REPORT ON TWITTER ENGAGEMENT ANALYSIS USING POWER BI

by

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INTRODUCTION

Hey there! In the fast-changing world of social media, it's super important to know how stuff works on platforms like Twitter. This helps you connect better & reach your goals. In this report, we take a closer look at Twitter engagement data. We're focusing on key things like likes, retweets, replies, media views, and clicks. By checking these numbers out, we hope to discover some cool patterns that can help you make even better content.

One big part of our analysis looks at tweets that have media compared to those without. You see, adding images or videos often makes tweets more visible & keeps people interested. We also dig into tweets that have lots of media interactions—those above the average—to really see what makes them popular.

Plus, we check out how opening the app affects tweet engagement, especially during busy hours on weekdays. You'll find visuals like dual-axis charts showing daily media actions and pie charts that break down clicks on popular tweets. This gives a clear picture of how users behave.

By doing all this, our report shares helpful insights and tips for making your content shine and getting more people to engage with you on Twitter!

BACKGROUND

Social media has really changed how we communicate today. It’s become super important for businesses. They can connect their audiences in real, which is great! Among all the social platforms, Twitter is really special because it’s quick & to the point. For businesses, checking out how they engage on Twitter is truly essential. Why? Because it helps them learn what their audiences like, adjust their content plans, & boost their overall presence online.

Now, let’s talk about Power BI. It’s a pretty strong tool that helps businesses make sense of all the data from social media—like what you see on Twitter. With Power BI, companies can put together, break down, & visualize Twitter data easily. This gives them awesome insights into how people behave and how well their content is doing. It’s all about looking closely at user interactions and spotting trends so that they can make better choices.

When businesses use Power BI to visualize Twitter numbers, they can find cool trends and improve how they engage with their followers. This project wants to use Power BI to turn raw numbers into clear visuals that help with smart decision-making, plus help everyone understand the lively world of social media better!

Learning Objectives

This project had some exciting goals, like:

1. Using Power BI to dive into social media analytics.
2. Figuring out & visualizing how people engage on Twitter.
3. Comparing different kinds of interactions across tweets that have various traits.
4. Spotting the times when engagement peaks & what types of content really stand out.
5. Gathering & showcasing the number of tweets each week so we can see how tweet frequency changes over time.
6. Looking at impressions (which means how many times a user notices a tweet on Twitter) weekly, helping us understand how far tweets reach & their impact during different times.
7. Counting tweets daily too! This helps us see the best times to post and how content spreads out.
8. Creating a neat visual comparison for media engagement & views on a week-to-week basis. This way, we can thoroughly check out how media interactions relate to content reach over time.

ACITIVITIES AND TASKS

Task 1: Line Chart - Tweets by Week We made a line chart! It how many tweets were posted each week. You can see which weeks were super active.

Task 2: Line Chart - Impressions by Week Another line chart was created. This one reveals the trend of impressions by week. Some weeks had way more impressions than others!

Task 3: Pie Chart - Hashtag Click, URL Click, Profile Click
A pie chart was built, too! It displays the share of hashtag clicks, URL clicks, & profile clicks. It's pretty neat!

Task 4: Bar Graph - URL Clicks by Tweet
We also created a bar graph to show how many URL clicks each tweet got. It highlights the top-performing tweets, which is exciting!

Task 5: Clustered Bar Chart - Media Engagement vs Media Views by Day of the Week Lastly, we made a clustered bar chart! It compares media engagement & media views for each day of the week. You can spot the days with the highest numbers easily!

Task 6: Line Chart: Average Engagement Rate over each month of the year Separate
the lines for tweets with media content and those without.

I created a line chart showing the trend of average engagement rate over each month of the year, separating lines for tweets with media content and those without. Calculated the tweet type using the conditional column: **If media views is greater than 0, then with media content; otherwise, without media content**

Task 7: Clustered Bar Chart : Show a comparison the number of replies, retweets, and likes for tweets that have received media engagements greater than the median value. Include a filter for tweets posted in the last six months.

