# DING TAI FUNG: HOW A FIRM CAN UTILIZE ITS DATASET

## -Long Bui-

I. Project Summary	0
1. Tools & Features	0
2. Tasks Summary	1
II. Business understandings	
III. Data Source	2
IV. Dashboard Sketch And Metrics Designation	3
a) Ecommerce: build a dashboard to visualize business conditions on our ecommerce website.	3
Original Dataset:	3
Requirements:	6
DAX formula:	
Charts Designs:	
Human Resources:	13
Original Dataset:	13
Requirements:	_ 13
DAX formula:	_ 13
Chart Design:	_ 13
V. OVERALL DASHBOARD	_ 14

## I. Project Summary

## 1. Tools & Features

Tools: PowerBI Desktop, Power Query, Power Pivot, DAX, Power BI Service

Functions and Features:

- + Query Editor: Generating Index, Conditional Columns, Grouping & Aggregating, Pivot & Unpivot, Append, Merge,
- + Data Modelling: Filter Flow Upstream & Downstream
- + Calculated Columns:
- + DAX Measures:
- SUM, AVERAGE, MAX, MIN, DIVIDE.
- COUNT, COUNTA, DISTINCTCOUNT, COUNTROWS
- IF, IFERROR, AND, OR
- LEN, CONCATENATE, LEFT, MID, RIGHT, UPPER, LOWER, PROPER, SUBSTITUTE, SEARCH
- DAY, MONTH, YEAR, HOUR, MINUTE, SECOND, TODAY, NOW, WEEKDAY, WEEKNUM, EOMONTH, DATEDIFF, RELATED
- CALCULATE, ALL, FILTER, SUMX, RANKX
- + Charts: Card, Line, KPI, Bar, Donut, Table & Matrix, Map, Gauge, Area
- + Features: Slicer, Drill Up/Down, Bookmark, Numeric & Field Params, Mobile Layout, Q&A, Dashboard Theme, Data Alert, Line Report Page, Sensitivity Label

#### 2. Tasks Summary

Deploy financial portfolio for the company, such as sales revenues; growth rate; fund transfer pricing; earning before interest, taxes, depreciation, amortization; profit before interest and tax, net profit; sales revenue/gross profit/orders by time, sales to marketing cost, gross profit margin, net profit margin, balance sheet value

Deploy HR/Employment situation in the company. Such as overall employee, attrition, attrition rate, active employee, age, attrition per department, job satisfaction rating, education by field, attrition by age/gender.

Ecommerce Dashboard: year-to-date sales, products by ytd sales, profit margin, shipping range.

**Business understandings** II.

Ding Tai Fung is a Chinese restaurant originating in Taiwan specializing in Xiao Long Bao, or

soup dumplings. Originally founded as a cooking oil retail business in 1958, Ding Tai Fung was reborn as a steamed dumpling and noodle restaurant in 1972. Since its founding, Ding Tai Fung

has become world-renowned for its quality, standardization and service. The Hong Kong branch

has been awarded a Michelin star five times. Ding Tai Fung currently has over 170 locations in

13 countries worldwide.

Ding Tai Fung aims to develop its business in the US, especially in California. However, the US

F&B industry is a very innovative and fast-paced market. The company decides to adapt a

data-driven decision to drive its current business situation forwards. The first step is to use the

data to visualize its current business conditions.

III. Data Source

Main: detail.csv, menu.csv, order.csv

Finance: finance.csv

Human Resources: Hr\_data.xlsx

Ecommerce: ecommerce.csv + us\_long\_lat.csv

2

# IV. <u>Dashboard Sketch And Metrics Designation</u>

a) Ecommerce: build a dashboard to visualize business conditions on our ecommerce website.

