There is Meaning In Every Data

Advanced Sales and Revenue Analytics Platform for 2020: Enhancing Strategic Planning and Performance Tracking

Meet Our Team

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As BI Lead

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As BI Analyst

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As BI Engineer

Dataset

The dataset we use is **Global Electronics Retailer** (can be accessed via this link)

Global Electronics Retailer

Transactional data for a fictitious global electronics retailer.

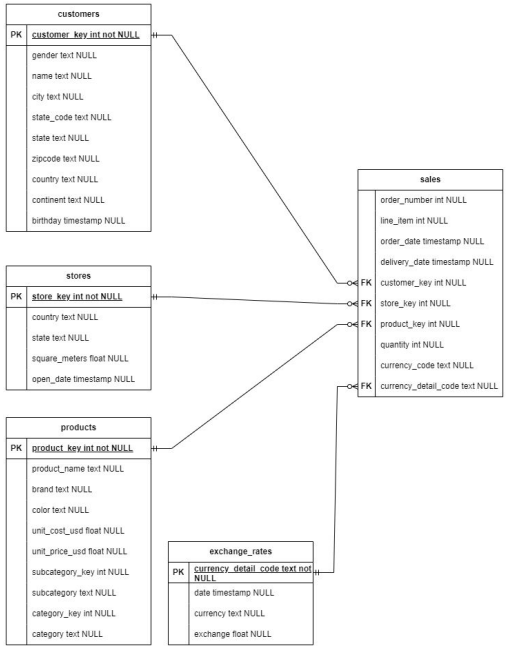
Preview data | Download

FILE TYPES	TAGS	DATA STRUCTURE	# OF RECORDS	# OF FIELDS	DATE ADDED
CSV	Retail, Time Series, Geospatial	Multiple tables	62,884	37	04/01/2024

Sales data for a fictitious global electronics retailer, including tables containing information about transactions, products, customers, stores and currency exchange rates.

Entity Relationship Diagram (ERD)

ERD can be accessed via this link



Business Requirements Document (BRD)

Business Requirements Document (BRD) (can be accessed via this link)

The objective of this project is to develop an Advanced Sales and Revenue Analytics Platform specifically for the year 2020 to **enhance strategic planning and performance tracking**. This initiative aims to generate in-depth customer behavior insights to inform **targeted marketing and improve customer retention**.

The project scope includes collecting and integrating sales, revenue, profit, and customer behavior data from both online and offline channels, followed by a thorough analysis to identify **key performance indicators** such as **total order, revenue, profit, age distribution of buyers, repeat versus one-time orders, and the top spender in 2020**.

Additionally, an advanced analytics platform will be designed and developed to support these activities. The project will involve multiple divisions, including **IT, Sales, Marketing, Business Intelligence, Customer Service, and Inventory Management**. Out-of-scope functionalities include **data collection and analysis for years other than 2020**, development of unrelated software tools, unrelated market research, and non-relevant operational changes. This focused approach ensures that all efforts are concentrated on leveraging 2020 data for strategic insights and enhanced business performance.

Business Requirements Document (BRD)

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Project Objectives:

1. Develop Advanced Sales and Revenue Analytics Platform for 2020 to Enhance Strategic Planning and Performance Tracking
2. Generate In-Depth Customer Behavior Insights to Inform Targeted Marketing and Improve Customer Retention

Business Requirements Document (BRD)

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Needs / Problem Statements (1/2):

1. What were the total sales, revenue, and profit achieved in 2020?
2. How do the volume and value of purchase transactions compare between online and offline channels in 2020?
3. Which country contributed the highest sales, revenue, and profit?
4. Which products were the most and least sold in 2020?

Business Requirements Document (BRD)

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Needs / Problem Statements (2/2):

5. What is the age distribution of buyers for each purchasing channel in 2020?
6. How does the number of customers making repeat orders compare to those making one-time orders in 2020?
7. In which months did the highest sales occur?
8. Who is the top spender in 2020?

Business Requirements Document (BRD)

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Project Scope:

Data Collection and Integration

Phase 1: Collect sales, revenue, profit, and customer behavior data from both online and offline channels.

Phase 2: Integrate data from various sources into a unified data warehouse.

Divisions Involved: IT, Sales, Marketing, Business Intelligence

Data Analysis and Reporting

Phase 1: Analyze total sales, revenue, and profit for 2020.

Phase 2: Compare purchase transactions between online and offline channels.

Phase 3: Identify the country with the highest sales, revenue, and profit.

