Case Study: Business Analyst - I - SRM
# Amazon Merchants Profiling & Ranking for Acquisition

Introduction

The goal of this analysis is to profile Amazon merchants and develop selection criteria to identify the most promising sellers for acquisition. By sanitizing and analyzing the dataset, we aim to provide actionable insights that will guide the acquisitions team in targeting the best potential sellers.

In this project, we conducted a comprehensive analysis of Amazon merchants to identify potential acquisition targets. The objective was to profile these merchants using specific Key Performance Indicators (KPIs) and rank them based on their suitability for acquisition. This analysis was based on data extracted from various dataset provided, with a strong emphasis on ensuring data accuracy through a meticulous sanitization process.

Dashboard Overview

The following dashboards provide a visual summary of an overview of key performance metrics of Amazon merchants , as well as Amazon merchants' profiling and ranking based on acquisition potential. These insights are central to the analysis and recommendations presented in this report.

Dashboard 1: Amazon Sellers Dashboard | Overview
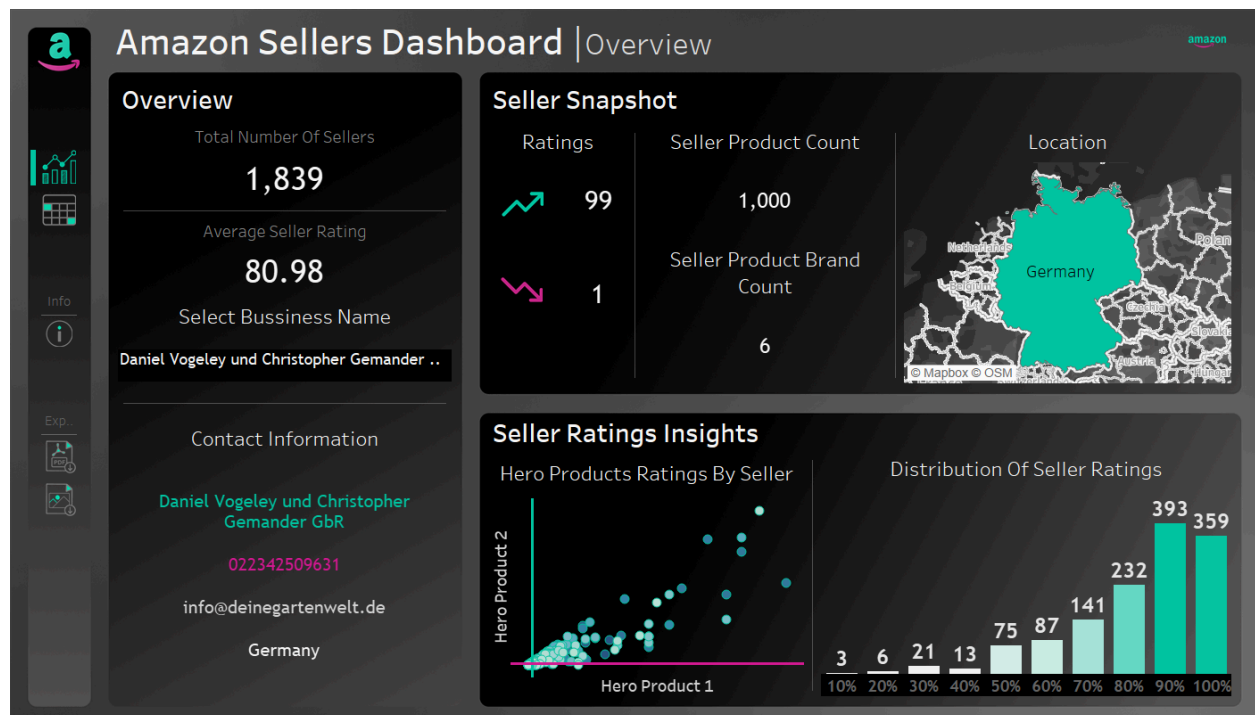
Overview: This dashboard gives a snapshot of the performance and key statistics of Amazon sellers. It focuses on the following metrics:

- **Total Number of Sellers:** The total count of Amazon sellers profiled.
- **Average Seller Rating:** The average rating across all sellers, indicating overall customer satisfaction.
- **Seller Snapshot:** A quick view of the seller's ratings, product count, and product brand count.Location where a map visualization showing the geographical location of the seller.
- **Seller Ratings Insights:**
  - This section includes two visuals:
    - **Hero Products Ratings By Seller:** A scatter plot that shows the relationship between ratings of two top products for each seller.
    - **Distribution Of Seller Ratings:** A histogram showing the distribution of seller ratings across different ranges.