# Original Dataset:

#### Transaction dataset:

customer_cu	stomer_	customer_	category_r	product_n	customer_	customer	customer	custome	_ customer	delivery_st	order_da	te order_id	ship_date	shipping_t	days_for_s days	s_for_s o	rder_item	sales_per_	order_qua	profit_per
C_ID_458€ Ma	ary I	Fuller	Office Sup	Xerox 191	Corporate	New Roch	New York	United St	a East	Shipping o	#######	# O_ID_30	): #######	Second Cl	2	2	35	500	5	223.2
C_ID_449( Ala	an I	Edelman	Office Sup	#6 3/4 Gur	Corporate	Houston	Texas	United St	a Central	Shipping c	20-06-20	2 O_ID_30	0:23-06-202	Second Cl	2	3	85	500	5	199.2
C_ID_7088 Ma	ary (	Gayman	Office Sup	Belkin 8 O	Consumer	Louisville	Kentucky	United St	a South	Late delive	25-06-20	2 O_ID_30	1,30-06-202	Standard (	4	5	75	44	5	195.5
C_ID_3315 Ra	symond I	Eason	Office Sup	GBC VeloE	Corporate	Chicago	Illinois	United St	a Central	Late delive	#######	# O_ID_30	6( #######	Second Cl	2	4	60	254	1	220
C_ID_583( Ma	ary (	Gonzalez	Furniture	Eldon Pizz	Home Offi	Philadelph	Pennsylva	United St	a East	Late delive	2/5/202	2 O_ID_30	8/1/2022	First Class	1	2	125	500	1	97.5
C_ID_3455 Joe	e l	Leatherbu	Office Sup	Hoover Sh	Home Office	Columbia	South Car	United St	a South	Shipping o	24-06-20	2 O_ID_30	7428-06-202	Standard (	4	4	80	500	2	-349.86
C_ID_5688 Ma	ary I	Etezadi	Office Sup	Rogers Ha	Home Offi	Henderso	Kentucky	United St	a South	Advance s		# O_ID_30	0(16-04-202	Standard (	4	3	45	299.98	5	71.4
C_ID_516(An	ndrea (	O'Briant	Office Sup	Dixon Pran	Corporate	Athens	Georgia	United St	a South	Shipping o	26-01-20	2 O_ID_30	0(30-01-202	Standard (	4	4	45	299.98	5	-31.87
C_ID_6057 Ma	ary I	Etezadi	Office Sup	Ibico Hi-Te	Home Offi	Henderso	Kentucky	United St	a South	Shipping o	9/3/202	2 O_ID_30	0 9/7/2022	Standard (	4	4	48	299.98	5	118.43
C_ID_552( Ma	ary I	Etezadi	Office Sup	Alliance Su	Home Offi	Henderso	Kentucky	United St	a South	Late delive	19-03-20	2 O_ID_30	0(25-03-202	Standard (	4	6	48	299.98	5	78.87
C_ID_6117 Ma	ary I	Etezadi	Office Sup	Southwort	Home Office	Henderson	Kentucky	United St	a South	Advance s	. *******	# O_ID_30	0(16-06-202	Standard (	4	2	48	299.98	5	123.47
C_ID_5045 Ric	chard I	Pak	Technolog	Logitech K	Consumer	Madison	Wisconsin	United St	a Central	Late delive	19-06-20	2 O_ID_30	7:22-06-202	Second Cl	2	3	90	42	2	-88.97
C_ID_3624 Sa	rah \	Wiener	Furniture	DAX Value	Consumer	Seattle	Washingto	United St	a West	Late delive	#######	# O_ID_30	36 #######	Second Cl	2	6	27.5	196	5	217.35
C ID 5264 Eu	igene l	Prvor	Technolog	PowerGen	Home Offi	Yonkers	New York	United St	a East	Late delive	30-04-20	20 ID 30	0 8/2/2022	Standard (	4	5	0	499.95	2	149.99

## Location dataset:

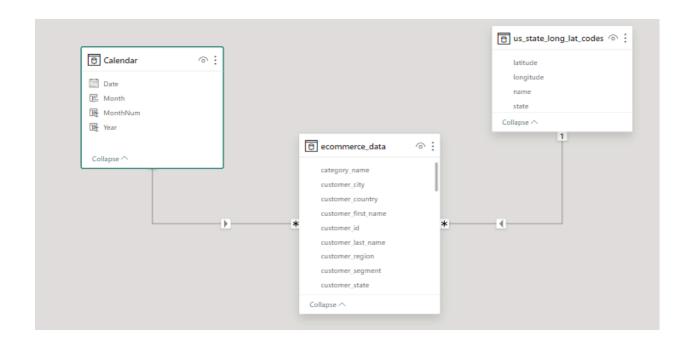
state 🔻	latitude 🔻	longitude 🔻	name
AK	63.588753	-154.493062	Alaska
AL	32.318231	-86.902298	Alabama
AR	35.20105	-91.831833	Arkansas
AZ	34.048928	-111.093731	Arizona
CA	36.778261	-119.417932	California
CO	39.550051	-105.782067	Colorado
CT	41.603221	-73.087749	Connecticut
DC	38.905985	-77.033418	District of Columbia
DE	38.910832	-75.52767	Delaware
FL	27.664827	-81.515754	Florida
GA	32.157435	-82.907123	Georgia
HI	19.898682	-155.665857	Hawaii
IA	41.878003	-93.097702	Iowa
ID	44.068202	-114.742041	Idaho
IL	40.633125	-89.398528	Illinois

