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Stripe Connect

Analyzing Payouts and Forecasting Volumes

PROJECT OVERVIEW

Forecasting future payout volumes for Stripe Connect

1. The What:

- Stripe Connect: A key product enabling platform businesses to distribute payouts globally.

2. The Why:

- Provides a foundation for strategic decision-making for global platform payment dynamics.

3. The How:

- Exploration and Analysis of platforms & recipient historic data
- Data Wrangling and Transformation
- Prediction via additive time-series forecast modeling

Dataset Overview



1. **Payouts.csv** Daily payout amounts from platforms to recipients.
 - **Contents:** Date, platform ID, recipient ID, transaction count, and amount (cents).
 - **Rows:** 1,622,642 rows

2. **Industries.csv** Mapping of merchant IDs to 17 industries.
 - **Contents:** merchant_id, Industry
 - **Rows:** 112,310
 - **Industries Highlighted:** Education, Hotel, Restaurant's & Leisure, Food & Beverage.

3. **Countries.csv** Mapping of merchant IDs to 24 countries.
 - **Contents:** Mapping of merchant IDs to countries.
 - **Rows:** 112,310

ANALYZING THE DATA

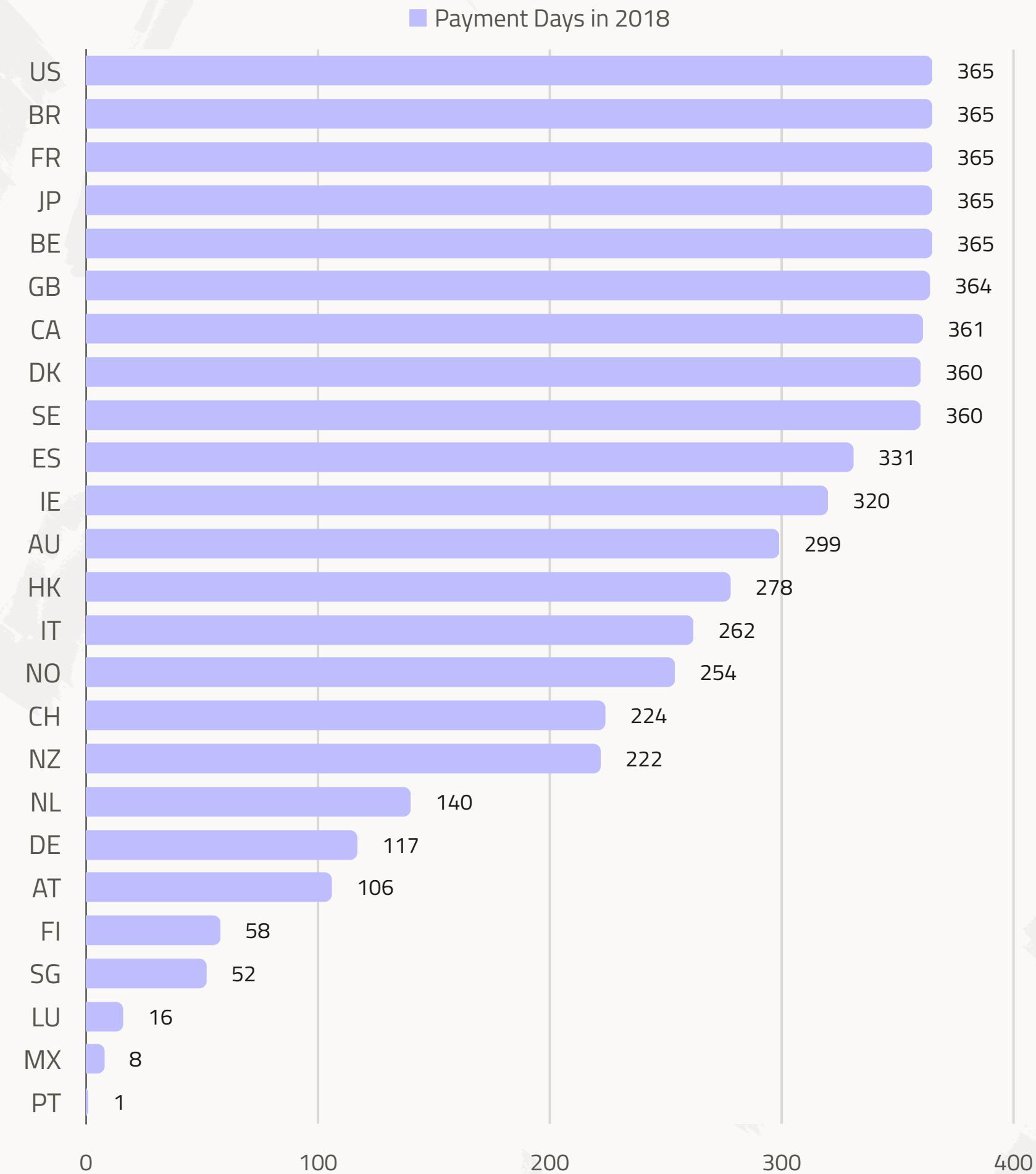
- Link payouts to platforms and recipients through merchant IDs.
- Enable detailed analysis by country and industry, essential for estimating future payouts and defining strategic metrics.

