

POP Overview

1. What is POP?

POP is **Project Organizational Planning**, and it mainly focuses on the workforce planning which consists of all VGS business units.

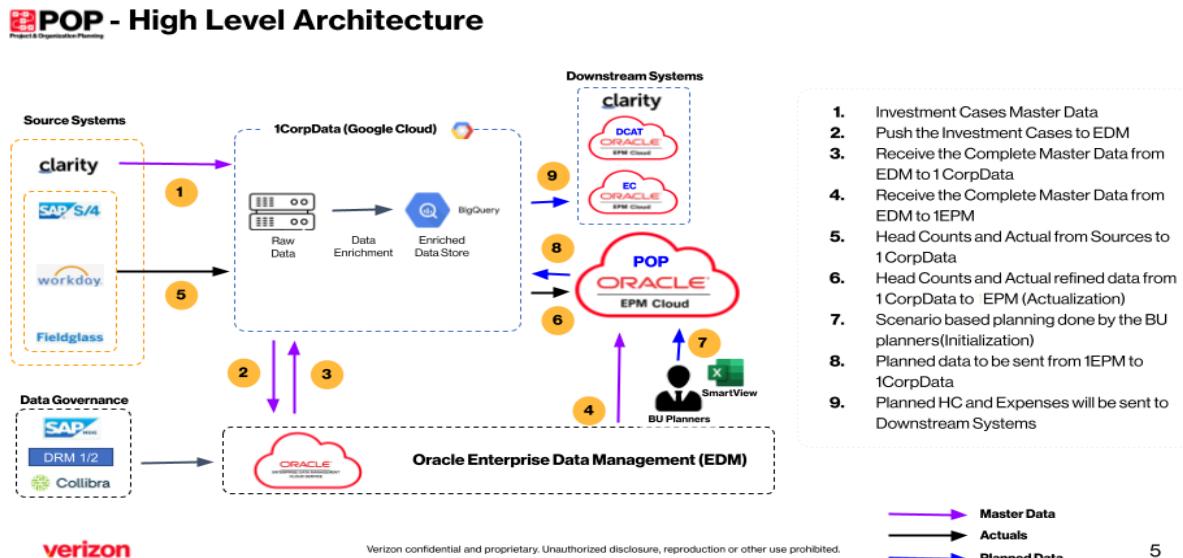
The POP planning will be used to perform:

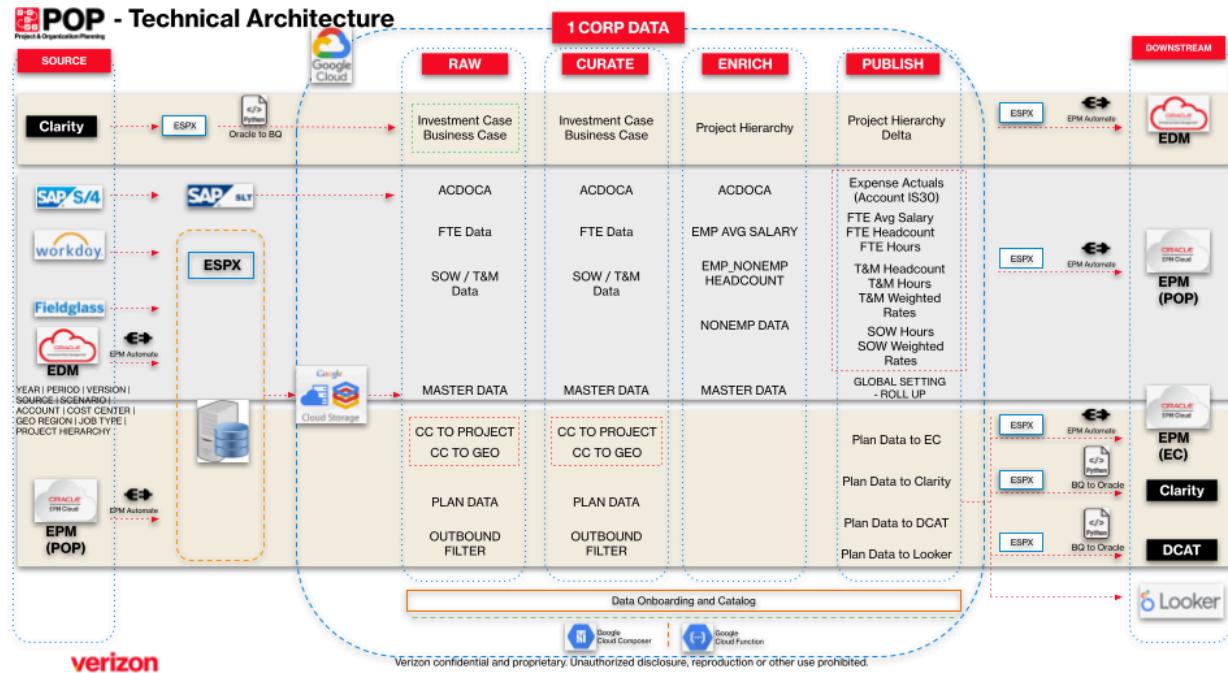
- Project Planning at Investment Case level and Project level
- Headcount Planning (FTE, T&M & SOW)
- Salary Planning (FTE)

