Digital Sales Data Analysis

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Introduction

The project presents a comprehensive data analysis of a sample online store. By examining key metrics and trends, the analysis aims to uncover actionable insights to support business optimization. To answer the business questions, I will follow the data analysis process: Ask, Prepare, Process, Analyze, Share, and Act.

Background

This report uses the *Digital Sales and Customer Data* dataset from [Kaggle](#), which simulates real-world e-commerce activity. The dataset includes key information on customer demographics, purchase history, and marketing channels, providing insights into how and why customers make digital purchases.

Ask

Business Questions

Customer Lifetime Value & Segmentation
- Which customer segments (by gender, country, or acquisition channel) have the highest average order value and repeat purchase rates?
- How does Net Promoter Score correlate with purchase behavior - do high-NPS customers buy more frequently or spend more per transaction?

Product & Category Performance
- Which digital product categories (Course, Template, Webinar) and specific products generate the highest revenue per customer and customer satisfaction scores?

Platform & Channel Optimization
- What's the relationship between marketing channels and customer geography - are certain channels more effective in specific regions?

Revenue & Growth Analysis
- What are the seasonal patterns in digital product sales, and how should marketing campaigns be timed accordingly?

Customer Experience & Retention
- How do NPS scores vary by product category, platform, and marketing channel - where are experience gaps occurring?

Prepare

Data Source

I will be using historical digital sales data to analyze and identify trends from June 2024 to June 2025. The data can be located here: [Digital Sales & Customer Data](#).

Information about the dataset

The data includes the following columns:
> **Date:** purchase date
> **First_name:** customer's first name
> **Gender:** customer's gender (Male, Female, or Other)
> **Product_name:** name of the digital product
> **Product_category:** product's category (Coaching Program, Course, E-book, Subscription, Template, and Webinar)
> **Price:** unit price of products
> **Quantity:** number of units purchased
> **Revenue:** Total revenue = price * quantity
> **Customer_country:** country where customer purchased
> **Sales_platform:** sales platform (ClickFunnels, Direct, Gumroad, Kajabi, Shopify, Teachable)
> **Marketing_channel:** marketing source (Affiliate, Email, Facebook Ads, Instagram, Organic Search, Paid Ads, TikTok, YouTube)
> **Nps_score:** customer's net promoter score (0-10)
> **Seasons:** season when product was purchased (Winter, Spring, Summer, Fall)

The seasons column is the only newly added field in this dataset. Additional changes made to the original dataset includes renaming columns for clarity and simplifying the gender column to contain only three categories: Male, Female and Other.

Data limitation

While the dataset provides a comprehensive snapshot of digital customer and sales data, it is synthetic (i.e. not from a real company), and may not capture all the complexities of real-world consumer behavior. Another limitation is the absence of a customer ID column, meaning the analysis relies solely on first names and assumes that repeated names refer to the same customer.

Analysis & Insight

Tableau

Tableau dashboard: [Click here](#)