Payout Projections by Country

WHAT DOES THE GLOBAL LANDSCAPE OF STRIPE PAYMENTS REVEAL?

- **Top Contributors:** US, BR, FR, JP, BE - Full-year data, showcasing consistency and high activity levels.
- **Growth Opportunities:** Countries with fewer data points, such as DE, AT, FI, SG, and LU, may represent emerging markets or growth opportunities.
- **Potential for Expansion:** Understanding patterns in payment volumes can guide strategic expansion and support decisions.

HOW MUCH DATA DO WE HAVE PER COUNTRY →



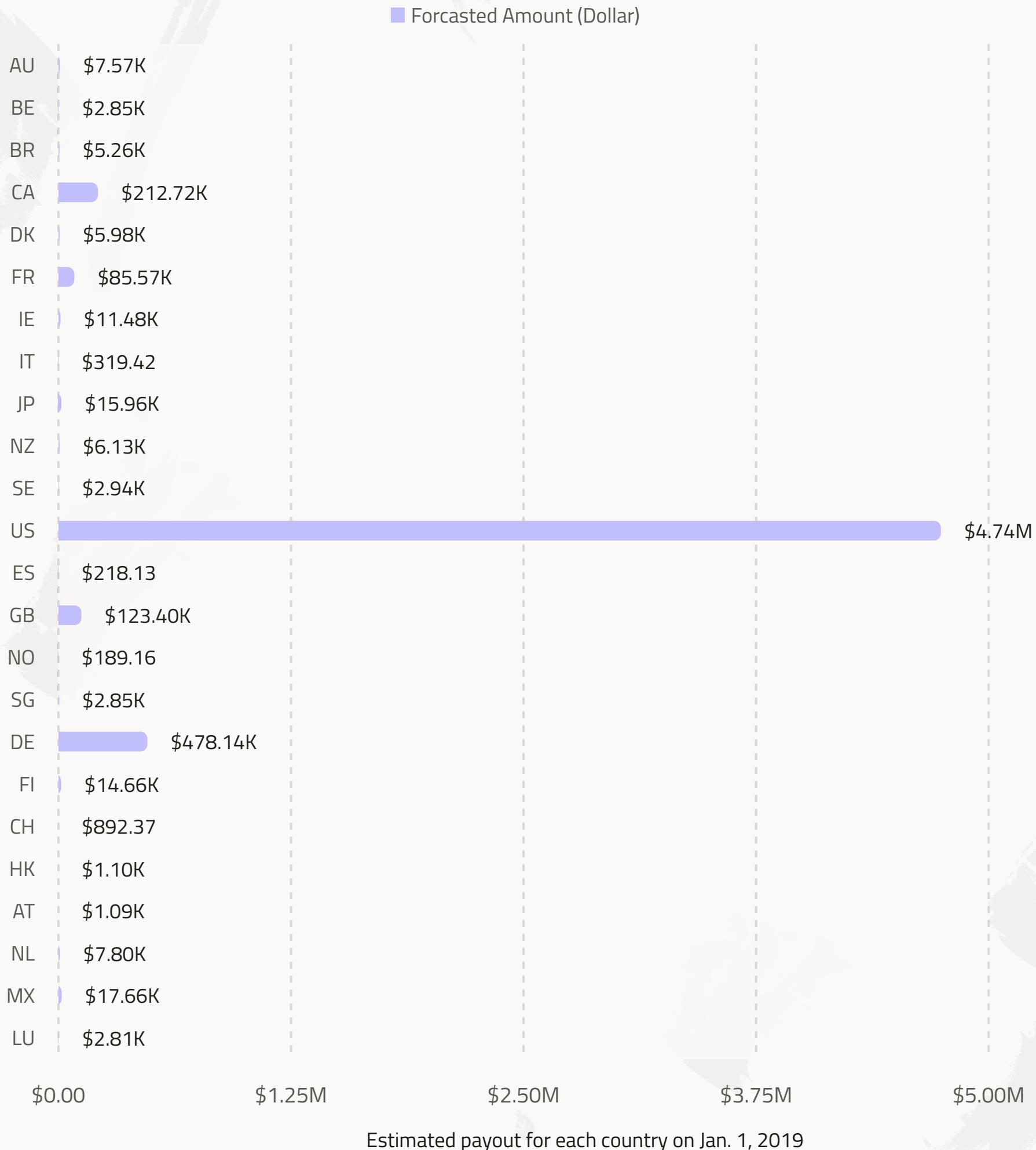
Jan. 1, 2019 Forecasted Payouts

LEVERAGING FACEBOOK PROPHET FOR ACCURATE PREDICTIONS

NOTABLE HIGHLIGHTS:

- **United States:** The leading country with a forecasted payout of approximately \$4,743,261.
- **Canada:** Significant payout volume with an estimate of around \$212,724.
- **France:** Expected payout stands at \$85,567, indicating robust activity.
- **Germany:** Shows a promising forecast with \$478,137 in payouts.
- **Japan, United Kingdom, Australia, New Zealand, and Singapore** showcase notable forecasted payouts, highlighting Stripe Connect's impact across diverse markets.
- **Portugal** is an exception that contained only 1 entry in 2018, therefore due to current constraints, the prediction will be the same amount for the estimate (on January 1, 2019).

NOTE: FORECASTED VALUES ARE BASED ON HISTORICAL DATA TRENDS, INCORPORATING SEASONAL ADJUSTMENTS. WHILE PRECISE, FORECASTS INHERENTLY INCLUDE A DEGREE OF UNCERTAINTY.



