Business Analysis of Arora

(Presentation Link)

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***Abstract*—This report aims to provide a detailed overview of a project, covering various aspects like background data, project specifications and workflow, analytical goals and requirements, business model, and database design and integration. The project focuses on Arora Corporation as the business entity, with purchasing customers as the intended audience. The background data offers understanding of the industry, workplace, and variables to take into account for the project's analytical requirements. The project specification and workflow give an overview of the project workflow as well as the data sources and major business-influencing factors. The organisational business drivers and essential building blocks for business expansion are part of the analytical objectives and requirements. The database design also includes information about table relationships and data integration.**

***Index Terms*—Customer Relationship Management, Enterprise Resource planning,Power BI.**

I. BACKGROUND AND SCOPE

The primary goal of this write-up is to provide a brief overview of the company's history and current business operations which is going on. Arora is an international retail company which was founded in 1985 by William Parker, with the intention of selling the electronic goods, home appliances in United States of America. Currently it has more than 400 stores across the world. This is an ever growing company as the world with the modern technology is adapting to the new lifestyle. It is currently in 3 major continent of the world that is United states of America, Europe and Asia and they are aiming for improvement.

By implementing business intelligence techniques, the company can boost sales and profitability. The company can get a complete understanding of its daily operations by using reports and dashboards.

Customers are a company's main target market, so they are the company's top priorities. As a result, the business attaches a lot of importance to meeting their needs and desires. In order to do this, the business emphasises cost-cutting, effective product delivery, and inventory management. The business can accomplish its goals and advance by concentrating on these important factors. This strategy offers useful insights into areas that may need improvement and more concentrated attention in particular regions by taking into account the company's operations in various nations.

II. PROJECT SPECIFICATION AND PROCESS FLOW

The technical specifications and project flow are fully described in this section of the report.

A. Project Specification

The Arora company's information is stored in the excel sheet. The purpose of this analysis is to figure out the overall earnings of the best-performing country or region, the total number of products sold across all categories, the top selling products on each continent, and so forth. This report paints a complete picture of the company and helps to identify areas that require improvement. Once the areas that need attention have been identified, a set of remedies can be examined and taken into account for improving those components, which will ultimately improve the business.

B. Process Flow

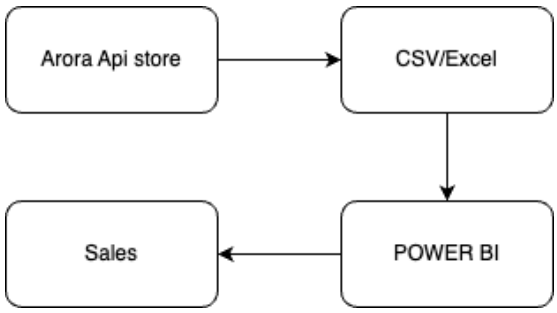

Fig. 1. Process Flow

Power BI is used to view the data and to create reports and dashboards. Typically, the sales team is in charge of

maintaining these reports.The suitable business solutions can be provided after the reports and dashboards are created. We are also taking into consideration Microsoft Dynamic 365, a potent CRM tool for the implementation of the CRM system. This CRM tool could help the company in discovering new leads for bringing new ideas and in sustaining growth and company relations. Sales, CRM, and management teams can all use this shared SQL database.

C. Data Collection Points

The data is taken from each and every sales done through the customer to the business, the data is split into various categories such as sales, product category, geographic region, the sub categories in the products. We have chosen the particular data and used it for visualization and analysis.

III. ANALYTICAL OBJECTIVES AND REQUIREMENTS

Analytics is a field where raw data is converted into useful information which will be helpful in one or the other way, in the business industry it has a huge role. In our project, we need to study the organizational data and analyze it and take insights which in turn will help the organization to improve its business. This structured study includes all the aspects of the business from ground level to end level including what the business is about, the state of the company in terms of growth, how popular it is, what are the highest selling products, what are the low selling products, and many more. So the result will help the organization know more about its business and its strengths and weaknesses so that it can concentrate on how these weaknesses can be converted into their strengths by applying different marketing strategies. The organization will have an eye on all the aspects of data which will help them. The tools like Enterprise Resource Planning (ERP), and Customer Relationship Management (CRM) will help them to manage their business and inventories and also help to build a bond with their customers which will make customers feel good about the organization automatically.