Key Insights:

- **Seller Performance:** The dashboard provides a clear overview of seller performance metrics, including product counts and ratings, enabling the acquisitions team to assess the value and quality of each seller.
- **Geographic Distribution:** The map visualization helps in understanding the seller's geographical area, which can be a crucial factor in acquisition decisions.

KPI:

- Average Seller Rating: The average rating provides a quick measure of the overall quality of the sellers.
- Seller Product Count: Helps in evaluating the scale of the seller's operation.

Visual Annotation
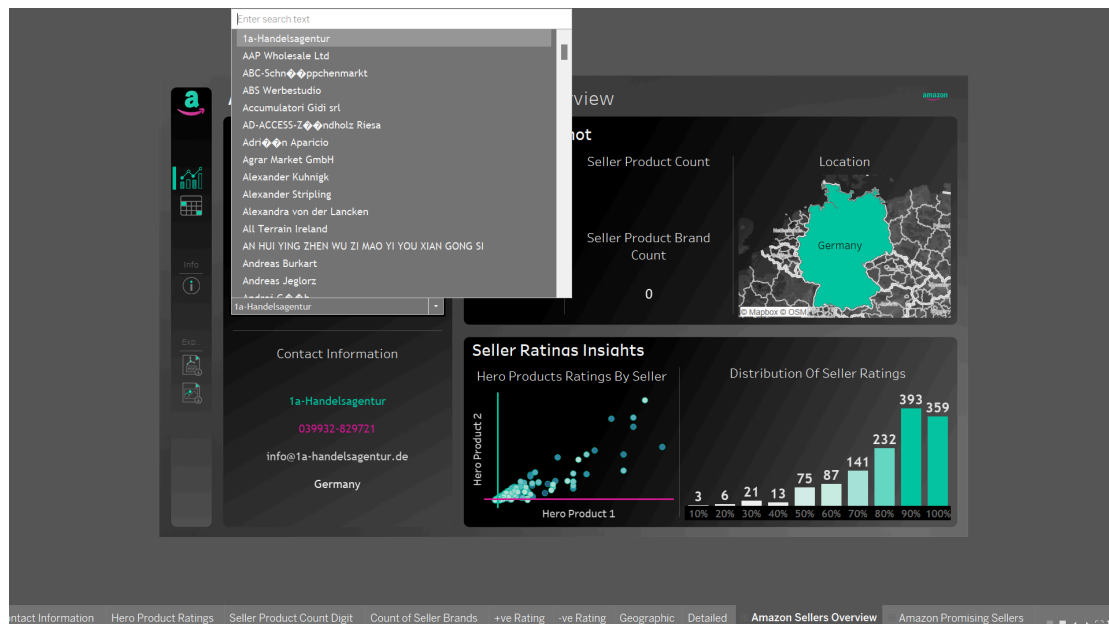
Use the dropdown list to select a business and view corresponding seller details including ratings and location.

Dashboard 2: Amazon Merchants Profiling & Ranking for Acquisition

Overview: This dashboard provides a detailed view of the Amazon merchants that have been profiled and ranked based on their suitability for acquisition. The key metrics displayed here include:

- **Business Name:** The name of the Amazon merchant.
- **Country:** The country where the business is located.
- **Phone Number and Email:** Contact details of the business.
- **Risk:** A visual indicator showing the level of risk associated with acquiring the business. Businesses are categorized into different risk levels, such as High Risk or Low Risk, based on specific criteria like overall score.

