

# Group Project: Taiwan Sanoh

MGMT-58200-002

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Group #1



# Our Team



Kai

Data Modeler

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Paul

SQL Developer

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Alejandro

Data Management Principal

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Evan

Database Administrator

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Yen

Financial Data Analyst

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# Agenda

1

Background

2

Introduction

3

Conceptual Data Model

4

Relational Data Model

5

Finalized Data Model & Design

6

Table Creation and Queries



## Background

*Taiwan Sanoh is a traditional motor vehicle parts manufacturing company based in Taiwan.*

*It has operations with many well-known motor vehicle producers such as TOYOTA.*

*However, Taiwan Sanoh did not utilize its data system well.*

# Business Goals



Re-design database



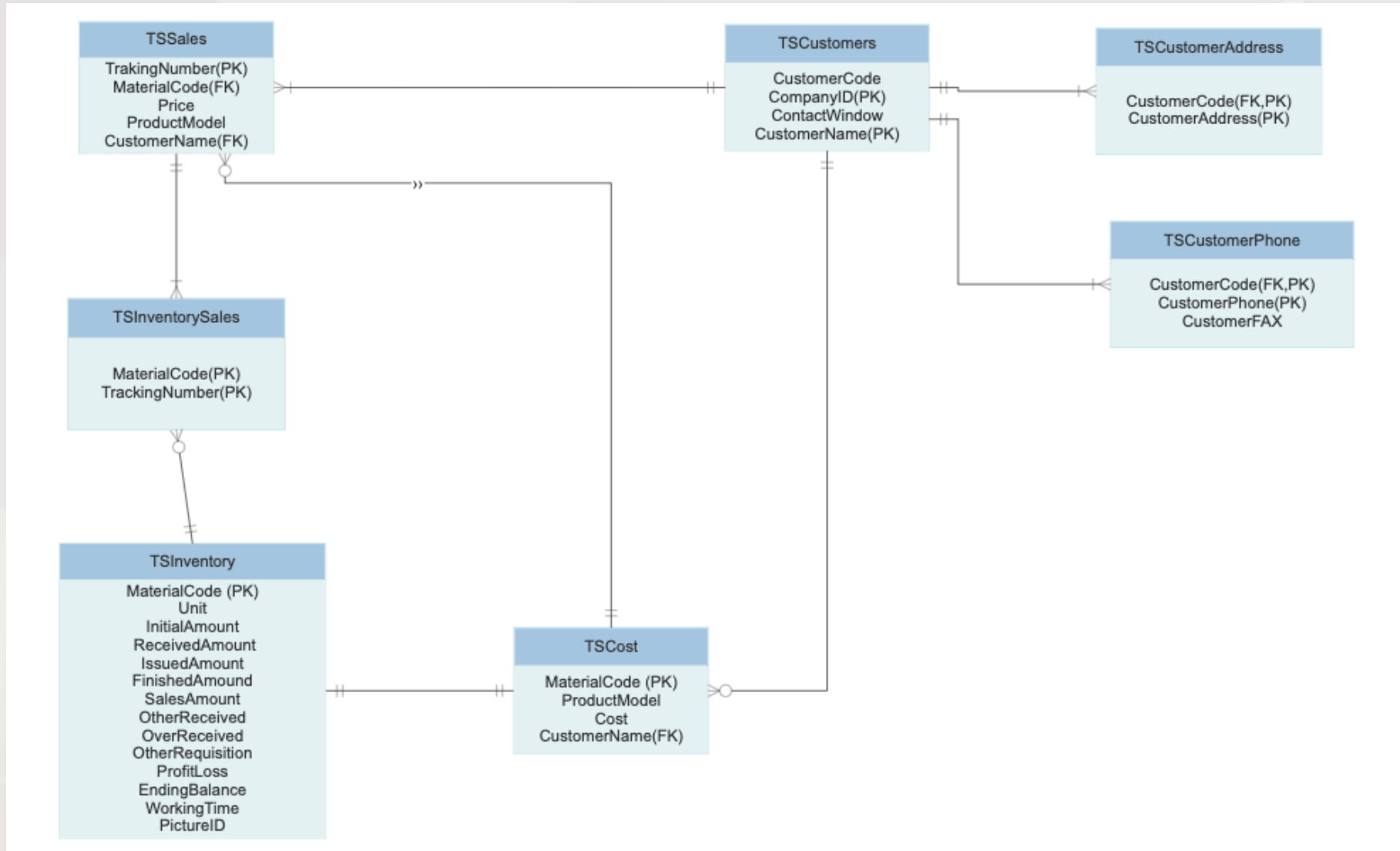
Clean and normalize the database



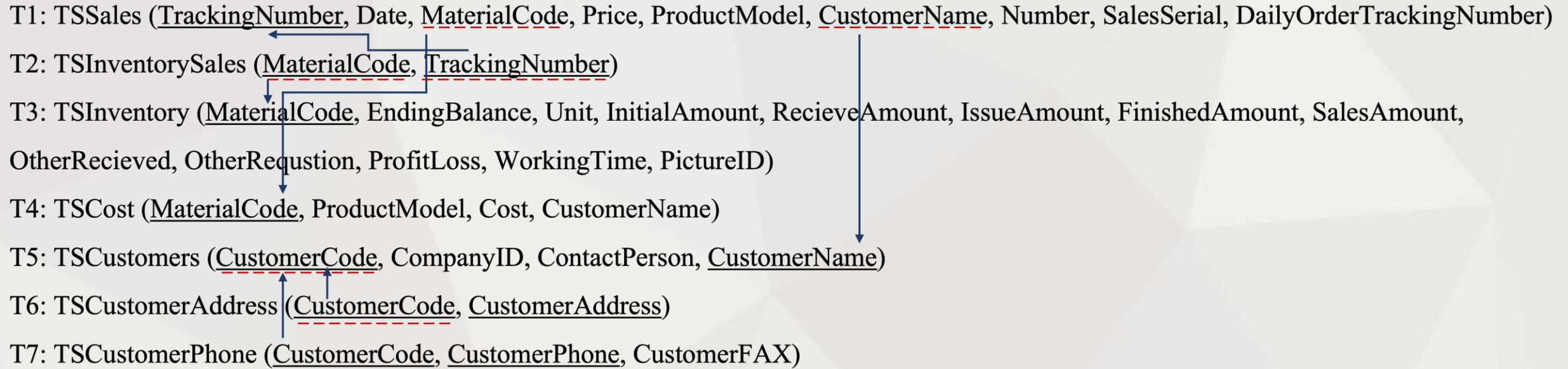
Explore and analyze the data to find valuable insight