A. Dynamic Visualization:

if Organisations can have some visualizing tools which can retrieve real-time data and show it as graphs or charts can do wonders for the organizations. Thankfully we have many such tools like Tableau, and Power BI which will do these things for the companies. So basically they fetch real-time data from the databases or APIs and those will be displayed pictorially and help them to understand daily sales, profits, products, and all the necessary information. For example, show them a graph that shows highest selling product or highest selling store or about the product which was returned by customers maximum times and many more such things which will help the company to know about the product quality, selling trend, geography as they can plan their strategies accordingly which ultimately will help to maximize the profit and help the company.

B. Enterprise Resource Planning:

Before starting any project in Software Industry, one of the most important part is Resource Planning. Usually, they will plan the number of people required to finish the project, software requirements, and Hardware requirements, and also design the roasters to make people work in different shifts, training them with proper trainers for their required technology which is going to be used in the project and many more. So this holds good in business as well, as planning the resources and making a planned roadmap is very critical in the context of the business. Because when there is a properly planned road map is available the chances of taking wrong decisions are less and help to achieve the goals set.

C. Inventory Management System:

Maintaining the inventories properly is an important factor for 2 reasons. For example, there is a grocery store, and suppose overstocking happens there, as groceries don't survive for more days because of their expiry date and all those goods need to be thrown as they will be spoilt anyways and which is a huge loss for the company and even if under stocking happens it will again impact the company as it will impact the customers and make them feel bad about the company and thus lose their faith which ultimately will affect their business. So maintaining the invententaries properly is an essential factor in the company's growth and IMS will help them to achieve the same.

D. Customer Relationship Management:

In any business earning the customer's faith will automatically boost the business because once a customer starts feeling good about the company they will never doubt their products and start buying goods from there and become permanent customers and they may also suggest their friends about the same and which will be a bonus for the company. So interacting with customers is a very important part of this process and there are many tools that will help to achieve this. One such tool is Microsoft Dynamic 365 which we are using in our project.

IV. BUSINESS MODEL

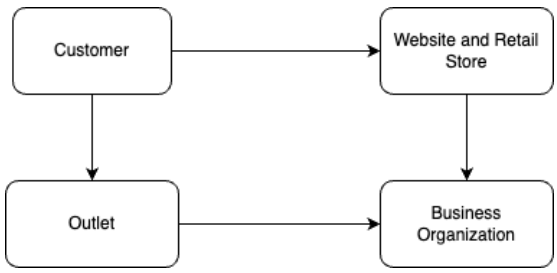

Fig. 2. Business flow

We are analyzing the data of XL Store Company, they follow the Business-to-Consumer(B2C) Model, where there is no agent or middleman involved. The customer directly buys

the item from the company, which can be online or directly from the store. So the profit or loss is directly associated with the company. This is a good practice because the company will be responsible for everything that happens in their business and which makes sure that no outsiders will have an impact on their business and this is widely used in many industries like automobile, retail, etc. But due to some strategic reason company has been encouraging Retail marketing as well by selling the goods to some local stores with some discounts which is helping the company to expand its business to remote areas as well and also help them to finish some unfinished stocks which in turn will help the business to grow by increase in revenue.

V. DATA INTEGRATION

All the data about Customer and product will be present in CRM as this is the tool almost every organisation uses for interaction with customer and all their data will be stored in servers. From CRM we will fetch it as a CSV file and upload it to DB then will perform the ELT Process and will put it in structured DB and from there will fetch it and connect it to Power BI and then schema is built. Then based on the schema we will connect different tables and design dashboards which contains different graphs and charts which explains the data pictorially and help the organisation to understand the same and help them to take decisions.

VI. DATABASE DESIGN

ER also known as entity diagram is a form of schematic diagram which demonstrates the link or relationship that exists among the ”entities” within the framework. Here entities refer to features , individual objects or any kind of concepts or strategies. It is a common technique most often employed for the creation of data structures and database systems. To be able to properly understand the insights of the data, firstly it is essential or necessary to know what content has been put together to compose it , so her in our Aurora / XL store electronic appliances dataset, 6 entities are created from the original dataset in which each entity is having one or more relationship to one another. Following are the entities .

1) Store : StoreKey, GeographyKey, StoreManager ,StoreType , StoreName , StoreDescription, Status, Geolocation and few other columns are present which depicts the information about the store names , locations where the stores are located, and its phone number and other few information’s are present.
2) Category : This entity contains information about the products and their description .
3) Subcategory : This entity contains information about products subcategory and its description.
4) Products : This entity contains the product name , its manufacturer , brand name , color , size, and other information.
5) Sales : This entity contains the total amount obtained from the sold products , quantity of products sold , amount per unit , etc.
6) Geography : This entity contains the continent name , geography type .