Divisions Involved: Business Intelligence, Sales, Marketing, Finance

Business Requirements Document (BRD)

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Project Scope:

Customer Insights and Segmentation

Phase 1: Analyze customer age distribution for each purchasing channel.

Phase 2: Compare repeat orders versus one-time orders.

Phase 3: Identify months with the highest sales.

Phase 4: Determine the top spender among the customers.

Divisions Involved: Business Intelligence, Marketing, Customer Service

Operational Performance

Phase 1: Identify the most and least sold products.

Divisions Involved: Business Intelligence, Customer Service, Inventory Management

Business Requirements Document (BRD)

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Project Scope:

Advanced Analytics Platform Development

Phase 1: Design and develop the analytics platform.

Phase 2: Implement advanced analytics features for strategic planning and performance tracking.

Divisions Involved: IT, Business Intelligence, Sales, Marketing

Technical Requirements Document (TRD)

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Technical Requirements Document (TRD) (can be accessed via this link)

Project Overview:

Data yang ada dalam csv akan dibuatkan ETLnya untuk disimpan dalam data warehouse yang terdiri dari data base layer, dim fact layer, dan data mart mart yang terpisah dari database production agar tidak mengganggu performa. Sebelum disimpan, data dari file csv tersebut akan dilakukan profiling dan cleaning bersamaan dengan proses ETL. Setelah disimpan di Data Mart selanjutnya akan dibuatkan tabel yang dibutuhkan untuk digunakan visualisasi dashboard menggunakan Looker Studio.

Technical Requirements Document (TRD)

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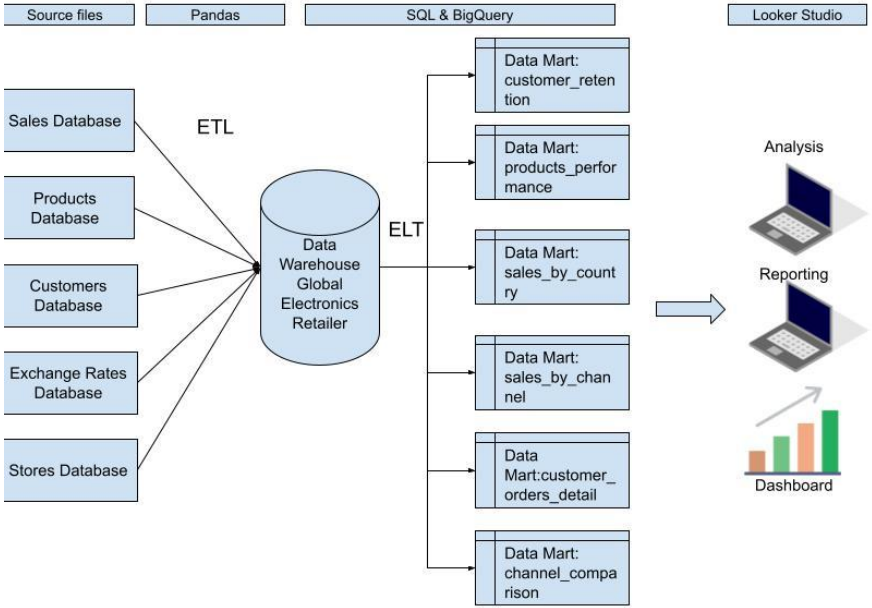
Technical Requirements Document (TRD)

Technical Design Diagram:



Technical Requirements Document (TRD)

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Components:

- *Connection & Location Data Source*
  - *Data source adalah csv yang terdapat di Google Drive Global Electronics Retailer*
  - *Data dihubungkan ke Server & Storage di BigQuery menggunakan Pandas dan SQL*
- *Server & Storage*
  - *Storage yang digunakan untuk proses ETL dan penyimpanan ke database data warehouse adalah Google Cloud Platform melalui BigQuery*
- *Logical Data Flow*
  - *Untuk flow dapat dilihat pada diagram diatas*

Technical Requirements Document (TRD)

