



# GROUP 4

B412 - Analytics for Business Decision Making

AISHWARYA ARORA

Course - Digital Media Analysis

Professor Richard Boire

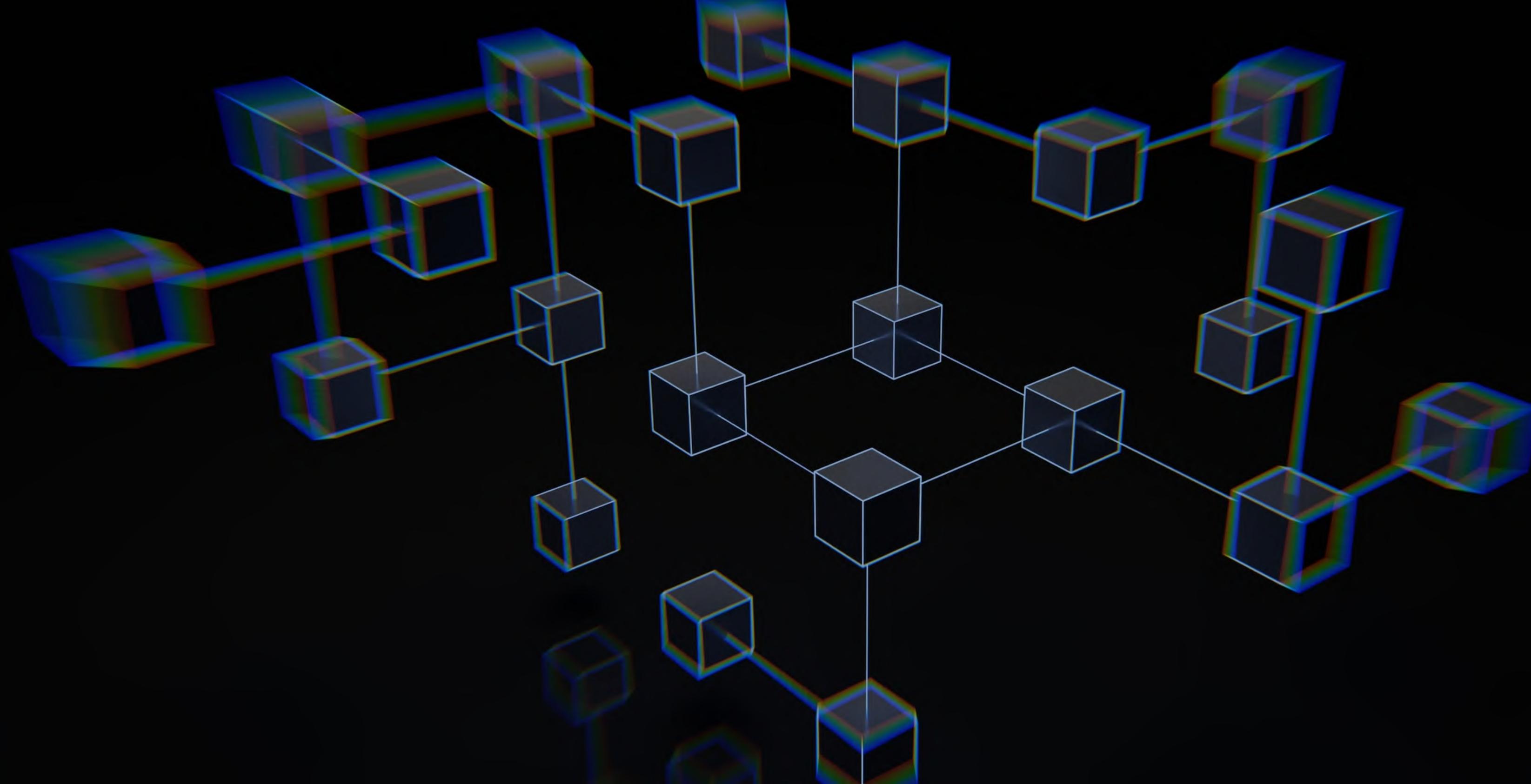


**EXAMINE PUBLIC SENTIMENT  
AND INSIGHTS ABOUT  
BLOCKCHAIN TECHNOLOGIES  
AND DIGITAL MARKETING**

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# 01 BACKGROUND

# Industry Background

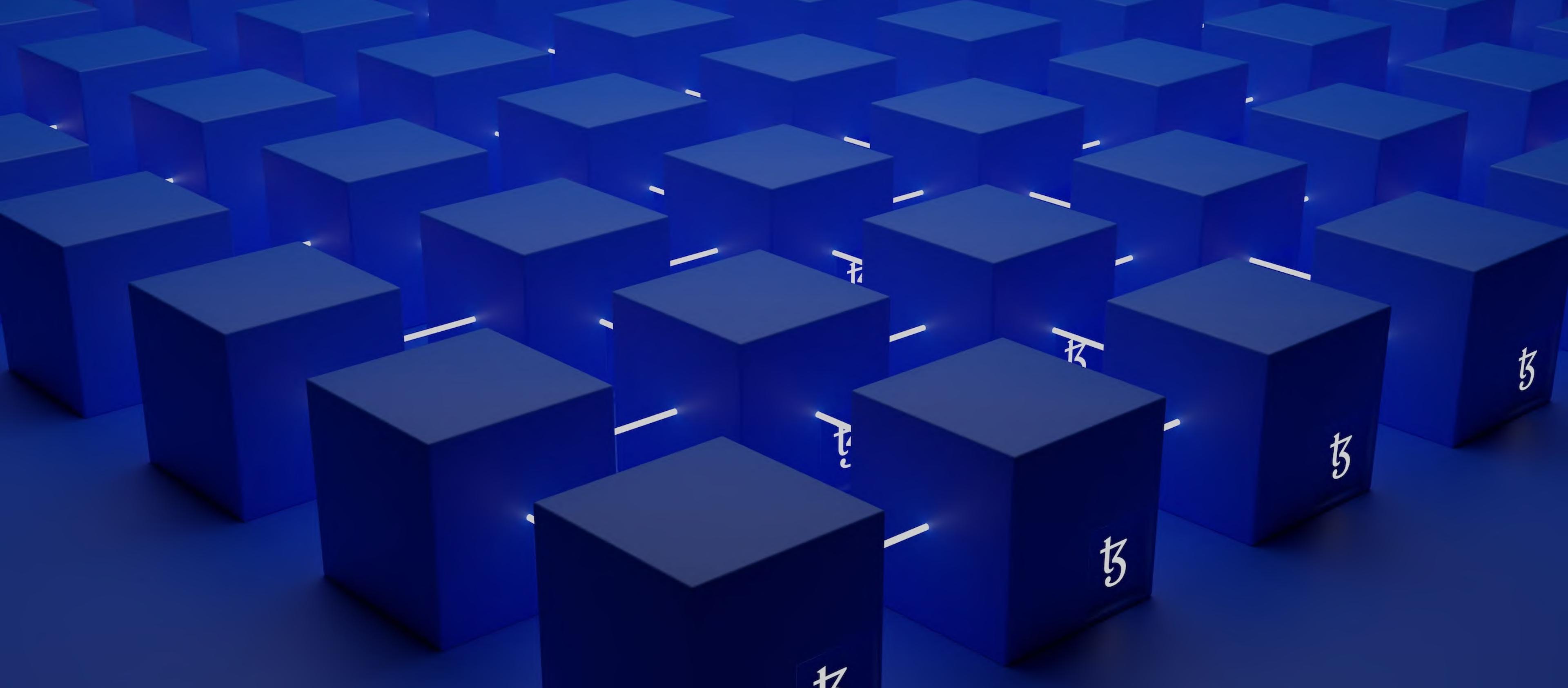
- Blockchain technology revolutionizes information storage through a decentralized, secure, and transparent ledger system.
- Transactions are stored in blocks and continually reconciled, with data available publicly and virtually incorruptible.
- Developed by Bitcoin's creator, Satoshi Nakamoto, it can record a variety of valuable data, not just financial transactions.
  - Encryption like SHA256(one of many) ensures security, and "Smart Contracts" enable digital creation and authentication of information.
  - Numerous applications include shared economy, crowdfunding, data governance, supply chain auditing, IoT, AML/KYC, NFTs, and stock trading.