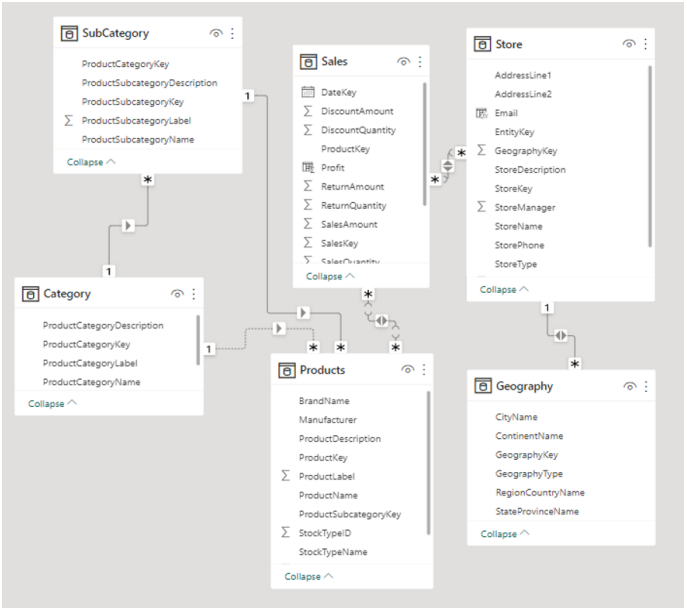

Fig. 3. ER Diagram

So, based on these entities a relationship is built in Power Bi with the help of Schema , i.e., we have a central concept and many outer concepts all linked up , so here we have utilized a concept of Snowflake schema where the entities are organized around the central concept or the fact tables and further connected to other entities nothing but dimensions and the nature of relationships are one to many and many to many in which relationship columns have ID numbers and dimensions table will have the details. Below fig depicts the outline of the schema and its fact table along with dimension tables.

VII. PROCESS OVERVIEW

Data cleaning and pre-processing are required as the first step before moving on to data analysis and visualisation. Since real-world data is rarely perfect and frequently has missing values, it is imperative that you complete this step. To begin the analysis and data visualisation processes, data cleaning must be done. We have loaded a cleaned into our project.

After the data has been cleaned, the next step in the analysis process is to load it into Power BI and produce different kinds of dashboards and reports for data visualisation. We can understand the relationships between products and gain insights into important conclusions by carrying out these crucial steps. To reach meaningful conclusions, it’s critical to comprehend and examine the patterns present in the data.

VIII. FLOWCHART OF PROCESS FLOW

The above figure depicts the overall flow of the steps we will take to analyse the data. The data is taken from the api

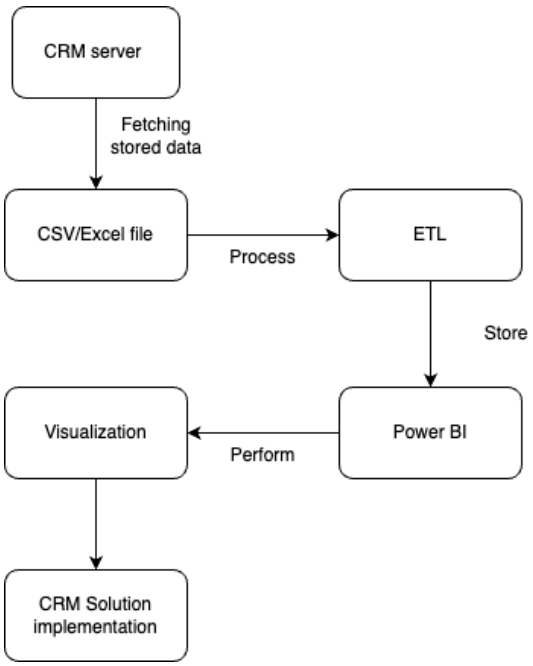

Fig. 4. Business flow

from the ARORA store in CSV/EXcel format, which has gone through the pr-processing and data cleaning step.

The data is then loaded into Power BI, where we can create a variety of visualisation dashboards based on the result that we aspire. This gives us the chance to assess and understand the most crucial elements of the information. We will be better able to recognise patterns, check the reason for less sales and coordinate expectations with this, with a business objective that is crucial for preserving and enhancing sales and market positions by remaining a flexible and customer-focused company in the market.