## Calendar table (

. Calendar = CALENDAR(MIN(ecommerce\_data[order\_date]), MAX(ecommerce\_data[order\_date]))

Date 💌	Year 💌	Month 💌	MonthNum 💌
1/2/2021	2021	Jan	1
1/3/2021	2021	Jan	1
1/4/2021	2021	Jan	1
1/5/2021	2021	Jan	1
1/6/2021	2021	Jan	1
1/7/2021	2021	Jan	1
1/8/2021	2021	Jan	1
1/9/2021	2021	Jan	1
1/10/2021	2021	Jan	1
1/11/2021	2021	Jan	1
1/12/2021	2021	Jan	1
1/13/2021	2021	Jan	1
1/14/2021	2021	Jan	1
1/15/2021	2021	Jan	1
1/1//2021	2021	1	1

## Data Modelling:



## Requirements:

Metrics: year-to-date sales, profit, quantity, profit margin

Segmentation: Sales by Category, by State, by Location, by Region, by Shipping Types

Noticables: Top Products, Bottom Products, Top Region, Bottom Region

DAX formula:

Sales:

Time:

```
Month = FORMAT('Calendar'[Date], "mmm")
```

```
MonthNum = MONTH('Calendar'[Date])
Year = YEAR('Calendar'[Date])
Sales:
Year-to-date
YTD Sales = TOTALYTD(SUM(ecommerce_data[sales_per_order]), 'Calendar'[Date])
Previous Year-to-date
PYTD Sales = CALCULATE(SUM(ecommerce_data[sales_per_order]),
DATESYTD(SAMEPERIODLASTYEAR('Calendar'[Date])))
Year-over-Year
YoY Sales = ([YTD Sales] - [PYTD Sales])/ [PYTD Sales]
Color format (green is positive, red is negative)
Sales Color = IF([YoY Sales]>0, "Green", "Red")
Icon format (up is positive, down is negative)
Sales Trend = var positive_icon = UNICHAR(9650)
            var negative_icon = UNICHAR(9660)
            var result = IF([YoY Sales]>0, positive icon, negative icon)
```

return result

#### Profit:

```
Year-to-date
```

```
YTD Profit = TOTALYTD(SUM(ecommerce_data[profit_per_order]), 'Calendar'[Date])
```

#### Previous Year-to-date

```
PYTD Profit = CALCULATE(SUM(ecommerce_data[profit_per_order]),
DATESYTD(SAMEPERIODLASTYEAR('Calendar'[Date])))
```

#### Year-over-Year

```
YoY Profit = ([YTD Profit] - [PYTD Profit])/[PYTD Profit]
```

## Color format (green is positive, red is negative)

```
Profit Color = IF([YoY Profit]>0,"Green", "Red")
```

## Icon format (up is positive, down is negative)

```
Profit Icon = var positive_icon = UNICHAR(9650)

var negative_icon = UNICHAR(9660)

var result = IF([YoY Profit]>0, positive_icon, negative_icon)

return result
```

#### Quantity:

```
Year-to-date
```

```
YTD Quantity = TOTALYTD(SUM(ecommerce_data[order_quantity]), 'Calendar'[Date])
```

#### Previous Year-to-date

```
PYTD Quantity = CALCULATE(SUM(ecommerce_data[order_quantity]),
DATESYTD(SAMEPERIODLASTYEAR('Calendar'[Date])))
```

#### Year-over-Year

```
YoY Quantity = ([YTD Quantity] - [PYTD Quantity])/[PYTD Quantity]
```

## Color format (green is positive, red is negative)

```
Quantity Color = IF([YoY Quantity]>0, "Green", "Red")
```

## Icon format (up is positive, down is negative)

```
Quantity Icon = var positive_icon = UNICHAR(9650)

var negative_icon = UNICHAR(9660)

var result = IF([YoY Quantity]>0, positive_icon, negative_icon)

return result
```

#### Profit Margin:

```
Profit Margin = SUM(ecommerce_data[profit_per_order]) /
SUM(ecommerce_data[sales_per_order])
```

