TRANSORG
ANALYTICS

Creation and Migration of Automation system for a Global 500 FMCG company

Introduction

Our client, a Global 500 multinational FMCG corporation with an annual revenue of over 102 billion USD *(as of 2022)* and with presence in nearly 188 countries with 340 factories in 77 countries, spend billions of USD on reporting which is done exhaustively to many employees and the Management Committee tracking various aspects of the business.

Client wanted to improve the efficiency of its Reporting, starting with Sales department by identifying issues which employees face day in and day out for their reporting needs. One of the major issues which the user was facing is the inability to join Primary Sales and Secondary Sales data which is coming for different sources which are SAP BW (Business Warehouse) and SQL Database.

Architecture

Client has two types of Data:

1. Primary Data (Direct Sales)
2. Secondary Data (Indirect Sales)

Primary Data lies in SAP BW and Secondary data resides in SQL DB. Reporting on Primary sales figures was done by extracting data from SAP BW and then creating joins from MIDAS masters. This is one of the use cases which hindered day to day workings as it a long and complicated process.

- Citrix was used if the client laptop was provided with Premium Power BI licences.
- All the SQL operations was done on SQL Server Management Studio.
- Previous reporting tool was designed using SAP Universe Design Tool.
- Reports were accessed and scheduled using SAP BO (Business Object).
- Many users were receiving Reports on emails which was based on Microsoft Outlook and Microsoft Teams is used to communicate within the organization.

- For file sharing, Microsoft SharePoint and Microsoft OneDrive is used.

Implementation

TransOrg developed an elaborate data model and a Self-Service Dashboard with report scheduling and bursting by using SQL and Power Apps covering all branches in India and potentially for South Asia Region as well.

Data is refreshed incrementally on a daily basis providing users with the latest data for their reporting needs.

For implementing the aforementioned framework, following tasks had to be fulfilled and streamlined:

- Creation of various views which helped clean and filter the data based on business requirements.
- A large data model consisting of various tables and views for extraction of large transactional data, stock data and master data for reporting.
- Data for 5years consisted daily sales for approximately 8000 distributors, 1800000 Retailers across all branches for the region in scope of the project amounting to approximately 14.5GB of Data on the PowerBI services, once ingested.
- Daily Sales data is over a billion rows which makes the sales table the most impactful while handling large dataset.
- Connecting various data sources including manual excel loads, SAP BW (consisting Primary Data) and SQL DB (consisting Secondary Data).
- Measure creation for various KPIs like Pick Up, Closing Stock, Opening Stock, Billed Outlets, Bill Cuts etc.
- Training facilitated to end users for utilizing the solution and automate (Schedule/Burst) reports.
- Facilitating report migration from SAP BO (Business Object) to the Power Platform (PowerBI, Power Automate, PowerBI Report Builder, Other Microsoft Tools).

Transformations

- Various Master tables were fixed as source data was inconsistent and was not in an ideal state.
- Unique entries in the source data were duplicated causing Many to Many cardinalities while designing the data model.
- Extracting data from OLAP (Online Analytical Processing) by designing MDX queries and methodologies for connecting the same with the ODBC (Open Database Connectivity).
- Created schema which included additional required attributes spread across multiple schemas and responsible for creation of the data model.

- Performed data exploration for additional insights.

Data Modelling

- Created an extensive data model using 26 views which were created using multiple source tables on SQL DB.

- Creation of dynamic measures based on the domain and business understanding.

Sales Self Service Dashboard

Sales Self Service Dashboard was developed and implemented using Microsoft Power Apps Platform which has the ability to connect multiple sources, which was leveraged to combine Primary and Secondary data due to business requirements.