IX. ANALYSING THE DASHBOARDS USING POWER BI

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There is a saying in English, ”A picture is worth a thousand words”. It is absolutely true because if you try to explain to a person about the growth of a company by telling him all the history and explaining to him about the earnings and all the related things and he may not be able to understand everything but instead a graph is plotted saying that this is the profit and this re the products which are highly getting sold and all the relevant information, he will be easily able to understand that because he has seen those figures on a screen.

Similarly, we have built Dashboards which contain different graphs which will help the organizations to know more about the strengths and weaknesses of the company based on sales so that they can take decisions based on that and improve the strategy to make more profit. When we hover over any one of the graphs in a dashboard and a particular value it will show the details also when we click on any particular value that part gets highlighted in all the other graphs which indicates all the data is connected.

A. Dashboard 1

In Dashboard 1 we could observe 3 graphs that are about sales.

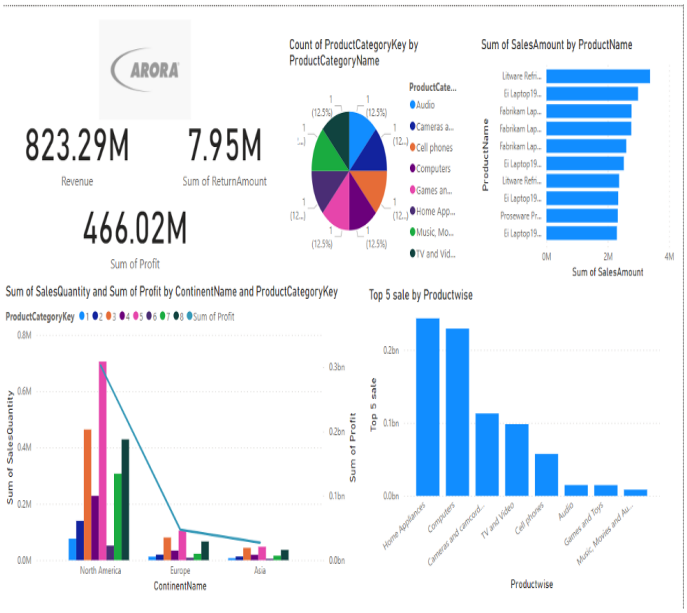

Fig. 5. Dashboard 1

1. The First one is a bar graph that shows the product sold in each continent, so looking at the graph we can clearly say that its located on only 3 continents namely North America, Europe, and Asia and out of that they have good sales in North America but sales are very low in Asia and Europe. here company can take the decision on whether they can extend it to other continents or not or maybe they can also dig out more about Asia and Europe sales as to how to improve the business.

2. The second is about the Products which generated the maximum revenue. So by looking at the graph, we can say that Refrigerators, Laptops are the biggest contributors if revenue is taken into consideration and Litware, Ei, and Fabricum were the best-earning brands as the list contains products from these brands. So based on these observations company can take some decisions on other brands, maybe just remove those brands from the shop or maybe try to increase its sale by giving some discounts and advertising it.

3. The third graph is about product types based on the number of sales in each type. So as expected Home Appliances and Laptops are in top spots but whereas products which are related to entertainment are less sold. here based on the results company should encourage people to take up some free time to relax and give some combo offers that may

help to improve sales. Tying up with IT companies is also an option as they are the potential customers as who need some relaxation from hectic work.

B. DashBoard 2

Dashboard 2 has 3 graphs that are related to revenue. So the first one is regarding states and the second is regarding the store type and the third one is about continents.

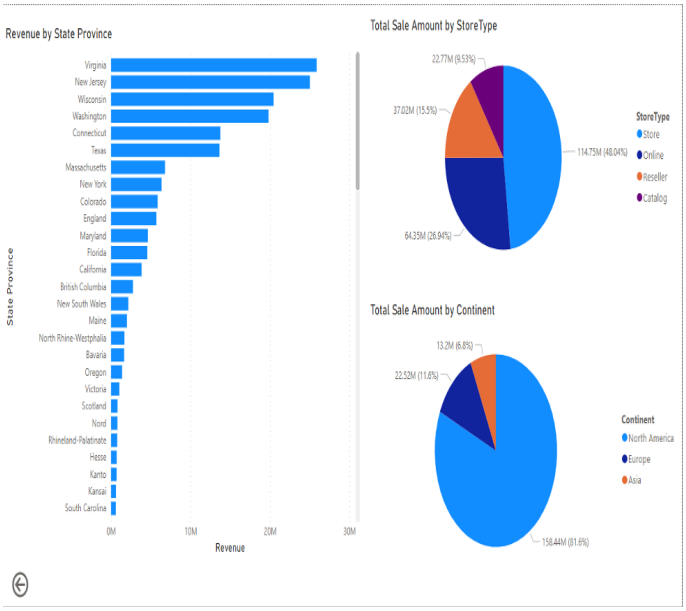

Fig. 6. Dashboard 2

1. The first graph represents the top states based on revenue generation. Since we have more sales in North America most of the states will be from the same continent, so here we have Virginia and New Jersey in the top spots whereas South Carolina is in last place. All these 3 come under the same continent so that continent factor won't be there. The reason can be that costly products are not sold in those states like Refrigerators and Computers, so making people aware of these things in those particular states or maybe linking up with educational institutions will help their cause to improve the sales by making people aware about these products.

