Social Media as a Tool for Consumer Protection Monitoring

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Outline

1. Why use social media data?
2. Context
3. Overview of the approach (methods)
4. Findings and examples from our project
5. Going forward

What can social media data provide?

- Monitoring of social media offers opportunity to collect **observational data** about consumers' opinions, attitudes and behaviors.
- Insights gathered from the **analysis of social media data** can
  - Help monitoring in real-time of issues/events
  - Be incorporated in policy interventions, A/B testing…
  - Be used in predictive modeling

Context

- We worked with Citibeats to conduct the social monitoring project
- Data collection driven by study goal:
  - Understand types of problems faced by **digital finance consumers**
- Social media data collected in **Nigeria**, **Kenya** and **Uganda**
  - Data in multiple languages
- Data comes from Twitter, Facebook Public Pages, and Google Play Store
- Longitudinal study: from **July 1, 2019** to **July 1, 2020**
  - We cover roughly 6 months pre and post COVID-19

Approach/Methods

Step 1
- Collecting social media data at scale

Step 2
- Defining categories/topics of interest

Step 3
- Using word frequencies and probabilities to locate topics in data

Step 4
- Deeper analysis by incorporating user information

Approach/Methods

Collecting social media data at scale

- For this project, we collected **4.5 million social media messages** from
  - Commercial Banks
    - (e.g. Equity, Polaris Bank, Stanbic Bank…)
  - Telecommunication Companies offering mobile money services
    - (e.g. Telekom T-kash, Airtel Money, UTL…)
  - Fintech start-ups offering lending/payment
    - (e.g. Okolea, Sokoloan, Tala)
  - Microfinance institutions
    - (e.g. Uwezo Kash, Fortis Mobile Money, Tugende)

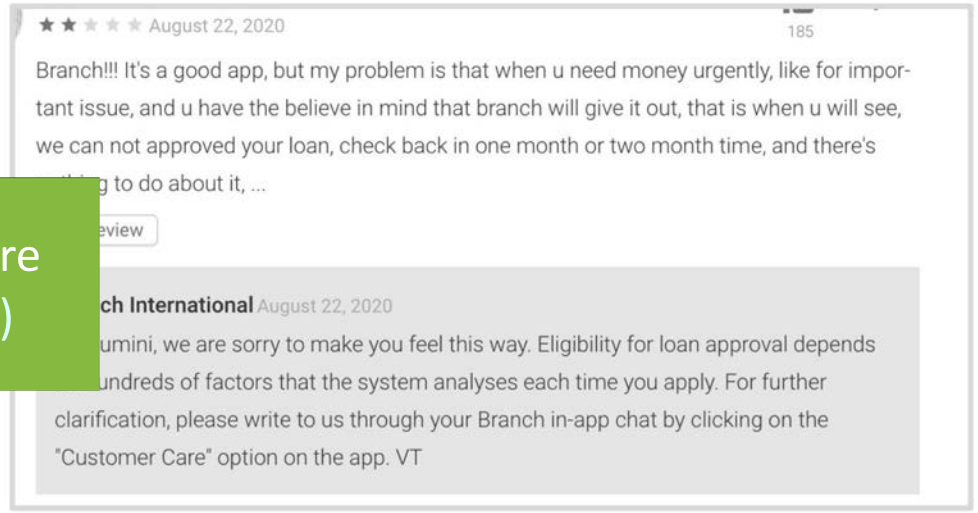
Approach/Methods

Collecting social media data at scale

Facebook
830,939 (42 %)

Twitter
1,651,659 (85 %)

Google Play Store
294,950 (40 %)



Approach/Methods

Defining categories/topics of interest

- We combine **top-down** and **bottom-up** approaches to identifying salient categories in the data
- Through interviews and expert advice, **seven areas of interest** were identified before the analysis:
  - Operational failures, consumer care, fees & charges, fraud, data privacy, lending, advertising
- Using text analysis tools (cluster analysis), and human input (individual analysis of sample messages), sub-topics were identified

Approach/Methods

Using word frequencies and probabilities to identify categories/topics

- During the analysis, Citibeats used (semi-supervised) **machine-learning** to go from unstructured text data to structured numerical data

Initial seeds for category of Fees & Charges in Kenya:

- fees
- charges
- overcharged
- refund
- deduction

Step 1
User defined dictionary of keywords

17:28 - Jan 08, 2020

@ Please return my funds to my account. Yesterday i had a balance today it negative. Please what happened. Please refund my money.