Analyzed tweets that compare the number of replies, retweets, and likes for tweets that have received media engagements greater than the median value.
Calculated the Median of media engagement using the measure dax formula : **Median Media Engagements = MEDIANX(ALL('SocialMedia (1)'),**
'SocialMedia (1)'[media engagements])

Create new column Above media using the DAX formula: Above Median Engagements =
IF('SocialMedia (1)'[media engagements] > 'SocialMedia (1)'[Median Media Engagements], "Above Median", "Below Median")
add new column last tweet posted date to calculate month's age.

create new coulmn month age using dax formula : Monthsage = **DATEDIFF('SocialMedia (1)'[Date], 'SocialMedia (1)'[Last Tweet date], MONTH)**
this helps to a filter in the visual of last six month tweets.

Task 8: Engagement Rate Comparison

I analyzed tweets to compare engagement rates for tweets with app opens versus tweets without app opens, including only tweets posted between 9 AM and 5 PM on weekdays.

Calculated the app opening using the following Calculated column: **If app open > 0, then with app open; otherwise, without app open.**
Calculated the app opening using the following Dax formula: IsBusinessHour = **IF(HOUR('SocialMedia (1)'[time]) >= 9 && HOUR('SocialMedia (1)'[time]) < 17, 1, 0)**
Here, 1 represents time between 9 am and 5 pm and 0 represents time not between 9am and 5pm

Task 9: Dual-Axis Chart: Media Interactions

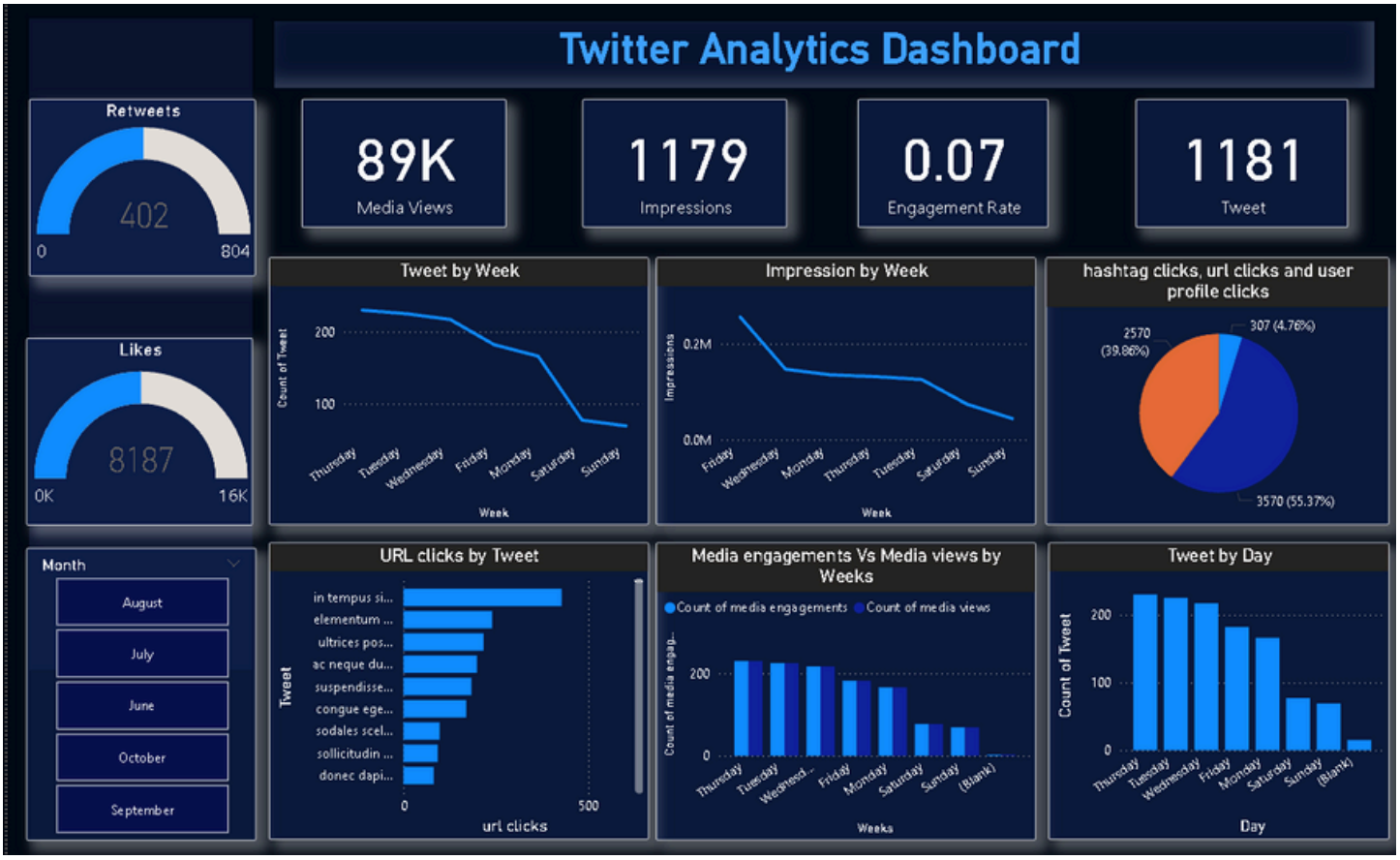
I created a dual-axis chart showing the number of media views and media engagements by day of the week for the last quarter, highlighting days with significant spikes in media interactions.
In order to limit the values for the day of the week for the final quarter, we apply an advance filter to the visual, which is quarter 4.

