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Oracle Fusion Analytics Warehouse: HCM Analytics Taleo Playbook

Augment Oracle HCM Analytics with recruiting content from Oracle Taleo Enterprise. This technical guide will lead you, step by step, on how to incorporate Taleo Recruiting data into the Oracle HCM Analytics Application.

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Introduction

Oracle Fusion Analytics Warehouse (FAW) is a packaged analytics solution designed for Oracle Cloud Applications, with best-practice driven insights that business professionals and decision makers need to run their businesses. Built using Oracle's Cloud Infrastructure platform services – Oracle Analytics Cloud, Oracle Autonomous Data Warehouse, and Oracle Data Integrator – Fusion Analytics Warehouse delivers on the promise of rapid deployments, with ready-to-use prebuilt content (KPIs, dashboards, reports), a prebuilt data foundation (semantic model, data model, data pipeline) and an integrated security framework. FAW is fully extensible and can easily blend in departmental data sources such as HCM, Sales, Finance and Supply Chain, as well as external data from third parties.
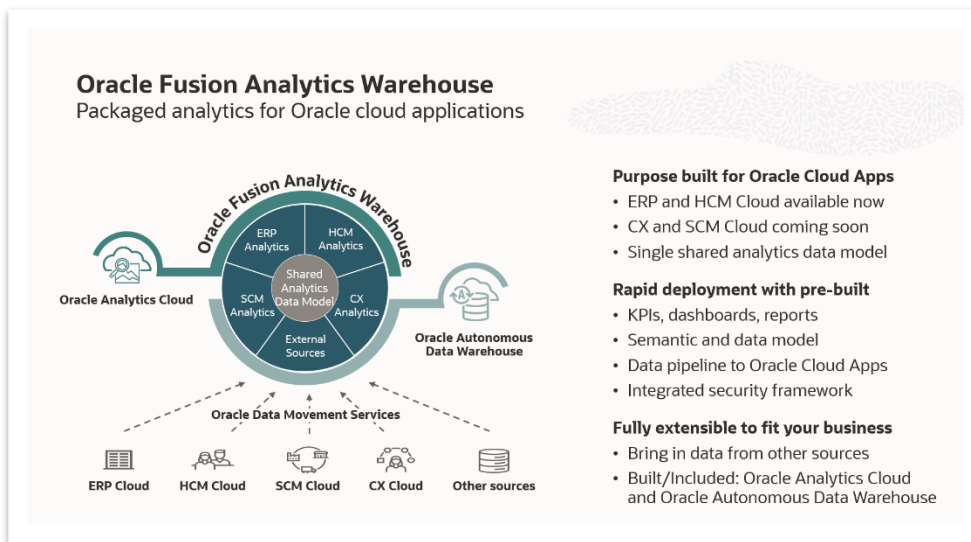

FIGURE 1. ORACLE FUSION ANALYTICS WAREHOUSE (FAW)

Solution Overview

HCM Analytics

Oracle HCM Analytics is the second packaged analytic application available from the Oracle Fusion Analytics Warehouse portfolio, providing rich analytical content that is tightly integrated with Oracle HCM Cloud. Prebuilt Oracle HCM Analytics dashboards, reports and KPIs answer key questions and help address strategic problems facing HR teams today, from the moment they begin using the application, including, "How do we retain and develop talent?"; "How do we maximize productivity while balancing costs?"; "Are we hiring high-performance employees?"; "Are we maintaining a diverse workforce?"… and more.

Extensibility Framework

Oracle HCM Analytics customers have expressed a need to extend the out-of-the-box Oracle HCM Analytics application with data from other source systems, such as Oracle Taleo Enterprise. In this scenario, customers would continue to operate the recruiting function with Oracle Taleo and augment Oracle HCM Analytics with recruiting data for cross-source analysis and insights.

To address this need, Oracle HCM Analytics provides an extensibility framework that manages extensibility needs with migration assurance, through updates to new releases of Oracle HCM Analytics and Oracle Cloud HCM. For example, the HCM Analytics data model will always be in sync with updates to Oracle Cloud HCM.
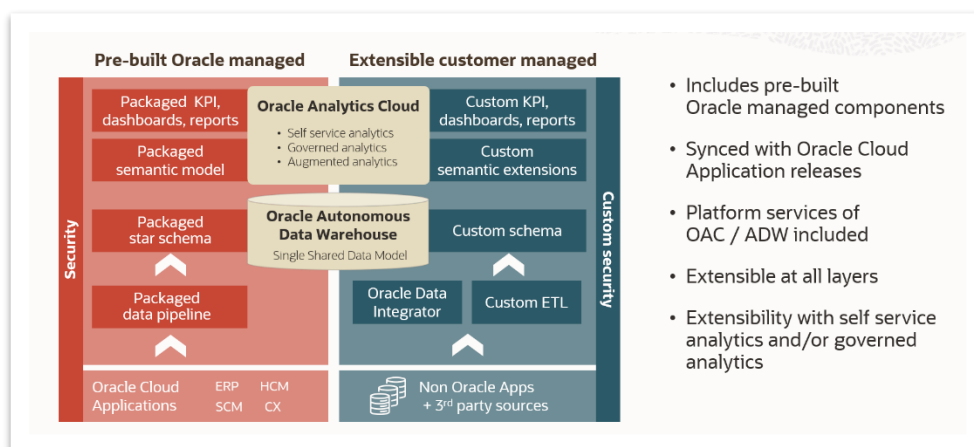
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There is no need to rebuild analytics and data solutions to take advantage of changes and extensions in the underlying Oracle Cloud applications.