Sales Self Service Cockpit UI

To facilitate this, data was ingested using SQL DB and other sources in the PowerBI Desktop app. Parameters were created to handle large data in the desktop app which enabled seamless development of the solution irrespective of large-scale data.
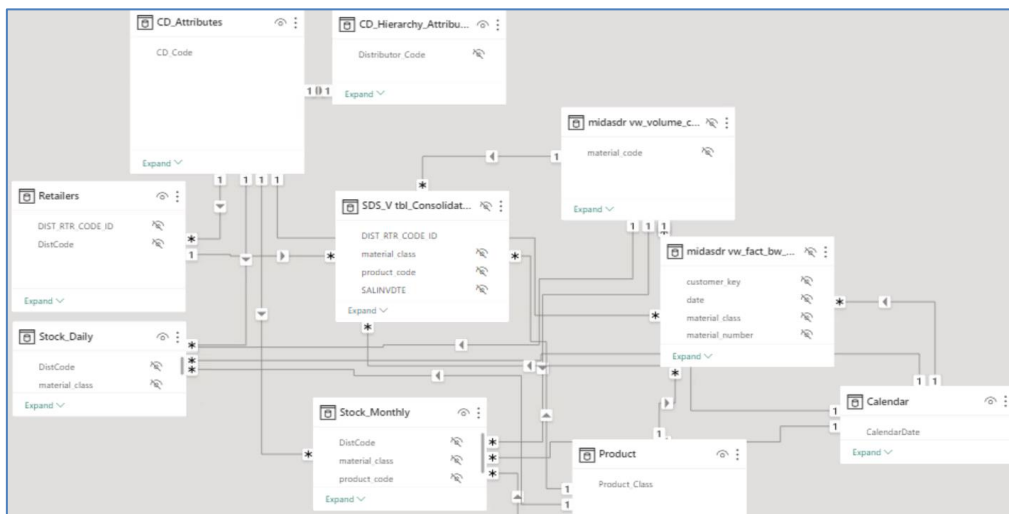

Sales Self Service Cockpit – Data Model

The data model was in Import Mode rather than Composite mode, which in turn improved speed and efficiency while creating or loading the reports.

Parallely, basic PowerBI training to 200+ users, was delivered for 6 weeks (thrice a week) with active participation and live problem-solving sessions as well. Once the solution was developed, 5 sessions of training on the developed solution was delivered to super users. Super user training included training on Power Automate (RPA Tool), PowerBI Report Builder, Report creation, scheduling and burst methodologies etc.

Utilized the developed solution and facilitated a very complex report called 'Paradigm' whose workflow utilized all aspects of the project, from the designing perspective to data administration.

Using Power Automate, facilitated various tasks like scheduling data dumps on a Microsoft SharePoint location, report bursting with two different methodologies etc. Power Automate is an RPA tool developed by Microsoft which can be utilized in day-to-day scheduling tasks. Utilizing the power of this tool, TransOrg devised various strategies for various tasks to be performed at the user end like Report Bursting, Report Scheduling on Email and Stored Location etc.
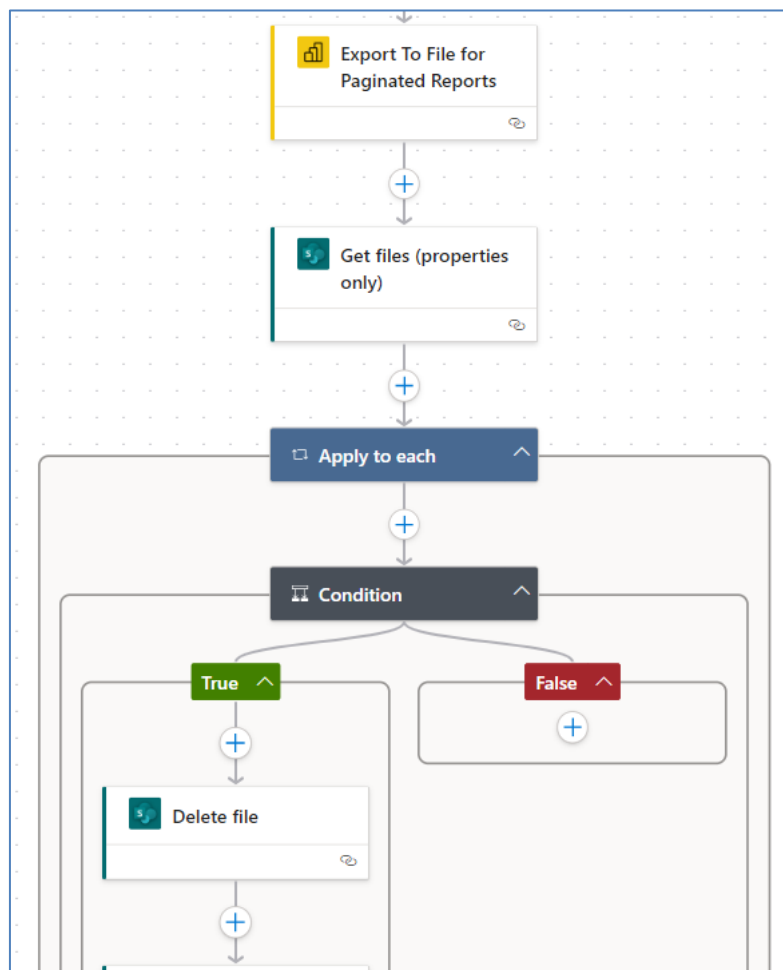
Example: Power Automate Flow