2. Graph 2 is about revenue generation based on store types. So as expected sales are high in stores with a maximum number of people buying goods directly from stores and around 30 percent of the people also preferring online shopping. So here based on the budget and planning organization can take a call on whether to improve the online business which will help them to save building costs with high sales or to build even more stores so that revenue can be increased further.

3. As we already know the number of products are sold highest in North America and less in Asia and Europe. The third graph proved that revenue-wise also the result is the same. The reason can be many but the main reason can be lack of publicity and reaching the customers. there can already be some established stores which are functioning in that continents. So the solution can be more advertisements and more offers to attract customers.

C. Dash Board 3

This Dash Board specifically looks at the sales and returning the product on different things like store, state etc.

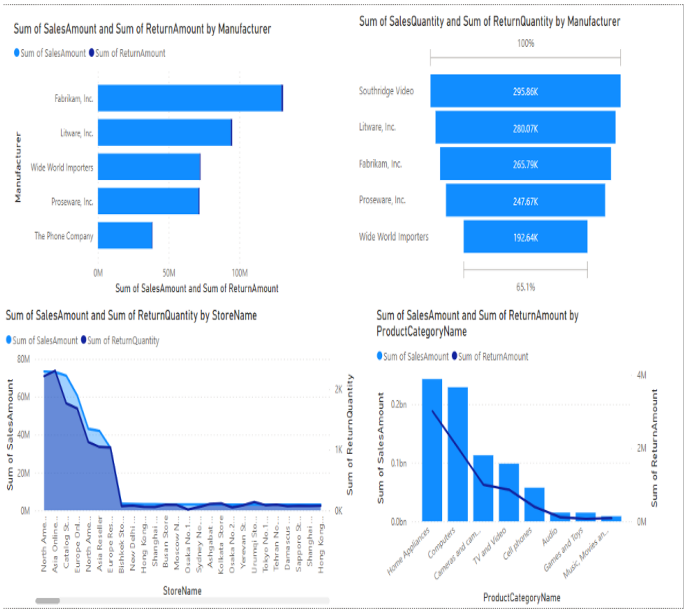

Fig. 7. Dashboard 3

1. The graph indicates Fabrikam and Litware are the biggest manufacturers for them based on revenue with both almost contributing 100 Million each and even the sum of return amount is not that high compared to revenue. So company make think of buying more goods from these manufacturers which may boost their revenue further.

2. Based on quantity again Fabrikam and Litware are listed at the top with SouthRidge Video. So since these 3 have high demand company can think of increasing its price by some margin in a such a way that it should not be a burden for the customer to buy it but at the same time make more profit.

3. Based on the product quantity graph is plotted against stores and unsurprisingly most of the Stores from the US are part of it if we look at the graphs on both sides the return quantity is negligible compared to sales. So this should not bother the organization much.

4. The fourth graph is based on sales amount against the product types and even here similar to above, the sales amount generated is so high for all the product types that their sum of return amount is way too less and it's common

in large scale which should not worry the organization much. So based on all these 4 graphs we can say that product return quantity is very less which indicates that products are really good and which should make the management happy.

D. Dashboard 4

This dashboard has 2 graphs. The first one is about the cost, price, and discount based on the product category and the second is again about sales and return based on the category.