Key Insights:

- **Risk Assessment:** The dashboard effectively categorizes merchants into risk levels, allowing the acquisitions team to prioritize low-risk merchants for potential acquisition.
- **Comprehensive Contact Information:** Having contact information readily available facilitates the acquisition team's outreach efforts.

KPI:

- **Overall Score:** The risk level is determined by an overall score, ranging from 3.59 to 5, where higher scores indicate lower risk.

Visual Annotation
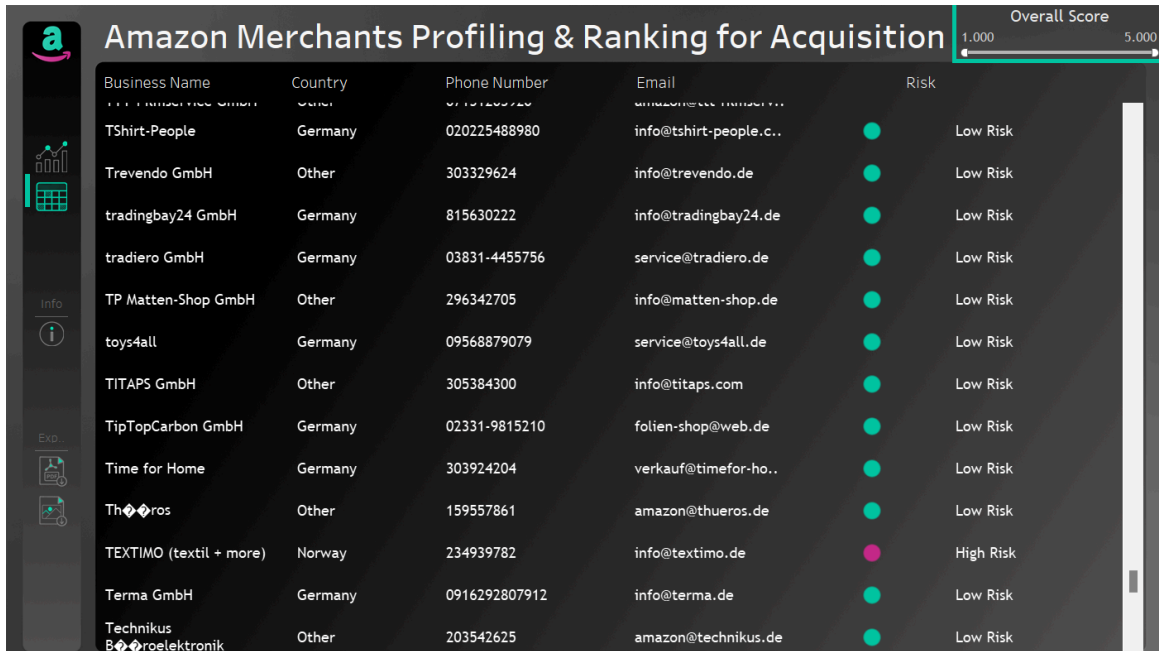
By adjusting the slider, users can narrow down the list of sellers to those whose profiles meet a certain acquisition threshold.

One of the notable interactive elements in this dashboard is the **Overall Score Slider** located at the top right of the dashboard. This slider allows users to filter and rank sellers based on their overall acquisition score, which ranges from 1.0 to 5.0.

Overall Score Slider: This feature helps streamline the decision-making process by quickly identifying sellers that meet the desired acquisition criteria. For example, moving the slider to 4.0 will only display sellers with a score of 4.0 or higher, allowing users to focus on the most promising acquisition targets.