Which components are extensible for customers?

- **Oracle managed components** (see Fig. 2. left-hand side in RED) are immutable and cannot be modified or extended. They will remain synchronized with the Oracle Cloud Application releases as they are Oracle managed.

  - If we read from the bottom up, the data pipeline to Oracle Cloud Applications is packaged for you, as well as the packaged data model, the semantic model, and the packaged best practice content like KPIs, dashboards, and reports.

- **Customer managed components** (see Fig 2. right-hand side in BLUE) are extensible at all layers. If you read from bottom to top, customers can add external data sources into the same Oracle Autonomous Data Warehouse Data model as the Oracle Cloud application data.

  - For a more governed approach, Oracle Data Integrator can be used, with its many connectors, to load data into custom schemas/tables in the same ADW repository.

  - From a self-service approach, you can take advantage of any of the 30+ self-service connectors to connect to data directly from OAC instead of loading into ADW. Customers can also extend the semantic model via a wizard-like extension utility, and finally customers can create KPIs, dashboards, and reports.

In summary: You get the best of both worlds, pre-built and extensible, to manage the extensibility needs with migration assurance.

Onboard Oracle Taleo Data

The extraction of Oracle Taleo Enterprise recruitment data is done through an independent data pipeline. This pipeline will be completely managed by the customer (or partners). In this case, data is extracted from Taleo via the Taleo Connect Client (TCC). It is then ingested into Oracle Storage Service (OSS), and using ODI Marketplace, the ingested OSS data is loaded into the custom schema of the FAW provisioned Autonomous Database (ADW).

Data Flow to extract Oracle Taleo Data:
1. Taleo Connect Client (TCC) and ODI Marketplace are installed in the same VM

2. TCC will extract data from Taleo, both historical and incremental and create CSV files in the same server

3. ODI will read the .csv file(s) and load them directly into the custom schema of ADW

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4. After reading the .csv file(s), ODI will move those files into a "DONE" directory

5. All transformations will happen inside the ADW schema

6. TCC will be configured in such a way that HCM Analytics can be refreshed in a scheduled daily frequency
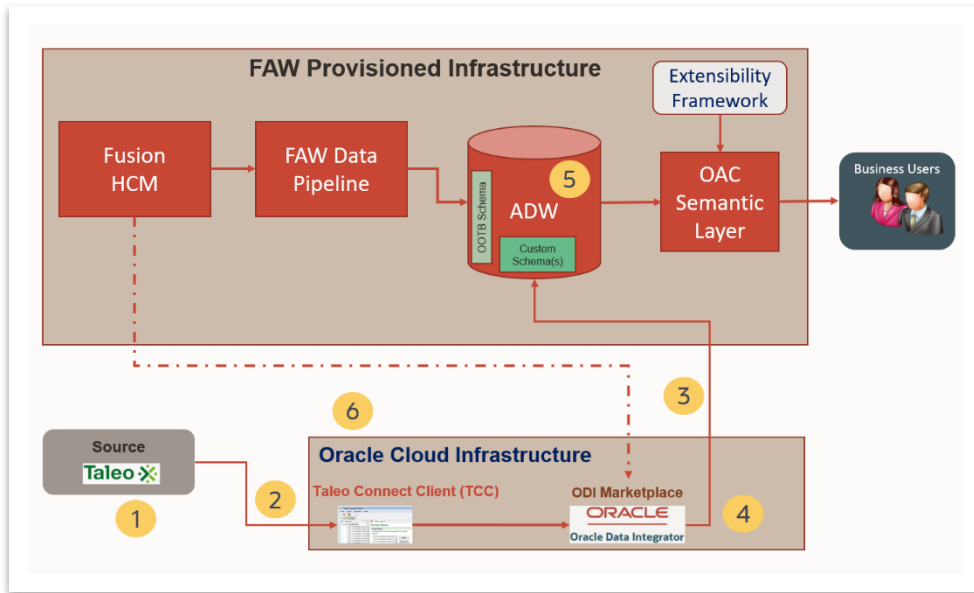

FIGURE 3. SOLUTION OVERVIEW: ONBOARD TALEO ENTERPRISE DATA

The FAW Provisioned Infrastructure (top half of Fig. 3) is Oracle managed from start to finish. The data pipeline and content are immutable. The bottom portion includes the extensible and customer managed components.

Once the data has been loaded into the ADW schema, the remaining parts of the process involve extending the semantic model to create a new subject area with dimensions and facts for the creation of reports and analyses.