Payment Count in 2018

Payout Projections by Industry

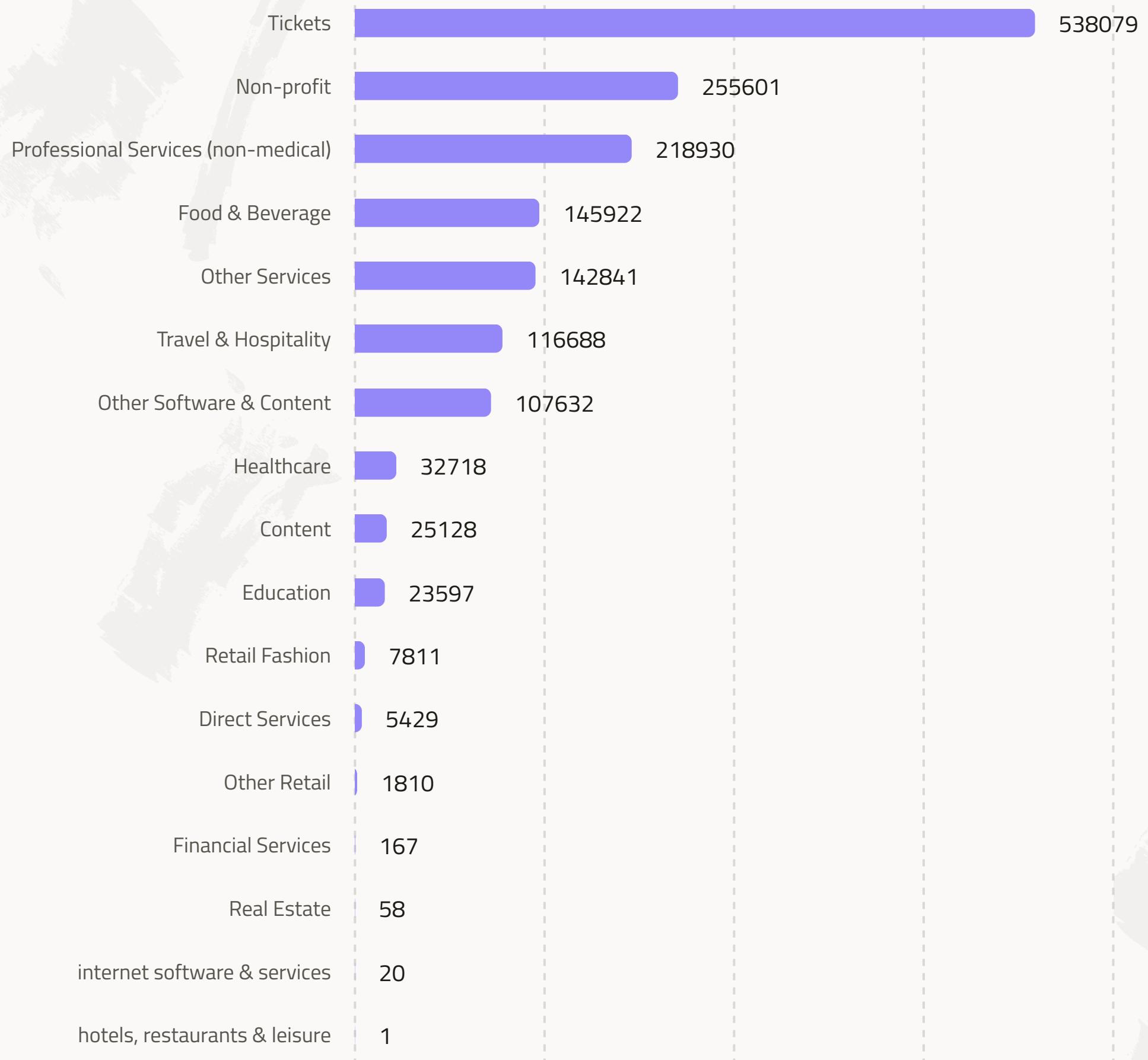
HISTORIC OVERVIEW

ANALYSIS

- Identified key industries driving the highest payout volumes (Tickets, non-profit), indicating sectors with strong payment activities and market potential.
- Analyzed payouts across multiple industries to understand the distribution and growth patterns.

STRATEGIC IMPLICATIONS

- Growth Opportunities:** Industries with rising payout trends suggest areas for strategic investment and development.
- Market Dynamics:** Understanding industry-specific payout behaviors helps in tailoring Stripe Connect features to meet diverse needs.