In addition to this, TransOrg provided key data insights to the client:

- Helped identify various issues with the data which was coming from the backend.
- Recognized and corrected various measures which were created in SAP BO for the utilization in Sales Self Service Cockpit.
- Proactive migration of various reports from SAP BO to PowerApps platform to be consumed by the user.

Challenges and Solutions

1. During the initial phase of the project, there was a misunderstanding on the scope. In a data model, for establishing relationships between the tables, there has to be a Cardinality in place. In the current infrastructure, the Master tables had duplicated values whereas only unique values are expected as the name suggested.

   Solution: Using SQL, created a new schema with views where data was being filtered based on certain conditions which eliminated duplicated entries. During this process, gained a lot of data understanding and also inferred some inconsistencies in the data like one Distributor ID referencing multiple distributors.

2. Presence of ID column in all the tables for all distributors, retailers etc. According to the client, ID column was created by the current reporting system so there was no need of a Code Column. This was creating issues in our scenario since data to be utilized had ID columns. There were multiple ID columns for single distributors and vice versa as well.

   Solution: Code Columns were brought by creating unique ID by concatenating with other columns and joining the tables present in different schema. This was done specifically for retailer's table.
   For rest of the Codes (Distributor, Product etc), joins were created with the Master tables from a different schema to resolve this. Once, all the code columns were brought in the designated schema, utilized them as foreign keys.

3. Issues with PowerBI installation in the Nestle environment (Citrix and client provided laptops). For day in and day out activities, required clean installations of PowerBI in the client environment. For a few weeks, as team was unable to sign in to the PowerBI, were unable to connect to a local data model. This issue hindered productivity of the team.

   Solution: Were provided with a different version of PowerBI on Citrix which helped complete various tasks across the project. However, issue with the local installation on client laptop is still on-going. Foreseeing a resolution on it soon. Irrespective of

issue still persisting, team was able to cover all the activity items and developed the solution as per requirements.

4. Delay in SAP BO and SAP BW access from the client's end.

    Solution: There was a month's delay in getting the access for SAP BO and SAP BW. Followed up multiple times with the client's local IT and responsible people in the hierarchy and facilitated the access to the team.

5. There are various data pipeline related issues in the client's environment. As this is an ongoing project, work on it in progress.

    Solution: As its an ongoing project, still inferring various changes to be made to the pipelines and working alongside the data engineering heads at the client side.

Impact

With Sales Self Service Cockpit, ability to combine Primary Sales and Secondary sales was enabled. With PowerBI as the base reporting app, users will get the ability to design not just tabular reports but also with interactive charts. Solution also provides seamless integration with Microsoft Ecosystem technologies like Azure, SharePoint, Office 365 etc.

PowerBI also facilitates rapid development of Reports and Dashboards with an easy user interface and little learning curve. With regular updates and improvements, users can make use of new features and enhancements unlike SAP BO which is almost obsolete.