Info Button
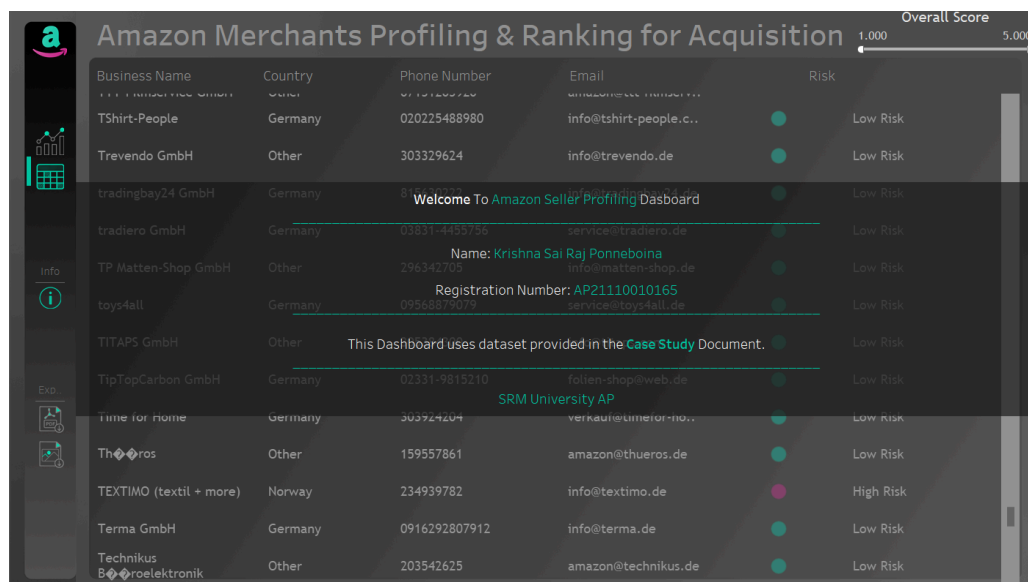
The "Info" button on the left sidebar of the dashboard table.

The dashboard is equipped with user-friendly features, such as an "Info" button that offers additional context about the dataset and the author. Detailed descriptions of these features are provided in the Dashboard Overview section.

One of the key features is the "Info" button, conveniently located on the left sidebar of each table. When clicked, this button provides detailed information about the dashboard, including the author's name, registration number, and the source of the dataset. This feature ensures that users have quick access to important details without leaving the dashboard.

The following sections will elaborate on the methodology used to derive these insights, along with detailed analyses and key findings.

Methodology

We analyzed the dataset using Tableau, creating multiple Key Performance Indicators (KPIs) that helped us derive insights into the sellers' performance, risk levels, and overall potential. The following KPIs were used to assess and rank the sellers:

1. **Seller Business Name Extraction**

   KPI: *IF NOT ISNULL([New Bussiness Name]) THEN [New Bussiness Name] END*

   Explanation: This KPI identifies sellers by their business names. It's crucial to ensure accurate identification of each seller for subsequent analysis.

2. **Country Identification**

   KPI: *IF RIGHT([Businessaddress], 2) = 'US' THEN 'United States' ... ELSE 'Other' END*

   Explanation: Sellers' business locations were categorized based on their addresses. This helps to understand the geographical distribution of the sellers, which can be a factor in the acquisition strategy.

3. **Email Extraction from Seller Details**

   KPI: *IF CONTAINS([Sellerdetails], "@") THEN REGEXP_EXTRACT([Sellerdetails], '(\w+[.\-_]?\w*@\w+[.\-]?\w+\.\w{2,})') ELSE NULL END*

   Explanation: Extracting email addresses from the seller details allows for easy contact and communication with potential sellers.

4. **Phone Number Extraction from Seller Details**

   KPI: *IF CONTAINS([Sellerdetails], "Tel ") THEN REGEXP_EXTRACT([Sellerdetails], 'Tel?(\+?\d{5,}[-.|\s]?\d{2,6}[-.|\s]?\d{3,7})')ELSE REGEXP_EXTRACT([Sellerdetails], '(\+?\d{5,}[-.|\s]?\d{2,6}[-.|\s]?\d{1,4})') END*

   Explanation: Extracting phone numbers from the seller details ensures that the acquisitions team can reach out directly to sellers.

5. **Positive Rating Percentage**

   KPI: Positive Rating % (bin) with size of 10

   Explanation: This KPI measures the percentage of positive ratings a seller has received, which is a critical indicator of seller performance and customer satisfaction.
   - 5 points for > 20,000 products
   - 4 points for 10,001–20,000 products
   - 3 points for 1,001–10,000 products
   - 2 points for 101–1,000 products
   - 1 point for ≤ 100 products

   A large product count can indicate the merchant's market presence and operational scale.