Tableau was used to create dashboards and visualize the data. To prepare the data in Tableau, it was cleaned and exported as an xlsx file. Each tab in the dashboard represents a business question category, with each graph corresponding to a specific business question. The analysis and insights below will follow the order of the tabs in the Tableau dashboard and the business questions stated above.
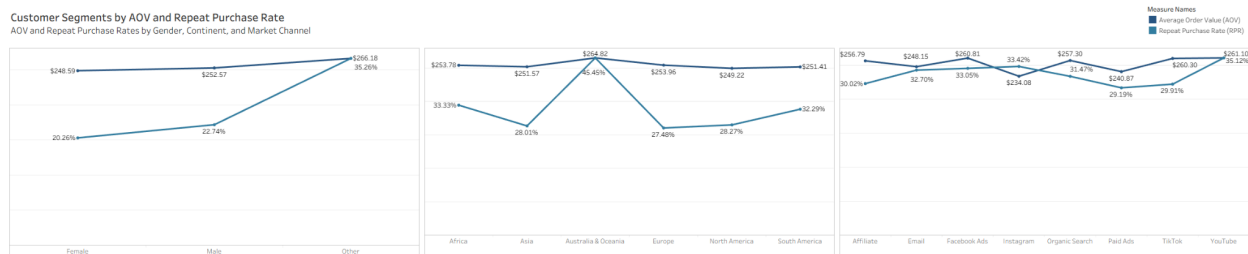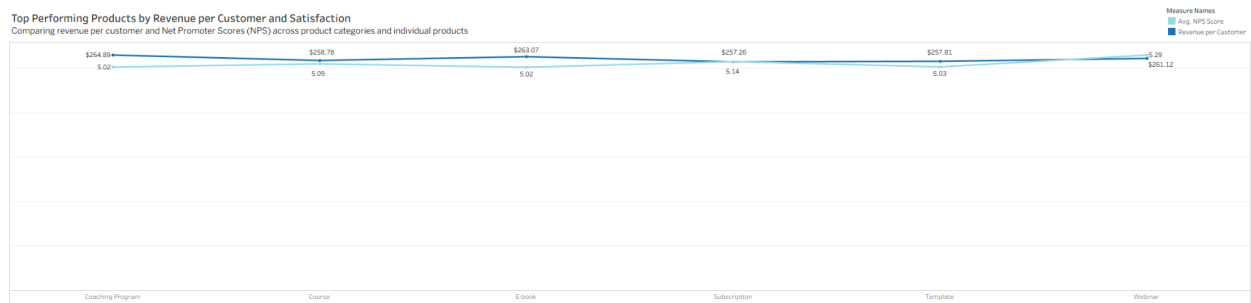

YouTube customers have the highest repeat purchase rate (35.12%) and the highest average order value ($261.10), making them the most valuable and loyal customer segment. Although Instagram customers have the second highest repeat purchase rate (33.42%), they also have the lowest average order value ($234.08). Customers from Australia & Oceania display high repeat purchase rate and the high average order value among regions. However, Europe has the lowest repeat purchase rate but the second highest average order value, suggesting weaker customer retention despite strong spending.
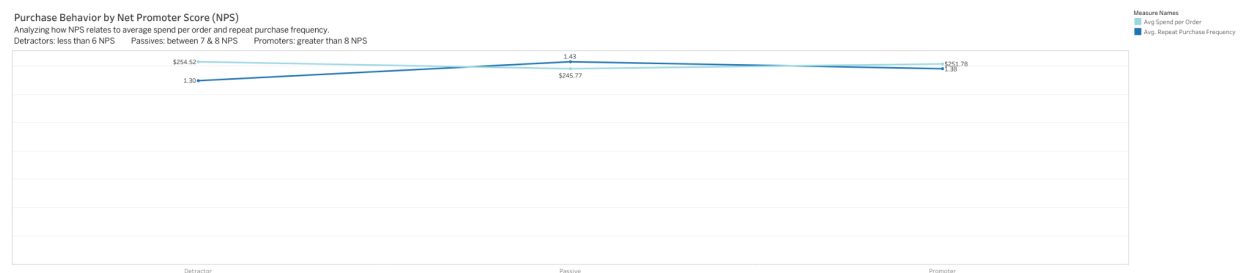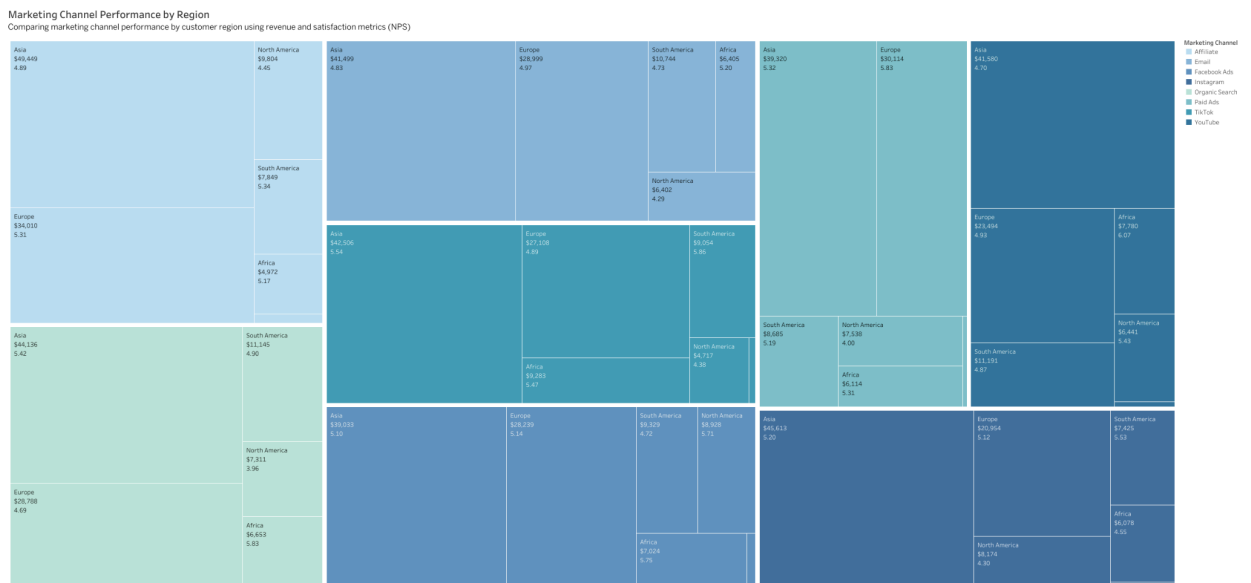