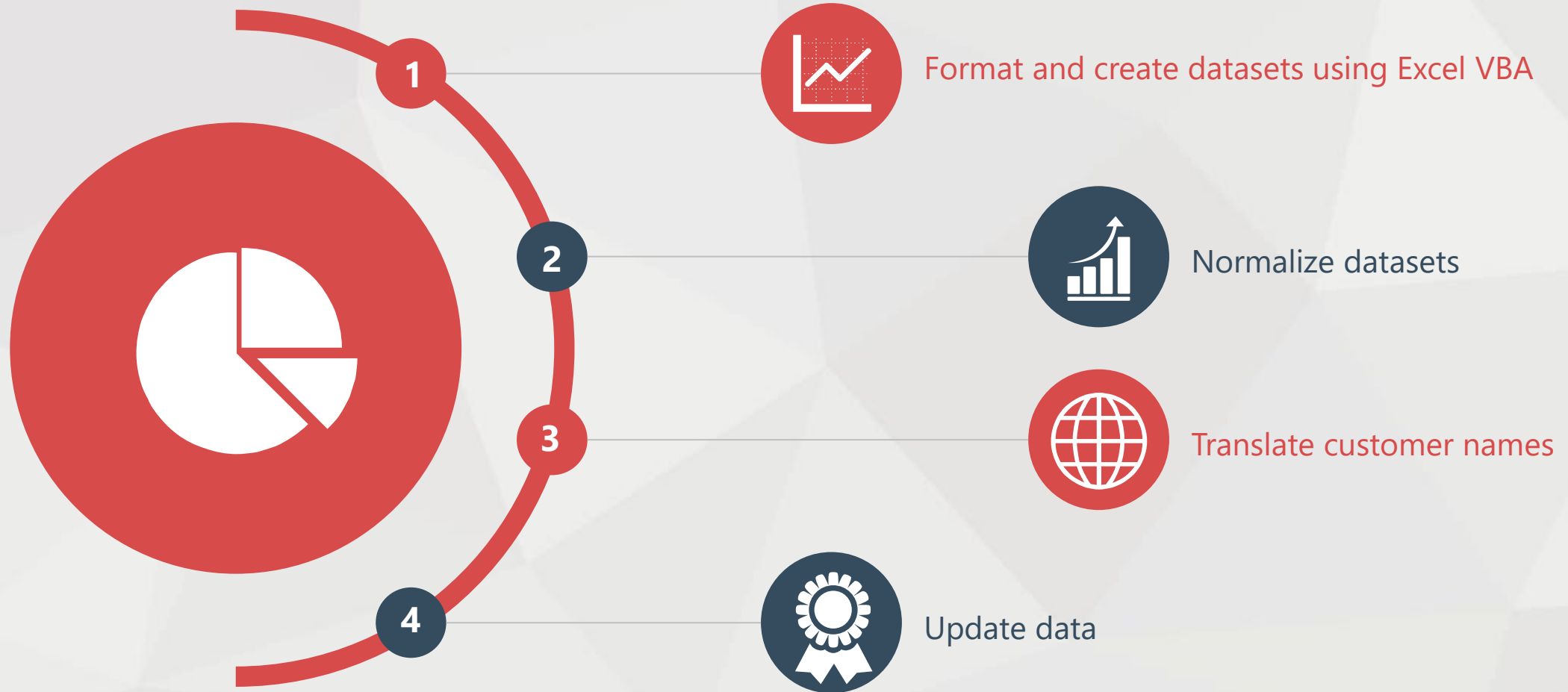
# Conceptual Data Model



# Relational Data Model



# Data Model & Design







# Format and Create Data Base by VBA

Material Code	unit	Sub MF()	time	picture ID
BZ16410701	ST		0	1740A047XD
BZ16E05123	PC	Set cursheet = ActiveSheet	0	1744A038XD
BZ57416992	ST		0	17750SWAYC
BZ5D413691	PC	For n = 1 To 5700	0	17750TMMFK
BZQ1702750	PC	If cursheet.Cells(n, 1) <> "" Then	0	3CK41064B
BZ1MA0064	PC	Range(cursheet.Cells(n, 1), cursheet.Cells(n + 14, 20)).Delete Shift:=xlUp	0	4455A300
BZ27803380	PC	End If	0	46034KN100I
BZ52514871	PC	Next n	0	46375SDAA5
BZ52506671	PC		0	46376SDAA5
BZ52521701	PC	End Sub	0	46377SDAA5
BZ52502573	PC		0	50941SDAA0
BZ52503253	PC		0	50941SDBA0
BZ52506612	PC	Sub FML()	0	50945SDBA0
BZ52A02611	PC	Set cursheet = ActiveSheet	0	53720SDDA0
BZ0D410742	PC	n = 4	0	BBP345020L
BZ06803690	PC	Do While n < 5374	0	BP4K4251XB
BZ1G505022	PC	cursheet.Cells(n, 10) = cursheet.Cells(n + 1, 1)	0	CW732199XI
BZ1G330181	PC	cursheet.Cells(n, 11) = cursheet.Cells(n + 1, 2)	0	CW764473XI
BZ0C013473	PC	cursheet.Cells(n, 12) = cursheet.Cells(n + 1, 3)	0	EV0245020E
BZ1LA04390	PC	cursheet.Cells(n, 13) = cursheet.Cells(n + 1, 4)	83	MK377030
BZ1LA13710	PC	Range(cursheet.Cells(n + 1, 1), cursheet.Cells(n + 1, 20)).Delete Shift:=xlUp	438.48	MK450901
BZ1LA09120	PC	n = n + 1	64.26	MK450959
BZ1K616480	PC	Loop	0	MK551074
BZ1L807300	PC		45.15	MK589056
BZ1LA07320	PC	End Sub	0	MK589057
BZ1LA12570	PC		42	361.68 MK589321
			0	
			110	
			60	
			0	
			0	
			0	
			0	
			92	