6. **Product Count**

   KPI:IFCONTAINS([Sellerproductcount],'ofover')THENINT(SPLIT(SPLIT([Sellerproductcount], 'of over ', 2), ' results', 1)) ELSEIF CONTAINS([Sellerproductcount], 'of') THEN INT(SPLIT(SPLIT([Sellerproductcount], 'of ', 2), ' results', 1)) ELSE INT([Sellerproductcount]) END

   Explanation: This KPI measures the number of products a seller offers, with higher counts indicating a more extensive inventory and potentially greater market reach.

7. **Number of Ratings**

   KPI: *INT(MID([Sellerratings], FIND([Sellerratings], '(') + 1, FIND([Sellerratings], ' ratings') - FIND([Sellerratings], '(') - 1))*

   Explanation: The total number of ratings provides an insight into the overall activity level and reliability of the seller.

8. **Brand Diversity Score**

KPI: *IF [Count of seller brands] = 16 THEN 5 ELSEIF [Count of seller brands] = 15 THEN 4 ELSEIF [Count of seller brands] >= 10 AND [Count of seller brands] <= 14 THEN 3 ELSEIF [Count of seller brands] >= 5 AND [Count of seller brands] <= 9 THEN 2 ELSE 1 END*

Explanation: This score evaluates the diversity of brands a seller manages. Sellers with a higher diversity score are more versatile and potentially more valuable for acquisition.

9. **Hero Product Rating Score**
   KPI: *IF ([Hero Product 1 #ratings] + [Hero Product 2 #ratings]) > 30000 THEN 5 ELSEIF ([Hero Product 1 #ratings] + [Hero Product 2 #ratings]) > 10000 THEN 4 ELSEIF ([Hero Product 1 #ratings] + [Hero Product 2 #ratings]) > 1000 THEN 3 ELSEIF ([Hero Product 1 #ratings] + [Hero Product 2 #ratings]) > 100 THEN 2 ELSE 1 END*

   Explanation: This score assesses the popularity of the seller's top products based on the number of ratings. Sellers with popular products are more attractive for acquisition.

10. **Positive Rating Score**

    KPI: *IF [Positive Rating %] >= 95 THEN 5 ELSEIF [Positive Rating %] >= 90 THEN 4 ELSEIF [Positive Rating %] >= 80 THEN 3 ELSEIF [Positive Rating %] >= 70 THEN 2 ELSE 1 END*

    Explanation: The Positive Rating Score is a KPI that quantifies a seller's performance based on the percentage of positive ratings they have received. This metric is crucial because it reflects customer satisfaction and overall service quality. The score ranges from 1 to 5, with a higher score indicating better performance:
    - 5 points for ≥ 90%
    - 4 points for 80%–89%
    - 3 points for 70%–79%
    - 2 points for 60%–69%
    - 1 point for < 60%

    High positive ratings indicate strong customer satisfaction, which is crucial for acquisition decisions.

11. **Negative Rating Score**

    KPI: *IF [Max % of negative seller ratings - last 12 months] < 5 THEN 5 ELSEIF [Max % of negative seller ratings - last 12 months] < 10 THEN 4 ELSEIF [Max % of negative seller ratings - last 12 months] < 20 THEN 3 ELSEIF [Max % of negative seller ratings - last 12 months] < 30 THEN 2 ELSE 1 END*

    Explanation: This KPI measures the proportion of negative ratings, helping to identify sellers who maintain high-quality service and products.

12. Product Count Score

KPI: *IF [Product Count] > 20000 THEN 5 ELSEIF [Product Count] > 10000 THEN 4 ELSEIF [Product Count] > 1000 THEN 3 ELSEIF [Product Count] > 100 THEN 2 ELSE 1 END*

Explanation: This score ranks sellers based on their product count, with higher scores indicating a more significant presence in the marketplace.

13. Risk Score

KPI: *0.4 * [Max % of negative seller ratings - last 12 months] + 0.4 * (100 - [Positive Rating %]) + 0.2 * (6 - [Product Count Score])*

Explanation: The risk score combines factors such as negative ratings, positive ratings, and product count to assess the overall risk associated with acquiring a seller.