Dimensions: The POP application has 10 dimensions received from EDM:

- account, cost center
- geo region, period
- project (investment case and business case)
- resource type (band, subband, and job title)
- scenario, source
- version, year

2. What is POP's High Level Architecture?





3. What is GCP Part of POP and the data flow?

The data sources for POP include:

- **Clarity:** Investment case and business case data for the project
- **S4 HANA:** Actuals data and hours/rates.
- **Workday:** FTEs, average base salary, and headcount.
- **Fieldglass:** T&M hours.
- **EDM:** Master data.

(All these sources are present in separate tables in BQ itself)

Outbound to EPM:

- **FTE:** expenses and headcount salary information
- **T&M:** headcount and hours are received, and weighted rates calculated in GCP.
- **SOW:** hours, and weighted rates calculated in GCP.

Data Retrieval from EPM: After planning is completed in EPM, GCP receives data in two ways:

- A daily schedule pulls the data present in the EPM system.
- When the business wants to share scenario and version planning information downstream, they create an outbound filter specifying the scenario and version, then manually trigger a job to push to GCP.

Transformations in GCP:

- **Project Hierarchy:**

- New data records and lookup tables for investment and business cases are pulled from Clarity.
- An associated Plan (PLN) account (e.g., investment case.pln) is created for each investment case and sent to EDM daily.
- Four action codes are considered for the feed: 'add' for new records, 'move' for changes, 'prop update' for changes in description, cost center, or company code, and 'delete' for records missing in Clarity.

- **Actuals Rollup to EPM:**

- Actuals are compared against master data, rolled up to the parent level if any parent is marked as a leaf in the master data, and then sent to EPM.
- For POP, data is sent only at the Cost Center L4 (CCL4) level.

- **Data to EC - Rollup (Plan Data):**

- For EC rollup, the L4 level costs from plan data are checked to see if they are also the leaf member for EC. If not, the system tries to find the leaf member or provides the data to a parent.