# Normalization

Cust Num	Customer Na	Company ID	Address
100	Ford	44520211	No. 705, Zhonghua Road, Zhongyu District, Taoyuan
101	China	43680739	11th Floor, No. 570, Dunhua South Road, Taipei
101	China	43680739	No. 618, Xiucui, Yangmei District, Taoyuan City
101	China	43680739	No. 2, Gongbu Road, Hsinchu Industrial Zone, Hukou
102	Yulong Moto	3489200	16th Floor, No. 570, Dunhua South Road, Taipei
102	Yulong Moto	3489200	No. 230, 2nd Section 2, North Xinchun Road, New St
102	Yulong Moto	3489200	No. 39-1, Xibo, Xihu Village, Sanyi Township, Miaoli
1024	Huachang (N	28435456	No. 39-1, Xihu Village, Xihu Village, Sanyi County, N
1024	Huachang (N	28435456	6th Floor, No. 3, Zuxing Road, Zhongxing Road, Xin
103	Sanyang Indu	24004006	No. 124, Xinming Road, Neihu District, Taipei City
103	Sanyang Indu	24004006	No. 3, Zhonghua Road, Hsinchu Industrial Zone
1030	Honda	28459816	No. 337, Qidong Road, Pingtung City, Pingtung Cour
	He Kang	24333653	225031707



# Translate

A	B	C	D	E
Cust_Num	CusomerName	Company_ID	Address	TranslateName
100	福特	44520211	320桃園市中壢區中華路一段705號	=GOOGLETRANSLATE(B2, "ZH", "EN")

A	B	C	D	E	F
Cust_Num	CusomerName	Company_ID	Address	TranslateName	TranslateAddress
100	福特	44520211	320桃園市中壢區中華路一段705號	Ford	No. 705, Zhonghua Road, Zhongyu District, Taoyuan City
101	中華	43680739	台北市敦化南路570號11樓	China	11th Floor, No. 570, Dunhua South Road, Taipei
101	中華	43680739	桃園市楊梅區秀才里秀才路618號	China	No. 618, Xiucui, Yangmei District, Taoyuan City
101	中華	43680739	新竹縣湖口鄉新竹工業區光復路2號	China	No. 2, Gongbu Road, Hsinchu Industrial Zone, Hukou Township, Hsinchu County
102	裕隆汽車	3489200	台北市敦化南路570號16樓	Yulong Motor	16th Floor, No. 570, Dunhua South Road, Taipei
102	裕隆汽車	3489200	台北縣新店市北新路二段230號	Yulong Motor	No. 230, 2nd Section 2, North Xinchun Road, New Store, Taipei County
102	裕隆汽車	3489200	苗栗縣三義鄉西湖村伯公坑39-1號037)	Yulong Motor	No. 39-1, Xibo, Xihu Village, Sanyi Township, Miaoli County 037)
1024	華創(納智捷)	28435456	苗栗縣三義鄉西湖村伯公坑39-1號	Huachang (Na Zhijie)	No. 39-1, Xihu Village, Xihu Village, Sanyi County, Miaoli County
1024	華創(納智捷)	28435456	台北縣新店市中興路三段3號6樓	Huachang (Na Zhijie)	6th Floor, No. 3, Zuxing Road, Zhongxing Road, Xinxian City, Taipei County
103	三陽工業	24004006	台北市內湖區新明路124號	Sanyang Industry	No. 124, Xinming Road, Neihu District, Taipei City
103	三陽工業	24004006	新竹工業區中華路3號	Sanyang Industry	No. 3, Zhonghua Road, Hsinchu Industrial Zone
1030	本田	28459816	屏東縣屏東市前進里大溪路337號	Honda	No. 337, Qidong Road, Pingtung City, Pingtung County
1030	本田	28459816	台北市民生東路三段69號5F	Honda	No. 69, No. 69, 3 Section, Minami East Road, Taipei City
1032	南陽	24004006	台北市內湖區新明路124號	Nanyang	No. 124, Xinming Road, Neihu District, Taipei City
1033	工電	5074753	台北市中正區紹安街266號	Electromechanical	No. 266, Shao Street, Zhongzheng District, Taipei City
1040	三電	23527174	桃園縣蘆竹鄉內厝村內溪路68巷2號	Three electricity	No. 2, Lane 68, Nijing Road, Lucheng Township, Taoyuan County
104	三富汽車	51054507	台中市西屯區協和里工業區28路333號	Sanfu car	No. 333, No. 28 Road, Xihuai Industrial Zone, Xitun District, Taichung City
1036	禾康	24333653	台北市松江路37巷11號	He Kang	No. 11, No. 37, Songjiang Road, Taipei City
1041	聯繫	13070372	台北縣五股鄉中興路2段67號之3	Join	37, No. 67, No. 2, Zhongxing Road, Wuxiang, Taipei County
1042	百銓	35948641	平鎮市平東路一段178巷20號	Tie	No. 20, Lane, 178, Ping East Road, Ping Town
1043	雄業	36051869	三重市光復路2段88巷39號	Male industry	No. 39, Lane 2, Section 2, Guangbu Road, Sanshi City



