SALES AND FINANCE ANALYTICS PROJECT: ATLIQ HARDWARE

INTRODUCTION AND PROBLEM STATEMENT

AtliQ Hardware is a prominent provider of computer hardware and peripherals, serving clients globally through diverse distribution channels like retail, direct sales, and distributor networks, whilst employing both online and offline platforms.

The goal of this project is to extract valuable insights that will enable AtliQ Hardware to make well-informed decisions and efficiently monitor key performance indicators (KPIs), thereby driving significant enhancements in the company's performance and facilitating its expansion based on the years 2019, 2020 and 2021.

The following project was implemented using Microsoft Excel which serves as a powerful, beginner friendly tool for employing data analytics techniques.

STEPS

1. **ETL (Extract, Transform, Load)**

   ETL consolidates data from multiple sources into a central data warehouse, refining and structuring it according to predefined rules for storage, analysis, and potential use in machine learning (What is ETL, 2024).

   Originally, there are five data tables containing over a million records, of which three are dimension tables consisting of details regarding the customer, market, and product; whilst the other two are fact tables consisting of details regarding the monthly sales and target.

   The data tables were loaded to Power Query and thoroughly investigated for any data anomalies. The data was cleaned accordingly by removing missing and duplicate values, changing data type, and replacing values as and when required, along with ensuring that each dimension table consists of a unique column serving as a primary key.

Furthermore, a date dimension table was created based on the date column in the monthly sales table, which dates from September 2018 to August 2021. The other columns added were the month column, representing the start of the month and Fiscal Year (financial year) column which is from September to August for AtliQ Hardware.

Following is a list of total number of tables used for the purpose of this project:

- Customer Table: customer code, customer, market, platform, and channel.
- Market Table: market, subzone, and region.
- Product Table: product code, division, segment, category, product, and variant.
- Date Table: date, month, and FY.

- Fact Sales Monthly Table: date, product code, customer code, qty, net sales amount, freight cost, and manufacturing cost.
- NS_Target 2021 Table: market, date, and ns_target.

Lastly, all these files were loaded to Power Pivot, for data modelling and hence creating Pivot Table Reports.

2. Data Modelling

Data modelling involves the process of analysing and defining various data types, along with identifying the relationship among these data elements (Microsoft, 2024).

The data model in excel was created utilising the Power Pivot Tab, as explained below.

Power Pivot → Manage → Diagram View
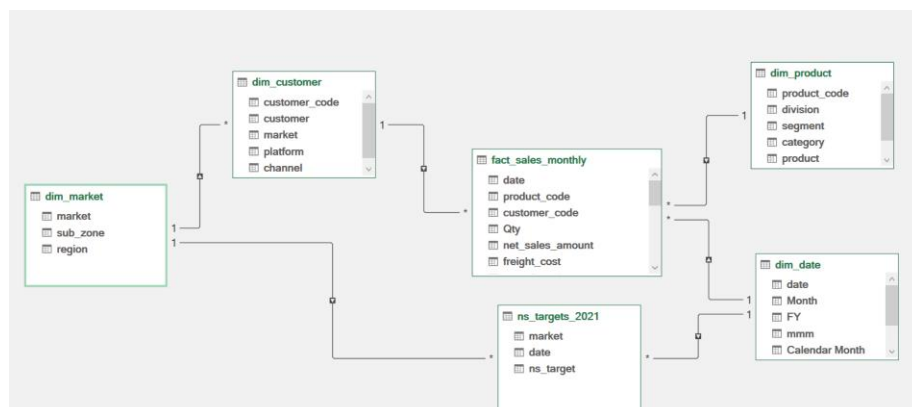
As seen above, the tables are connected to each other based on the star schema technique. A star schema is a dimensional data model designed to enhance the performance of analytical queries. It consists of two main types of tables: fact (positioned at centre and holds facts) and dimension (contain descriptive attributes corresponding to the facts) (Sheldon, 2024).

The two fact tables are positioned at the centre connected by the surrounding dimension tables, which also indicates their relationship (One – Many or Many – One).

3. Pivot Table and DAX (Data Analysis Expression)

The data model is integrated with the pivot tables in order to create reports and perform efficient data analysis. Moreover, Power Pivot is used to generate new measures and columns, facilitating smooth data transformation and connectivity.

DAX, which is a formula language used for defining custom calculations in PowerPivot Tables, was utilised to create several calculated columns. These measures along with the screenshots have been further explained in the next section.

The implementation of Conditional Formatting helped in enhancing data presentation by applying rules to format numbers and text, highlighting key data, identifying trends, and improving overall readability for more effective analysis.

4. Creating Reports

This project focuses on two main domains namely Sales and Finance for which appropriate reports have been created in order to monitor and evaluate the same.

