

Sales Efficiency and Profitability Analysis Talent Growth Data Analysis Study Case

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Project Overview

This project is part of a case study assessment provided by Talent Growth to analyze sales performance using historical transaction data from January 1, 2020, to March 31, 2021. The case study includes various data attributes such as revenue, cost, commission, count, and other relevant attributes to evaluate operational efficiency and profitability. The primary goal of this analysis is to identify opportunities for profit improvement, determine optimal strategies, and provide a foundation for decision-making regarding the sustainability of the business.

Problem Understanding

This project focuses on eight main questions designed to extract deep insights regarding sales performance, profitability, and business sustainability. Below is a list of the issues to be analyzed:

1. Analysis of the 2 sales channels with the best performance.
This assessment aims to identify the two sales channels that contribute the most to the company's revenue and profit. This information will be used to optimize marketing strategies and resource allocation for the most effective channels.
2. Analysis of the 2 sales channels with the worst performance.
By evaluating the underperforming sales channels, the company can understand the factors leading to performance declines, such as low consumer interest, high costs, or lack of promotion. The results of this analysis can help design improvement strategies or decisions to discontinue certain channels.
3. Analysis of the top 2 most profitable industries for the company.
This analysis aims to determine the two industries that generate the most profit for the company. This information can be used to strengthen strategic collaborations with these industries and expand the company's service offerings in profitable sectors.
4. Analysis of the top 2 most profitable categories for the company.
The evaluation of the most profitable product categories aims to identify products or services that generate the highest profit margins. The findings from this analysis will help the company focus on categories with significant revenue growth potential.
5. Who is the PIC with the best performance in terms of generated profit?
This analysis aims to identify the Person in Charge (PIC) with the best performance in generating profit. This information can serve as a basis for awards, promotions, or as an example of best practices for other teams.
6. Who is the PIC with the worst performance in terms of generated profit?

Identifying the PIC with the worst performance will help the company understand the challenges faced by the individual and seek solutions, such as additional training or role evaluation, to improve their contribution to the company.

7. Analysis of the profit trend in 2020.

Monitoring the profit trend throughout 2020 aims to evaluate patterns of revenue growth or decline. This analysis will provide crucial insights into the most profitable periods, seasonal impacts, or the effects of external conditions on the company's performance.

8. Would you recommend closing the company?

Based on the overall analysis results, recommendations regarding the operational feasibility of the company will be provided. This includes evaluating whether the company still has the potential for growth or if it would be better to cease operations for resource efficiency.

Data Understanding

The dataset used includes sales transaction information from various channels, covering the period from January 1, 2020, to March 31, 2021. The dataset contains the following main attributes:

1. date: Transaction date.
2. channel_id: Sales channel ID.
3. category_id: Product category ID.
4. supplier_id: Supplier ID.
5. status: Transaction status.
6. revenue: Revenue from the transaction (in currency units).
7. cost: Cost incurred for the transaction.
8. commission: Commission applied to the transaction.
9. count: Number of units sold.

Data Wrangling

The dataset used in this project consists of one primary file, order.csv, and five supporting files: category.csv, channel.csv, industry.csv, supplier.csv, and pic.csv. These supporting files serve as mappings to link the IDs in order.csv with relevant information, such as product categories, sales channels, industries, suppliers, and the person in charge of the transactions (PIC). This structure enables more organized grouping and targeted analysis of the data.