For Average Spend per Order, both Defractors and Promoters spend nearly the same per transaction as Passives customers who spend the least. In terms of Average Repeat Purchase Frequency, Passives buy slightly more frequently than Defactors and Promotors but the difference is small. In conclusion, high NPS customers (Promoters)

do not consistently spend more per transaction or purchase significantly more often than Detractors or Passives.
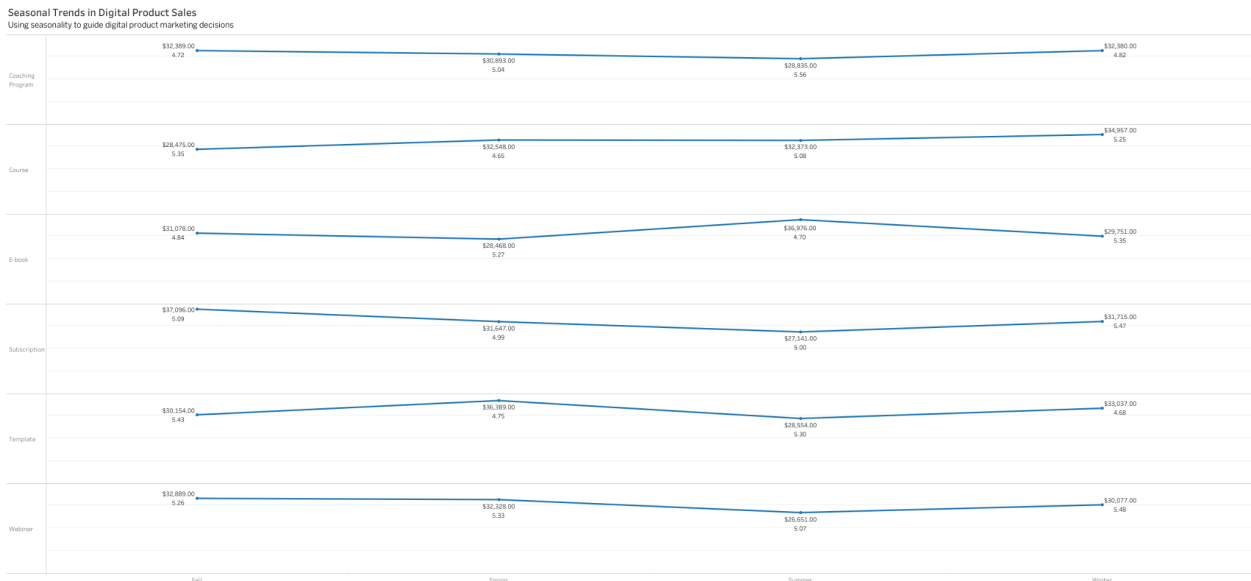

Top Performing Products by Revenue per Customer and Satisfaction
Comparing revenue per customer and Net Promoter Scores (NPS) across product categories and individual products

Webinar is the top performing product category, with the highest revenue per customer ($281.12) and the highest NPS score (5.29), indicating strong customer satisfaction. At the individual product level within this category, "Webinar: Launch Your First Course" leads with $291.81 in revenue per customer and an NPS of 5.44. In the Course category, "Motion Second Brain" and "Masterclass: Digital Marketing" performs well in both revenue and satisfaction. For Templates, "Content Calendar Pro" and "Ultimate Planner Hub" emerge as strong performers. These insights suggest that these products deliver strong value and customer experience, making them ideal benchmarks for optimizing other offerings.