The Sales analysis consists of reports such as customer performance and market performance, which were created by meticulously examining the data and further exploring net sales performance over various factors such as year, customer, product, market, and division. This thorough analysis ensured the alignment with strategic objectives by comparing market performance against predetermined targets.

The Finance analysis focused on creating Profit and Loss Statement based on various time periods (year or quarter) and market. This was implemented by developing interactive charts and tables to monitor and illustrate profit and loss information, tailored to distinct market segments and thus offering a transparent view of financial patterns annually and quarterly, and help making guided financial decisions.

TOOLS/FEATURES USED

- Microsoft Excel
- Power Query (Data Cleaning & Transformation)
- Power Pivot (Data Modelling)
- Pivot Table (Data Summarization)
- DAX Measures (Calculated Columns)
- Conditional Formatting (Highlight important data points)

SALES REPORTS

Customer Performance Report

AtliQ Hardwares

FILTERS

region	All
market	All
division	All

Customer
Net Sales Performance
All values in USD

Customer	2019	2020	2021	21 vs 20
Acclaimed Stores	1.4M	2.9M	10.9M	378.1%
All-Out		0.2M	0.8M	495.7%
Amazon	12.2M	37.5M	82.1M	218.9%
Argos (Sainsbury's)	0.4M	0.7M	2.3M	306.0%
Atlas Stores	0.2M	0.7M	3.2M	470.3%
Atliq e Store	7.2M	23.7M	53.0M	223.8%
AtliQ Exclusive	9.6M	17.7M	61.1M	345.8%
BestBuy	0.9M	1.8M	6.3M	356.1%
Boulanger	0.2M	0.8M	4.1M	492.9%
Chip 7	0.6M	1.3M	5.5M	416.1%
Chiptec		0.4M	3.0M	722.0%
Control	0.9M	2.2M	7.7M	349.2%
Coolblue	0.5M	1.2M	4.2M	360.0%
Costco	1.1M	2.8M	9.3M	337.4%
Croma	1.7M	2.5M	7.5M	305.1%
Currys (Dixons Carphone)	0.3M	0.8M	1.9M	246.9%
Digimarket	0.8M	1.7M	4.1M	241.1%
Ebay	2.6M	6.3M	15.2M	242.2%
Electricalsara Stores	0.1M	0.6M	1.9M	286.0%
Electricalsbea Stores		0.1M	0.7M	504.6%
Electricalslance Stores	0.1M	0.7M	2.3M	313.3%
Electricalslytical	1.8M	2.6M	11.9M	457.5%
Electricalsocity	2.3M	3.5M	12.4M	358.8%
Electricalsquipo Stores	0.2M	0.7M	3.6M	535.3%
Elite	0.4M	0.8M	4.1M	495.5%
Elkjøp	0.5M	1.3M	5.2M	391.9%
Epic Stores	0.4M	0.9M	4.2M	446.1%
Euronics	0.4M	0.9M	3.9M	444.7%
Expert	0.8M	1.8M	6.4M	364.0%
Expression	1.7M	3.0M	9.8M	328.2%
Ezone	1.5M	2.0M	7.9M	391.6%
Flawless Stores	0.1M	0.5M	1.8M	396.3%
Flipkart	2.9M	8.3M	19.3M	231.0%
Fnac-Darty	0.5M	0.8M	2.9M	349.8%
Forward Stores	0.6M	1.5M	4.1M	272.0%
Girias	1.5M	2.1M	8.7M	419.3%
Info Stores	0.1M	0.5M	1.8M	384.1%
Insight	0.4M	1.0M	2.8M	271.8%
Integration Stores		0.2M	1.4M	887.2%
Leader	4.7M	6.0M	18.8M	314.8%
Logic Stores	0.2M	0.9M	4.8M	515.2%

AtliQ Hardwares

Lotus	1.5M	2.1M		8.1M	382.6%
Neptune	1.0M	3.4M		16.1M	471.5%
Nomad Stores	0.5M	1.6M		4.0M	246.9%
Notebillig	0.2M	0.4M		1.1M	287.4%
Nova		0.0M		0.4M	2664.9%
Novus	1.9M	3.7M		9.9M	264.2%
Otto	0.3M	0.4M		1.2M	298.6%
Premium Stores	0.5M	1.1M		3.9M	353.1%
Propel	1.6M	2.5M		10.8M	440.6%
Radio Popular	0.5M	1.5M		5.3M	362.6%
Radio Shack	0.8M	1.7M		5.4M	311.5%
Reliance Digital	1.6M	2.6M		9.7M	377.9%
Relief	0.4M	1.0M		4.1M	403.6%
Sage	4.8M	6.4M		20.7M	321.5%
Saturn	0.2M	0.4M		1.2M	310.5%
Sorefoz	0.6M	1.1M		4.7M	433.6%
Sound	0.6M	1.7M		4.4M	260.3%
Staples	1.2M	2.9M		8.8M	307.0%
Surface Stores	0.1M	0.5M		2.1M	398.8%
Synthetic	1.9M	4.4M		12.2M	276.0%
Taobao	0.2M	1.3M		3.3M	248.7%
UniEuro	0.6M	1.6M		7.3M	457.0%
Vijay Sales	1.7M	2.1M		8.5M	397.8%
Viveks	1.6M	2.2M		7.8M	348.1%
walmart	1.3M	2.6M		9.7M	370.4%
Zone	0.3M	1.6M		5.3M	336.2%
Grand Total	**87.5M**	**196.7M**		**598.9M**	**304.5%**