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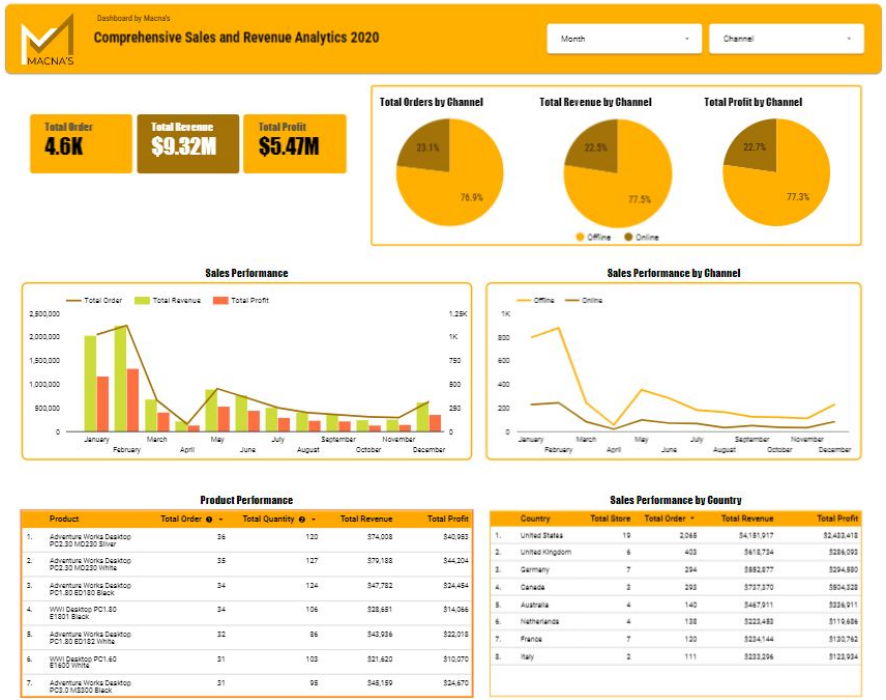
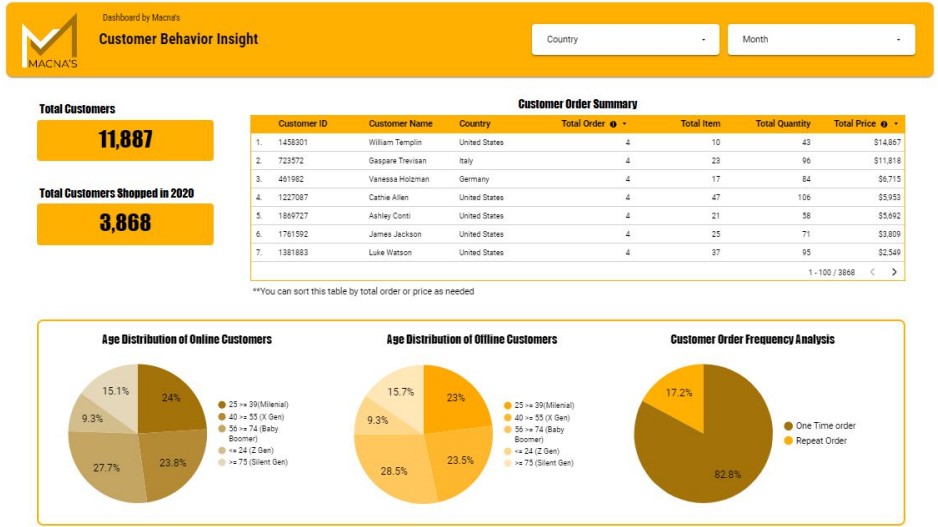
Application Requirements:

- Operating system
  - Tidak ada karena tidak menggunakan on premise (Menggunakan Google Cloud Platform)
- Application memory
  - Tidak ada karena tidak menggunakan on premise (Menggunakan Google Cloud Platform)
- Application CPU
  - Tidak ada karena tidak menggunakan on premise (Menggunakan Google Cloud Platform)
- Expected application transaction volume
  - 50 MB per Hari, 18 GB per Tahun