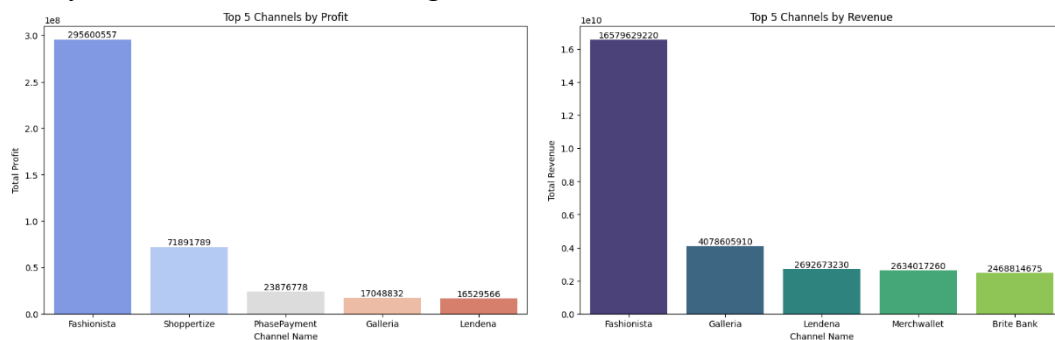
An initial assessment of the order.csv file revealed no missing values or duplicate data, indicating that the dataset is relatively clean for further processing. However, several entries in the cost column were found to contain negative values. These were identified as data entry errors and corrected by converting them to absolute values to maintain their relevance for analysis. Additionally, an outlier was identified—one entry with an extremely high value far exceeding the average—which could significantly impact the analysis results. Therefore, the outlier was removed to ensure the accuracy and reliability of the analysis.

Profit for each transaction was calculated using the following formula: $Profit = Revenue - Cost - Commission$. Where Revenue represents the total income from the transaction, Cost accounts for expenses related to the product or service, and Commission includes additional charges such as sales commissions or distribution fees. This formula provides a comprehensive calculation of net profit generated from each transaction.

After cleaning the data, the dataset was divided based on the status column, which indicates the success of a transaction. Transactions with status = 1 were considered successful and stored in a dataset named data_success, while those with status = 0 were categorized as failed transactions and stored in data_failed. This separation aims to classify transactions based on their outcomes, with subsequent analysis focused solely on data_success, as successful transactions are the primary indicator for assessing sales performance and profitability.

Analysis & Visualization

1. Analysis of the 2 Best Performing Sales Channels



Based on the graph above, five sales channels with the highest profit can be identified. One of the channels, Fashionista, shows exceptional performance with a significant profit margin compared to other channels. These channels include Fashionista, Shoppertize, PhasePayment, Galleria, and Lendena. Among these five channels, Fashionista and Shoppertize occupy the top two positions, with total profits of 295,600,557 and 71,891,789, respectively.

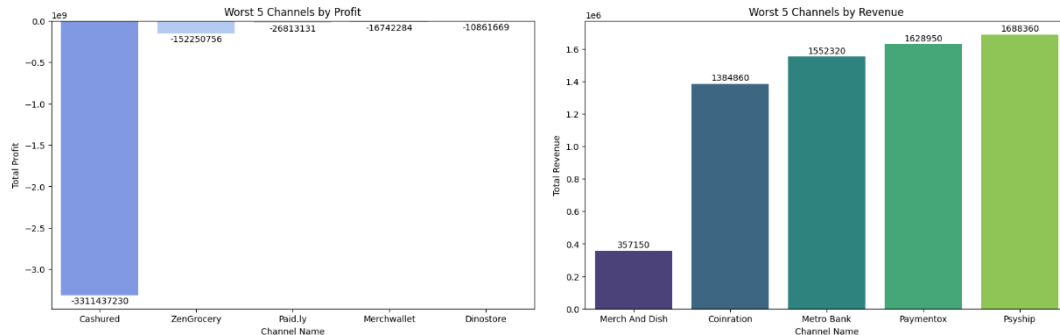
In the additional graph, it is evident that Fashionista also dominates in terms of revenue, with a total revenue of 16,579,629,220, far exceeding the other channels. The second highest revenue channel is Galleria, with a total revenue of 4,078,605,910. Additionally, the other three channels in the top five in terms of revenue are Lendena, Merchwallet, and Brite Bank.

These results indicate that Fashionista not only leads in profitability but also in revenue contribution, making it a strategic channel for the company. Similarly, Shoppertize stands out as a channel with profitability worthy of further attention in sales strategy.