# Update Data

```
1 • SELECT DISTINCT TSCustomerAddress.CustomerName, TSCustomerAddress.CompanyID
2 FROM TSCustomerAddress
3 WHERE TSCustomerAddress.CustomerName LIKE "%?%";
4
5 • SELECT DISTINCT TSCustomers.CustomerCode, TSCustomers.CustomerName, TSCustomers.CompanyID
6 FROM TSCustomers
7 WHERE TSCustomers.CustomerName LIKE "%?%";
8
9 • SELECT DISTINCT TSCustomerPhone.CustomerName, TSCustomerPhone.CompanyID
10 FROM TSCustomerPhone
11 WHERE TSCustomerPhone.CustomerName LIKE "%?%";
```

Result Grid | Filter Rows:  | Export: | Wrap Cell Content:

	CustomerCode	CustomerName	CompanyID
▶	145	?	35980347
	1150	?	84678461
	1056	??	86849948
	105	???	59575308
	1111	?(?)	70526197

```
1 • UPDATE TSCustomers
2 SET CustomerName = "Hanada"
3 WHERE CompanyID = 59575308;
4
5 • UPDATE TSCustomers
6 SET CustomerName = "Yuyang"
7 WHERE CompanyID = 86849948;
8
9 • UPDATE TSCustomers
10 SET CustomerName = "Legend"
11 WHERE CompanyID = 70526197;
12
13 • UPDATE TSCustomers
14 SET CustomerName = "Hongfu"
15 WHERE CompanyID = 84678461;
16
17 • UPDATE TSCustomers
18 SET CustomerName = "Songhuan"
19 WHERE CompanyID = 35980347;
```

```
1 • UPDATE TSCustomerPhone
2 SET CustomerName = "Hanada"
3 WHERE CompanyID = 59575308;
4
5 • UPDATE TSCustomerPhone
6 SET CustomerName = "Yuyang"
7 WHERE CompanyID = 86849948;
8
9 • UPDATE TSCustomerPhone
10 SET CustomerName = "Legend"
11 WHERE CompanyID = 70526197;
12
13 • UPDATE TSCustomerPhone
14 SET CustomerName = "Hongfu"
15 WHERE CompanyID = 84678461;
16
17 • UPDATE TSCustomerPhone
18 SET CustomerName = "Songhuan"
19 WHERE CompanyID = 35980347;
```

```
1 • UPDATE TSCustomerAddress
2 SET CustomerName = "Hanada"
3 WHERE CompanyID = 59575308;
4
5 • UPDATE TSCustomerAddress
6 SET CustomerName = "Yuyang"
7 WHERE CompanyID = 86849948;
8
9 • UPDATE TSCustomerAddress
10 SET CustomerName = "Legend"
11 WHERE CompanyID = 70526197;
12
13 • UPDATE TSCustomerAddress
14 SET CustomerName = "Hongfu"
15 WHERE CompanyID = 84678461;
16
17 • UPDATE TSCustomerAddress
18 SET CustomerName = "Songhuan"
19 WHERE CompanyID = 35980347;
```



# Inventory Cost Control

Where is Taiwan Sanoh losing costs in terms of inventory?

MaterialCode	FinalInventory	Cost	InventoryCost
BZQ1A00420	1922	480	922560
BZK6300570	5976	100.5	600588
BZK6600621	2000	100.5	201000
BZA2604760	1220	100.5	122610
BZN2400320	677	100.5	68038.5
BZ16E05123	352	100.5	35376
BZ16603180	351	100.5	35275.5
BZ0HZ18861	560	60	33600
BZ1K500980	332	100.5	33366
BZ14208680	302	100.5	30351
BZ0HZ22881	505	60	30300
BZN6W00930	292	100.5	29346
BZ45803620	289	100.5	29044.5
BZ45803780	282	100.5	28341
BZ0L336490	103	271.97	28012.91
BZ1SA06081	210	133.38	28009.8
BZ5F615020	274	100.5	27537
BZ5F613740	269	100.5	27034.5
BZA2G00830	631	42.62	26893.22
BZ0C803500	232	100.5	23316
BZA2200680	213	100.5	21406.5
BZN2402350	200	100.5	20100



# Data Sales Analysis

What patterns can we see in daily sales data?

