

## Financial and Reporting Analysis with Power BI

→ Profit and Loss Account, Balance Sheet, Cash Flow Statement, and Statement of Changes in Equity.

→ Learn to calculate the ratios, including Profitability ratios, liquidity ratios, and risk management ratios. This is not only limited to financial analysis, but I can also prepare accounting reports and management reports using the same techniques.

→ Database me multiple tables ho skty, multiple files extract hon gi tou tou un sb ko power bi me interconnect krna, which is called data modeling.

### Data:

Jis trah ka data ha aesy same kisi b accounting software ya ERP system se mily ga.. data kbhi b aik sheet ya aik table me nhi hta, Database me tables hty and excel me sheets.

→ Some keys link this information together.

In the **Chart of Accounts** sheet, we have the breakdown of each account. If I choose a sub Account: Prepaid Expenses, this belongs to the Account: Other current assets, and this falls into one broader group, which is current assets, and this falls into the group of Assets, and Assets is part of the Balance Sheet.

→ hm ne data load kiya 4 sheets (tables) ha, ab hmara power bi nhi janta k ye sb apas me interconnected ha tou ab hm move krty ha data modeling traf.

→ Power BI ne already COA, GL, Territory me relationship bnaya huwa, but no relationship with Calendar. So Calendar aur GL me date common tou relationship.

→ Relationships k bd agy move krny se phly kuch quality checks dekhny,, Date k column k sath Aggregation ka sign mtlb wo sum up kr rha date.. tou hmy is NONE krna: Select Year-> Go Properties -> Advance -> Summarized by -> None.

→ Do the same steps with Entry no. There should be aggregation on the amount, but not on the line no, entry no.

→ Country ka column ho jo k hmy power bi ko btana hta k ye zip code, city or country ha. Iskaliye select Country -> Properties -> Advance -> Categories -> Country.

Similar for region -> Select Continent from categories.

→ Date ko select kr hmny short format date select krna. Zroori nhi k hm ye sb yha data model me hi kry ye hm table panel me b kr skty.

-> Hm P&L se hi start krty, lkn uskaliye sales, cost of sales, Monetization, Operating expenses, depreciation, and interest and tax ki values chihy hti, abhi sirf hm sales pr focus krein gy.

-> Sales ki value dekhny kaliye, matrix select krna, values me amount drag krni. Ab ye total amount ha hmny sales ki dekhni tou, rows me sub class ya Sub class 2 deag krna.. kiun k hm

account ki bases ya kisi b aur bases pr krty tou sales and return of sales alg ho jata, isiliye nhi krna. Filter on visual lga k sirf sales select krna. Aur Calendar se date ko Column me drop.

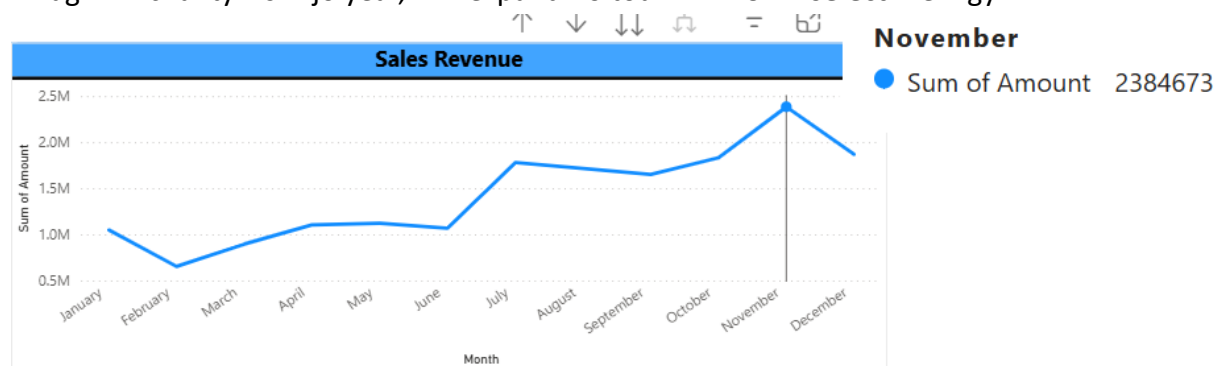
→ Ab hm is matrix ki visual bnanye, Isko copy kry gy, taky koi issue na bny. Copied pr line chart select krna.