14. Overall Score

KPI: *0.25 * [Positive Rating Score] + 0.25 * [Product Count Score] + 0.2 * [Negative Rating Score] + 0.2 * [Hero Product Rating Score] + 0.1 * [Brand Diversity Score]*

Explanation: The overall score is a weighted metric combining various performance indicators to rank sellers holistically.

Each criterion is assigned a score on a scale from 1 to 5, with 5 being the highest score. These scores are then weighted and combined to produce a final acquisition score for each merchant.

- Positive Rating Score: Weighted at 25% of the total score.
- Product Count Score: Weighted at 25% of the total score.
- Negative Rating Score: Weighted at 20% of the total score.
- Hero Product Rating Score: Weighted at 20% of the total score.
- Brand Diversity Score: Weighted at 10% of the total score.

15. Risk Score Classification

KPI: *IF [Risk Score] < 15.0 THEN "Low Risk" ELSE "High Risk" END*

Explanation: Sellers are classified into low or high-risk categories based on their risk scores. This helps in determining which sellers are more reliable and less likely to pose a risk if acquired.

Key Insights

- **Seller Performance and Potential:** The overall score provides a comprehensive view of each seller's performance, incorporating key factors such as positive and negative ratings, product count, and hero product ratings. Sellers with higher overall scores are more likely to be valuable acquisition targets.

- **Risk Analysis:** The risk score categorizes sellers into low and high-risk groups. Low-risk sellers, characterized by lower negative ratings and higher positive ratings, are more stable and dependable acquisition prospects.

- **Brand Diversity:** Sellers managing a diverse range of brands tend to be more resilient to market fluctuations and offer more value in terms of acquisition. Higher brand diversity scores indicate sellers with a robust portfolio.

- **Geographical Distribution:** Understanding the geographical distribution of sellers helps tailor acquisition strategies. For example, sellers from certain regions may have better access to specific markets or customer bases.

- **Hero Product Impact:** Sellers with highly rated hero products are likely to have a stronger customer base and brand recognition, making them prime candidates for acquisition.

Overview of Business Strategy

The business strategy employed focuses on identifying high-potential Amazon merchants for acquisition by analyzing various aspects of their business performance and reputation. The strategy assigns scores to each merchant based on multiple criteria, ensuring a balanced assessment that considers both positive and negative factors. The aim is to highlight merchants who demonstrate a strong track record in customer satisfaction, product diversity, and overall business performance.

Criteria for Evaluation Of Merchants:

The merchants are evaluated based on the following key metrics:

- **Positive Rating Score:** This score reflects the percentage of positive feedback a merchant has received. Higher ratings are an indicator of customer satisfaction and reliability.

- **Product Count Score:** This measures the range and volume of products offered by the merchant. A larger product count suggests a well-established merchant with broad offerings.

- **Negative Rating Score:** This inversely measures the percentage of negative feedback a merchant has received in the last 12 months. Lower negative ratings indicate better performance in managing customer expectations.

- **Hero Product Rating Score:** This assesses the ratings of the merchant's most popular products. High ratings on these products indicate that key items in the merchant's inventory are well-received.

- **Brand Diversity Score:** This measures the number of distinct brands a merchant is associated with. Higher diversity is a positive indicator of the merchant's versatility and market reach.

Conclusion

This analysis highlights the most promising Amazon merchants based on a combination of performance metrics, risk assessment, and product portfolio evaluation. The key KPIs developed in this case study provide a data-driven approach to identify the best acquisition targets, ensuring that the acquisitions team focuses on sellers with high potential and low risk.

Recommendations

- **Target Low-Risk Sellers:** Focus on acquiring sellers with high overall scores and low-risk ratings to minimize potential complications and maximize returns.

- **Leverage Hero Products:** Prioritize sellers with popular hero products as these are likely to bring immediate brand recognition and customer loyalty.

- **Consider Brand Diversity:** Acquire sellers with a diverse range of brands to ensure a balanced portfolio that can withstand market fluctuations.

- **Expand Geographical Reach:** Explore acquisition opportunities in regions with high seller performance to tap into new markets.

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