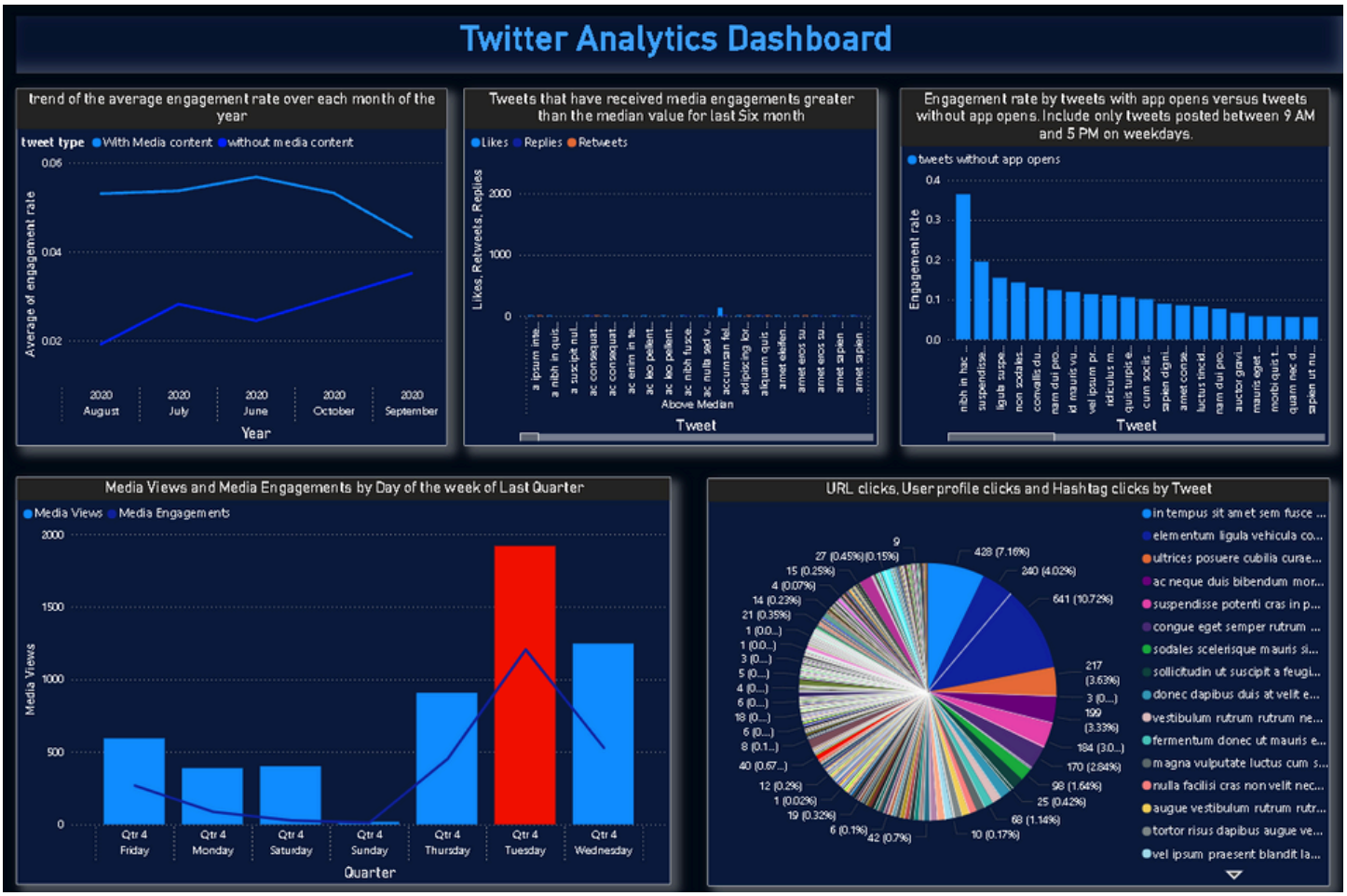
Task 9: Pie Chart: Total Clicks (URL clicks, user profile clicks, and hashtag clicks)