Marketing Channel Performance by Region
Comparing marketing channel performance by customer region using revenue and satisfaction metrics (NPS)

Asia and Europe show significant performance, with large blocks representing revenue across all marketing channels. While they perform well in terms of revenue, different regions dominate in terms of NPS for each channel. Africa leads with the highest NPS in the following channels: Affiliate (5.34), Organic Search (5.83), Email (5.20), Facebook

Ads (5.75), and YouTube (6.07). Europe has the highest NPS in the Paid Ads channel (5.83), while South America leads in NPS for TikTok (5.86) and Instagram (5.53). In conclusion, while revenue performance is strong across regions like Asia and Europe, Africa and South America excel in customer satisfaction (NPS) in key channels.

Seasonal Trends in Digital Product Sales
Using seasonality to guide digital product marketing decisions

To optimize digital product sales, marketing campaigns should align with the seasonal patterns observed in the data. Focusing on specific products during their peak months can lead to higher conversion rates and overall sales. Focus on Winter and Fall for Coaching Programs, aim for Spring and Fall for Courses, promote during Winter and Spring for E-books, focus on Fall for subscriptions, run campaign during Summer for Templates, and plan campaigns during Summer for Webinars.

Identifying Experience Gaps via NPS Distribution
Explore where Promoters (over 8), Passives (between 8 & 7), and Detractors (less than or equal to 6) are coming from to uncover experience gaps

Several categories and channels show a high proportion of Detractors (blue bars), which suggests customer dissatisfaction and potential experience issues. For example, in the *Email* channel, there are 4x more Detractors than Promoters, suggesting that customers are not responding well to this channel. Similar patterns are observed in channels like *Facebook Ads, YouTube, and TikTok*. On the other hand, some product categories and platforms, such as *Gumroad, Teachable,* and *Templates*, show a more balanced distribution across NPS groups, although the Detractors still remain relatively high. Across all segments, Promoter percentages rarely exceed 4.5%, even in better performing categories. This suggests a general lack of customer delight. Even where Detractor rates are lower, loyalty and advocacy appear weak overall.

Act

Based on a thorough analysis these recommendations aim to address key areas such as customer segmentation, product performance, platform optimization, and seasonal sales trends, ensuring that the business is positioned for long-term success. The following recommendations will help maximize revenue, improve customer experience, and drive higher retention rates:

- Focus on retaining YouTube customers with high repeat purchase rates and average order value, while enhancing Instagram's average order value through targeted promotions, improving customer retention in Europe, and expanding efforts in Australia & Oceania, where both repeat purchase rates and AOV are strong.
- Since there is no strong or clear correlation between NPS and purchase behavior in this dataset, segment customers based on transaction value or customer lifetime value (CLV). Additionally, personalized marketing efforts targeting specific NPS segments could help improve engagement. For instance, for Promoters, explore loyalty programs or exclusive offers to further boost customer loyalty and retention, while for Detractors, address potential issues with personalized outreach and incentives to increase satisfaction and encourage repeat purchases.
- Prioritize and scale high-performing products like "Webinar: Launch Your First Course" and "Motion Second Brain," which deliver strong revenue and high customer satisfaction, to maximize growth and customer retention.
- Different marketing channels have varying levels of success depending on the region, with Asia and Europe showing stronger overall performance in many categories with the most revenue.

- Tailor marketing strategies to regional strengths by investing in high-performing channels like Paid Ads and Facebook Ads in Asia/Europe for revenue, while optimizing TikTok and Instagram in South America and focusing on Africa's high NPS in channels like YouTube and Affiliate to improve customer satisfaction across all regions.
- Time marketing campaigns to align with peak sales seasons: Winter for Coaching Programs, E-books, and Subscriptions; Summer for Templates and Webinars; Spring and Fall for Courses, and Fall for Subscriptions.