Step 2
Computing topic probabilities from keywords & context

18:59 - Jul 30, 2020

@ Having Nyeri1 return my money should be as simple as it was for them to craft the false statement.

14:30 - Jul 30, 2020

@ @ This bank if you don't follow up hiyo pesa itaogelea

Step 3
Newly learned words help determine topics for items with no keywords

Approach/Methods

Deeper analysis by incorporating user information from metadata


```
  "place":
{
  "attributes":{},
   "bounding_box":
   {
      "coordinates":
      [[
            [-77.119759,38.791645],
            [-76.909393,38.791645],
            [-76.909393,38.995548],
            [-77.119759,38.995548]
      ]],
      "type":"Polygon"
   },
    "country":"United States",
    "country_code":"US",
    "full_name":"Washington, DC",
    "id":"01fbe706f872cb32",
    "name":"Washington",
    "place_type":"city",
    "url":"http://api.twitter.com/1/geo/id/0172cb32.j
son"
}
```


Location

User device

Gender

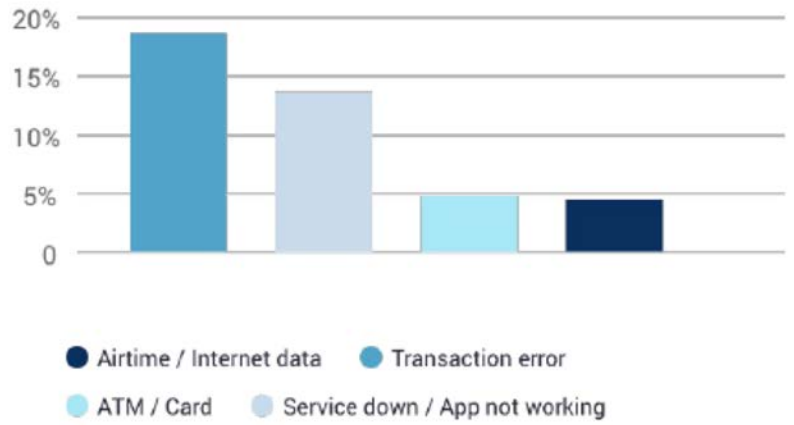
Preliminary Results

These results are subject to change.

1. Twitter and Facebook are mainly used to report **consumer protection issues, particularly customer care**

2. Google Play Store reviews focus on **app performance (positive reviews) and operational failures (negative)**
   Transaction errors are the most common operational failure reported

Types of operational failures reported on Google Play Store
Proportion of comments related to different types of issues.
Three markets aggregated