# Summary of Lit Review

- Over 90 governments explore issuing Central Bank Digital Currency (CBDC) with tighter regulations than decentralized cryptocurrencies.
- Nigeria, Turkey, and Thailand lead in crypto investments, while Japan and China invest least; gold and fiat money remain preferred for storing value.
- Blockchain technology (BCT) holds significant potential for marketing, supply chain management, and security improvements.
  - BCT can enhance trust and transparency in digital marketing, combat click fraud, and protect user privacy.
  - Blockchain applications are anticipated to expand into various industries and domains, including education and social media platforms.





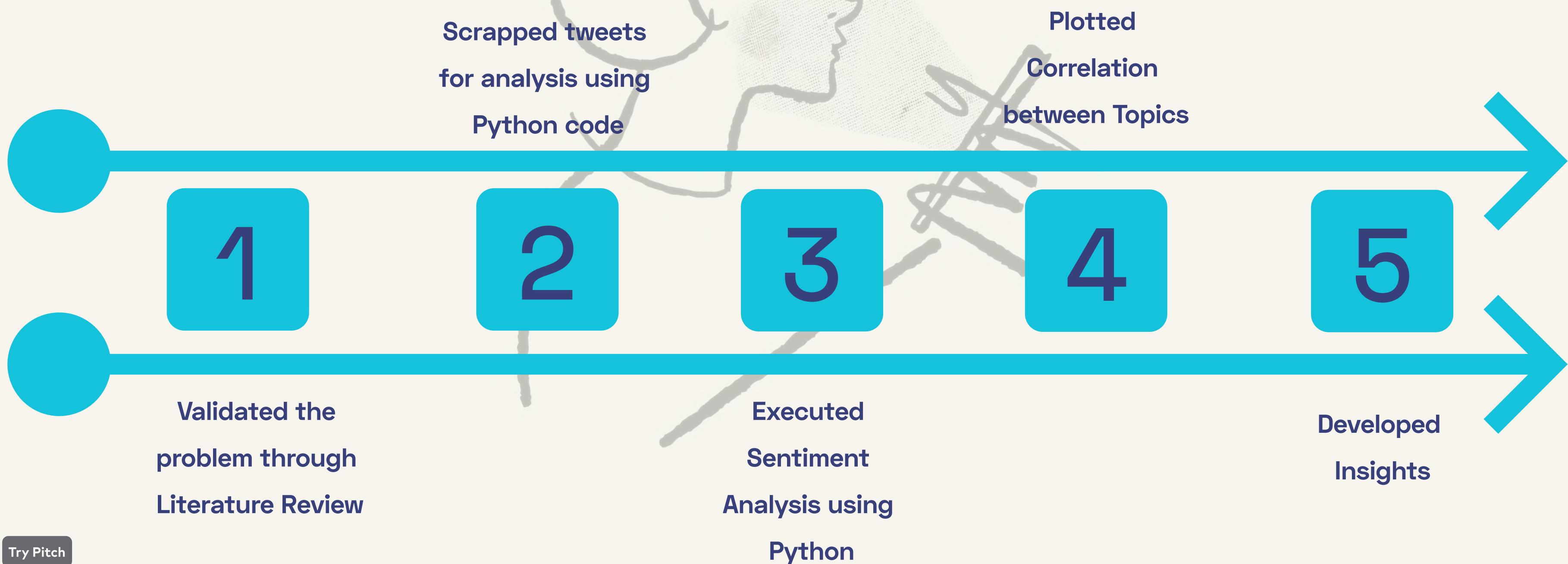
02

Try Pitch

## APPROACH & METHODOLOGY

# Approach & Methodology

We followed a qualitative and quantitative approach with 5 different steps as follows:



# Approach & Methodology

**Keywords used:** Blockchain AND Marketing AND Crypto

**Time frames:**

July 1st to December 31st for the following years:

2019

2020

2021

2022

(4 Topics) (2 Topics) (4 Topics) (5 Topics)

