Leveraging social media to address customer needs

Investigating tweets to Revolut

Tawney Kirkland
26 February 2021

Agenda

- Introduction
- Methods
- Data
- Findings
- Insights

The project objective was to analyze tweets to Revolut to understand opportunities to address customer needs

Tawney   @tawney_k   •   Feb 22

@RevolutApp, what have you learned from analyzing customer tweets to improve services?

💬 182   🔁 54   ♡ 426   ⬆️

Revolut ✔️ @RevolutApp   •   Feb 22

@tawney_k, we have never thought of that before 🤔 Can you look into that and let us know?

💬 186   🔁 116   ♡ 1.3K   ⬆️

Both quantitative and qualitative methods were used to support the analysis

Quantitative methods

- Exploratory data analysis
- Natural language processing for topic modeling and sentiment analysis
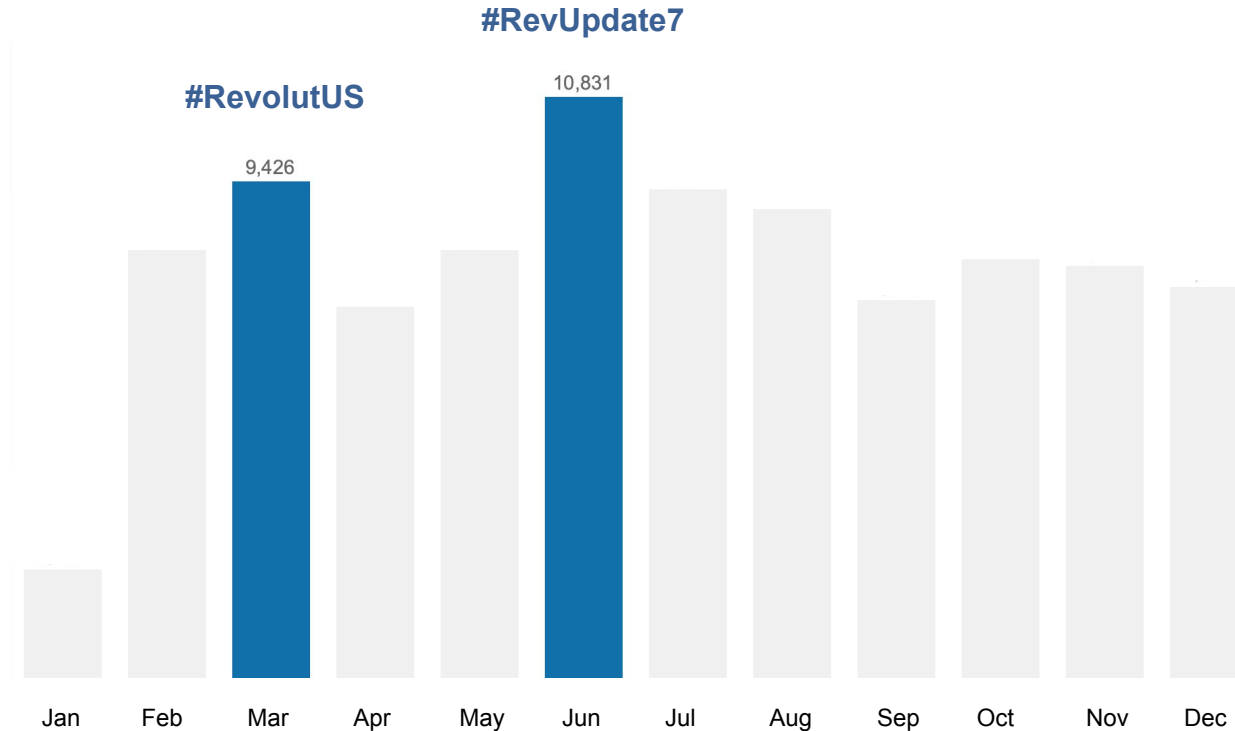- Intent classification using XGBoost and Random Forest