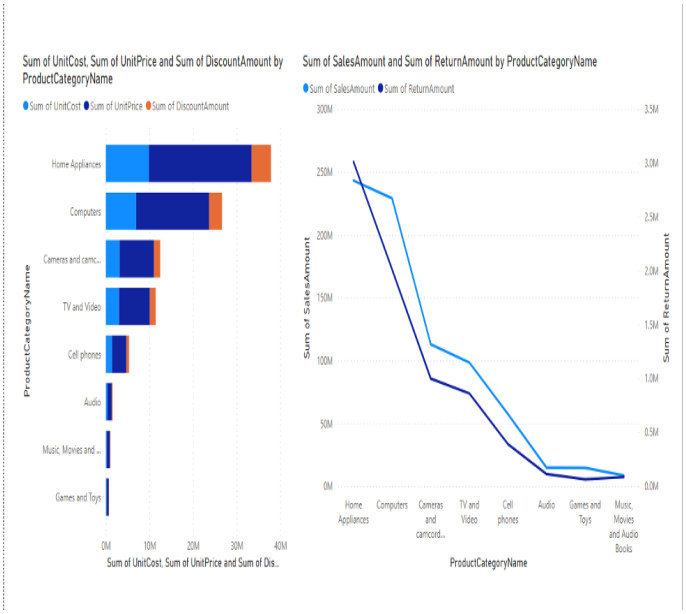

Fig. 8. Dashboard 4

1. In the graph we could see the Cost, Price, and Discount based on the sum of sales. So this clearly indicates in which category what is the cost of what we are selling and what is the discount provided which will help to calculate the profit. As we already know Home appliances and Computers are the ones that are contributing the highest. So one pattern we can observe here is that almost in all the categories the ratio of cost and sales are identical. So again looking at the sales manager may consider the change in this strategy to increase profit either by reducing that ratio in the highest selling categories or by increasing that ratio in lower selling categories which may reduce the selling price and encourage people to buy those categories goods as well.

2. This graph is about the sum of sales amount and return amount by category and here also the difference in ratio between sales amount and return amount on both ends of the graph is similar. So product quality is something which is not bothering the customers which is good for a branding of an organization.

E. Dashboard 5

This Dashboard has 3 graphs that are related to sales amount by store and return quantity based on stores and manufacturers.

1. The first graph tells about the stores with the highest sales

Fig. 9. Dashboard 5

amount. What an organization can do from this data is to analyze why the sales are more in that store, is it because the costly items are sold here, or is it because of the geography or is it because of the fast service or is it because of the number of staffs. So finding these things with additional data can help the organization to apply the same strategy to low-performing stores.

2. This graph explains to us about the stores where the highest percentage of products are returned. So if we observe the values Milan store is in first place with 14 percent but if we look at the number of items returned it's just 44. So it's not about returning the items, it's about the low performance of the stores. So all these stores should be taken into consideration and plan some strategies which will help them to sell more goods and improve the business with further studies.

3. Third graph is about the sum of return quantity items against manufacturers. So again Fabrikam and Litware are on top of the list with almost 50 percent but this should be okay as these are the one who sells the highest number of products so automatically that count will be high because the items from other manufacturers sold are way too less.

X. CUSTOMER RELATIONSHIP MANAGEMENT

Sales CRM is a software tool that helps businesses to manage customer interactions and data throughout the sales lifecycle.

In this module we have features like leads, account,

opportunity lead tracking, sales forecasting, and reporting which helps sales team increase productivity and sales performance. Overall it helps to improve the business and customer relationships and sales process.

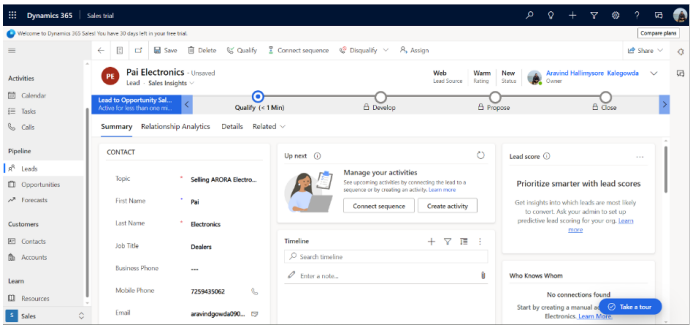

Fig. 10. Lead Creation

Here, A lead also know as Client for Arora company. In this Fig, 10. Of Sales module of Dynamics 365 we are creating leads (Pai Electronics) where they have come from website.

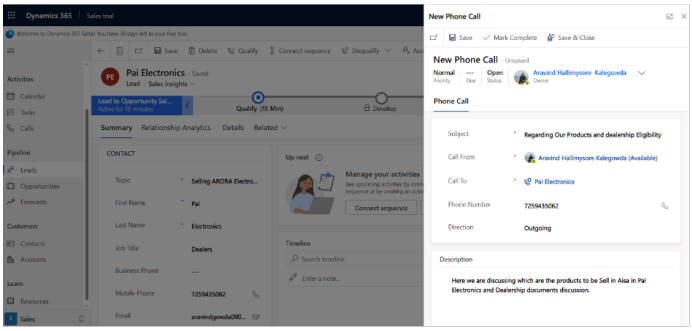

Fig. 11. Creating Activity

As shown in Fig 11 . Here we are creating the Activity with the lead to discuss on our products and related documentation. This type of activities helps follow up with leads and give the more insights on our products to client and as well as gives the eligibility criteria and other details of leads.