7. Create the Taleo subject area with required dimensions (Time, Band, Title etc.), Facts (Hires – applicants, openings, etc..), and any additional attributes or measures (Reference data model diagram in Fig. 5)

8. Create sample analyses, dashboards and KPIs with combined Cloud HCM and Taleo data for self-service discovery and further analysis
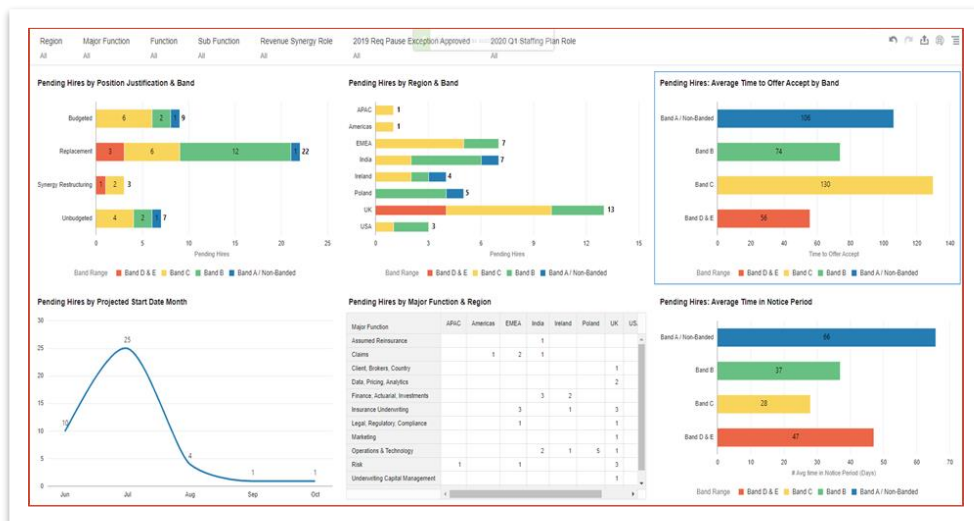

FIGURE 4. HIRES DASHBOARD

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Solution Steps

The remainder of this document leads you step-by-step on how to incorporate Taleo Recruiting data into the Oracle HCM Analytics Application.
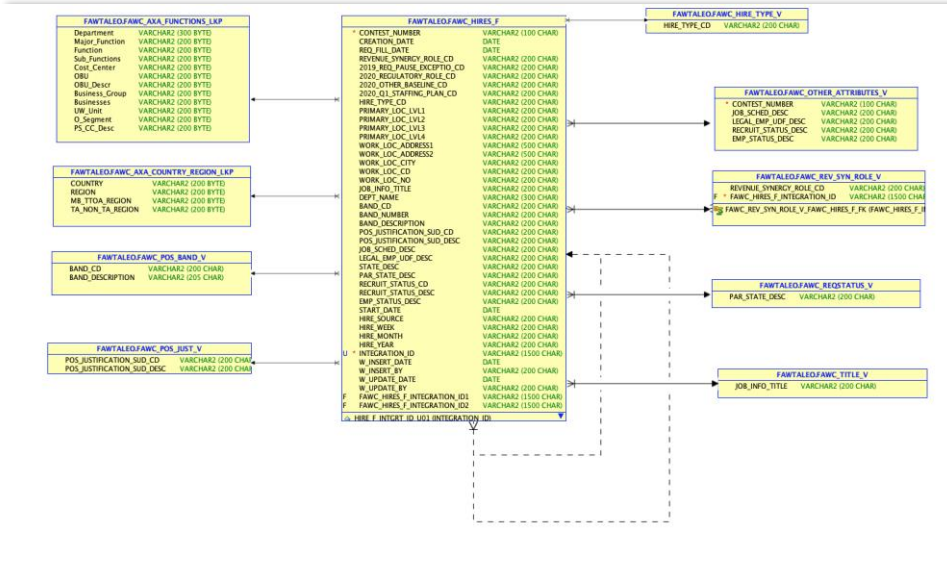
Target Data Model: Physical and Logical
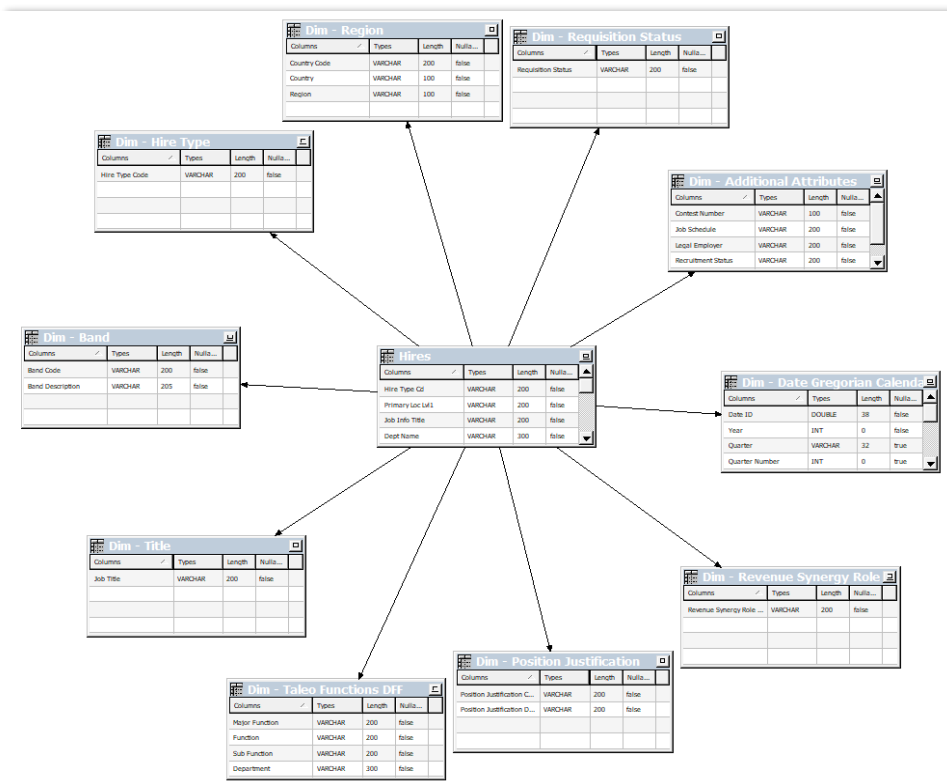

FIGURE 5. TARGET PHYSICAL MODEL

FIGURE 4. TARGET LOGICAL MODEL

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Data Loading

For instructions on installing and configuring the Taleo client, go to the following A-Team Blog.