#### Year-to-date

```
YTD Profit Margin = TOTALYTD([Profit Margin], 'Calendar'[Date])
```

#### Previous Year-to-date

```
PYTD Profit Margin = CALCULATE([Profit Margin],
DATESYTD(SAMEPERIODLASTYEAR('Calendar'[Date])))
```

#### Year-over-Year

```
YoY Profit Margin = ([YTD Profit Margin] - [PYTD Profit Margin])/[PYTD Profit Margin]
```

## Color format (green is positive, red is negative)

```
Profit Magin Color = IF([YoY Profit Margin]>0, "Green", "Red")
```

## Icon format (up is positive, down is negative)

```
Profit Margin Icon = var positive_icon = UNICHAR(9650)

var negative_icon = UNICHAR(9660)

var result = IF([YoY Profit Margin]>0, positive_icon, negative_icon)

return result
```

## Charts Designs:

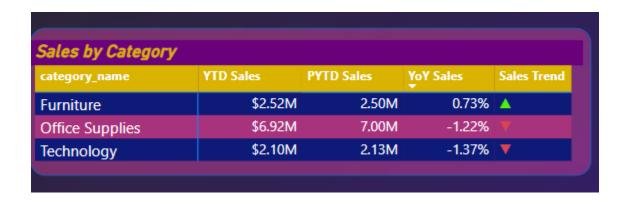
## KPI Card reports for sales, profit, profit margin, quantity

- + Year-to-date attributes
- + Comparison with last year
- + Real-time lines
- + Gain or loss



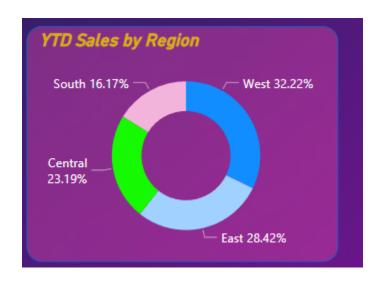
## Segmentation:

## By Category:



# By State:

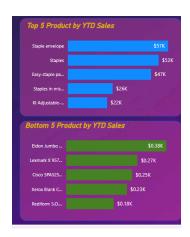




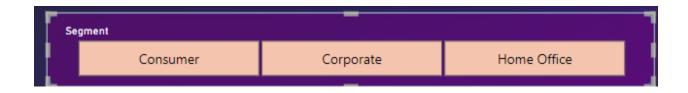
Sales by Shipping Type:



Top & Bottom Products:



Deviation by Method of Sales (Filter Report):



## **Human Resources:**

Goal: deploy a HR Dashboard which summarizes employee condition in the company

## Original Dataset:

#### Requirements:

- + Overall employee, number of attrition, active employer, average age, job satisfaction
- + Segmenting by department, education field, degree, gender, age

#### DAX formula:

#### Attrition number:

```
Attrition num = CALCULATE(COUNT(HRdata[emp no]), HRdata[Attrition] == "Yes")
```

#### Attrition rate:

```
Attrition Rate = [Attrition num] / COUNT(HRdata[emp no])
```

#### Active Employer:

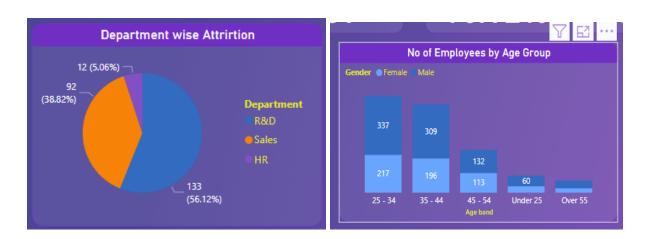
```
Active Employees = SUM(HRdata[Employee Count]) - [Attrition num]
```

## Chart Design:

KPI Cards: Overall Employee, Attrition Rate, Active Employee, Average Age



## Segmentation:





Job Satisfaction:



# **Finance Department:**

# Original Dataset:

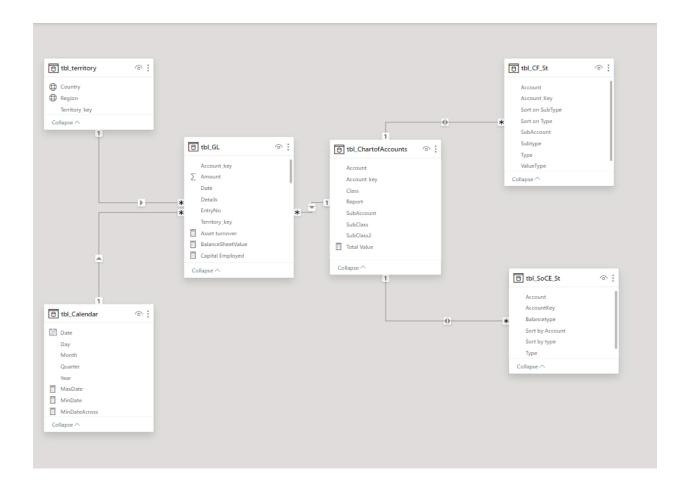
EntryNo	Date	Territory_key	Account_key	Amount
1.1	01/01/18	1	230	(884)
1.2	01/01/18	1	60	(884)
2.1	01/01/18	1	230	(1,120)
2.2	01/01/18	1	60	(1,120)
3.1	01/01/18	1	280	(2,394)
3.2	01/01/18	1	120	2,394
4.1	01/01/18	1	210	2,948
4.2	01/01/18	1	30	2,948
5.1	01/01/18	1	210	3,734
5.2	01/01/18	1	10	3,734

Account_key 🔽 Report	Class	SubClass	SubClass2	Account	SubAccount
180 Balance Sheet	Liabilities and Owners Equity	Owners Equity	Share Capital	Share Capital	Share Capital
190 Balance Sheet	Liabilities and Owners Equity	Owners Equity	Share Premium	Share Premium	Share Premium
200 Balance Sheet	Liabilities and Owners Equity	Owners Equity	Retained Earnings	Retained Earnings	Retained Earnings
201 Balance Sheet	Liabilities and Owners Equity	Owners Equity	Retained Earnings	Dividends paid	Dividends paid
210 Profit and Loss	Trading account	Sales	Sales	Sales	Sales
220 Profit and Loss	Trading account	Sales	Sales	Sales Return	Sales Return
230 Profit and Loss	Trading account	Cost of Sales	Cost of Sales	Cost of Sales	Cost of Sales
240 Profit and Loss	Operating account	Operating Expenses	Sales & Distribution	Staff Costs	Salaries
250 Profit and Loss	Operating account	Operating Expenses	Sales & Distribution	Bad Debt Expense	Bad Debt Expense

Territory_key	Country	Region
1	USA	North America
2	Canada	North America
3	UK	Europe
4	Germany	Europe
5	France	Europe
6	Australia	Oceania
7	New Zealand	Oceania

А	В	С	D	Е
Date	Year 🕞	Quarter <b>E</b>	Month .	Day 🔻
01/01/18	2018	Qtr 1	Jan	Mon
01/02/18	2018	Qtr 1	Jan	Tue
01/03/18	2018	Qtr 1	Jan	Wed
01/04/18	2018	Qtr 1	Jan	Thu
01/05/18	2018	Qtr 1	Jan	Fri
01/06/18	2018	Qtr 1	Jan	Sat
01/07/18	2018	Qtr 1	Jan	Sun
01/08/18	2018	Qtr 1	Jan	Mon

## Data Modelling:



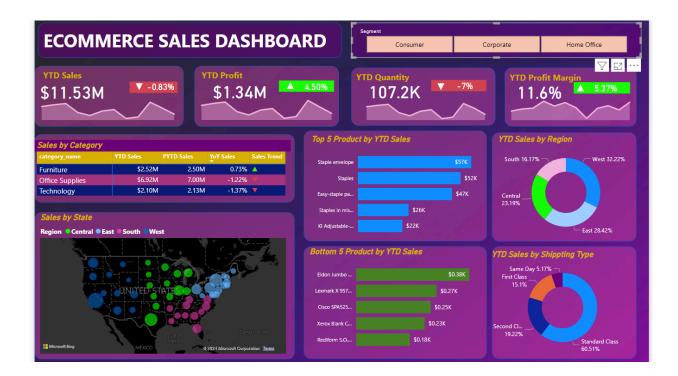
Requirements:

DAX formula:

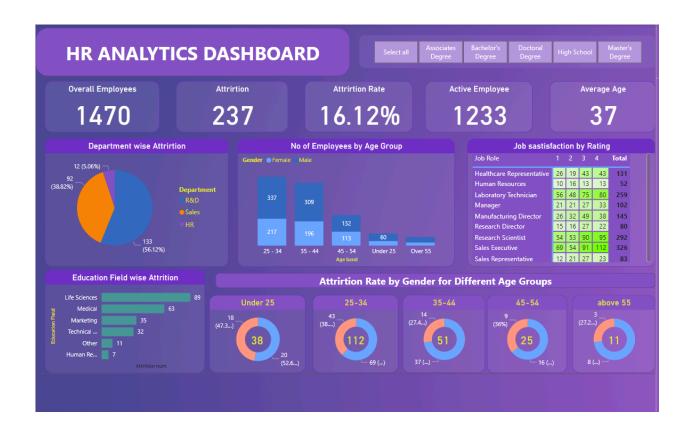
Chart Design:

## V. OVERALL DASHBOARD

#### Ecommerce:

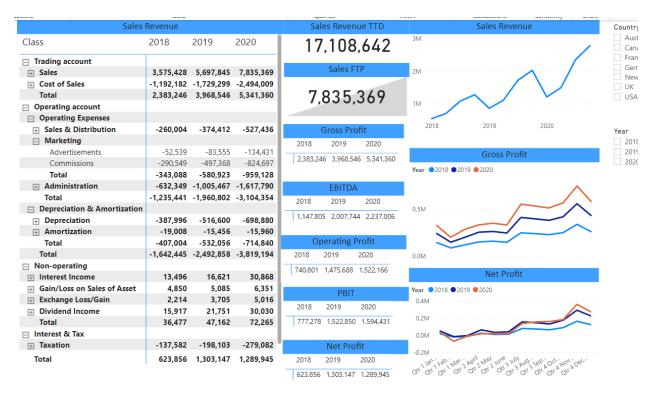


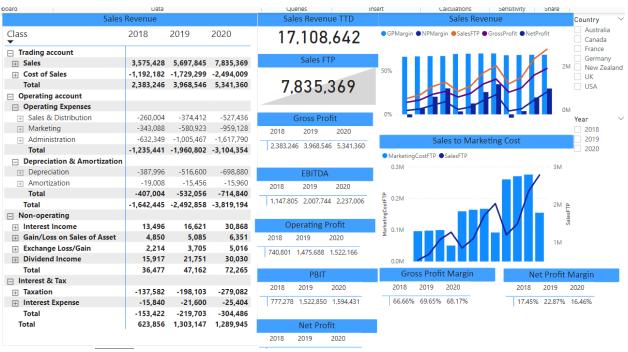
**Human Resources:** 



#### Finance:

+ P&L:

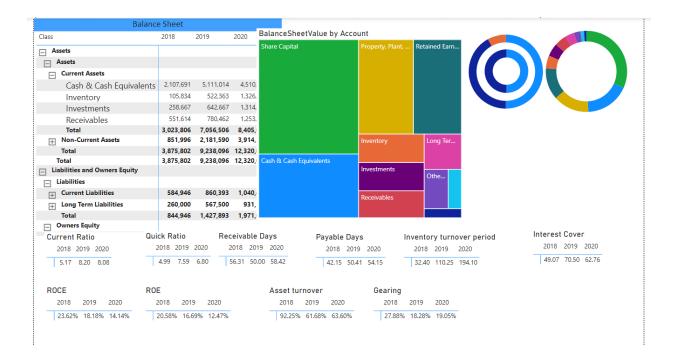




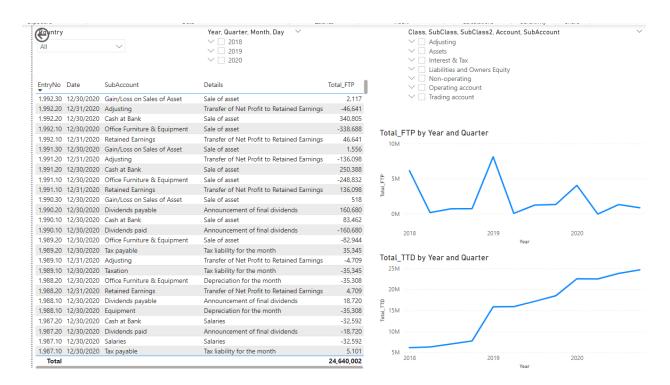
#### + Cross Country:



## + Balance Sheet:



#### + Ledgers:



## Cash Flow Statement:

prodict Date			ı
Type	2018	2019	2020
$\ensuremath{\boxplus}$ Cash and Cash equivalents at the start of the year		2,107,691	5,111,014
☐ Cash flows from Operating Activities	762,428	1,387,366	821,928
	761,438	1,501,250	1,569,027
<b>⊞ Interest Expense</b>	15,840	21,600	25,404
□ Non-Cash items	407,004	532,056	714,840
Amortization	19,008	15,456	15,960
Depreciation	387,996	516,600	698,880
□ Non-Operating	-34,263	-43,457	-67,249
Dividend Income	-15,917	-21,751	-30,030
Gain/Loss on Sales of Asset	-4,850	-5,085	-6,351
Interest Income	-13,496	-16,621	-30,868
☐ Working Capital Changes	-373,071	-465,511	-1,197,007
Inventory	-105,834	-416,529	-803,879
Payables	284,377	179,866	80,404
Receivables	-551,614	-228,848	-473,532
⊞ Interest Paid	-14,520	-21,000	-24,979
	0	-137,572	-198,108
☐ Cash flows from Investing Activities	-1,483,404	-2,202,193	-3,052,367
□ Purchase of Non-Current Assets	-2,035,000	-2,675,250	-3,463,680
Sale of Non-Current Assets	780,850	818,685	1,022,415
<b>⊞</b> Investments	-258,667	-384,000	-672,000
<b>⊞</b> Interest received	13,496	16,621	30,868
Dividends received	15,917	21,751	30,030
☐ Cashflows from Financing Activities	2,828,667	3,818,150	1,630,157
	2,666,667	3,796,000	1,643,200
	260,000	307,500	363,697
⊞ Repayment of Long term loan			
⊞ Dividends paid	-98,000	-285,350	-376,740
⊞ Cash and Cash equivalents at the end of the year	2,107,691	5,111,014	4,510,732
Total	4,588,123	10,710,627	9,669,055

Statement of Change in Equity:

Year	Share Capital	Share Premium	Retained Earnings	Dividends paid
□ 2018				
Balance at the beginning				
Changes in accounting policy				
Dividends				-259,667
Total income for the year			623,856	
Issue of share capital	2,666,667			
Balance at the end	2,666,667		623,856	-259,667
□ 2019				
Balance at the beginning	2,666,667		623,856	-259,667
Changes in accounting policy				
Dividends				-319,800
Total income for the year			1,303,147	
Issue of share capital	3,796,000			
Balance at the end	6,462,667		1,927,003	-579,467
□ 2020				
Balance at the beginning	6,462,667		1,927,003	-579,467
Changes in accounting policy				
Dividends				-394,992
Total income for the year			1,289,945	
Issue of share capital	1,643,200			
Balance at the end	8,105,867		3,216,948	-974,459

# Value by Payments:

ouru	Data	
Account	SubAccount	Total Value
Advertisements	Advertisements	-134,431
Amortization of Intangible Assets	Amortization of Intangible Assets	-15,960
Cash & Cash Equivalents	Cash at Bank	3,809,876
Cash & Cash Equivalents	Cash in hand	700,856
Commissions	Commissions	-824,697
Cost of Sales	Cost of Sales	-2,494,009
Dividend Income	Dividend Income	30,030
Dividends paid	Dividends paid	-974,459
Entertainment	Entertainment	-345,168
Equipment	Equipment	-698,880
Exchange Loss/Gain	Exchange Loss/Gain	5,016
Gain/Loss on Sales of Asset	Gain/Loss on Sales of Asset	6,351
Intangible Assets	Patents and trademarks	237,146
Interest Expense	Interest Expense	-25,404
Interest Income	Interest Income	30,868
Inventory	Inventory	1,326,242
Investments	Securities	1,314,667
Long Term Obligations	Long Term Obligations	931,197
Office Supplies	Office Supplies	-163,552
Other Expenses	Other Expenses	-314,548
Other Payables	Accrued Expenses	174,663
Other Payables	Dividends payable	214,369
Other Payables	Interest Payable	2,345
Other Payables	Tax payable	279,087
Professional Services	Professional Services	-226,663
Property, Plant, & Equipment	Office Furniture & Equipment	3,677,220
Receivables	Trade Receivables	1,253,994
Retained Earnings	Retained Earnings	3,216,948
Sales	Sales	8,005,347
Sales Return	Sales Return	-169,978
Share Capital	Share Capital	8,105,867
Total	CL	1,289,945
Iotal		1,209,945