→ Ab hm chahty k years wise, Quarter, month aur day wise sales dekhy. Tou

→ First option: **Go to the next level in the hierarchy (double down arrow)**, isy Year se quarter wise break down me teeno years k Q1, Q2, Q3, aur Q4 ko aik sath dekhaye ga. Aesy hi month 12 hi aye gye lkn hr aik me teeno years ka data ho ga. hm dekh k bta skty k in teeno saalo me february k month sales down rhi aur November me high.

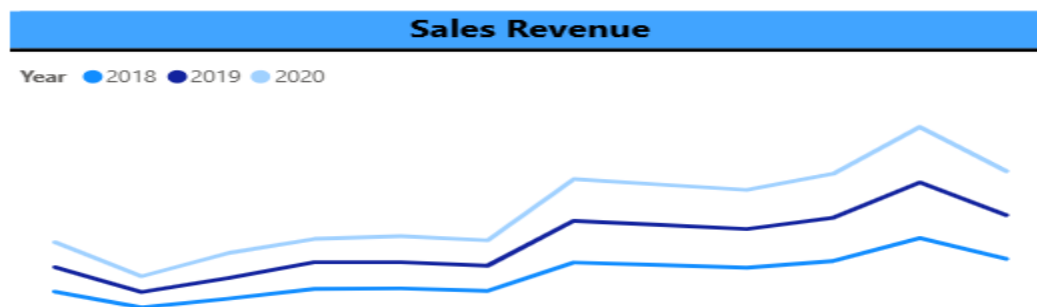
→ Ab hm chahty k aesa na ho hr year ka Quarter, month, Day alg aye tou hm **Expand All down next level in Hierarchy select** kry gy.

→ agr hm chahty k sirf jo year, whi expand ho tou **Drill Down select** krein gy.



→ The problem is that we do not want to merge all three years. Hm years wise chart pr back krein gy. But at this moment, "**Hierarchy-wise breakdown**" ka option unavailable ha. Ye is waja se k **axis** pr aik additional parameter ha "Subclass" jo k nhi chihy. Kyun ke hamne already sales ka filter lagaya huwa, aur sirf sales ki hi value mil rahi. Tou isy remove krna.

→ Now, I want to have all the different quarters and months in the same chart, but I want to have separate lines for each year. Tou iskaliye hm **Axis me Date se Year remove kr de gy, aur legend me Date add kr k dropdown se Date hierarchy select krna.**



→ Country-wise check krny kaliye slicer add krna aur field me country drag krna.

**→ Now, moves toward building the Profit and Loss (P&L) statement:**

Hm phli sales revenue ki sheet ko hi copy kr usy P&L ka naam de dy gy. Aur jo sales revenue wala matrix usy rkhna ha aur baki sb delete,

→ Filter me Report drag krna aur P&L select krna.. isy ab wo sb mily ga jo k hmy P&L kaliye required ha.

→ Data ko mzeed detail se dekhne k liye, ham class column ko drag kar gay row me subclass se oper. And brings the remaining columns in this sequence: Class, Subclass, Subclass2, Account.

**→ Now sort this matrix in the correct order: Sales followed by cost of sales, Operating expenses, Non-Operating Expenses, Interest, and Tax.**

→ Click on three dots, select sort by Class. Now this is sorted at the class level.

→ ab hmy subclass level pr b sorting krni, Lkn power bi me sirf aik level pr ho skti. Tou iskaliye hm **class k neechy aik br click kry gy And again krna tou subclass level pr b ho jaye gi.**

→ Ab hm agr dobara tree dot pr click kr k sort by dekhy tou Class, Subclass, Subclass2 k sath yellow line hni. Jo show kr rhi in teeno pr sorting hoi.

→ Ab hm sb groups kaliye subtotal add krna, for example: for the trading group, Sales – cost of sales, which is equal to gross profit.

→ Tou iskaliye hm format me ja k subtotals on kr dein gy, sb accounts k samny subtotal hna aur isky sath hi sb se last p neechy grand total b mill jana jo k net profit ha. Also, present the subtotal at the bottom line.

→ Ab hmary pas Gross profit a gya ha,, lkn hm dekh skty k hmara pas Operating profit OR Non-Operating Profit, and profit before interest and Tax nhi ha,, wo values just subtotals ha, profit nhi.

→ Now, we will calculate separately, Gross Profit, Net Profit, Operating Profit, Profit before Interest and tax, and earnings before interest and Tax and Depreciation and Amortization which is called EBITDA .

**Gross Profit:** Revenue - Cost of Goods Sold (COGS).

- *Purpose:* Assesses production efficiency, pricing strategies, and labor costs.