Date	DaySales
20210906	9365
20210908	3160
20210914	3040
20210922	3843
20210924	3821
20210930	4041
20210917	3404
20210923	3584



# Customer Cost Analysis

Can we see patterns in customer cost breakdowns?

CustomerName	AvgCost
Mountainous	1260
Harmonious	850
<u>NewJinxing</u>	716
Honda 1030	638.615
Yulong 102	611.90625
Unhappy	600
Hitachi 187	480
Rich	396
<u>WanYuInternational</u>	324
Ford 100	311.8633333
Swing	216
China 101	181.7729412
Hong Yu 1079	125.6833333
<u>Xinchang 170</u>	125.21
<u>YongfeilInternational</u>	120

CustomerName	sum(Cost)
NP_AWAIT	51054
China 101	6321.01
Yulong 102	5412.07
Mountainous	5040
Honda 1030	3448.98
Rich	3168
<u>NewJinxing</u>	2150
Harmonious	1700
Ford 100	1231.67
Unhappy	1200
Hitachi 187	778.31
Hong Yu 1079	704.29
<u>WanYuInternational</u>	324
<u>Xinchang 170</u>	285.46
<u>Hefeng 1822</u>	248.34
<u>YongfeilInternational</u>	220
Swing	216
<u>Hexin 185</u>	168.89



# Location Cost Analysis

Are there higher cost locations for Taiwan Sanoh?

CustomerName	CustomerAddress
Rich	No. 10, Haiping Road, Rabang Village, Taoishan Township, Taixian County
Rich	No. 312, Zhonghu Street, Yingge Town, Taipei County
Mountainous	11085 24th Floor, No. 161 Songde Road, Taipei City
Mountainous	No. 117-2, Section 1, West China Street, Newbei City (Hongjie Company)
Hamonious	No. 2, Guangfu North Road, Hukou Township, Henzhu County
Unhappy	No. 16, Lane 3, No. 88, Huanhe Street, Shiyan District, Xinbei City
Swing	No. 12, Lane 152, Lane, 414, Section 1, Taoyuan City

# Data Management Issues

Null Phone:

CustomerCode	CustomerName
119	Universal
125	Rich
139	Rich
151	Rich
176	Must
180	Indonesian Sakura
191	Full
199	Trial zone
1032	Nanyang
1034	Zhaowei
1047	Thailand Hitachi
1074	Zevo
1076	Showa
1077	Lianzhi steam base
1079	Hong Yu
1081	Lei Shuo
1082	Toshiba Thailand
1088	Malaysia Sakura
1093	Yutong
1101	Guangzhou Sakura
1134	Brake
1140	Rong Sheng R & D
1204	Join

Null Address:

CustomerCode	CustomerName
142	Qi Xiong
176	Must
180	Indonesian Sakura
199	Trial zone
1034	Zhaowei
1047	Thailand Hitachi
1074	Zevo
1076	Showa
1077	Lianzhi steam base
1081	Lei Shuo
1082	Toshiba Thailand
1088	Malaysia Sakura
1093	Yutong
1095	Good
1096	Magnificent
1101	Guangzhou Sakura

## Profit and Inventory Analysis

ProductModel	Profit	Initial	Ending
31080-047024000	1495.74	863	363
16706-FEA-06	986.76	1000	0
16727-FEA-07	880.4	900	0
16722-B8B-03	284.97	300	0
JX61	159.13	1624	2004
46283-2YZ0A-22	67.33	196	316
46282-2YZ0A-22	66.04	72	192
46315-5RT0A-22	63.34	558	366
46316-5RT0A-22	63.32	492	284
46282-SN150-H3	51.52	72	0



# Profit and Inventory Analysis



Sales Opportunity



Inventory

CustomerName	MaterialCode	Profit	EndingBalance	SalesOpportunities
Hitachi	BZQ1A00620	358.16	3397	1216669.52
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	70.68	2179	154011.72
Hitachi	BZQ1702380	30.68	2179	66851.72
Hitachi	BZQ1702380	50.68	2179	110431.72
Hitachi	BZQ1702380	2.68	2179	5839.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	230.68	2179	502651.72
Hitachi	BZQ1702380	150.68	2179	328331.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	70.68	2179	154011.72
Hitachi	BZQ1702380	25.68	2179	55956.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	70.68	2179	154011.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Hitachi	BZQ1702380	34.68	2179	75567.72
Hitachi	BZQ1702380	50.68	2179	110431.72
Hitachi	BZQ1702380	110.68	2179	241171.72
Ford	BZ0LZ12360	159.13	2004	318896.52
Ford	BZ0LZ12360	39.13	2004	78416.52
Ford	BZ0LZ12360	179.13	2004	358976.52
Ford	BZ0LZ12360	299.13	2004	599456.52
Ford	BZ0LZ12360	39.13	2004	78416.52
Ford	BZ0LZ12360	139.13	2004	278816.52
Ford	BZ0LZ12360	279.13	2004	559376.52
Ford	BZ0LZ12360	319.13	2004	639536.52
Ford	BZ0LZ12360	79.13	2004	158576.52