2. Analysis of the 2 Worst Performing Sales Channels

Based on the profit analysis, five sales channels with the lowest performance are Cashured, ZenGrocery, Paid.ly, Merchwallet, and Dinostore. Of these five, Cashured recorded the largest negative profit at -3,311,437,230, followed by

ZenGrocery with -152,250,756. This suggests that these two channels have significant underlying issues, either in operational efficiency or marketing strategy, and thus require special attention for improvement.

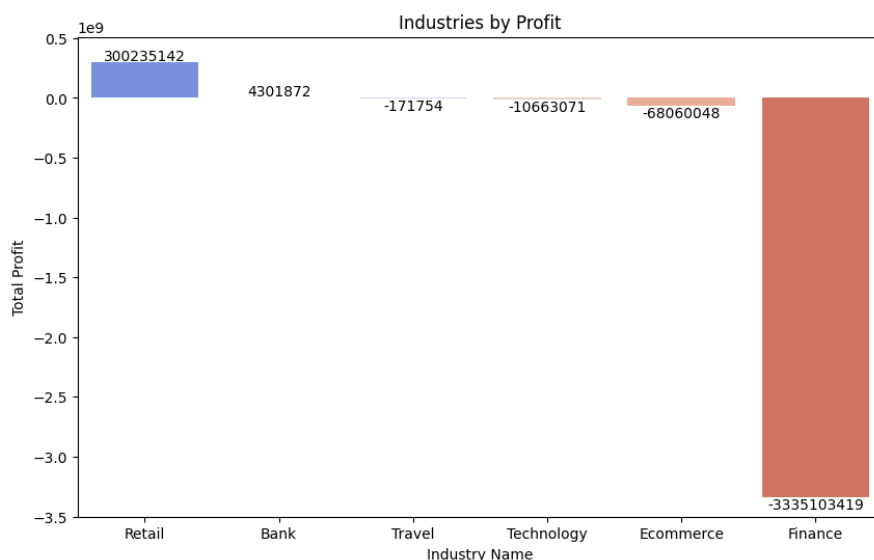


In terms of revenue, the worst performing channel is Merch and Dish, which generated only 357,150 in revenue, followed by Coinration with total revenue of 1,384,860. The other three channels in the lowest revenue category are Metro Bank, Paymentox, and Psyship.

The poor performance of these channels may indicate a mismatch in the business strategy applied, whether in terms of product, target market, or cost structure. To improve performance, a thorough evaluation of the factors influencing the low profit and revenue in these channels is necessary.

3. Analysis of the Top 2 Most Profitable Industries for the Company

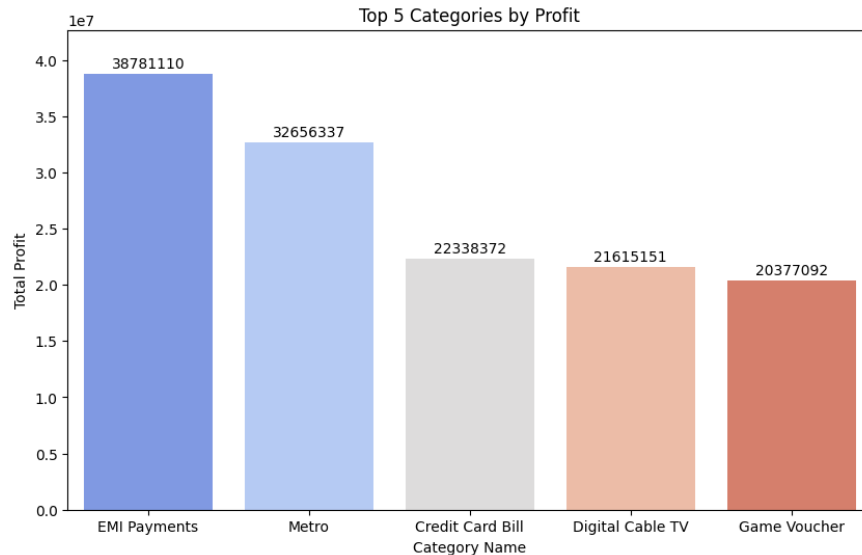
Based on profitability analysis, the two industries with the most profitable performance for this company are Retail and Banking. The Retail industry ranks first with a total profit of 300,235,142, followed by Banking with a profit of 4,301,872. These two industries show significant positive contributions to the company's profitability, indicating that strategies and operations in these sectors are well-aligned with market needs.