**Net Profit:** Gross Profit - Operating Expenses - Interest - Taxes.

- *Purpose:* Provides a complete view of the company financial health, profitability, and cash flow.

**Example:**

If a company has \$100,000 in revenue and \$60,000 in COGS, the **gross profit is \$40,000** (\$100k -

\$60k). If that company also has \$20,000 in operating expenses and \$5,000 in taxes, the **net profit is \$15,000** (\$40k - \$20k - \$5k).

→ Ab **gross profit** kaliye hm matrix select krna, Values me amount, columns me date drag kena, aur jesy k hmy trading account lena, tou trading class level me defined ha isiliye hm filters me Class drag kr k Trading account select kry gy aur ab ye hmy sales-cost of sales de ga.

Gross Profit		
2018	2019	2020
2383246	3968546	5341360

→ For **Operating Profit**, Agr hm same filter class pr lgaye aur Operating account select kry tou ye hmy in sb ka subtotal de ga,, lkn hmy operating profit Gross profit se ye subtotal, Subtract kr k milna tou isi liye hm filter me Trading account aur operating account dono add kry gy.

Operating profit		
2018	2019	2020
740801	1475688	1522166

→ For **Non-Operating Profit** (Which is called Profit Before Interest and Tax). Hm bs filter me Non-Operating add krein gy. **NON-Operating actual me income hti hy tou hm isy add kreing gy, Operating Profit me.**

PBIT		
2018	2019	2020
777278	1522850	1594431

→ For **Net Profit**, Hm filter me Interest and Tax add krein gy aur wo PBIT se Deduct ho jaye ga,

Net Profit		
2018	2019	2020
623856	1303147	1289945

→ **EBITDA**(Earnings before Interest, Tax, Depreciation and Amortization), Iska mtlb ye k hmy sirf sales, cost of sales and operating expense chihy, jb k hmara phla filter jo class me lga usmy operating account me expenses and, Depreciation and Amortization ha, tou isiliye ab hmy subclass pe filter lgana ho ga kiun k usmy ye sb separately defined ha, aur hm sales, cost of sales, and operating expenses select krein gy.

EBTIDA		
2018	2019	2020
1147805	2007744	2237006

→ Visuals k more options ki traf move krty huye Card use krty, Ismy hm amount drag krty gy tou ye hmy SB ka total de ga.. Lkn hmy sales me dekhni tou subclass se Sales select kry gy. ab hm dekh skty k ye values 2018, 2019, 2020 ki sales ka total ha.

→ Select the KPI (evaluating a value against a benchmark) visual. But in this case, we will not be evaluating against a benchmark. Indicator me amount aur trend axis me DATE drag krna. O show ho rha hna, tou hm **Date k drop down pr click kr k Date Hierarchy select** krein gy.

Lkn jo value show ho rhi ye strange hni ha, aur isliye hm Filter se sales select krein gy. ye jo value show ho rhi ye total sale nhi hy 3 years ki jesy Card me show ho rhi, blky ismy most recent year wali value ani ha. So, this is the standard behaviour of this visual; it only brings the value of the most recent year. Background line is showing the sales trend over the time.

→ In P&L, if we want to see for the period value, we will be using KPI.

→ In Balance sheet, if we want to see the value that should be total of all them, we will be using Card.

Sales TTD
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17,108,642

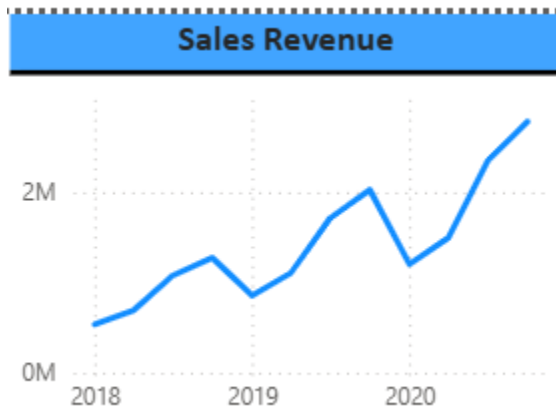
Sales FTP
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7,835,369

→ **Slicer:** Jb hm hm Year ka slicer add kry gy, tou usmy jo b year sinle year select krna card and KPI me usi aik year ki value ani, aesa nhi ho skta k card 3 years ki add kr de. And hm CTRL press kr k multiple year select kr skty.