# Product Price Distribution

We wanted to look into the distributions of costs for each material for Taiwan Sanoh to understand its pricing ranges.

MaterialCode	Cost	MinPrice	AvgPrice	MaxPrice	StDevPrice
BZ0H487190	516.47	120	128.5714	240	30.9047
BZ0HZ08590	70.21	60	152.7273	240	66.2078
BZ0HZ08740	20	20	20	20	0
BZ0HZ18861	60	20	48	100	29.9333
BZ0HZ22881	60	20	36.6667	80	24.267
BZ0L211160	147.15	10	131.5385	260	82.261
BZ0L219490	5	5	16.6667	30	10.274
BZ0L336490	271.97	5	16.6667	30	10.274
BZ0LZ12360	80.87	120	265.4545	400	99.8511
BZ11A04690	5	5	12.5	20	7.5

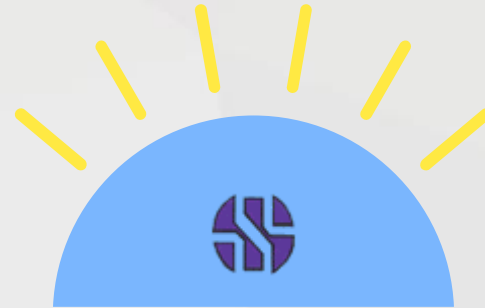
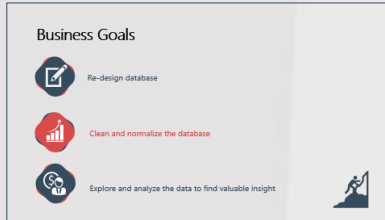
# Customer and Product Cost Analysis

To further analyze these costs, we grouped by customers to see within each customer base, how price is distributed.

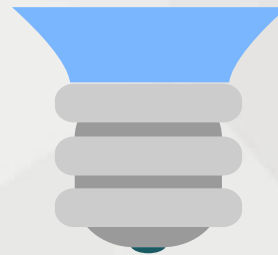
CustomerName	MaterialCode	Cost	MinPrice	AvgPrice	MaxPrice	StDevPrice
Chongqing	BZ0H487190	516.47	120	128.5714	240	30.9047
Ford	BZ0HZ08590	70.21	60	152.7273	240	66.2078
Ford	BZ0HZ08740	20	20	20	20	0
Ford	BZ0HZ18861	60	20	48	100	29.9833
Ford	BZ0HZ22881	60	20	36.6667	80	24.267
Ford	BZ0L211160	147.15	10	131.5385	260	82.261
Ford	BZ0L219490	5	5	16.6667	30	10.274
Ford	BZ0L336490	271.97	5	16.6667	30	10.274
Ford	BZ0LZ12360	80.87	120	265.4545	400	99.8511
China	BZ11A04690	5	5	12.5	20	7.5