Qualitative methods

- Desktop review of Revolut blog and fintech news

The analysis included 97,000 tweets from January to December 2020

Broadly consistent number of tweets over time, with the exception of March and June
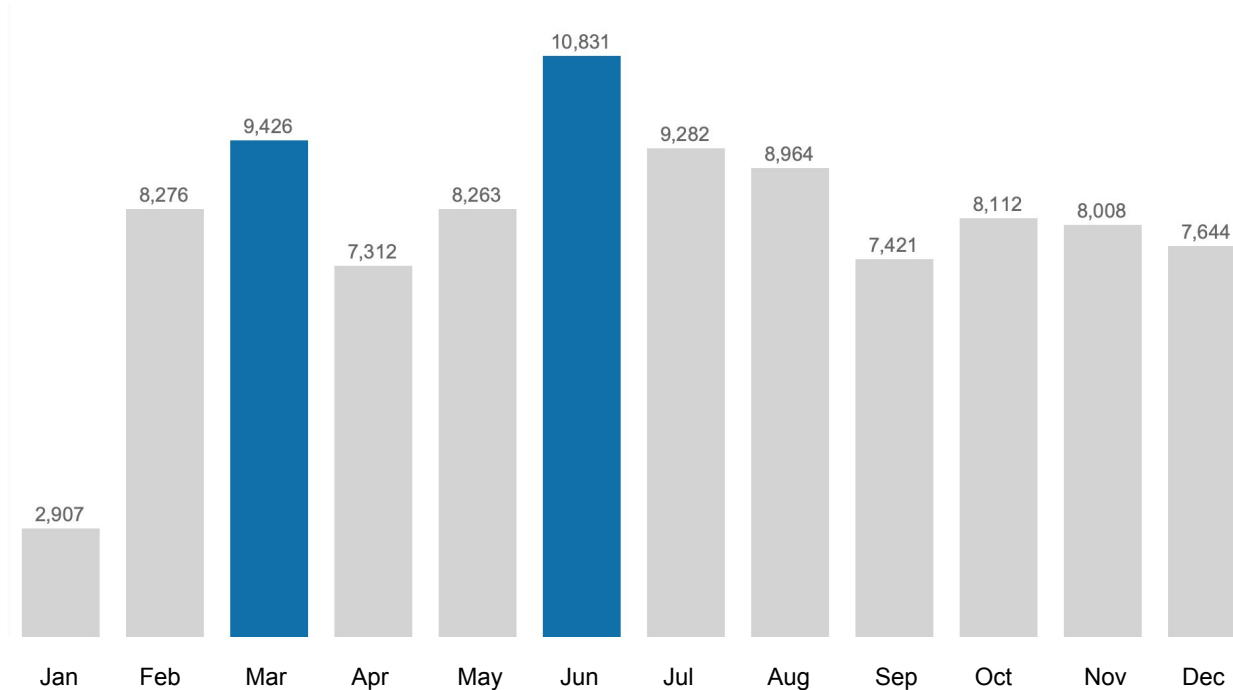
# The analysis included 97,000 tweets from January to December 2020

Topic modeling using NMF revealed four major tweet topics and the top 6 words within each topic