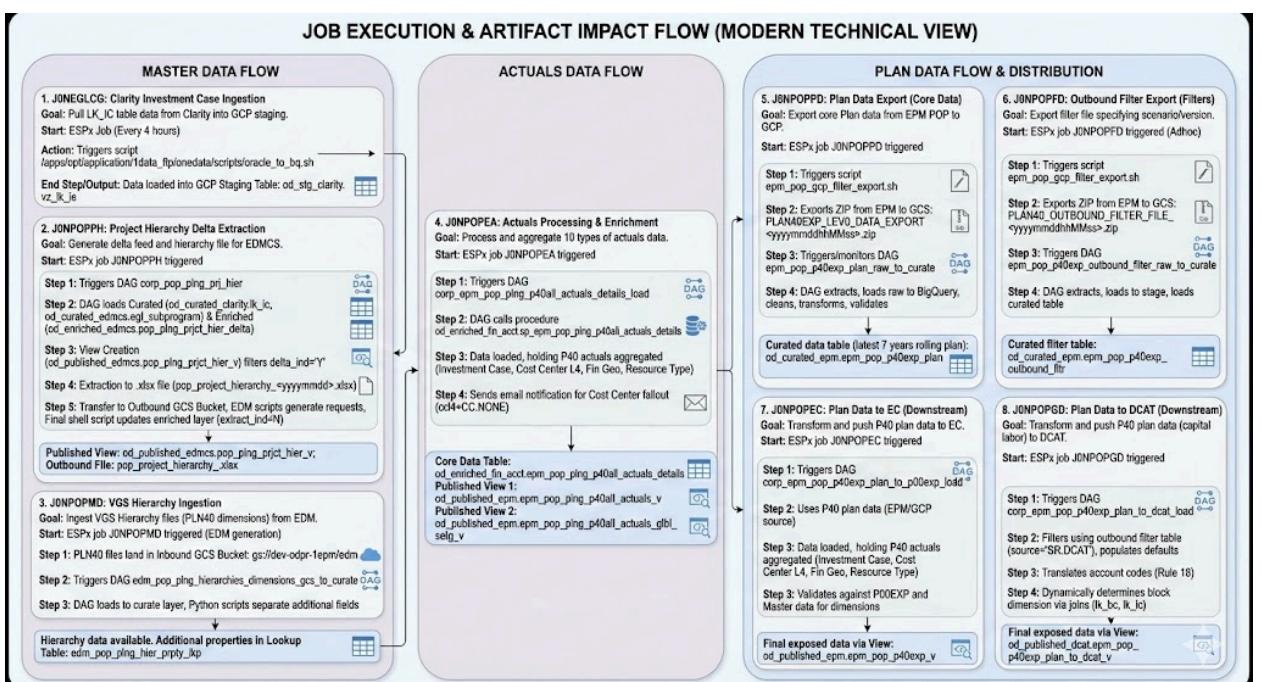
- **Market Dimension:**

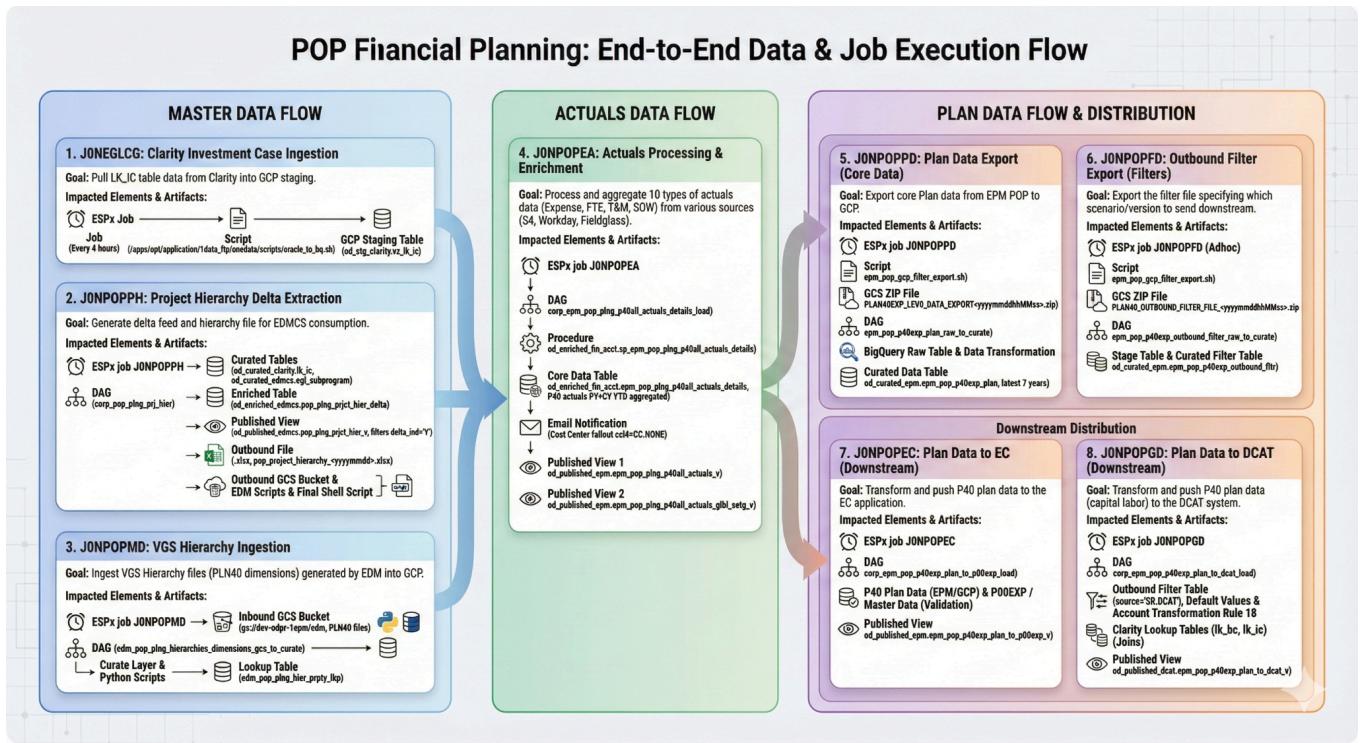
- Since POP does not have a market dimension, the Geo Finio data received is compared against the market dimension in EC, and if it matches, it is sent to EC as a market value.