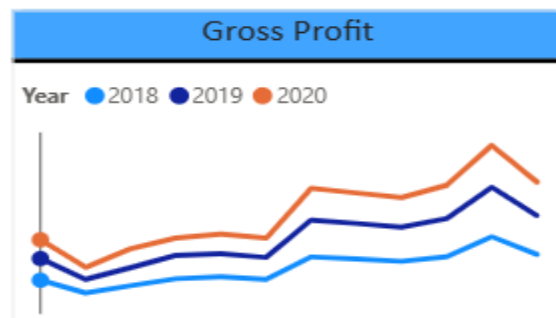
### → Add More Visuals for P&L :

Sales Revenue: Line chart drag kare, y-axis me amount, X-axis me Date, aur dropdown se date hierarchy select karna, aur filter me Subclass drag kare k Sales select karna. Expand to a one-level hierarchy.

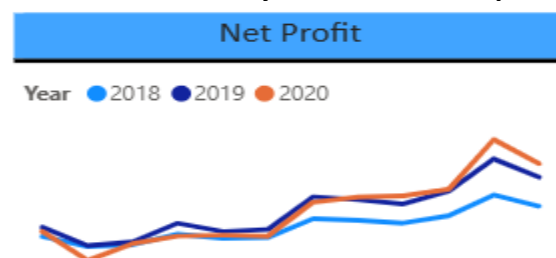


→ **Gross Profit:** It is sales- Cost of sales, so hm filter change kry gy class drag kr k Trading account select krna.

→ Graphs almost look similar, but the values are different. Years ki lines separately dekhny kaliye hm Date se year remove kr k Legent me drag kry gy. Aur month wise breakdown krna.



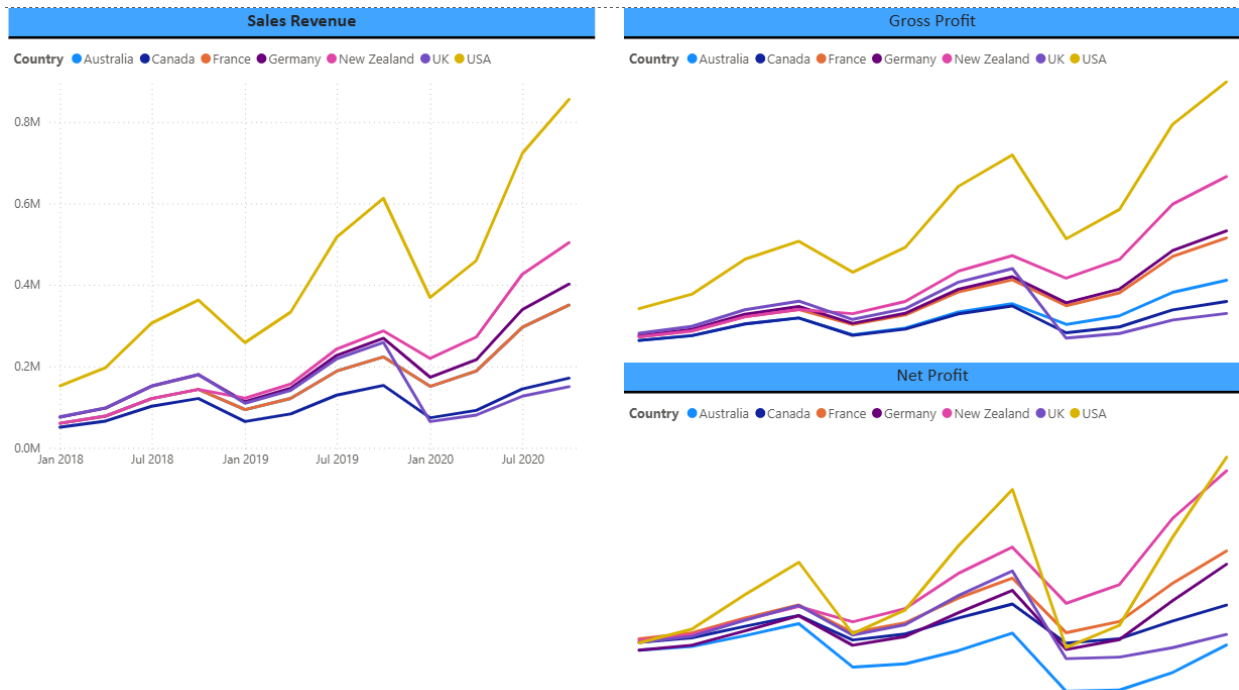
→ **Net Profit:** Isklaiye hm filter me report drag kr k P&L select kr k gy, kiun k ismy sb a jaye ga.