On the other hand, some other industries show less optimal performance. The Travel industry recorded a small loss of -171,754, while Technology experienced a larger loss of -10,663,071. E-Commerce and Finance industries reported the largest

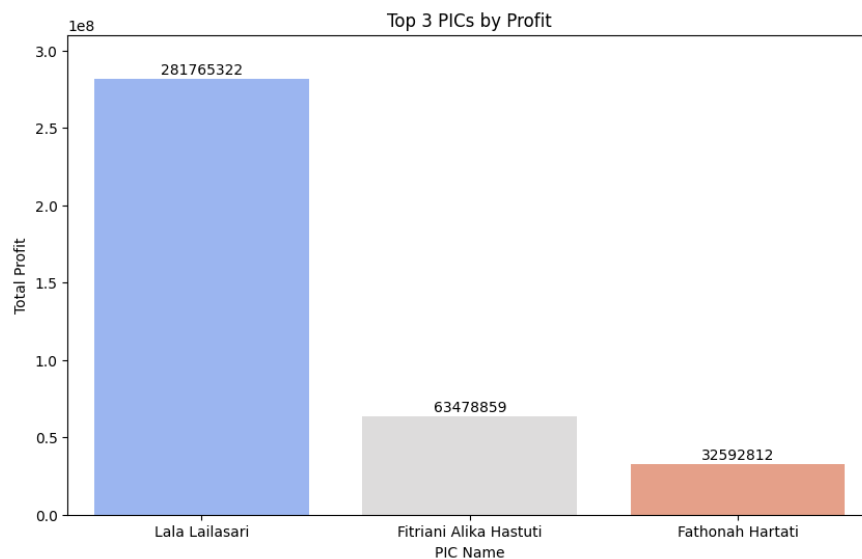
losses, totaling -68,060,048 and -3,335,103,419, respectively. These losses suggest significant challenges in operational efficiency, market penetration, and product or service competitiveness in these sectors.

4. Analysis of the Top 2 Most Profitable Categories for the Company



Category analysis reveals that EMI Payments and Metro are the two categories that contribute the highest profit. EMI Payments recorded a total profit of 38,781,110, while Metro recorded a profit of 32,676,337. These categories have provided significant value to the company, indicating effective sales and operational strategies in these areas. Other categories such as Credit Card Bill (22,338,372), Digital Cable TV (21,615,151), and Game Voucher (20,377,092) also show strong performance. These positive results reflect potential for further growth through the development of additional services or enhancing customer experience in these categories.

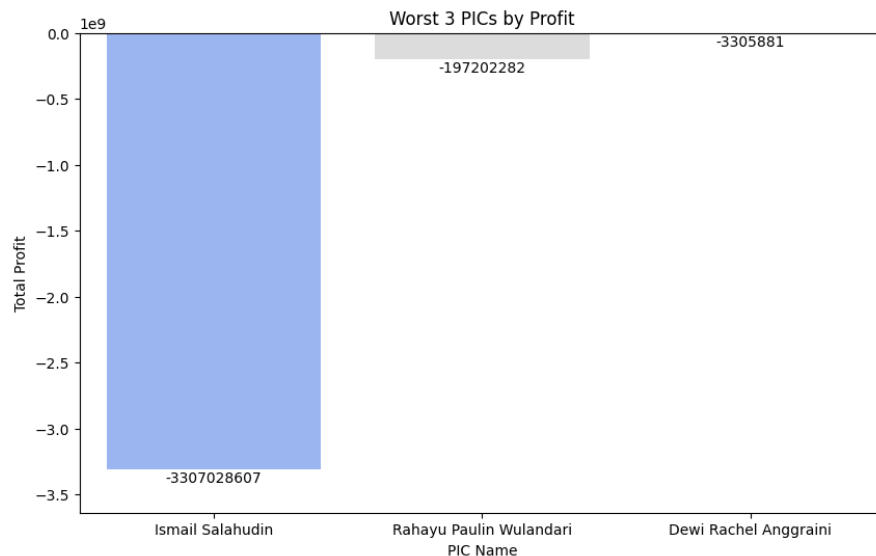
5. Who is the PIC with the Best Performance Based on Profit?