Dashboard


Dashboard by Macna's
Comprehensive Sales and Revenue Analytics 2020
Month
Channel
Total Order
4.6K
Total Revenue
$9.32M
Total Profit
$5.47M
Total Orders by Channel
23.1%
76.9%
Total Revenue by Channel
22.5%
77.5%
Total Profit by Channel
22.7%
77.3%
Offline
Online
Sales Performance
Total Order
Total Revenue
Total Profit
Sales Performance by Channel
Offline
Online
Product Performance
Product
Total Order
Total Quantity
Total Revenue
Total Profit
1. Adventure Works Desktop PC2.20 MD230 Silver 36 120 $74,008 $40,963
2. Adventure Works Desktop PC2.20 MD230 White 35 127 $79,188 $44,204
3. Adventure Works Desktop PC1.80 ED180 Black 34 124 $47,782 $24,484
4. WWI Desktop PC1.80 E1801 Black 34 106 $28,681 $14,066
5. Adventure Works Desktop PC1.80 ED182 White 32 86 $43,936 $22,018
6. WWI Desktop PC1.60 E1600 White 31 103 $21,620 $10,070
7. Adventure Works Desktop PC3.0 MB300 Black 31 95 $48,199 $24,670
Sales Performance by Country
Country
Total Store
Total Order
Total Revenue
Total Profit
1. United States 19 2,068 $4,181,917 $2,483,418
2. United Kingdom 6 403 $618,734 $286,093
3. Germany 7 294 $882,877 $294,880
4. Canada 3 293 $737,370 $804,328
5. Australia 4 140 $467,911 $236,911
6. Netherlands 4 138 $223,483 $119,686
7. France 7 120 $234,144 $130,762
8. Italy 2 111 $233,296 $123,934


Dashboard by Macna's
Customer Behavior Insight
Country
Month
Total Customers
11,887
Total Customers Shopped in 2020
3,868
Customer Order Summary
Customer ID
Customer Name
Country
Total Order
Total Item
Total Quantity
Total Price
1. 1458301 William Templin United States 4 10 43 $14,867
2. 723572 Gaspare Trevisan Italy 4 23 96 $11,818
3. 461982 Vanessa Holzman Germany 4 17 84 $6,715
4. 1227087 Cathie Allen United States 4 47 106 $5,953
5. 1869727 Ashley Conti United States 4 21 58 $5,692
6. 1761592 James Jackson United States 4 25 71 $3,809
7. 1381883 Luke Watson United States 4 37 95 $2,549
1 - 100 / 3868
**You can sort this table by total order or price as needed
Age Distribution of Online Customers
15.1%
24%
9.3%
27.7%
23.8%
25 >= 39(Milenial)
40 >= 55 (X Gen)
56 >= 74 (Baby Boomer)
<= 24 (Z Gen)
>= 75 (Silent Gen)
Age Distribution of Offline Customers
15.7%
23%
9.3%
28.5%
23.5%
Customer Order Frequency Analysis
17.2%
82.8%
One Time order
Repeat Order

Insights

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1. Profit dan revenue berbanding lurus dengan jumlah ordernya
2. Terdapat penurunan penjualan, revenue, dan profit di bulan Maret hingga seterusnya, dikarenakan mulainya kondisi Pandemi COVID-19
3. Penjualan offline lebih diminati dibandingkan online dengan persentase 76,9% total order, 77,5% total revenue, dan 77,3% total profit
4. Produk yang paling perform pada tahun 2020 yaitu Adventures work desktop PC2.30 MD230 Silver dengan total order 36 dan kuantiti terjual sebanyak 120 buah
5. Negara dengan performa tertinggi adalah US dengan total order 2065
6. Top spender 2020 adalah William Templin dengan total order 4 dan total transaksi sejumlah $14.687
7. Customers di kedua channel didominasi oleh Millennials dan Gen X, yaitu lebih dari 20%
8. Customers yang melakukan one-time order lebih banyak dibandingkan repeat-order (82,8%)

Action from Insights

1. Membuat promosi untuk penjualan di platform online untuk meningkatkan minat customer melakukan transaksi secara online, menyesuaikan dengan kondisi Pandemi COVID-19 yang mempersulit transaksi offline
2. Mengaplikasikan omnichannel sales & marketing untuk meningkatkan penjualan di seluruh channel.
3. Melakukan marketing sesuai dengan gaya mayoritas distribusi umur customers, yaitu Millennials dan Gen X.
4. Melakukan bundling produk dengan performa rendah bersama produk dengan performa baik, yang memiliki keterkaitan secara fungsi atau kategori.
5. Memberikan discount pada produk performa rendah.
6. Membuat dan menawarkan program membership kepada customer, bagi customer yang mendaftar program ini akan diberikan keuntungan-keuntungan tertentu seperti loyalty program, special discount.

Links

MACNA'S

Dataset
BRD
TRD
ERD
Python
SQL
Dashboard
Datamart (CSV)

Matur Suwun
Danke
Grazie
Tarimo Kasih
Obrigado

Terima Kasih
Hatur Nuhun
Thank You
Arigatō
Kamsahamnida

Syukran
Gracias
Matur Suksma
Merci
Tōmākē dhan'yabāda

There is Meaning In Every Data