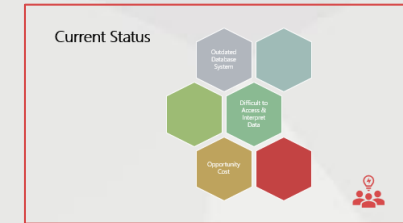
## Business Goals



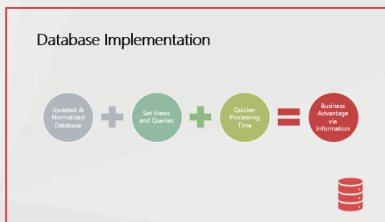
# Taiwan Sanoh



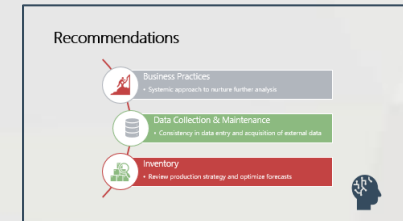
## Current Status



## Database Implementation



## Recommendations



# Business Goals



Re-design database



Clean and normalize the database



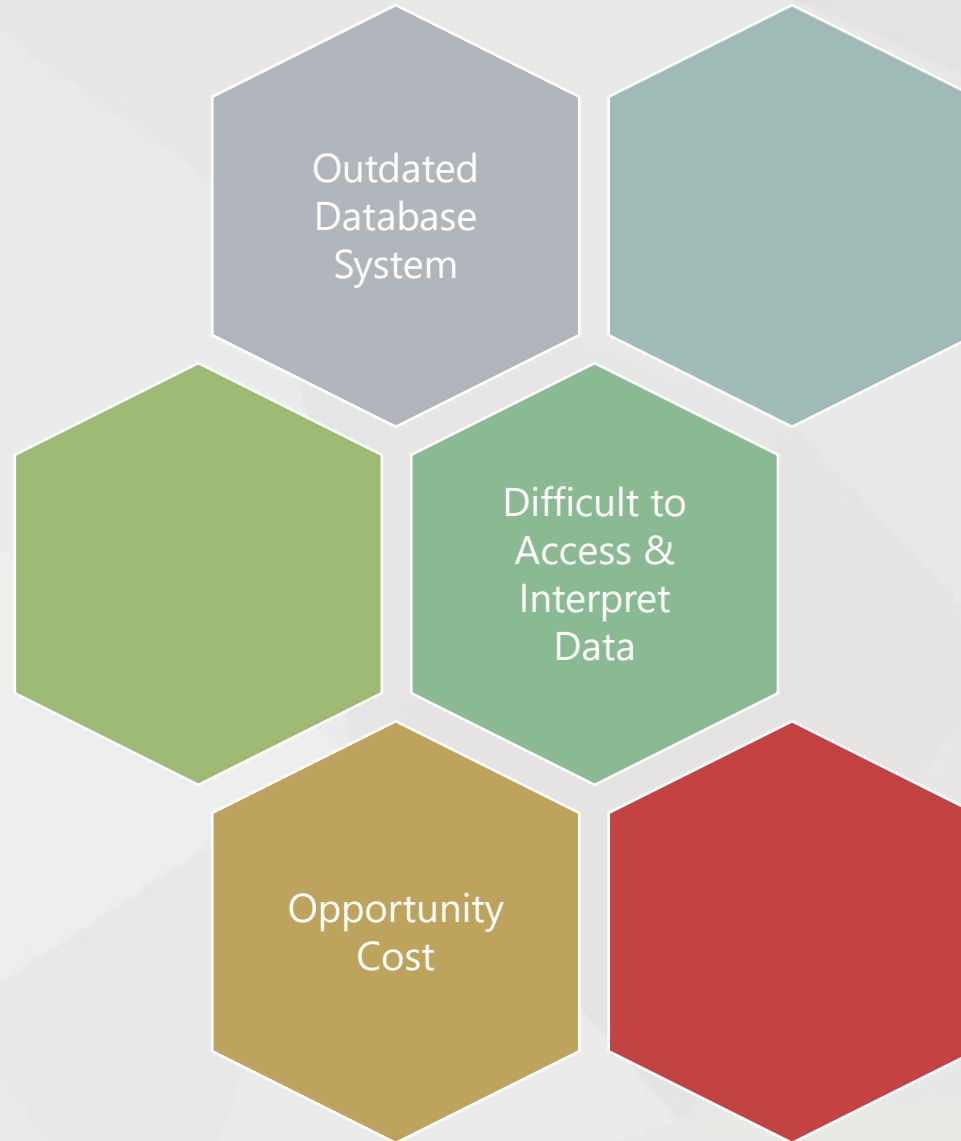
Explore and analyze the data to find valuable insight







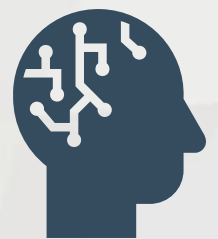
# Current Status



# Database Implementation



# Recommendations



■ ■ ■ Q & A



The image features a dark, monochromatic aerial view of a city skyline, with the Empire State Building as a prominent central element. The text 'Thank You' is centered in a large, white, sans-serif font. A solid red circle is positioned at the bottom center, overlapping a horizontal red line that separates the cityscape from a white background with a faint, light-gray geometric pattern of overlapping triangles.

Thank You