Analysis of individual performance shows that Lala Lailasari is the PIC with the highest profit contribution, reaching 281,765,322. In second place, Fitriani Alika

Hastuti recorded a profit of 63,478,859, followed by Fathonah Hartati with a profit of 32,592,812. Their contributions reflect exceptional skills in managing operations and ensuring the success of transactions that benefit the company. Their performance can serve as a benchmark for identifying best practices that can be applied by other PICs.

6. Who is the PIC with the Worst Performance Based on Profit?



On the other hand, several PICs showed less satisfactory performance, with Ismail Salahudin being the PIC with the largest loss, recording a negative value of -3,307,028,607. Rahayu Paulin Wulandari is in second place with a loss of -197,202,282, followed by Dewi Rachel Anggraini with a loss of -330,588.1. This data indicates the need for an evaluation of the factors that caused the poor performance, including potential issues with operational processes, sales strategies, or resource management. It is crucial to address these issues promptly to reduce the negative impact on the company's overall profit.

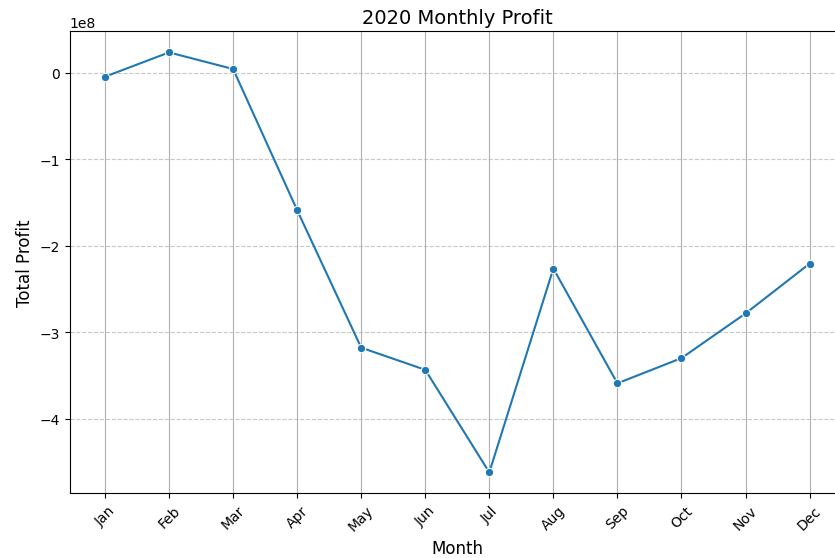
7. Analysis of Profit Trends in 2020

Based on the monthly profit trend graph for 2020, it is evident that the company's profit experienced significant fluctuations throughout the year. In the early months, January and February, the profit was in the positive zone. However, from March to July, profits sharply declined, with the largest loss recorded in July.

This decline is likely attributed to the impact of the COVID-19 pandemic, which began spreading early in 2020. The pandemic placed substantial pressure on various economic sectors, including the industries that form the basis of the company's operations. Social distancing policies, reduced consumer purchasing power, and disruptions in the global supply chain were significant factors affecting the company's performance decline.