- **Data to DECAT:**

- When sending data to DECAT, only two accounts from the plan data are considered: 'cap labor' and 'cap labor adjustments'.

4. What are the GCP Elements for POP?





ESPx Job Detailed Process Flow

1. J0NEGLCG: Clarity Investment Case Ingestion (Master Data Flow)

- **Goal:** Pull **LK_IC** table data from Clarity into GCP staging.
- **Start:** ESPx Job is scheduled to run every 4 hours.
- **Action:** Triggers the script

```
/apps/opt/application/1data_ftp/onedata/scripts/oracle_to_bq.sh.
```

- **End Step/Output:** Data is loaded into the GCP Staging Table:
`od_stg_clarity.vz_lk_ic`.

2. J0NPOPH: Project Hierarchy Delta Extraction (Master Data Flow)

- **Goal:** Generate the delta feed and hierarchy file for EDMCS consumption.
- **Start:** ESPx job `J0NPOPH` is triggered.
- **Step 1 (DAG Trigger):** Triggers the DAG `corp_pop_plng_prj_hier`.
- **Step 2 (Curate/Enrich Load):** DAG loads data into curated tables (`od_curated_clarity.lk_ic`, `od_curated_edmcs.egl_subprogram`) and then loads the enriched table (`od_enriched_edmcs.pop_plng_prjct_hier_delta`).
- **Step 3 (View Creation):** A published view is built to filter records where `delta_ind` is 'Y' and include corresponding action codes (`add, move, prop_update, delete`).
- **Step 4 (Extraction):** Extracts the delta feed into an `.xlsx` file (`pop_project_hierarchy_<yyyymmdd>.xlsx`).
- **Step 5 (Transfer & Update):** The file is placed in the Outbound GCS Bucket. EDM scripts then transfer the file and generate requests in the EDM system. A final shell script updates the enriched layer records (`extract_ind=N`) to denote successful completion.
- **End Step/Output:**
 - Published View: `od_published_edmcs.pop_plng_prjct_hier_v` (filters for delta records).
 - Outbound File: `pop_project_hierarchy_.xlsx`.

3. J0NPOPM: VGS Hierarchy Ingestion (Master Data Flow)

- **Goal:** Ingest VGS Hierarchy files (PLN40 dimensions) generated by EDM into GCP.
- **Start:** ESPx job `J0NPOPM` (for EDM file generation) is triggered.
- **Step 1 (File Land):** EDM creates PLN40 dimension files, which land in the Inbound GCS Bucket: `gs://dev-odpr-1epm/edm`.
- **Step 2 (DAG Trigger):** Triggers the DAG `edm_pop_plng_hierarchies_dimensions_gcs_to_curate`.
- **Step 3 (Processing):** The DAG loads data to the curate layer. Python scripts separate additional fields (e.g., `VzOrg Level Indicator`) from the standard hierarchy feeds.
- **End Step/Output:** Hierarchy data is available for lookup and EPM ingestion. Additional properties are stored in the lookup table: `edm_pop_plng_hier_prpty_1kp`.