Oracle Data Integrator Taleo File System

The Taleo Connect Client (TCC) is installed under /home/oracle/taleo/tcc-19.4.0.2 directory {TCC_HOME} in the Oracle Data Integrator (ODI) compute instance virtual machine.
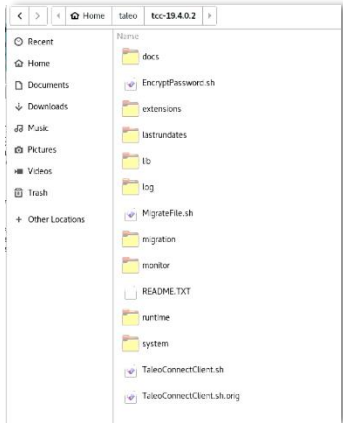
FIGURE 6. TALEO CONNECT CLIENT INSTALLATION DIRECTORY

The sub-directory run-time is composed of three sub directories:

- config to store the TCC extracts configuration files (_cfg.xml)
- request to store the TCC extracts request files (_sq.xml)
- response to store the TCC extract CSV files
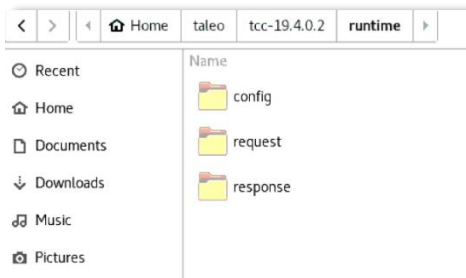
FIGURE 7. TALEO CONNECT CLIENT RUN-TIME SUBDIRECTORY

Oracle Data Integrator Topology

Physical Architecture

The DS_FILE_TALEO File physical data server is composed of a single physical schema pointing to the response subdirectory storing the TCC extract CSV files.

The DS_ODI_LOCAL File physical data server is composed of a single physical schema pointing to the CSV files used to load the function and country region lookups.

The FAW Oracle physical data server is composed of a single physical schema FAWTALEO pointing to the FAW-TALEO schema / user in the FAW ADW instance oax1683103872_low.
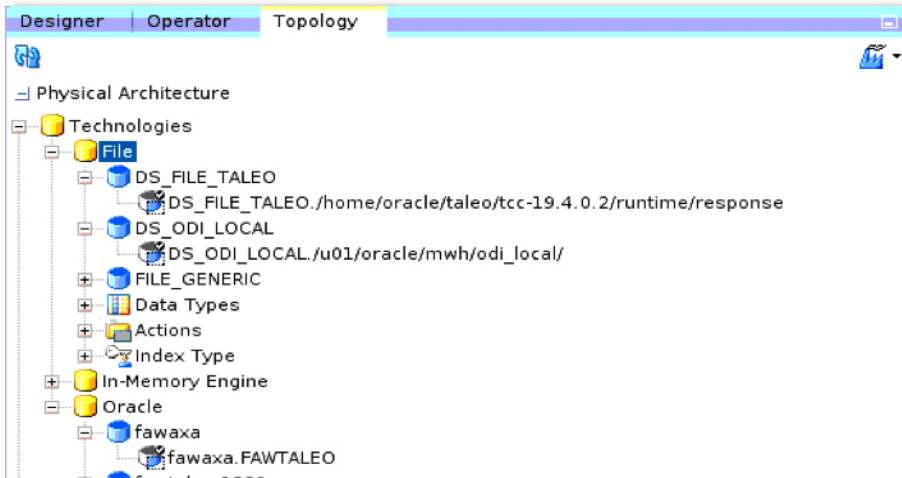
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FIGURE 8. ODI PHYSICAL ARCHITECTURE
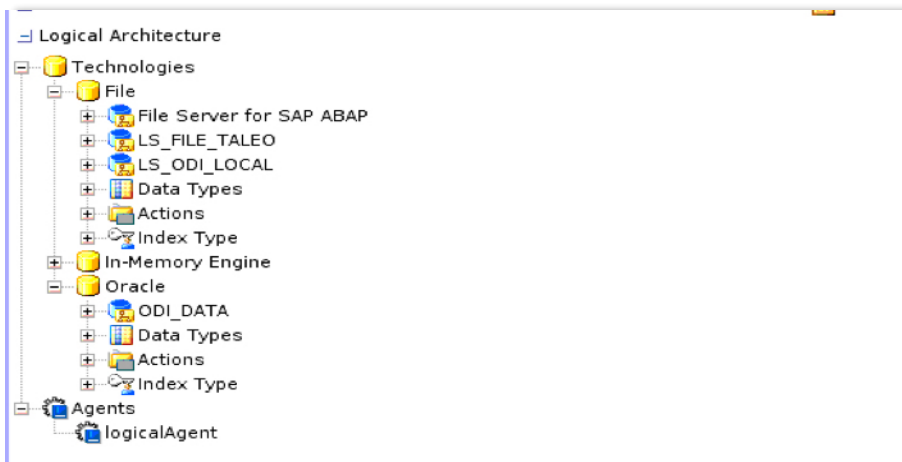
Logical Architecture and Context