### → Cross Country Comparison:

New sheet add krni, Sales revenue, Gross Profit aur Net Profit k chart ko copy past krna, Gross aur Net k Charts k legends se Year ko remove krna aur Axis me complete date add krni.

→ **Sales Revenue** k graph me legend me country add krna. We can see US and New Zealand are performing well. Will do the same things for Gross and Net Profit.



### → Move towards Dax Functions:

Hmny abhi tk jo b kaam kiya ye sb filters k sath, agr hm chahty k above 3 graphs merge kr k aik hi bnhy tou ye filters se nhi ho ga, hmy dax ki traf move krna ho ga, Hmny gross profit, Net, and etc, sb Filters k sath kiye ha aur hmy Gross margin calculate krna ho tou wo filters se nhi ho ga uskaliye dax ki traf move krna.

→ First dax bnaye gy with the name Total\_FTP, jo k sum kry ga amount ko. Agr hm P&L ko aik alg sheet me copy kr k values me Amount k sath ye add kry tou same values show ho gi.. Bad me hm sb jgha Amount ko isy replace kr dein gy.

### → Calculating Gross Profit with DAX:

Gross Profit = CALCULATE([Total\_FTP], tbl\_COA[Class] = "Trading account")

Bring the value of the total FTP where the Class is a trading account.

ab jb hm gross profit is measure se bnaye gy tou no need of any filter. LKn previous se jesy hi filter remove hna tou value khtm ho jani.

The Calculate function is a widely used DAX function for filtering.

#### → Calculating Net Profit with DAX:

Net Profit = CALCULATE([Total\_FTP], tbl\_COA[Report] = "Profit and Loss")

#### → Calculating Operating Profit with DAX:

Deduction of operating expenses from Gross Profit. So we need both a trading account and an operating account. Hm condition me and likhy gy tou result nhi milna kiun k Kahin b ye dono akhty nhi tou hmy OR likhna ho ga, k jisay ay Trading account ho OR Operating account ho.

Operating Profit = CALCULATE([Total\_FTP], tbl\_COA[Class] = "Trading account" ||  
tbl\_COA[Class] = "Operating account")

Bring the value where the class is Trading account Or Operating account.

#### → Alternate way of Calculating Operating Profit with DAX:

Operating Profit2 = [Gross Profit] + CALCULATE([Total\_FTP], tbl\_COA[Class] = "Operating  
account")

Hm simply operating expenses ko deduct kr dein gy gross profit se. Wo already negative tou isiliye + use krna. OW -, - , -> + ho jayr gy.

#### → Calculating EBITDA with DAX:

Is my HM gross profit se Operating expenses deduct krein gy not Operating account. Kiun k Operating account me Amortization and Depreciation a jaye ga. Tou isiliye operating expenses.

EBITDA = [Gross Profit] + CALCULATE([Total\_FTP], tbl\_COA[SubClass] = "Operating Expenses")  
Expenses negative me hy kiun wo deduct hty, isiliye agar hm formula me – likhty tou ye plus ho jta, so isiliye hmy + likhna.

#### → Calculating PBIT with DAX:

Hm gross profit se Operating account deduct krein gy aur Non-Operating ko add kiun k ye income hty ha.



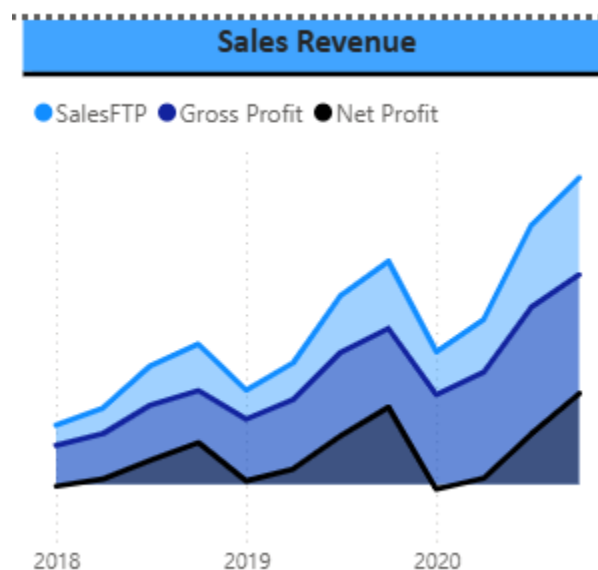
$PBIT = [Gross\ Profit] + CALCULATE([Total\_FTP], tbl\_COA[Class] = "Operating\ account" \mid \mid tbl\_COA[Class] = "Non-operating")$

Otherwise ye b k Hm ne Operating profit already count kiya huwa tou usmy simple Non-operating ko add kr dein.