Preliminary Results

3. Financial providers' response rates **vary considerably** across Twitter, Facebook and Google Play Store

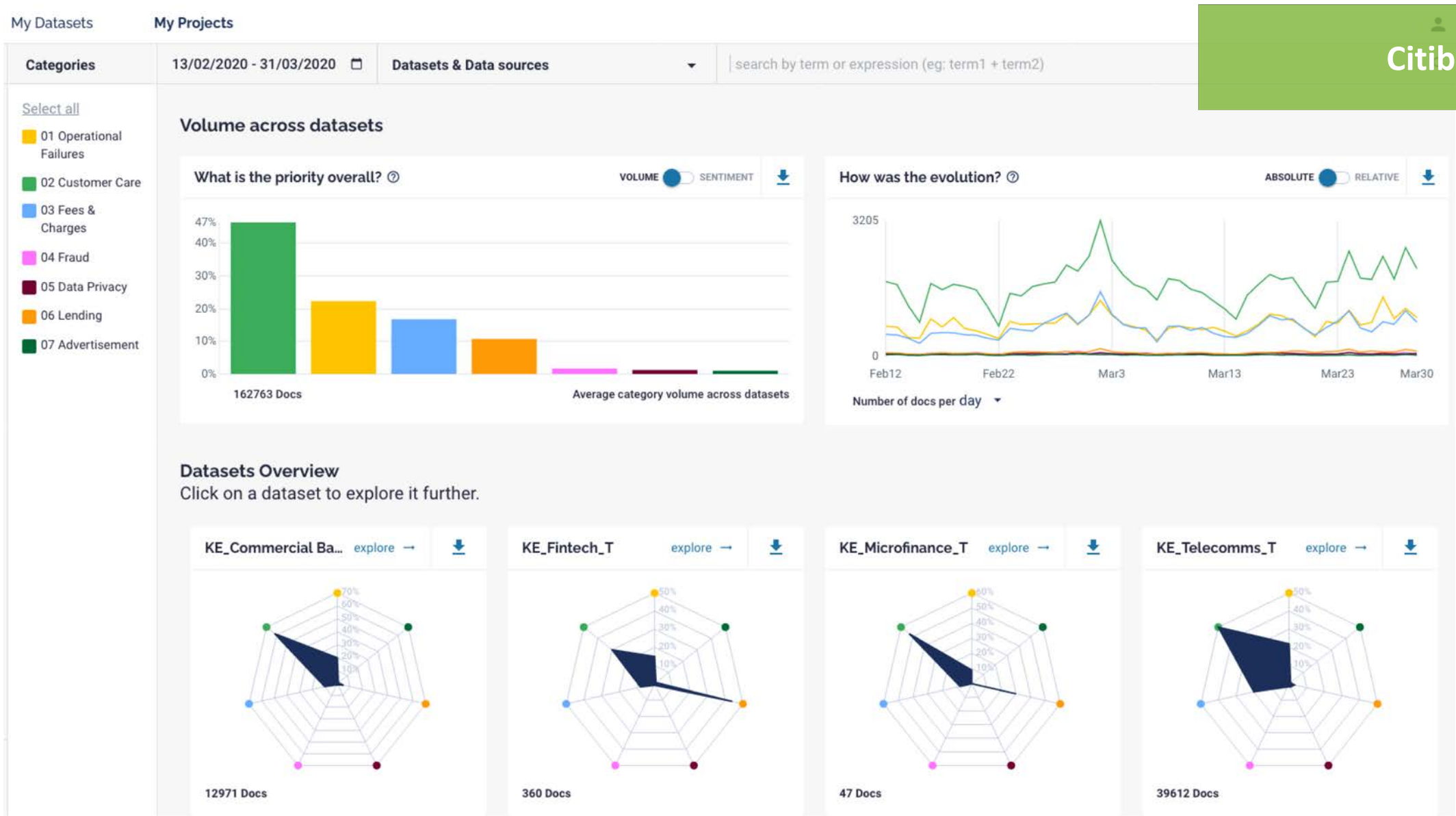
4. Replies on Twitter are more **concentrated on customer care** issues; Facebook and Google Play responses are **more distributed among different issues**

Preliminary Results

Results related to Covid-19

5. The use of social media channels to communicate issues and interact with financial providers **increased** across the three markets after the Covid-19 pandemic (early March 2020)
6. The distribution of issues **did not change** post-Covid-19
7. However, on Twitter, women in Nigeria have **significantly increased** their rate of complaints about fraud compared to men, while in Uganda customer care reports have also **risen** for women