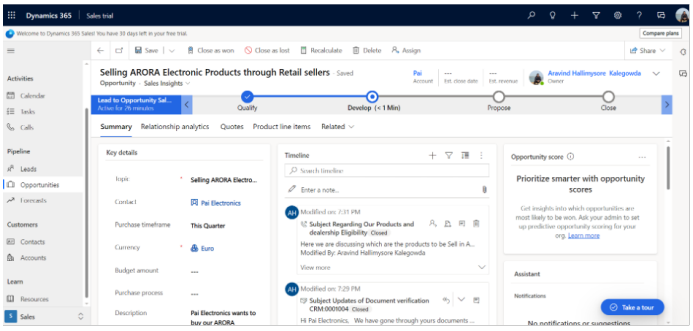

Fig. 12. Qualifying Lead

After the Activities are completed, we will understand the requirements of leads and we will get to know the leads Eligibility to sell our products and services. If the lead is met the company criteria, we can qualify the Lead or we can disqualify in this Fig. 12 we have qualified the lead for the results of activities created.

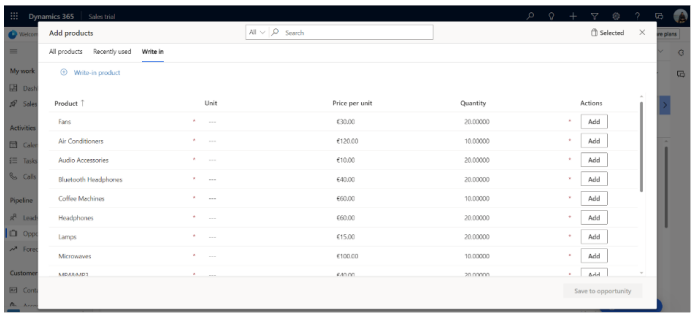

Fig. 13. Adding Products

As an Electronic company we have many products and services. But based on the data we have in Asia region we have less revenue and less stores as well so for the new store considering the Asia's population and cost of living, we are concentrating more on increasing of sales of home appliances and audio products. In This Fig 13. we are creating our ARORA products which we can sale to lead as the earlier stage of expansion.

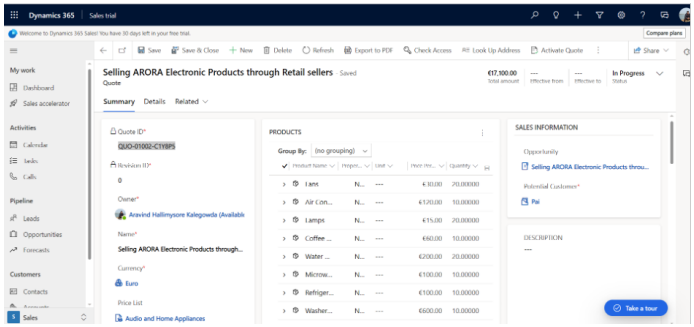

Fig. 14. Quotation Creation

Quotation is which gives the quantity and price details of the products. In Fig 14. We have created a quotation for the products (Home appliances and Audio) we are selling to Pai Electronics and this will be sent to lead.

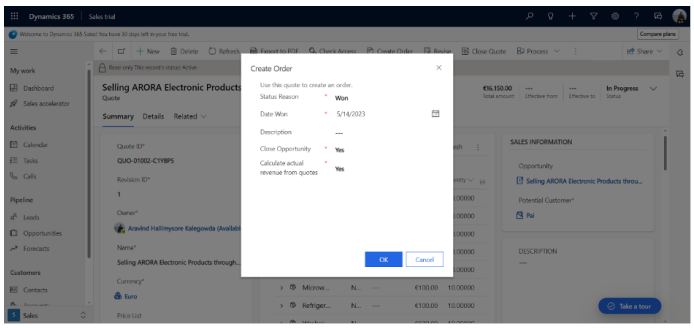

Fig. 15. Creating Order

Once the lead is confirmed the order based in the Quotation, we have given we will go for next step. That is Creating order in our CRM Sales module. Here the Status reason is won as the order confirmation got from lead[Fig 15].