FIGURE 9. ODI LOGICAL ARCHITECTURE

The Development and Global Contexts are shown below mapping the logical to the physical architectures
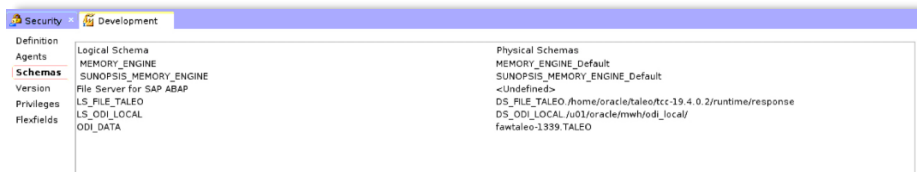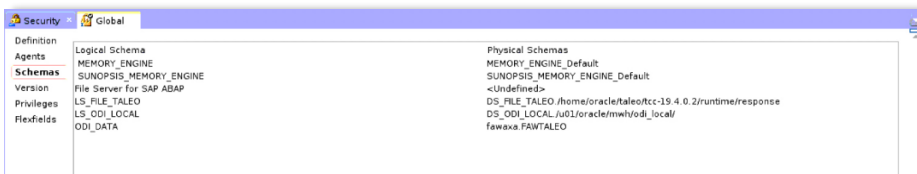

FIGURE 10. DEVELOPMENT CONTEXT

FIGURE 11. GLOBAL CONTEXT

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ODI Data Models

Files Data Models

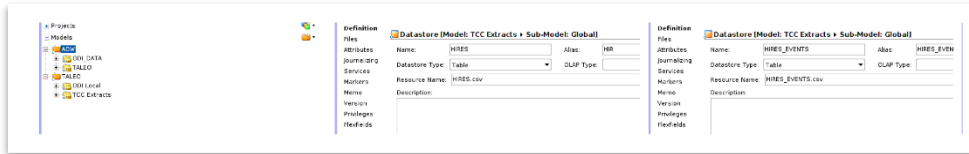The TALEO >TCC Extracts data model contains ODI data stores for HIRES and HIRES_EVENTS CSV TCC extracts

FIGURE 12. TALEO TCC EXTRACTS DATA MODEL

The TALEO > ODI Local data model contains the ODI data stores for the COUNTRY REGION and FUNCTION lookups CSV files (which are manually maintained).
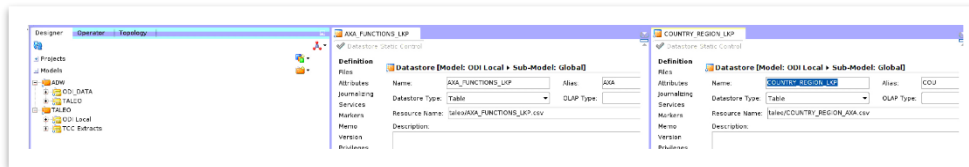

FIGURE 13. TALEO ODI LOCAL DATA MODEL

Oracle ADW Data Models

The ADW > TALEO data model contains the target tables to load the COUNTRY REGION and FUNCTION.

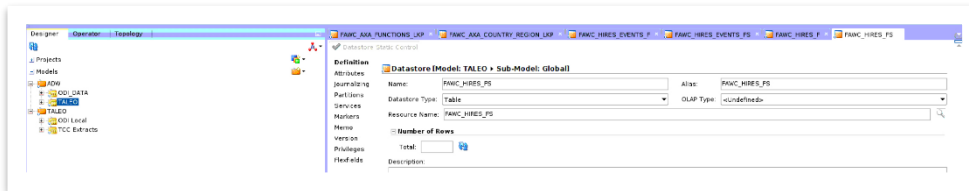It also contains the staging and target tables to load the HIRES and HIRES_EVENTS TCC extracts CSV files.