Accessing and Analyzing Social Media Data



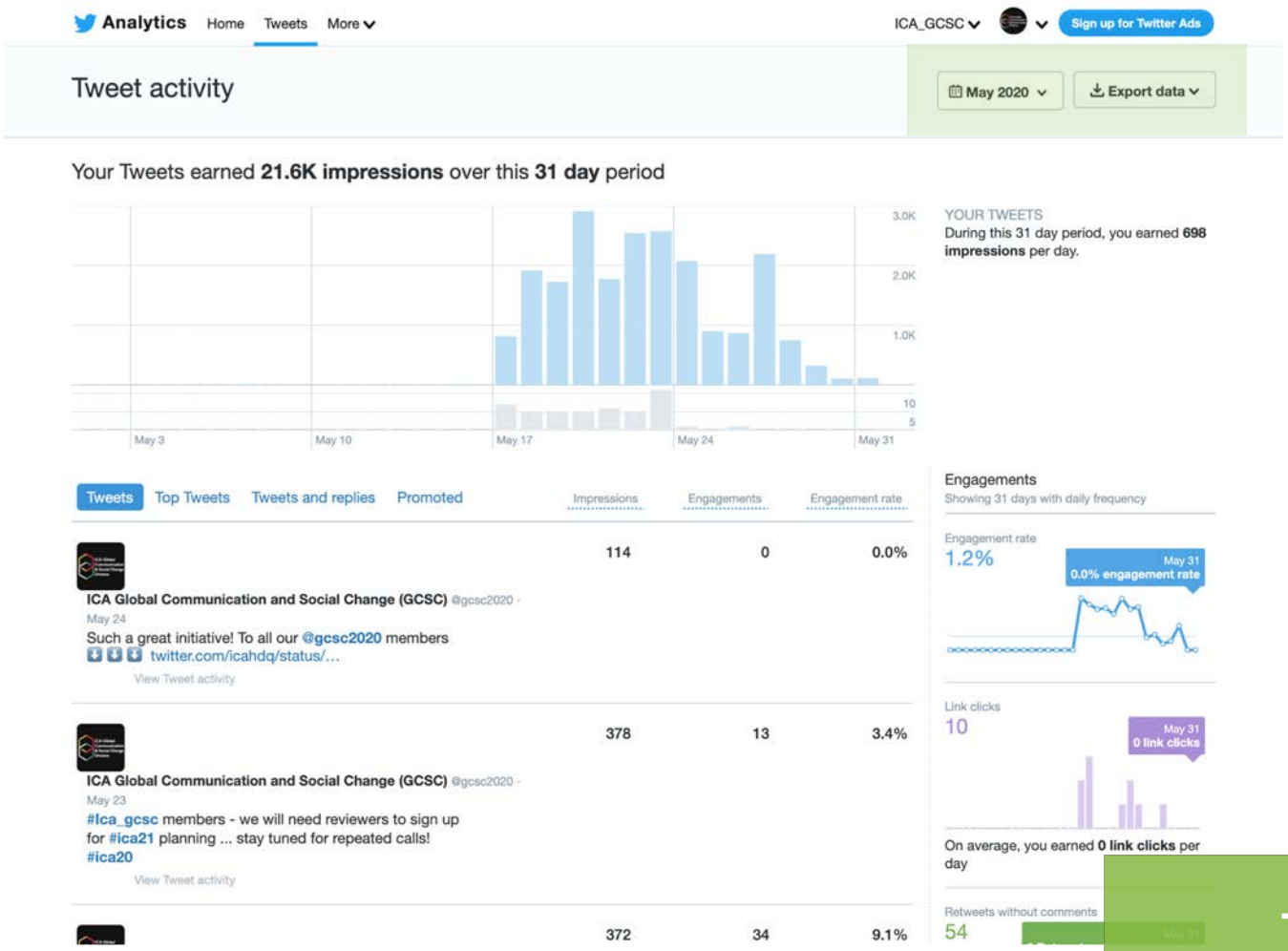
Citibeats

Tools for Accessing and Analyzing Social Media Data

- SM platforms have analytics dashboards
- Lots of external tools/services available but…
  - Some are very expensive
  - All have limitations