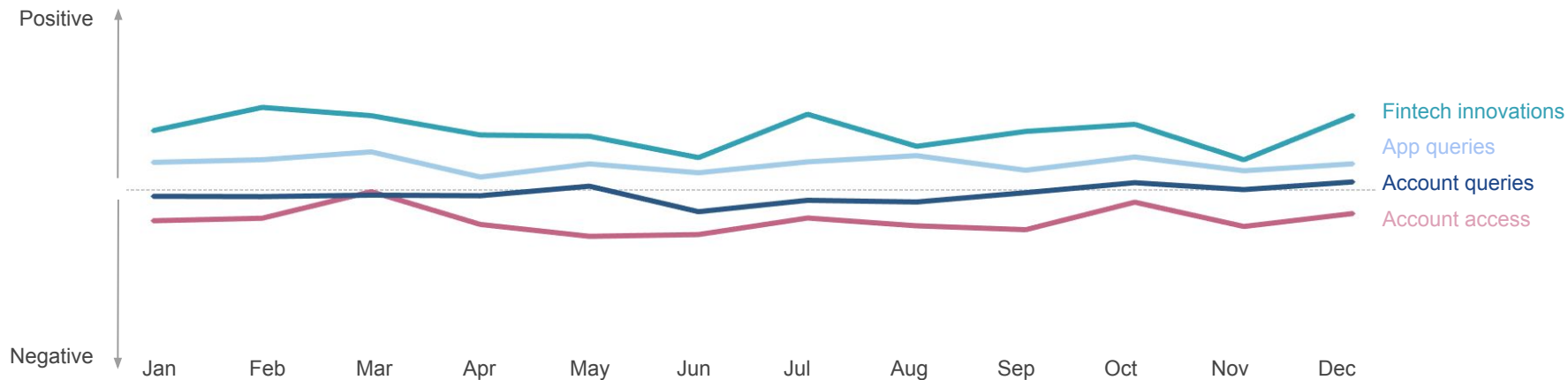| General account queries	Account	Fund	Document	Open	Customer service	Information
App queries	App	Phone	Update	ID	Working	Login
Fintech innovation	Revolut	Crypto	Customer	Child	Fintech	Payment
Account access	Money	Send	Pay	Bank account	Lost	Transferred