4. J0NPOPEA: Actuals Processing & Enrichment (Actuals Data Flow)

- **Goal:** Process and aggregate 10 types of actuals data (Expense, FTE, T&M, SOW) from various sources (S4, Workday, Fieldglass).
- **Start:** ESPx job `J0NPOPEA` is triggered.

- **Step 1 (DAG Trigger):** Triggers the DAG `corp_epm_pop_plng_p40all_actuals_details_load`.
- **Step 2 (Procedure Call):** The DAG calls the procedure `od_enriched_fin_acct.sp_epm_pop_plng_p40all_actuals_details`.
- **Step 3 (Data Load):** Data is loaded, holding P40 actuals (PY + CY YTD) aggregated at the Investment Case, Cost Center L4, Fin Geo, and Resource Type granularity.
- **Step 4 (Notification):** Sends email notification for Cost Center fallout records where the `ccl4` is `CC.NONE`.
- **End Step/Output:**
 - Core Data Table: `od_enriched_fin_acct.epm_pop_plng_p40all_actuals_details`.
 - Published View 1: `od_published_epm.epm_pop_plng_p40all_actuals_v` (All Expense actuals for POP).
 - Published View 2: `od_published_epm.epm_pop_plng_p40all_actuals_lbl_setg_v` (Actuals rolled up based on Global settings).

5. J0NPOPPD: Plan Data Export (Plan Data Flow - Core Data)

- **Goal:** Export core Plan data from EPM POP to GCP. (Part of parent job `J0NPOPDJ`).
- **Start:** ESPx job `J0NPOPPD` is triggered.
- **Step 1 (EPM Export):** Triggers the script `epm_pop_gcp_filter_export.sh`.
- **Step 2 (File Export):** Exports the ZIP file from EPM to GCS: `PLAN40EXP_LEV0_DATA_EXPORT<yyyymmddhhMMss>.zip`.
- **Step 3 (DAG Trigger/Monitor):** Triggers and monitors the DAG `epm_pop_p40exp_plan_raw_to_curate`.
- **Step 4 (DAG Processing):** The DAG extracts files, loads raw data to a BigQuery raw table, cleans, transforms, and validates the data.
- **End Step/Output:** Curated data table containing the latest 7 years of rolling plan data: `od_curated_epm.epm_pop_p40exp_plan`.

6. J0NPOPFD: Outbound Filter Export (Plan Data Flow - Filters)

- **Goal:** Export the filter file specifying which scenario/version to send downstream. (Part of parent job `J0NPOPDJ`).
- **Start:** ESPx job `J0NPOPFD` is triggered (Adhoc schedule).
- **Step 1 (EPM Export):** Triggers the script `epm_pop_gcp_filter_export.sh`.
- **Step 2 (File Export):** Exports the ZIP file from EPM to GCS: `PLAN40_OUTBOUND_FILTER_FILE_<yyyymmddhhMMss>.zip`.
- **Step 3 (DAG Trigger):** Triggers the DAG `epm_pop_p40exp_outbound_filter_raw_to_curate`.

- **Step 4 (DAG Processing):** The DAG extracts the file, loads it into a stage table, and loads the curated table.
- **End Step/Output:** Curated filter table used by subsequent downstream DAGs: `od_curated_epm.epm_pop_p40exp_outbound_fltr`.

7. J0NPOPEC: Plan Data to EC (Downstream Distribution)

- **Goal:** Transform and push P40 plan data to the EC application. (Part of parent job `J0NPOPDJ`).
- **Start:** ESPx job `J0NPOPEC` is triggered.
- **Step 1 (DAG Trigger):** Triggers the DAG `corp_epm_pop_p40exp_plan_to_p00exp_load`.
- **Step 2 (Data Source):** Uses P40 plan data (from EPM/GCP).
- **Step 3 (Validation):** Validates the data against P00EXP data first, then against Master data, to retrieve required dimensions (account, cost center, market, geo regions).
- **End Step/Output:** Final exposed data is populated by the view definition: `od_published_epm.epm_pop_p40exp_plan_to_p00exp_v`.