Estimating the Total Payout Volume

for Education, Hospitality and Food Industry

TOTAL PAYOUT VOLUME ON A TYPICAL DAY IN 2019 FOR 3 KEY INDUSTRIES

- **Education:** \$ 564,958.71

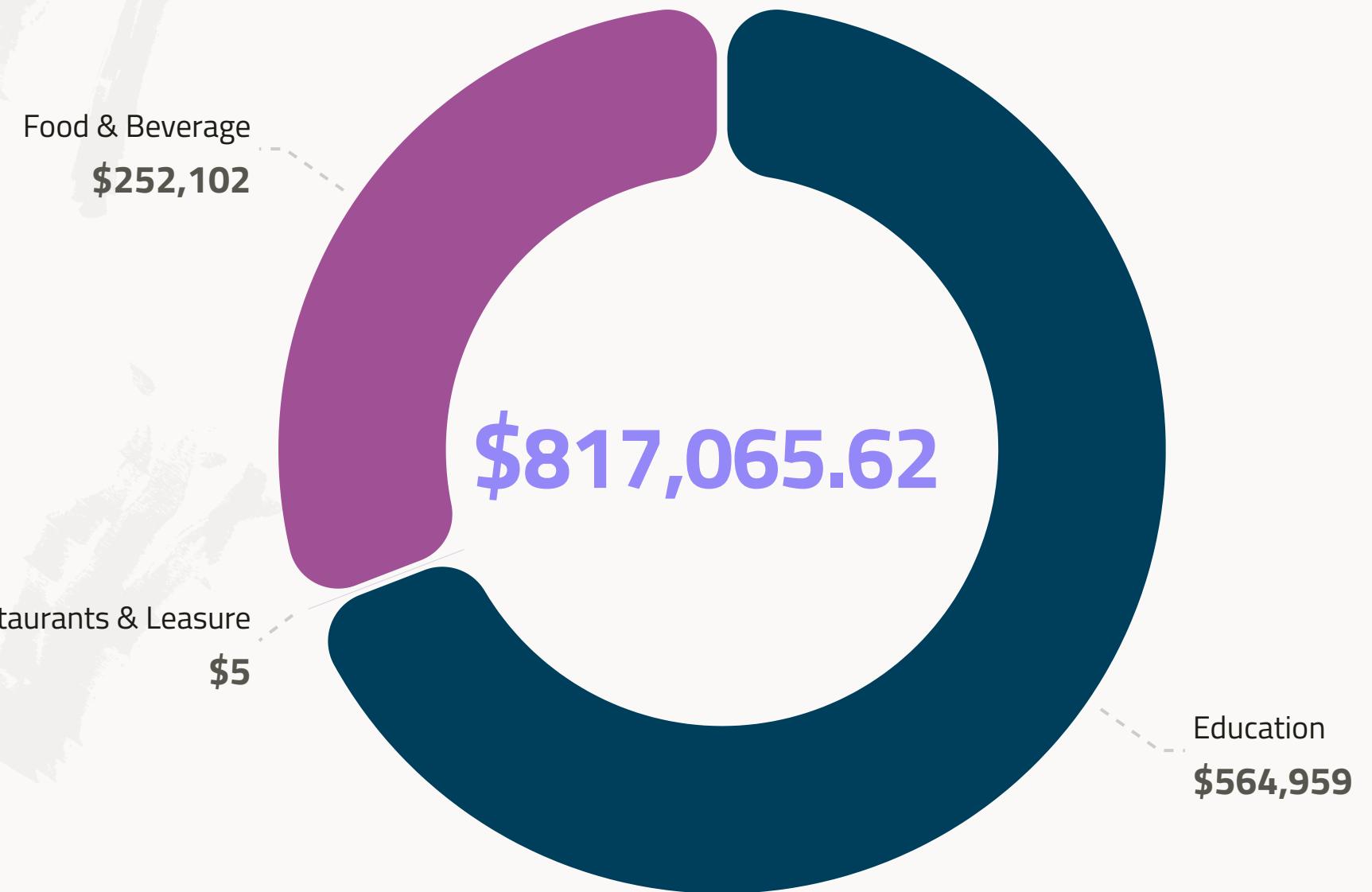
Projected to witness substantial growth, reflecting the increasing adoption of digital payments in the sector.

- **Hotels, Restaurants & Leisure:** \$4.70

Forecasts suggest steady transaction volumes, driven by global tourism and dining trends.

- **Food & Beverage:** \$ 252,102.21

Expected to see significant daily payout volumes, underlining the industry's rapid expansion and the role of online platforms.