#### → Calculating Sales with DAX:

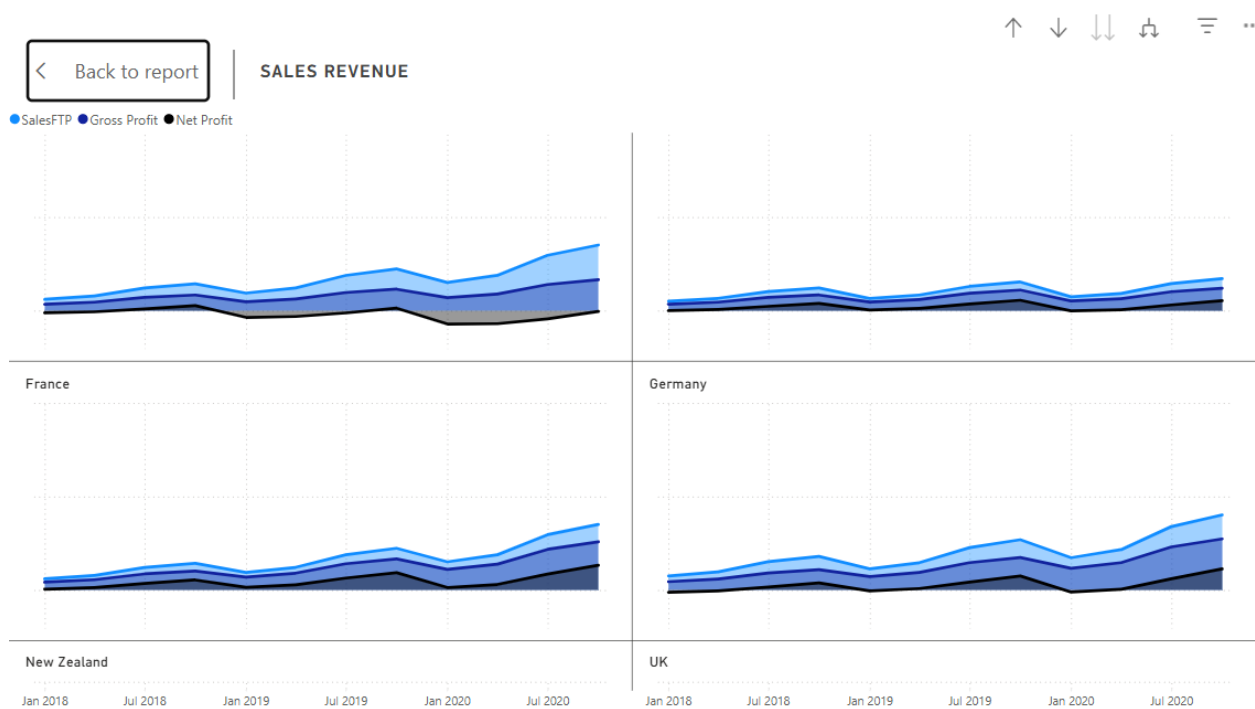
$SalesFTP = CALCULATE([Total\_FTP], tbl\_COA[SubClass] = "Sales")$

→ Hm P&L me chart add krna ha, tou iski asaani kaliye hm P&L ko duplicate kr lein gy taky masla na ho. Gross, Net profit k chart ko remove krna. Sales Revenue k chart me filter remove kr k , Aur Amount ko Y-Axis se remove krna. Aur SalesFTP, Gross Profit Aur Net Profit add krna, isy hm 3 charts se jo separate analyze kr rhy thy aik me a jaye gy.



#### → Adding Multiple:

hm Is chart ko select kr k small multiple me country add kr skty tou ye sb country wise Sales, Gross, and net profit dekhaye ga. This is just an additional possibility.