The fintech innovation topic accounts for the lion's share of retweets

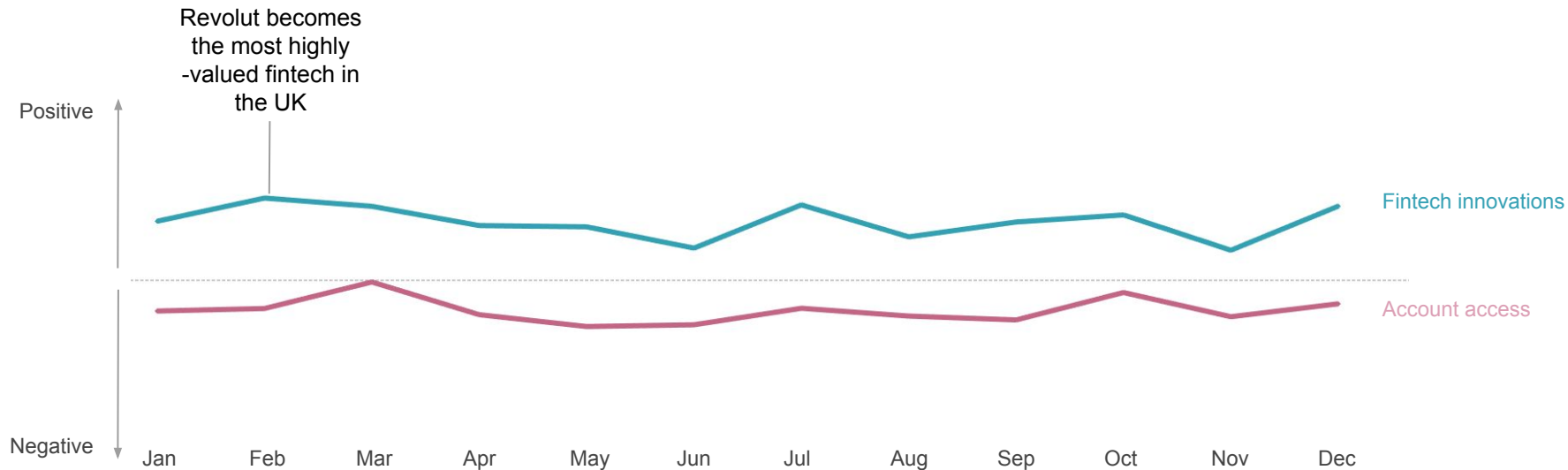The fintech innovations topic accounts for only 25% of tweets but **over 60% of retweets**
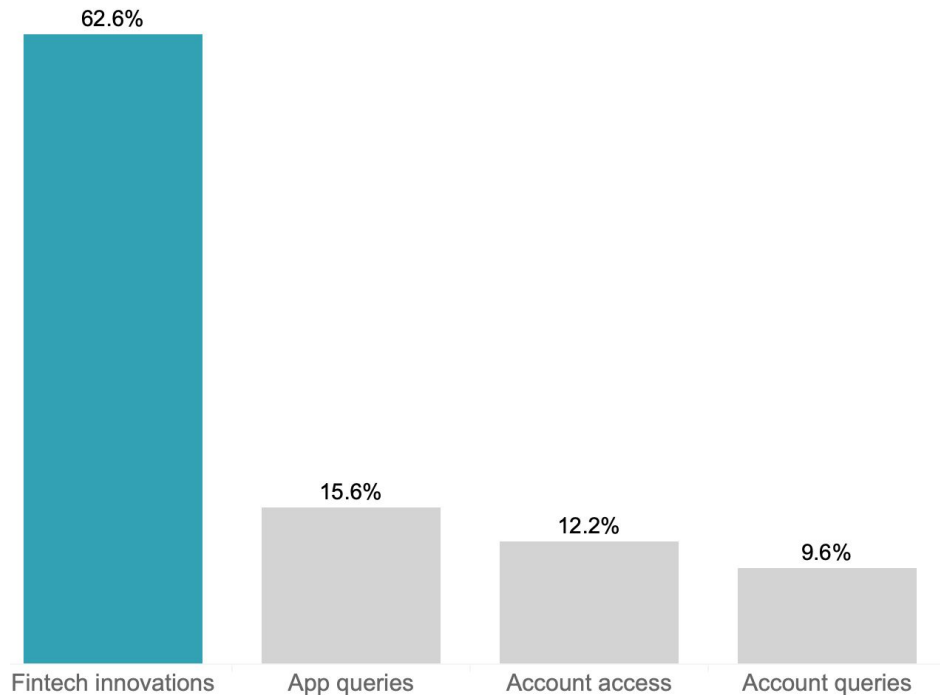
Integrating sentiment analysis reveals that tweets are generally positive, although close to neutral
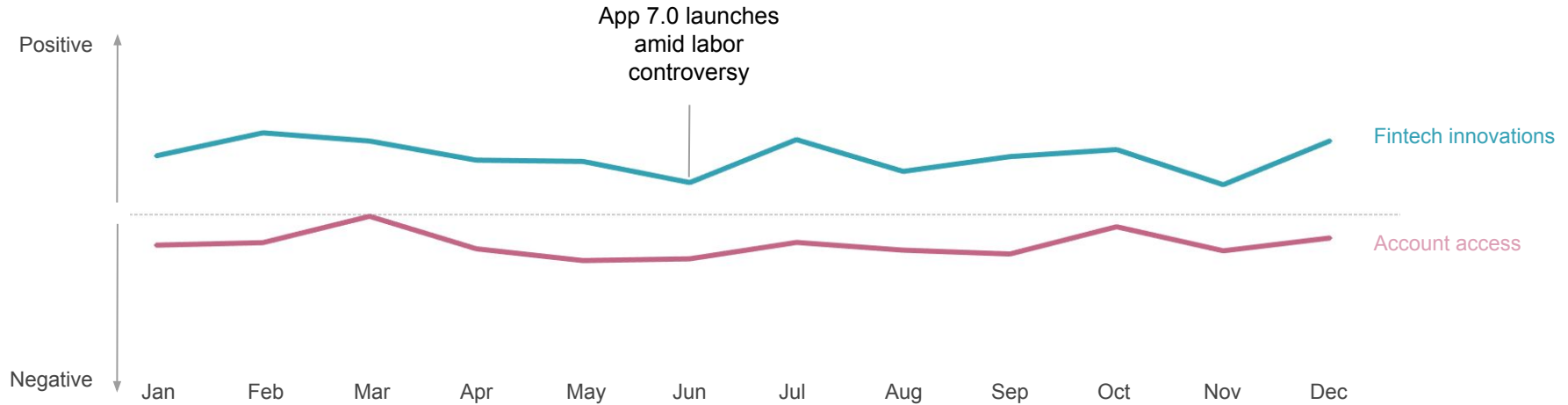
Tweets related to fintech innovations are generally positive, while account access is negative