I built a pie chart representing the proportion of total clicks (URL clicks, user profile clicks, and hashtag clicks) for tweets with more than 500 impressions, including a drill-down to view specific types of clicks for each tweet.

For the purpose of drilling through the pie chart, create a new matrix. In the drill-down view, show the individual tweets along with the sum of each type of click (URL, user profile, hashtag).

DASHBOARD


Twitter Analytics Dashboard
Retweets
402
0
804
89K
Media Views
1179
Impressions
0.07
Engagement Rate
1181
Tweet
Likes
8187
0K
16K
Tweet by Week
Count of Tweet
200
100
Thursday
Tuesday
Wednesday
Friday
Monday
Saturday
Sunday
Week
Impression by Week
Impressions
0.2M
0.0M
Week
hashtag clicks, url clicks and user profile clicks
2570 (39.86%)
307 (4.76%)
3570 (55.37%)
Month
August
July
June
October
September
URL clicks by Tweet
Tweet
in tempus si...
elementum ...
ultrices pos...
ac neque du...
suspendisse...
congue ege...
sodales scel...
sollicitudin ...
donec dapi...
0
500
url clicks
Media engagements Vs Media views by Weeks
Count of media engagements
Count of media views
Count of media engag...
200
0
Weeks
Tweet by Day
Count of Tweet
200
100
0
Day


Twitter Analytics Dashboard
trend of the average engagement rate over each month of the year
tweet type
With Media content
without media content
Average of engagement rate
0.06
0.04
0.02
2020 August
2020 July
2020 June
2020 October
2020 September
Year
Tweets that have received media engagements greater than the median value for last Six month
Likes
Replies
Retweets
Likes, Retweets, Replies
2000
1000
0
Above Median
Tweet
Engagement rate by tweets with app opens versus tweets without app opens. Include only tweets posted between 9 AM and 5 PM on weekdays.
tweets without app opens
Engagement rate
0.4
0.3
0.2
0.1
0.0
Tweet
Media Views and Media Engagements by Day of the week of Last Quarter
Media Views
Media Engagements
Media Views
2000
1500
1000
500
0
Qtr 4 Friday
Qtr 4 Monday
Qtr 4 Saturday
Qtr 4 Sunday
Qtr 4 Thursday
Qtr 4 Tuesday
Qtr 4 Wednesday
Quarter
URL clicks, User profile clicks and Hashtag clicks by Tweet
428 (7.16%)
240 (4.02%)
641 (10.72%)
217 (3.63%)
199 (3.33%)
184 (3.0...)
170 (2.84%)
98 (1.64%)
25 (0.42%)
68 (1.14%)
10 (0.17%)
42 (0.7%)
6 (0.1%)
19 (0.32%)
1 (0.02%)
12 (0.2%)
40 (0.67...)
8 (0.1...)
6 (0...)
18 (0...)
6 (0...)
4 (0...)
5 (0...)
3 (0...)
1 (0.0...)
1 (0.0...)
21 (0.35%)
14 (0.23%)
4 (0.07%)
15 (0.25%)
27 (0.45%)
9
in tempus sit amet sem fusce ...
elementum ligula vehicula co...
ultrices posuere cubilia curae...
ac neque duis bibendum mor...
suspendisse potenti cras in p...
congue eget semper rutrum ...
sodales scelerisque mauris si...
sollicitudin ut suscipit a feugi...
donec dapibus duis at velit e...
vestibulum rutrum rutrum ne...
fermentum donec ut mauris e...
magna vulputate luctus cum s...
nulla facilisi cras non velit nec...
augue vestibulum rutrum rutr...
tortor risus dapibus augue ve...
vel ipsum praesent blandit la...