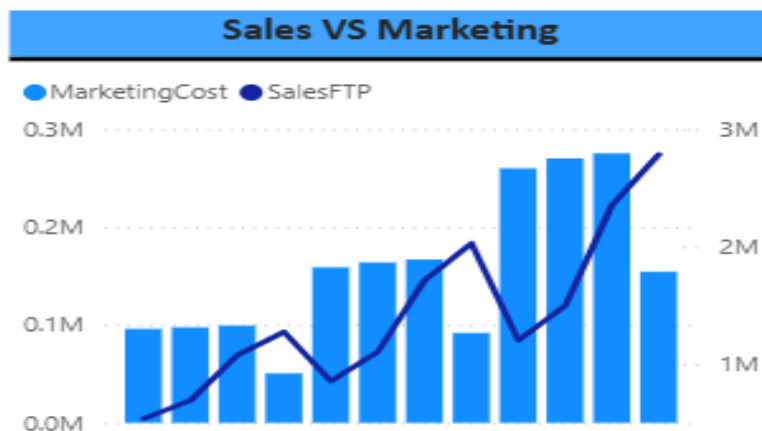


### → Sales Revenue VS Marketing Cost:

Hmara sb se common perception k marketing brha deny se sales brhti ha, tou ab hmny is present krna. Iskaliye phly measure bnani ha

$\text{MarketingCost} = \text{CALCULATE}([\text{Total\_FTP}], \text{tbl\_COA}[\text{SubClass2}] = \text{"Marketing"}) * -1$   
 ye negative me ho jati tou graphs -ve axis me ho jata isiliye multiply krna

Clustered line chart select krna, X-axis me Date drag krna, Column me Marketing, and Line me SalesFTP ko dtag krna.

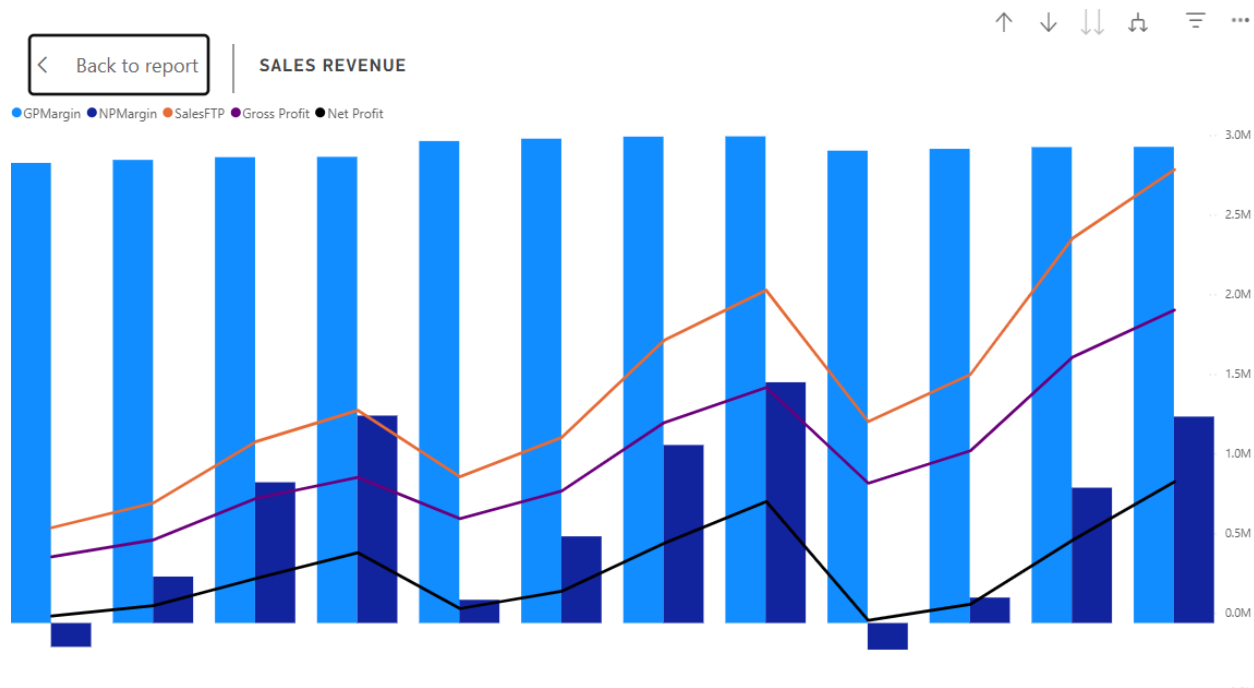


### → Gross Profit Margin and Net Profit Margin:

GPMargin = [Gross Profit] / [SalesFTP] -> Multiply by 100 b kr skty ya format me se percentage select krna.

NPMargin = [Net Profit] / [SalesFTP]

→ Hm apny sales revenue k chart me Net Profit margin aur Gross Profit margin add krty ha, Line and Clustered column chart mr change kry gy. Gross, Net, sales ko line me Kr dena aur Gross and Net profit margin ko Column me.