Peaks and dips appear to correspond to important moments in Revolut's history in 2020

Revolut becomes the most highly -valued fintech in the UK

Positive

Fintech innovations

Account access

Negative

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Peaks and dips appear to correspond to important moments in Revolut's history in 2020

App 7.0 launches
amid labor
controversy

Positive

Negative

Fintech innovations

Account access

Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec

Peaks and dips appear to correspond to important moments in Revolut's history in 2020

All users can buy silver

Positive

Negative

Fintech innovations

Account access

Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec
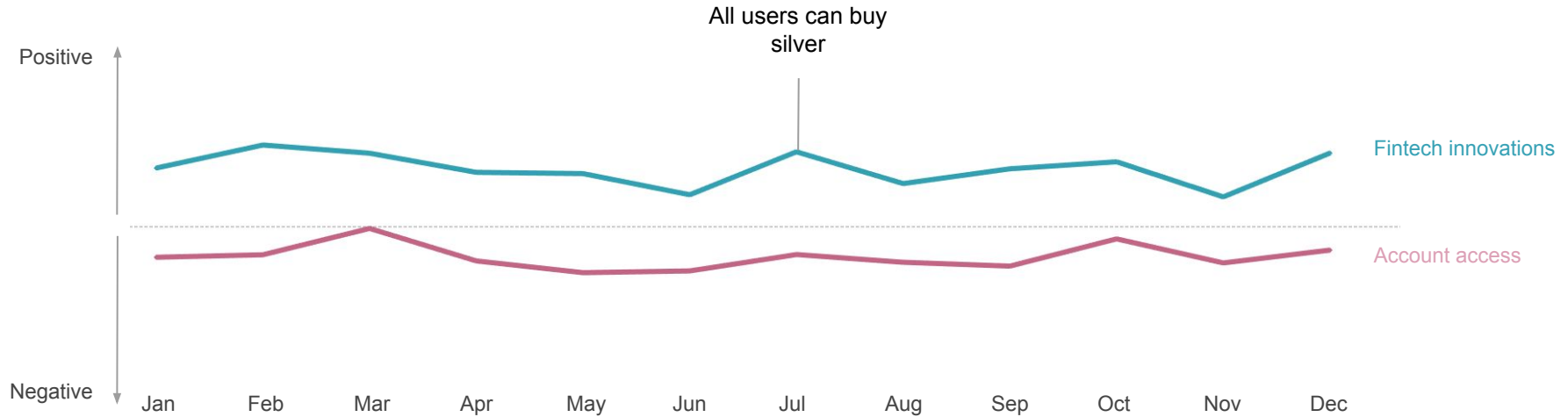
Peaks and dips appear to correspond to important moments in Revolut's history in 2020
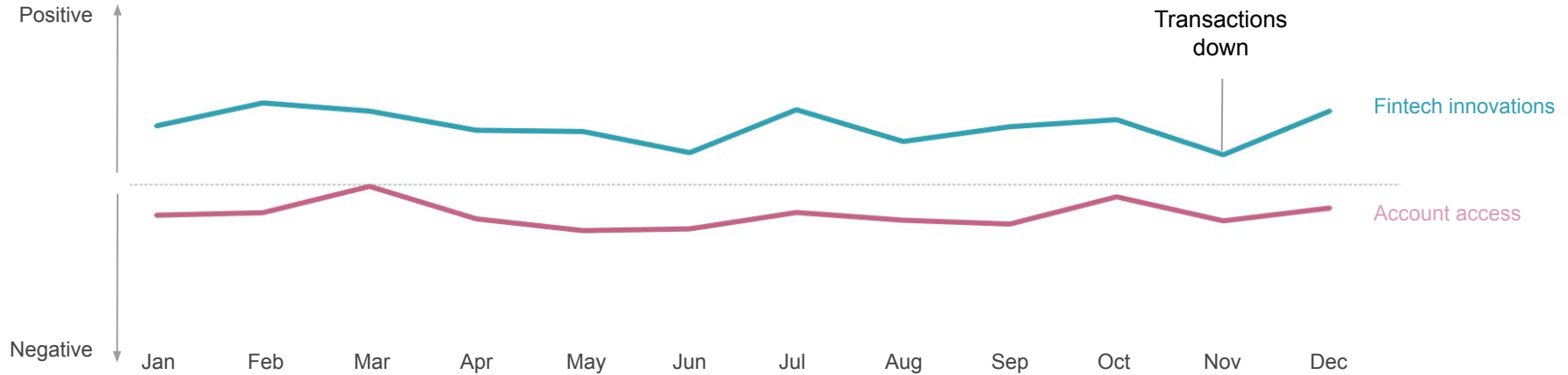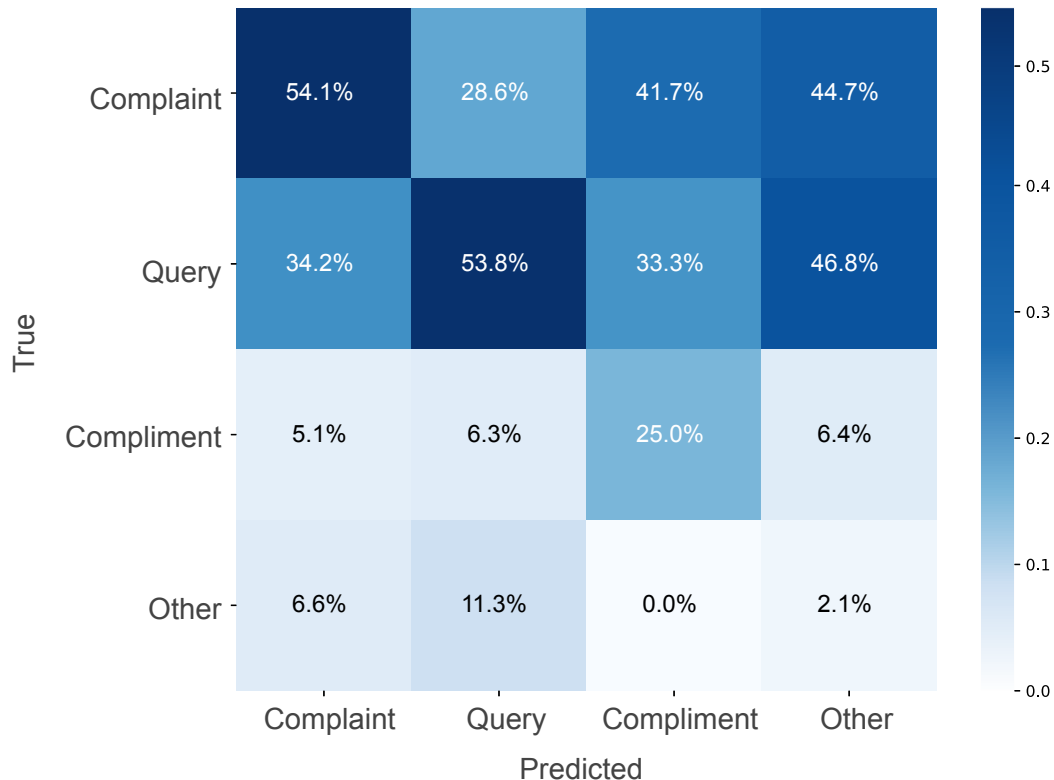
To understand the intention of tweets, XGBoost was used to develop an intent classifier