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Defining and Tracking Metrics for Stripe Connect

GROWTH METRIC

- Total Payout Volume:** Track the total amount of money paid out over time (daily, weekly, monthly, yearly) to understand overall platform growth.
- Number of Active Platforms:** The count of unique platforms making payouts in a given time frame. This helps in understanding the platform adoption rate.
- Number of Active Recipients:** Similar to platforms, tracking the count of unique recipients receiving payouts indicates network growth.
- Geographic Expansion:** The number of countries or regions in which payouts are made, to track geographic spread and international growth.

ENGAGEMENT METRIC

- Average Payout per Platform:** The average amount paid out by each platform in a given period. This metric helps in understanding how actively platforms are using the payout feature.
- Frequency of Payouts:** How often platforms make payouts (e.g., daily, weekly, monthly). This indicates the operational tempo of platform businesses.
- Industry Segmentation:** Payout volumes segmented by industry, to identify which sectors are most actively using Stripe Connect.

EFFECTIVENESS METRICS

- Payout Processing Time:** The time taken from when a payout is initiated to when it is completed. This metric is crucial for understanding the efficiency of the payout process.
- Success Rate of Transactions:** The percentage of payouts that are completed successfully without errors or failures. High success rates indicate a reliable and effective platform.
- Cost per Payout Transaction:** Understanding the cost involved in processing each payout can help in optimizing operations and pricing strategies.

RELIABILITY METRICS

- Rate of Failed Transactions:** The percentage of payout transactions that fail. Monitoring this rate can help in identifying issues with the payout process or with specific platforms or recipients.
- Dispute Rates:** The rate at which payouts are disputed by recipients. This can indicate issues with platform users or the need for improvements in the payout verification process.

CUSTOMER SATISFACTION

- Net Promoter Score (NPS):** Collecting and tracking NPS specifically from users of Stripe Connect can provide insights into customer satisfaction and areas for improvement.
- Customer Support Metrics:** Metrics such as average resolution time for payout-related support tickets and the volume of support tickets related to payouts.

Conclusion

KEY TECHNICAL IMPLEMENTATIONS AND INSIGHTS

- **Data Manipulation with Pandas** for data loading, cleaning, merging, and preprocessing.
- **Time-Series Analysis with Facebook Prophet** Configured seasonalities and holidays for accurate predictions.
- **Exploratory Data Analysis** to identify trends and patterns. Visualized payout trends and distributions across countries and industries.
- **Developed Predictive Models** for estimating future payouts by country and industry. Implemented cross-validation techniques for model performance evaluation.
- **Hyperparameter Tuning** Employed grid search for optimizing Prophet model parameters.
- **Forecast Visualization** Generated insightful visualizations of forecasts
- **Insight Extraction** identified key growth areas and strategic recommendations for Stripe.
- **Technical Stack**
 - Python for data analysis and modeling.
 - Libraries: pandas for data manipulation, Facebook Prophet for forecasting, matplotlib/seaborn for visualization.
- **Strategic Recommendations**
 - Offered data-driven strategies to capitalize on identified market opportunities.
 - Suggested focus areas for Stripe based on predictive insights.

The ability to anticipate payout trends equips Stripe with a competitive edge, facilitating proactive engagement with platform users and market opportunities.

ANOTHER APPROACH

With more time, the scope and precision of this analysis could be significantly enhanced through the adoption of cutting-edge models and analytical techniques. By leveraging advanced machine learning algorithms, such as **XGBoost** and **LSTM neural networks**, we could capture the intricate nonlinear relationships within the payout data more accurately. Additionally, employing a **multi-variate approach** to incorporate a broader range of influencing factors—like economic indicators and currency exchange rates—would offer a comprehensive understanding of the dynamics at play. The inclusion of **ensemble methods** could further bolster the robustness of our predictions by amalgamating insights from multiple models. For situations where traditional time-series forecasting proves optimal, refined models such as **ARIMA** could be re-evaluated for their nuanced predictive capabilities.

Thank You For The Opportunity.

PRESENTATION TOOL CREDITS:

PITCH, A STRIPE PLATFORM PARTNER

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