Tools for Accessing and Analyzing Social Media Data

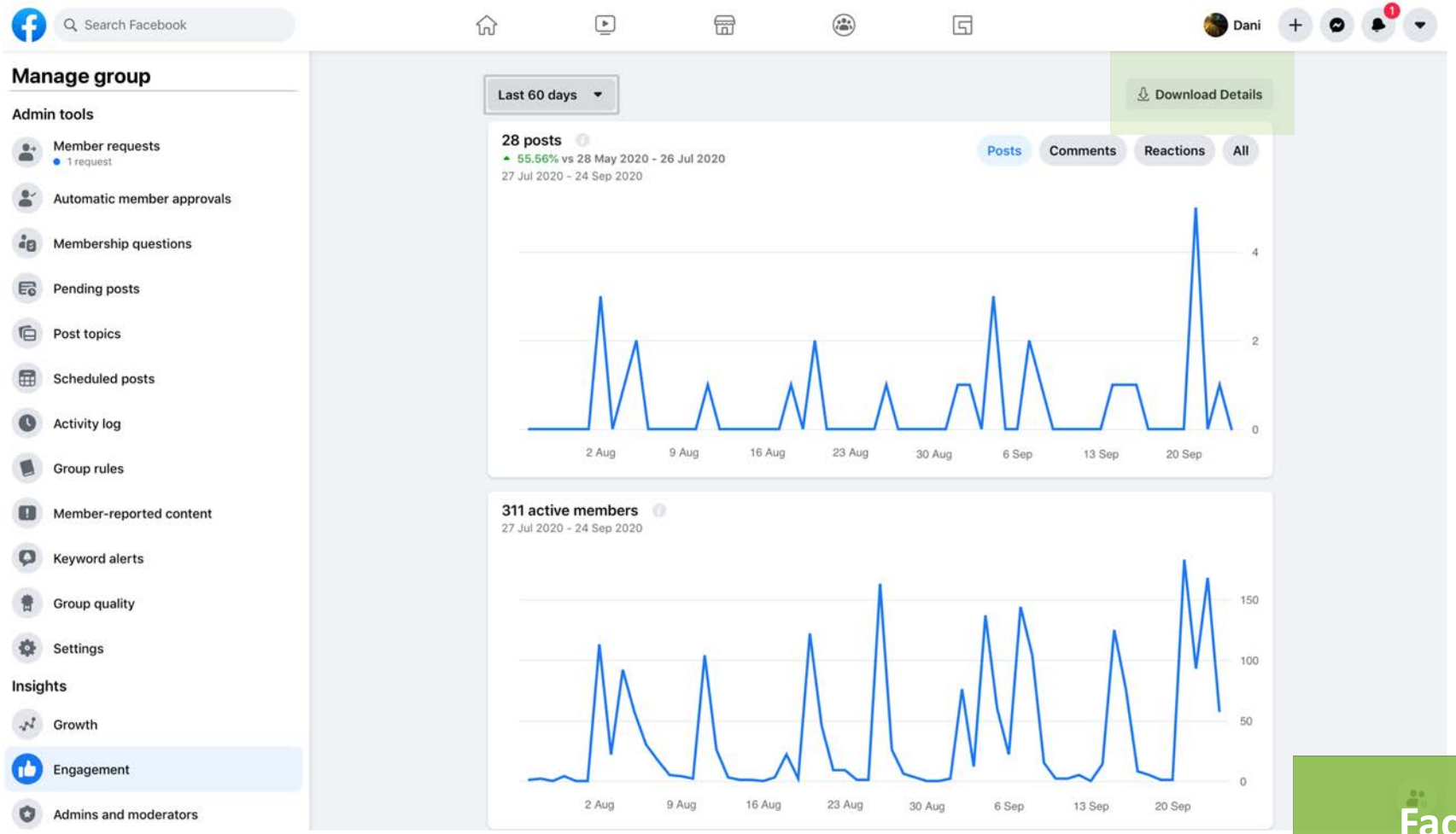
Free tools



Twitter Analytics

Tools for Accessing and Analyzing Social Media Data

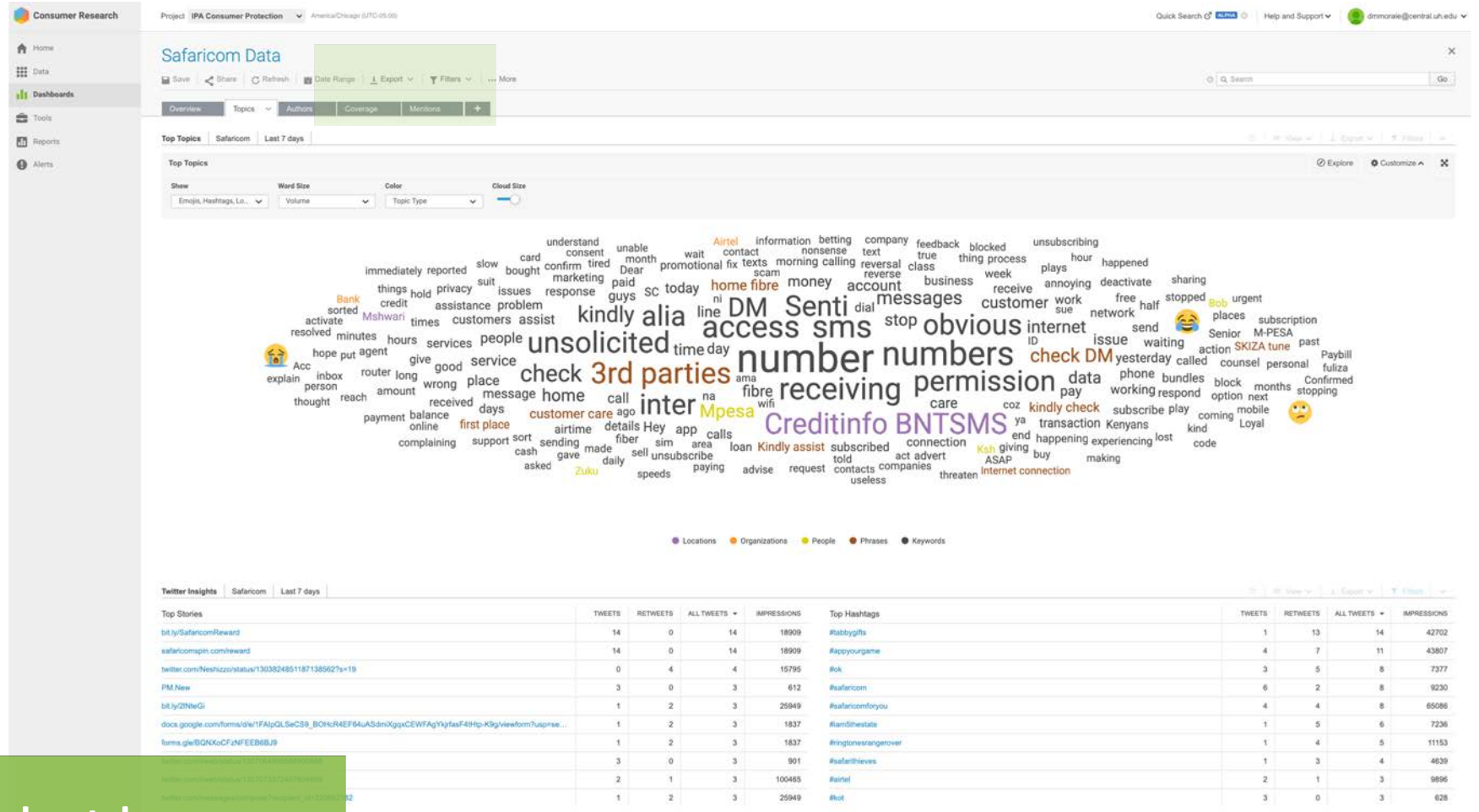
Free tools



Facebook Engagement

Tools for Accessing and Analyzing Social Media Data

Commercial Tools



Brandwatch

Takeaways

- On a large scale, social media channels offer a **rich source of consumer protection data** that can be gathered and analyzed to learn about customers

- On a smaller scale (e.g. at the individual bank, provider, regulator level), **data can be collected** and analyzed to glean relevant insights

- Data reveal patterns in both complaints and responses that can be used to **inform decision-making**

Thank you

Special thanks to Citibeats for their work on gathering and analyzing the data.