Key points

Best performance on the larger classes

Good performance given number of labels

Confusion matrix for the XGB classifier

Confusion matrix for the XGB classifier

True \ Predicted	Complaint	Query	Compliment	Other
Complaint	54.1%	28.6%	41.7%	44.7%
Query	34.2%	53.8%	33.3%	46.8%
Compliment	5.1%	6.3%	25.0%	6.4%
Other	6.6%	11.3%	0.0%	2.1%

Incorporating customer intent enables insight into how to address different categories of customer tweets

Unsurprisingly, customer complaints are predominantly negative

	Negative	Neutral	Positive
Complaint	47.1%	12.8%	40.0%
Query / support	32.0%	19.5%	48.5%

Negative Neutral **Positive**
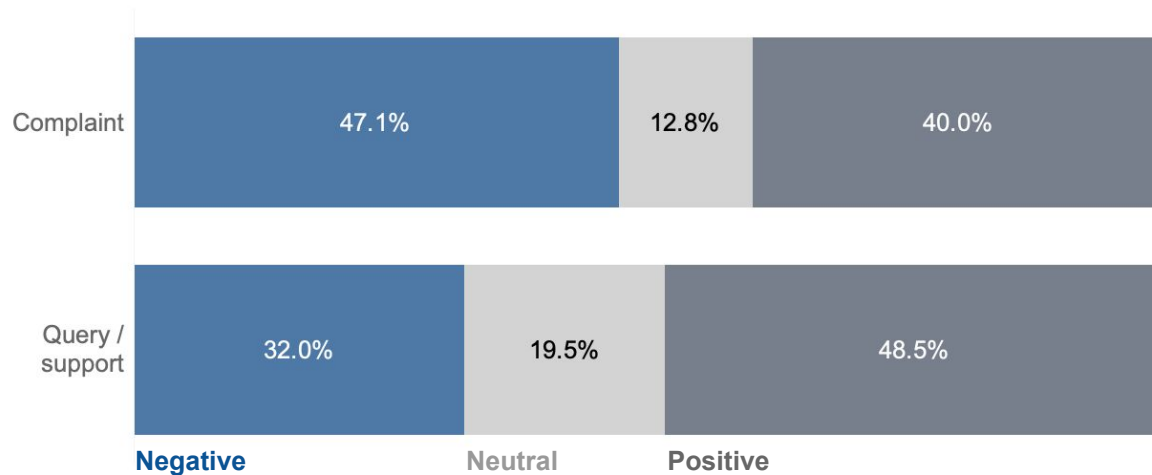
Key points

Customers who are submitting a complaint *and* have a strongly negative sentiment are can become harmful to the brand image

Together, these findings provide helpful insights for Revolut

App support

When there is a new version release, expect an increase in tweets and a reduction in sentiment overall

- Messaging to encourage use of in-app support
- Increase support staff
- Analysis of in-app support

Social media response

Focus support on customers classified as submitting queries, prioritizing those with a negative or neutral sentiment first

Filter out the bots, and address the remaining complaints so that they are not provoked into becoming anti Revolut
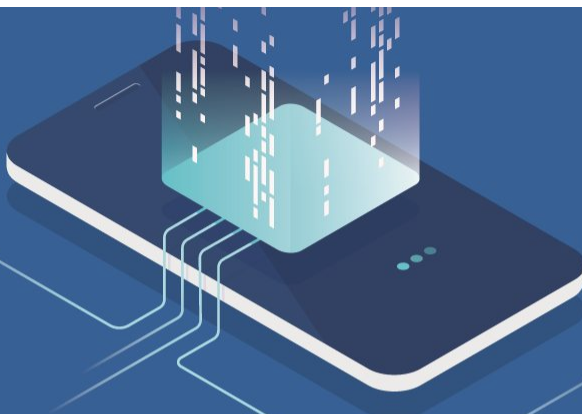
Appendix

