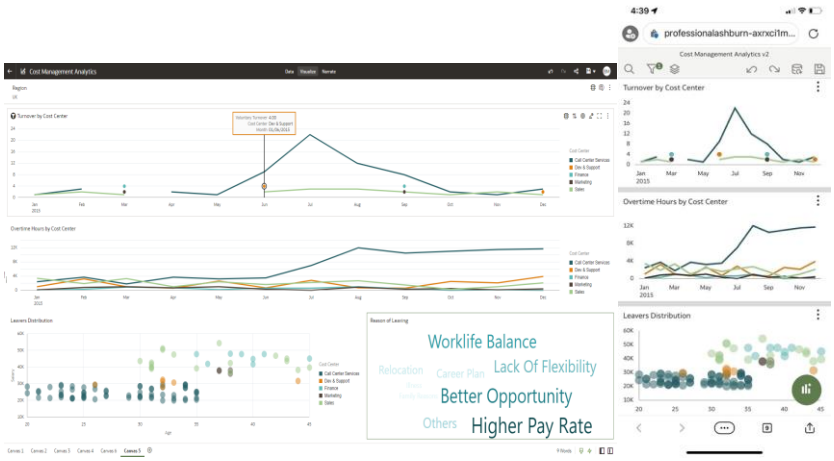

Figure 25. OAS Experience

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