FIGURE 14. ADW TALEO DATA MODEL

Extraction Strategy

Hires Staging

FIGURE 15. HIRES STAGING

1. Taleo Local Variable is refreshed to point to the local directory where TCC is installed
2. Taleo Entity is declared and assigned by the calling scenario (see the full/incremental strategy) to the HIRES
3. A set of variables relating to ADW (staging table name, staging table ODI loading scenario) is refreshed based on the two previous variables
4. Call TCC OS Command step calls TCC client shell scripts based on configuration and request files named using the Taleo Entity variable value mask. This step generates a HIRES-[TIMESTAMP].CSV file
5. A clean step backs up the HIRES-[TIMESTAMP].CSV to the {TCC_HOME}/runtime/response/backup folder
6. A step then waits for the CSV file to be renamed before executing the next
7. The scenario that loads HIRES.CSV to the FAWC_HIRES_FS table is called so that the staging table is loaded
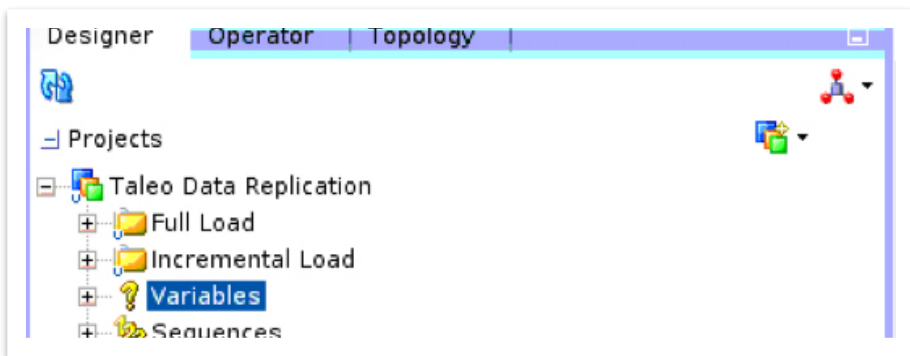
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Hires Events Staging

The Hires Events staging table load follows a similar approach to the Hires staging table load.

It breaks the extract down by department and loop through the department list. The TCC extract configuration files are generated on the fly with the corresponding list of current departments being extracted (in the scope of the loop iteration).

Once all department context data is extracted, all the TCC CSV extracts are merged into one and backed up to the {TCC_HOME}/runtime/response/backup folder.

Then the Hires Events staging table is loaded.

FIGURE 16. HIRES EVENTS STAGING SEQUENCE

Hires and Hires Events Target

Once both staging tables are loaded, their content is loaded onto their respective target tables.

FIGURE 17. HIRES TARGETS

Full and Incremental Loads

The Taleo Data Replication projects contain the Full Load and Incremental Load folders enclosing their respective sets of ODI artifacts (packages, interfaces, procedures and variables).

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FIGURE 18. TALEO DATA REPLICATION PROJECT

Full Load

- Full load process truncates the staging and target tables and gives the proper grants to the target table to the oax$oac user.

- The two Hires and Hires events package (see above) scenarios are then called to load the corresponding staging tables.

- Then the two corresponding target tables are loaded.

- Finally, the two FUNCTION and COUNTRY REGION lookup tables are loaded.

FIGURE 19. FULL LOAD

Incremental Load

- Incremental loads use the last run date concepts: the TCC extracts use a different set of configuration and request xml files configured to use last run dates.

- The staging HIRES and HIRES_EVENTS table are truncated, and the target tables are updated using the Oracle Incremental Update LKM.
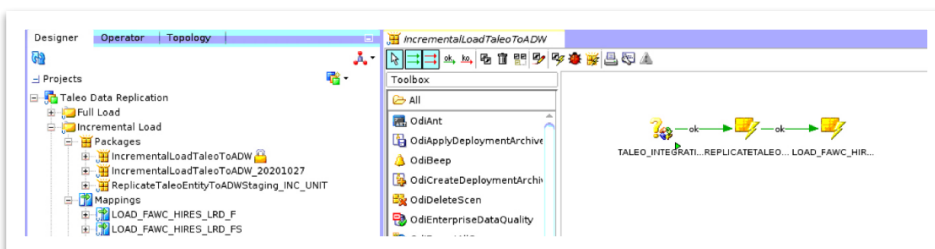
FIGURE 20. INCREMENTAL LOAD

Semantic Model Extensibility

FAW Extensibility has been leveraged to add new dimensions and measures using data that was loaded through the Custom Data Pipeline.

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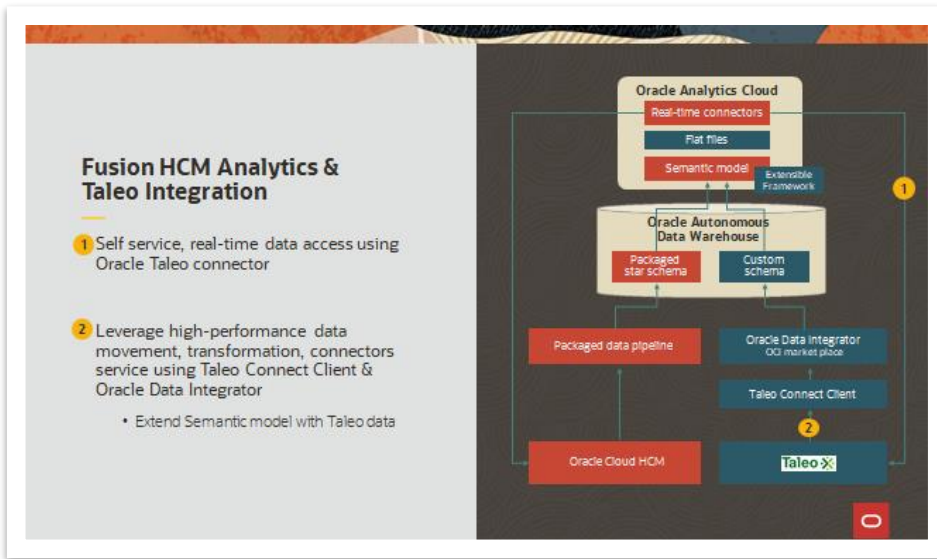
FIGURE 21. HCM ANALYTICS INTEGRATION WITH TALEO