8. J0NPOPGD: Plan Data to DCAT (Downstream Distribution)

1. **Goal:** Transform and push P40 plan data (specifically capital labor accounts) to the DCAT system. (Part of parent job `J0NPOPDJ`).
2. **Start:** ESPx job `J0NPOPGD` is triggered.
3. **Step 1 (DAG Trigger):** Triggers the DAG `corp_epm_pop_p40exp_plan_to_dcat_load`.
4. **Step 2 (Filter & Defaults):** Filters data using the outbound filter table (`source = 'SR.DCAT'`) and populates default values for dimensions like `dcat_block`.
5. **Step 3 (Transformation):** Translates account codes using Account Transformation Rule 18.
6. **Step 4 (Derivation):** Dynamically determines the block dimension via joins with Clarity lookup tables (`lk_bc` and `lk_ic`).
7. **End Step/Output:** Final exposed data is populated by the view definition: `od_published_dcat.epm_pop_p40exp_plan_to_dcat_v`.

5. What is the EPM Part of POP?

- **Data Views:** Actuals are received from GCP in two views: **Org view** (planning with respect to cost center dimension) and **Project (Proj) view** (actuals received).
- **Global Settings:** This is the first step in the planning process.
 - Receive Actuals: Actuals are received from GCP.
 - Enable Intersections: Power users enable intersections for the data they want to plan further on. For FTE planning, this includes: org to geography, org to project, org to resource type, and org to benefits.

- Input Missing Account Data: Power users input data for accounts (mainly FTE and T&M) not received as actuals but needed for calculations.
- **Admin Task (Actualization and Initialization):** This is the next step after Global Settings.
 - **Actualization:** Data from GCP is copied to the respective scenarios and versions. Some accounts are calculated before actualization (FTE), and some after (T&M).
 - **Initialization:** Performed only for FTE, specifically for 'base pay salary' and 'benefits'. It copies data from the closed period month across the entire plan years (e.g., June data copied to FY26 to FY30).
- **Planning Scenarios:** Planning is done based on five scenarios:
 - **Outlook and Best View:** Planning is done only for the current year's forecast months.
 - **Budget:** Planning is done for the current year's forecast months and one extra plan year (e.g., FY25 forecast and FY26 plan).
 - **Business Plan and Working:** Planning is done for the current year's forecast months and the rest of the entire plan years (up to 5 years, until FY30).
- **PLN Concept (Rollup):** PLN members were introduced in the geography and project dimensions to roll up data and avoid ignoring actuals for unplanned members. Actuals for non-enabled intersections are rolled up under the PLN member (e.g., Domestic.PLN, PJ.PLN).
- **FTE Planning Card:**
 - Users review input data and use actualized data for trending.
 - Trending and adjusting are done for headcount planning.
 - On saving, salary calculations, capitalizations, and the Review GL process are calculated.
 - Planning happens in the stat accounts and is pushed to GL accounts in the final step.
- **T&M Planning Card:**
 - Users review working days.
 - Trending is done for four accounts: rate, work hours per day, and headcount planning.
 - Cost calculations and capitalizations are performed.
 - Results from stat accounts are pushed to GL accounts.
- **P*Q Planning Card:**
 - Actuals for hours and rates are received from GCP.
 - Trending and adjusting are done.
 - Expense is calculated as hours multiplied by rate, and then pushed to the GL accounts.
- **GL Accounts:**
 - GL accounts are mapped with stat accounts.
 - Accounts already planned in FTE, T&M, and P*Q are ignored or excluded.
 - Trending is done for the rest of the accounts that need to be planned.
- **Responsible CC Push:** After GL planning, all planning done in the Org view is pushed

- to the responsible cost centers tagged to the respective project.
- **Outbound Integrations:** The final step is to move the planned data from POP to the downstream systems: EC and DECAT.
 - Power users specify the scenario and version to be copied via a form layout.
 - Based on selections for downstream systems (EC, DECAT, Clarity, and Looker), the output is sent to GCP, which handles the flagging and sends the data to EC and DECAT.