### Working with Fiscal/Financial Year that is different from Calendar Year:

Hmara calendar year January se start ho k 31<sup>st</sup> Dec tk hta. Aur first 3 months Q1 hty. Lkn ho skta k Financial year ye na ho. Wo July se 30<sup>th</sup> June tk ho skta ya Aptil se 31<sup>st</sup> March tk. Agr hmary pas aik aesa hi data a jaye tou kesy kaam krna, koi direct solution nhi ha power bi me, Hmy khud adjustments krni. Monthnum ka column add krna then Fiscal year ka.

Hmara 1<sup>st</sup> July se 31<sup>st</sup> June tk aik year.

Fiscal Year = If(tbl\_Calendar[MonthNum] <= 6, tbl\_Calendar[Year], IF(tbl\_Calendar[MonthNum] > 6, tbl\_Calendar[Year]+1 ))

→ Quarter kaliye hm phly Quarternum calculate krna then Fiscal Quarter. Hmara yeat July se start ho rha tou Ye Calendar me 3<sup>rd</sup> Quarter ha aur fiscal me ye 1<sup>st</sup> bn jana. Same agy b.

Fiscal Qtr = IF(tbl\_Calendar[QuarterNum] = 3, 1,  
 IF(tbl\_Calendar[QuarterNum] = 4, 2,  
 IF(tbl\_Calendar[QuarterNum] = 1, 3,  
 IF(tbl\_Calendar[QuarterNum] = 2, 4))))

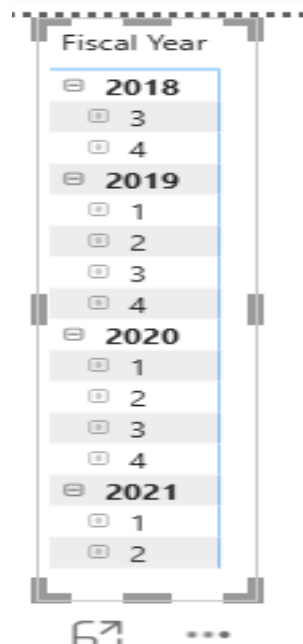
### → Fiscal Month:

Hmara fiscal Year July se start ho rha ye calendar k 7<sup>th</sup> month tou fiscal ka 1<sup>st</sup> ha, Aur jo Calendar ka 1<sup>st</sup> month ha wo Fiscal ka 7<sup>th</sup> ha.

Fiscal Month = IF(tbl\_Calendar[MonthNum] = 1, 7,  
 IF(tbl\_Calendar[MonthNum] = 2, 8,  
 IF(tbl\_Calendar[MonthNum] = 3, 9,  
 IF(tbl\_Calendar[MonthNum] = 4, 10,  
 IF(tbl\_Calendar[MonthNum] = 5, 11,  
 IF(tbl\_Calendar[MonthNum] = 6, 12,  
 IF(tbl\_Calendar[MonthNum] = 7, 1,  
 IF(tbl\_Calendar[MonthNum] = 8, 2,  
 IF(tbl\_Calendar[MonthNum] = 9, 3,  
 IF(tbl\_Calendar[MonthNum] = 10, 4,  
 IF(tbl\_Calendar[MonthNum] = 11, 5,  
 IF(tbl\_Calendar[MonthNum] = 12, 6))))))))))

→ Now, Manually create a hierarchy For Fiscal Year, Month, and Quarter:

Fiscal year k 3 dots pr click kr k Create Hierarchy krna, Then Fiscal Qtr, Month ko add ko to hierarchy krna.



→ Hmara fiscal year JULY se start hi rha tou 2018 k 3<sup>rd</sup> Qtr se onward aye ga, Till The June of 2021 means upto 2<sup>nd</sup> quarter.

Further smjhny kaliye Hm Minimum and Maximum date calculate krty, with Formula-  
Min(tbl\_Calendar(Date)), --- same.

Isy matrix ki value me add krty. 2018 ki max date 30-6-2018 ha. Aur minimum 1-12-2018 ha kiun k 2017 defined nhi Agr hti tou 1-7-2017 ata.

Fiscal year 2021 kaliye b yhi agr 2021 year defined hta tou 6-30-202 at, ab jb k wo ha tou 2020 me hi end

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Fiscal Year	MinDate	MaxDate
2018	1/1/2018	6/30/2018
2019	7/1/2018	6/30/2019
2020	7/1/2019	6/30/2020
2021	7/1/2020	12/31/2020
<b>Total</b>	<b>1/1/2018</b>	<b>12/31/2020</b>

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