The above figures indicate the Customer Performance report which contains details regarding the net sales of various customers over the years 2019, 2020, and 2021; as well as the comparison in performance of year 2020 and 2021. Furthermore, region, market and division have been equipped with filters and suitable conditional formatting is applied to the remaining table.

Net Sales 2019, 2020, 2021: Calculated based on the Net Sales and Fiscal Year, using the CALCULATE function.

21 vs 20: Calculated by dividing the Net Sales of 21 to the base of Net Sales 20, using the DIVIDE function.

It can clearly be noted that there is a substantial increase in the Net Sales from 2019 to 2021. The three top customers of the year 2021 are Amazon, AtliQ E Store, and AtliQ Exclusive with Net Sale of 82.1 M, 53 M, and 61.1 M. Lastly, customer Nova's Net Sales have grown considerably as depicted in the last column.

Market Performance Vs Target Report

AtliQ Hardwares

FILTERS

region   All
division All

Market Performance vs Target
All values are in USD

Country	2019	2020	2021	2021 - Target	%
Australia	3.9M	10.7M	21.0M	-2.2M	-9.5%
Austria		0.1M	2.8M	-0.3M	-10.5%
Bangladesh	0.5M	2.3M	7.0M	-0.7M	-9.3%
Canada	4.8M	12.2M	35.1M	-5.1M	-12.6%
China	1.4M	5.4M	22.9M	-2.1M	-8.3%
France	4.0M	7.5M	25.9M	-2.2M	-7.8%
Germany	2.6M	4.7M	12.0M	-1.5M	-11.3%
India	30.8M	49.8M	161.3M	-9.6M	-5.6%
Indonesia	2.5M	6.2M	18.4M	-2.4M	-11.5%
Italy	2.9M	4.5M	11.7M	-1.0M	-8.2%
Japan		1.9M	7.9M	-0.3M	-4.0%
Netherlands	0.2M	3.4M	8.0M	-0.7M	-7.6%
Newzealand		2.0M	11.4M	-1.4M	-11.0%
Norway		2.5M	13.7M	-1.4M	-9.5%
Pakistan	0.6M	4.7M	5.7M	-0.5M	-8.5%
Philiphines	5.7M	13.4M	31.9M	-2.5M	-7.3%
Poland	0.4M	2.8M	5.2M	-0.9M	-15.3%
Portugal	0.7M	3.6M	11.8M	-0.5M	-4.1%
South Korea	12.8M	17.3M	49.0M	-4.4M	-8.2%
Spain		1.8M	12.6M	-1.8M	-12.4%
Sweden	0.1M	0.2M	1.8M	-0.2M	-10.0%
United Kingdom	2.0M	8.1M	34.2M	-3.0M	-8.0%
USA	11.5M	31.9M	87.8M	-10.2M	-10.4%
Grand Total	**87.5M**	**196.7M**	**598.9M**	**-54.9M**	**-8.4%**

The above figures indicate the Market Performance vs Target report which contains details regarding the Net Sales of various countries over the years 2019, 2020, and 2021, as well as the comparison between the target data and actuals. Furthermore, region and division have been equipped with filters and suitable conditional formatting is applied to the remaining table.

2021 – Target: Calculated by subtracting Net Sales 2021 and Target 2021.

%: Calculated by dividing 2021 – Target to the base of Target 2021, using the DIVIDE function.

It is clearly indicated that none of the countries were able to reach their desired target as shown by the negative value in the column 2021 – Target, with topmost countries being USA and India. The actual performance is depicted by the last column, Target change %; which indicates that Japan and Portugal are doing well, and focus can be made on Poland and Canada to make further improvements.

Other reports including Top 10 Products, Division Level, New Products (2021), and Top 5 Countries were also created which can be checked from the attached Excel file.