However, the graph shows a recovery in profit after July, with a significant surge in August. This recovery may have been driven by the company's adaptation to the pandemic situation, such as shifting focus to more resilient channels or altering operational strategies to mitigate losses. The trend continued to show improvement

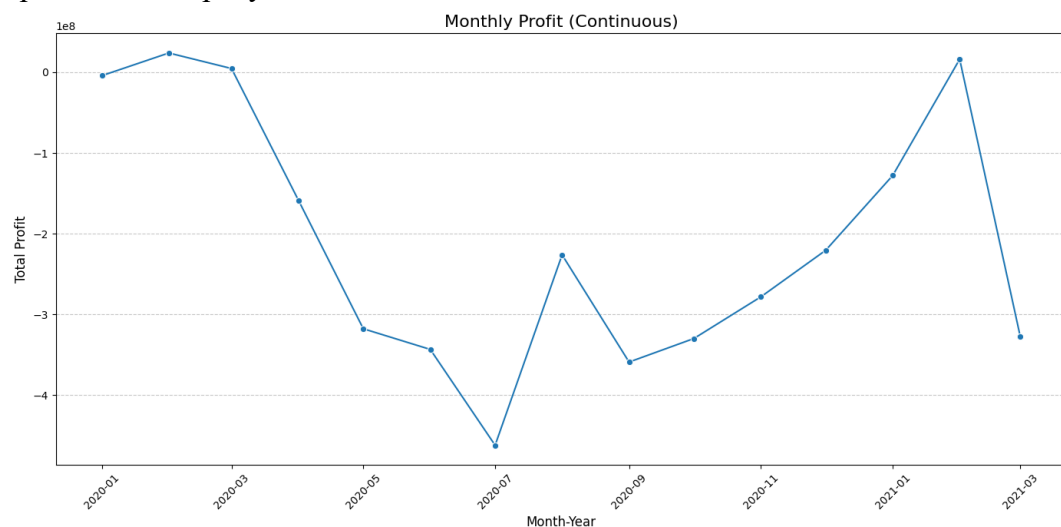
through the end of the year, although it was still far from the profit levels in the beginning of the year.



This analysis indicates that, despite the significant impact of the pandemic, there is potential for recovery if the company can quickly adapt to changes in the business environment.

8. Do You Recommend Closing the Company?

Based on the profit graph over time and additional analysis of channel, category, and industry performance, the decision to close the company is not the right course of action at this point. Although the company has incurred significant cumulative losses, particularly from channels like Cashured and ZenGrocery, as well as sectors like E-Commerce and Finance, there is still untapped potential that can be leveraged to improve the company's condition.



Several positive indicators supporting the company's sustainability include strong performance from the Fashionista channel and consistent profit contributions

from categories like EMI Payments and Metro. Additionally, the Retail industry remains one of the most profitable sectors, despite pressures from other industries.

The large losses experienced should also be analyzed further, especially considering the external impact of the COVID-19 pandemic. Many companies faced similar challenges in 2020 due to reduced market demand, operational disruptions, and global economic uncertainty. However, the profit recovery trend at the end of the year demonstrates the company's ability to adapt and begin recovering.

Looking forward, the company is advised to take strategic steps such as:

- a. Focus on profitable channels and categories: Allocate more resources to the Fashionista channel, the EMI Payments category, and the Retail sector, which have proven to contribute positively.
- b. Reduce losses in underperforming channels or sectors: Review strategies for channels like ZenGrocery or consider halting operations if they continue to incur losses without improvement potential.
- c. Adapt to market changes: Leverage opportunities in the digital market or improve operational efficiency to remain competitive in the post-pandemic era.
- d. Diversify risk: Develop new products or services that can support the company's stability in the future.

Conclusion

Based on the analysis, the company shows varying performance across different sales channels, categories, and industries. Channels such as Fashionista and Shoppertize have contributed the largest profits, while channels like Cashured and ZenGrocery have performed poorly, even resulting in losses for the company. The Retail and Banking industries have been the most profitable, while the E-Commerce and Finance sectors have recorded significant losses.

The 2020 profit trend demonstrates the significant impact of the COVID-19 pandemic, with a sharp decline in profit during the middle of the year, followed by a steady recovery toward the end. Despite the large cumulative losses, positive indicators such as the strong performance of top channels and the recovery trend provide a solid foundation for maintaining and further developing the company. Moving forward, strategies should focus on optimizing profitable channels and categories, adapting to market changes, and improving operational efficiency to ensure the sustainability and growth of the company in the future.