- Tools
- Data
- Model

Tools

Data gathering
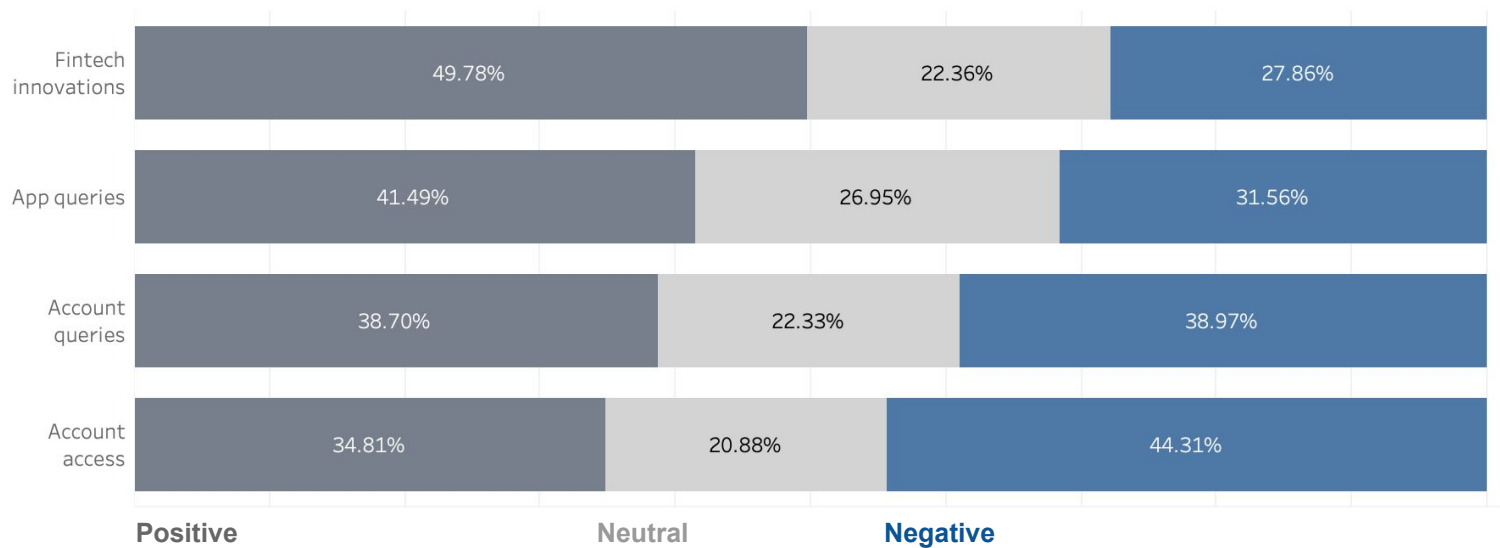
- Twint

Data processing

- Python
- Pandas
- Numpy
- NLTK

Modeling

- Sklearn
- XGBoost
- NMF

Visualization

- Matplotlib
- Seaborn
- Tableau

Data

Sentiment distribution by topic

Topic	Positive	Neutral	Negative
Fintech innovations	49.78%	22.36%	27.86%
App queries	41.49%	26.95%	31.56%
Account queries	38.70%	22.33%	38.97%
Account access	34.81%	20.88%	44.31%

Positive   Neutral   **Negative**

Model

XGBoost results
Accuracy: 50%

	precision	recall	f1-score	support
0	0.54	0.40	0.46	264
2	0.54	0.73	0.62	341
3	0.25	0.07	0.11	45
4	0.02	0.02	0.02	66
accuracy			0.50	716
macro avg	0.34	0.30	0.30	716
weighted avg	0.47	0.50	0.47	716