SKILLS AND COMPETENCIES

Data Visualization: Good skills to create different types of charts, graphs and interactive dashboards using Power BI Experience over 3-year in designing clean, clear and informative visualizations that communicate data insights.

Analysis of Data: A significant skill in I use Excel to manipulate data and a high-level expertise rank PowerBI for data analysis. Experienced in data filtering, segmentation and aggregations to recognize patterns & trends from rich databases.

ETL (Extract, Transform, Load) — Proficiently leverage the ETL process within PowerBI to bring data from various different sources together into a workable format that can be utilised as data models for analysis. Expert in ETL automation to automate data pipeline

Data Compliance: Ability to apply data cleaning techniques in Power BI, ensuring that all calculations are correct. Experienced in working with incomplete missing data, correcting datasets and standardizing formats for analysis.

SKILLS AND COMPETENCIES

Social Media Metrics-> Knowing about major social media engagement metrics, like likes, retweets, replies and clicks. Understanding what it means for a content strategy and how they might impact audience engagement.

Interpretation & Presentation – Translate tantalising data insights and present them across in a clear, concise manner that is easy to action. Good in building Power BI Reports and visualizations to take informed decisions.

FEEDBACK AND EVIDENCE

Comments: Supervisors appreciated the clear and informative visualizations/ analyses. The feedback included comments about the specific actions that can be taken based on the insights from our charts, and how professional quality graphics were.

Proof: The visualisations and analysis outputs are proofs of the work done in prior to testing. This ranges from line, bar and dual-axis charts to drilldown-able pie-charts which showcase even a deeper knowledge of Twitter engagement metrics.

CHALLENGES AND SOLUTIONS

Tweet filtering was difficult to get right as per certain criterion such as date ranges, engagement levels etc. We solved this by employing various filtration options offered in Power BI and applied strict validation to ensure the segmentation of data was accurate.

Complexity of Visualization: In order to create visualizations which are both clear in a simple format, you had to choose the right visualization type and customize it accordingly my adding calculated columns or fields so on and that is something that has been improved with Power BI. The progressive refining worked the same for how it visually communicated data so that we could get ideas across correctly.

Volume of Data – The primarily challenge faced in Power BI was How to effectively manage the large data. To solve this, various data reduction techniques like aggregation and optimized Data Model designing. This includes tactics that kept performance responsive while handling absurd data sizes and the depth without disappearing in a ton of analyses.
This

OUTCOMES AND IMPACT

The report provided critical understanding of Twitter engagement dynamics. Additionally, tweets with images had a higher engagement rate overall (as did those posted during times/days of peak use). By breaking this down to see the details of engagement types, the team has had direct insight which helps improve content strategies and adapt towards specific engagements for a better performance overall on social media.

CONCLUSION

Overall, the Power BI proved to be a support in depth analysis of Twitter engagement with its ability as a data visualization tool and this project resulted successfully demonstrating how strategic data processing can help improve our social media strategies. Businesses using Power BI can use a data-driven strategy to optimize content and audience engagement. By turning Twitter data into higher-value, actionable insights and visualized content; organizations can gain a better grasp of how your audience is interacting with them on social media platforms to drive meaningful change in overall strategy that spurs greater levels of engagement amongst audiences.