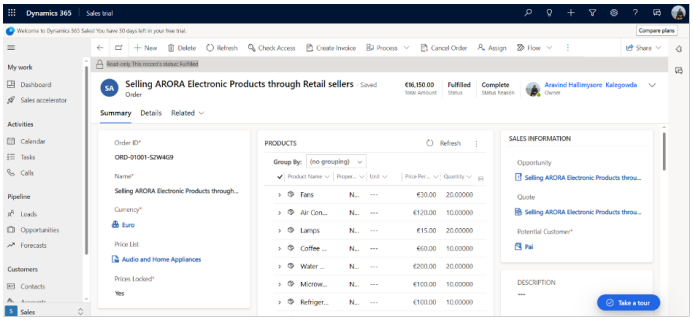

Fig. 16. Order Fulfilled

After the order creation, our task is to full fill the order so here we can full fill the order partially or completely based on the products availability. In Fig 8 we shows that order is fulfilled and its done completely[Fig 16].

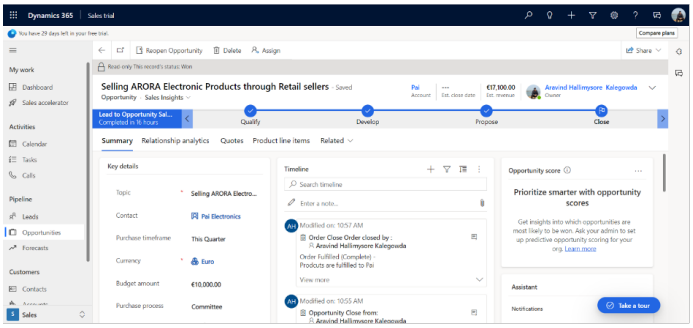

Fig. 17. Sales Completed

In the last stage of opportunity after the order creation and order fulfilment done we will be closing the opportunity as won [Fig 17].

XI. BUSINESS SOLUTION

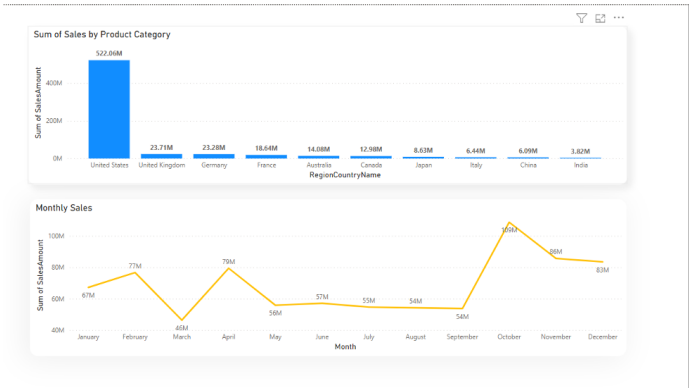

Fig. 18. Sales Completed

1. In Asia the sales are less than in other continents even though the population is high, so improve that Organisation can collaborate with Local stores to do retail storing so that it will reach customers in a remote area as well. In our project, we are showing the same using CRM with Pie stores.

2. Litware, Ei, and Fabricum were the best brands with the highest incomes, so other brands can be advertised to attract people and give some good discounts to attract customers which in hindsight will help to increase the revenue.

3. Products related to entertainment are sold very less, so to improve this organizations can target IT companies and collaborate as IT employees need some entertainment after working with so much stress and they are the target customers.

4. In some states revenue is less because costly products like Laptops are not sold much there, so to improve that Organisations can collaborate with Educational institutions and give them more knowledge regarding the same as it may help in their studies and in turn will help the organization to prepare their future target customer.

5. 50 percent of People buy goods directly from stores and around 30 percent are using online shopping, so companies can take decisions based on their budgets whether to build more stores or encourage online shopping by giving seasonal offers.

6. Fabrikam and Litware are the highest-selling brands quantity-wise also, so the organization may think about its price increase by some low margin without making it a burden to customers as there is high demand for their product.

7. Some category products like audio are sold less compared to other products, in such cases organization call reduce the selling price and should compromise on profit margin and once customers start buying these products and sales increase they can gradually increase the price.

8. There are some stores where business is very dull, in such cases they should analyze more about these stores regarding the reason for less performance and try to improve this.

XII. CONCLUSION

So in this project we have fetched data of Arora stores from the servers with the help of CRM and after performing ETL process we have stored it in a DB and connected it to Power BI to make some much needed visualizations with the help of Dashboards and successfull in getting insights. So based on this we got to know about the strength and weakness of our sales data and which will help to make strategies for the parts where organisation is facing issues and thus helping it

to take business decisions which will help them to grow their business and earn more revenue.

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