The process flow to add a new Subject Area is as follows:

1. Create a New Branch

FIGURE 22. CREATE NEW TALEO BRANCH

2. Create a new blank Subject Area

FIGURE 23. CREATE NEW TALEO SUBJECT AREA

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3. The next collection of steps will add all the required dimensions for the Taleo Subject Area
   Added branch steps appear in the following order:

   ● Time (via Modify Subject Area step — required to select a measure column as well. Selected #Headcount measure from HCM - Workforce Core. Later, remove this measure using another Modify Subject Area step)

   ● Region (regular dimension - skip joins)

   ● Taleo Functions DFFs (regular dimension - skip joins)

   ● Hires (Fact. Select 3 Keys: PRIMARY_LOC_LVL1, DEPT_NAME, CREATION_DATE - create left outer joins to the above 3 dimensions)
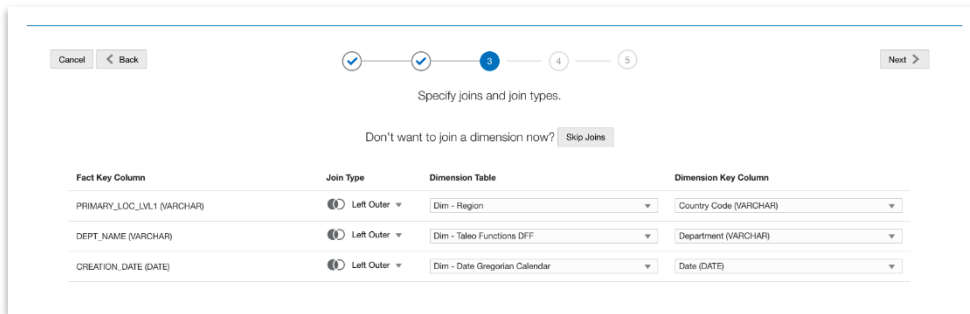
   ● "Add a Dimension" step — for all degenerate dimensions
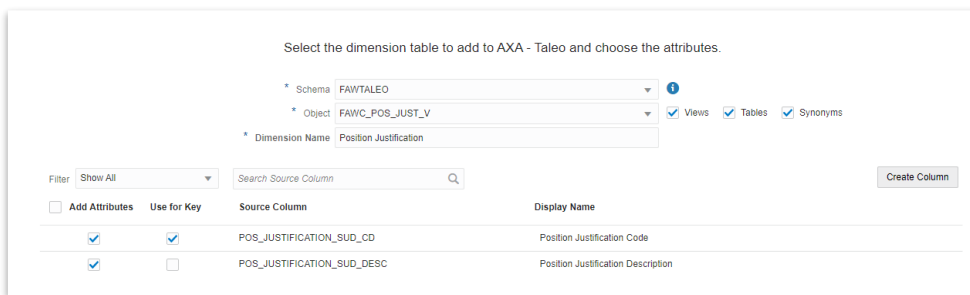
   ● Modify Subject Area — last step to order and reorganize Taleo subject area

4. Dimensions, attributes and metrics that were added to the Taleo Subject Area:

   • Position Justification
   • Time
   • Band
   • Taleo Functions - DFF

   • Title
   • Region
   • Revenue Synergy Role
   • Additional Requisition attributes