FINANCE REPORTS

P & L Statement (by Fiscal Years)

FILTERS

region	All
market	All
division	All
customer	All
FY	2019

P&L BY FISCAL YEARS
All Values in USD

Metrics	Q1 Sep	Oct	Nov	Q2 Dec	Jan	Feb	Q3 Mar	Apr	May	Q4 Jun	Jul	Aug	Grand Total
Net Sales	6.5 M	8.0 M	10.7 M	11.4 M	6.5 M	6.1 M	6.4 M	6.3 M	6.5 M	6.2 M	6.5 M	6.3 M	87.5 M
COGS	3.8 M	4.7 M	6.3 M	6.7 M	3.9 M	3.5 M	3.8 M	3.7 M	3.8 M	3.6 M	3.8 M	3.7 M	51.2 M
Gross Margin	2.6 M	3.4 M	4.5 M	4.7 M	2.7 M	2.6 M	2.7 M	2.6 M	2.6 M	2.6 M	2.7 M	2.6 M	36.2 M
GM %	40.9%	42.0%	41.5%	41.4%	40.9%	41.9%	41.5%	41.4%	40.8%	42.0%	41.5%	41.4%	41.4%

FILTERS

region	All
market	All
division	All
customer	All
FY	2020

P&L BY FISCAL YEARS
All Values in USD

Metrics	Q1 Sep	Oct	Nov	Q2 Dec	Jan	Feb	Q3 Mar	Apr	May	Q4 Jun	Jul	Aug	Grand Total
Net Sales	17.1 M	20.6 M	28.7 M	29.9 M	17.1 M	15.9 M	2.1 M	7.8 M	9.9 M	14.9 M	16.1 M	16.5 M	196.7 M
COGS	10.6 M	12.8 M	18.1 M	18.9 M	10.7 M	9.9 M	1.3 M	4.8 M	6.2 M	9.3 M	10.2 M	10.5 M	123.4 M
Gross Margin	6.5 M	7.8 M	10.6 M	11.0 M	6.5 M	6.0 M	0.8 M	2.9 M	3.7 M	5.5 M	5.9 M	6.1 M	73.3 M
GM %	37.8%	37.8%	37.0%	36.8%	37.8%	37.7%	36.7%	37.7%	37.5%	37.3%	36.7%	36.8%	37.3%

FILTERS

region	All
market	All
division	All
customer	All
FY	2021

P&L BY FISCAL YEARS
All Values in USD

Metrics	Q1 Sep	Oct	Nov	Q2 Dec	Jan	Feb	Q3 Mar	Apr	May	Q4 Jun	Jul	Aug	Grand Total
Net Sales	44.8 M	54.6 M	74.3 M	78.1 M	44.8 M	41.8 M	44.0 M	43.5 M	44.4 M	41.5 M	44.0 M	43.0 M	598.9 M
COGS	28.4 M	34.7 M	47.4 M	49.8 M	28.4 M	26.5 M	28.0 M	27.7 M	28.1 M	26.4 M	28.0 M	27.4 M	380.7 M
Gross Margin	16.4 M	19.9 M	27.0 M	28.3 M	16.4 M	15.3 M	16.0 M	15.8 M	16.3 M	15.1 M	16.0 M	15.6 M	218.2 M
GM %	36.7%	36.5%	36.3%	36.3%	36.7%	36.5%	36.4%	36.3%	36.6%	36.4%	36.4%	36.3%	36.4%

NET SALES COMPARISON

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
21 Vs 20	162.1%	164.7%	159.1%	161.0%	161.4%	162.5%	1981.6%	461.2%	347.0%	178.6%	173.9%	160.3%	204.5%
20 Vs 19	164.6%	156.6%	167.3%	161.5%	162.8%	162.0%	-67.1%	22.7%	53.1%	140.7%	148.0%	162.0%	124.8%

The above figure represents the P&L statement for the Fiscal Years 2019, 2020, and 2021; divided based on four Quarters, created by extracting the fiscal month and assigning the quarters accordingly. The various metrics used are Net Sales, COGS, Gross Margin, and GM%; which are further explained below. The last table depicts an overall comparison of Net Sales between the years 2019 and 2021. Furthermore, region, market, division, customer, and FY have been equipped with filters and suitable conditional formatting is applied to the remaining table.

COGS (Cost of Goods Sold): Comprises of three components; Manufacturing cost, Freight Cost, and Other Miscellaneous Costs. Calculated by adding the total COGS using the SUM function.

Gross Margin: Calculated by subtracting COGS from Net Sales.

Gross %: Calculated by dividing Gross Margin to the base of Net Sales, using the DIVIDE function.

It is clearly indicated that for all three years, the Net Sales and COGs are higher in the month of November and December, particularly the second quarter. This can be because of these months being celebration months, with AtliQ offering special deals or discounts, thus leading to higher purchase.

Other reports including P&L by Market and Gross Margin % by Subzone and Quarters were also created which can be checked from the attached Excel file.

REFERENCES

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