Dashboards & KPIs

The following are dashboards, KPIs and analyses created with the new Taleo Recruiting subject area and core HR content from HCM Cloud. The feedback we have received to date has been very positive as customers have experienced a higher level of interactivity, ability for deeper analysis, and rapid speed to value for line of business users to innovate and do more in HCM Analytics. See below for examples of the type of analyses created.
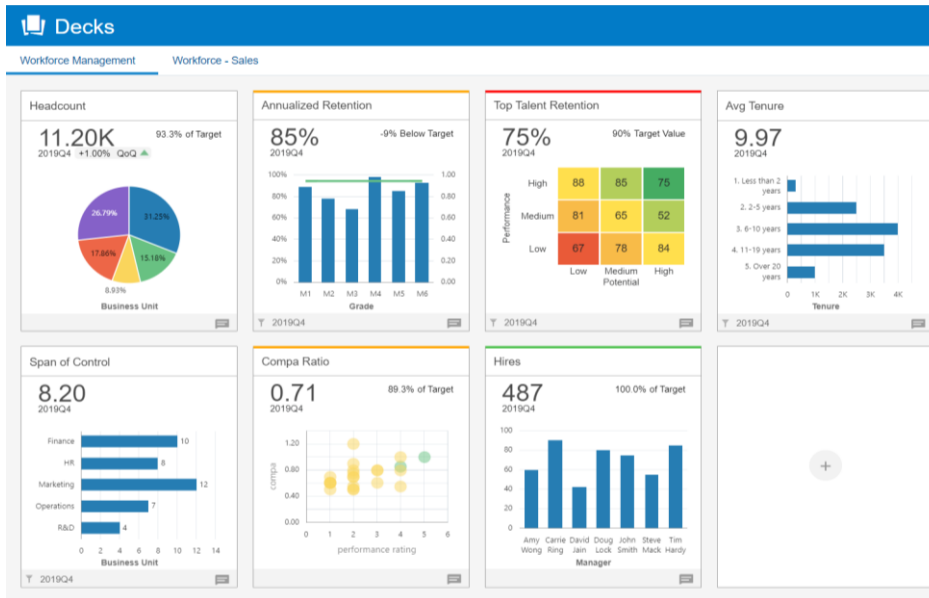
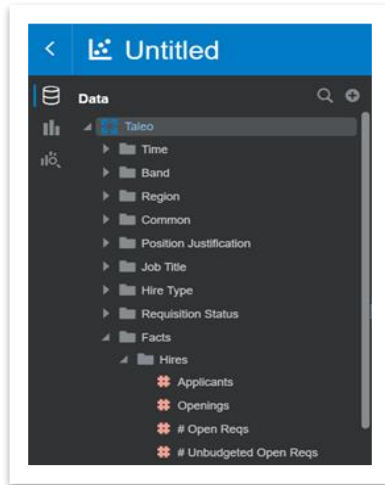- Complement Taleo reporting with Analytics
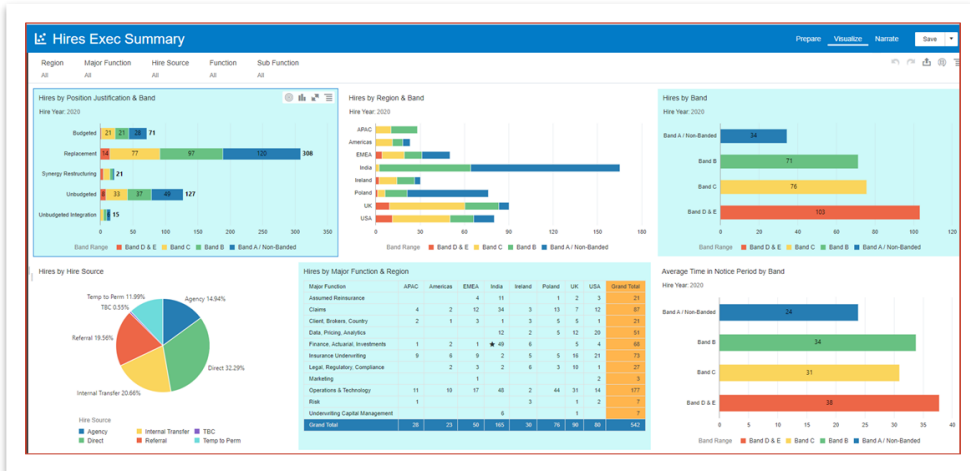
- Innovate with maps, narrative visualization, forecasting, and clustering
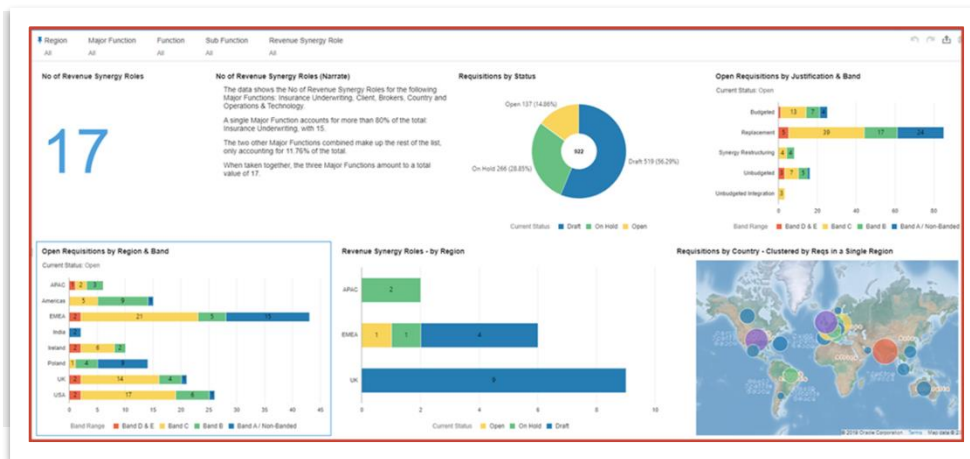
- Monitor Taleo Recruiting (bottom) and HCM Cloud (top) KPIs together

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- Taleo Subject Area
- Find Correlations in single analysis with core HR and Recruiting

Conclusion

Oracle Fusion Analytics Warehouse provides a packaged analytics solution for Oracle Cloud Applications. It is purpose-built on Oracle's Cloud Infrastructure platform, offering rapid deployment, is Oracle managed, and fully extensible to fit customer' business needs.

In this playbook we focused on Taleo requisitions. However, you can also extend this solution to bring applicants, candidates, and offers from Taleo into FAW. Furthermore, this approach can be used not only with Taleo, but to also include any other Oracle and/or third-party data source

Thank you to the following team that contributed to building the customer prototype that was used as the baseline for this document. The team members are:

- Manisha Gupta, Sr Director, HCM Analytics
- Matthieu Lombard, Consulting Solutions Architect from Oracle's A-Team
- Ravi Guddanti, Principal Member of Technical Staff from Analytics Customer Excellence
- Balaji Krishnan, Product Management Architect

FAW resources:
- Product (Quick) Tours: HCM | ERP
- FAW Customer Connect Forum
- FAW Idea Labs | FAW Resources
- Product Documentation

- Data Sheet: HCM | ERP
- Fusion Analytics Warehouse (FAW)
- Oracle Connect HCM Workforce Performance
- Launch Blog: The Analytics Advantage

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