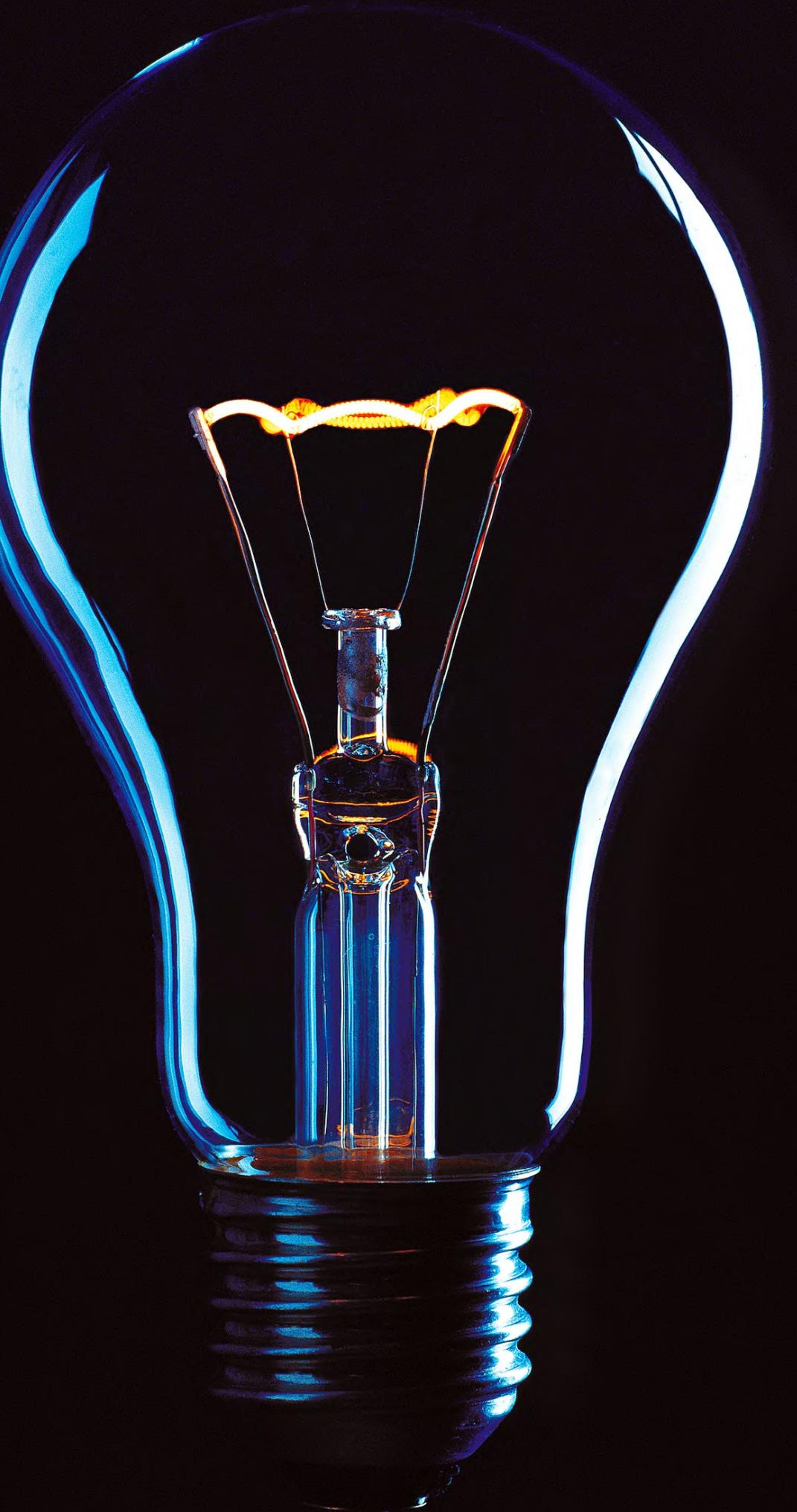
**Special Treatment of Tweets:**

We cleaned the tweets by removing the following:

Stop Words - *I, Me, Myself, We, Ours, You, Yours, He, His etc.*

Mentions, Symbols, Hyperlinks, WWW, Pictures etc.

Keywords used for extraction & related to Covid-19





03

INSIGHTS

03

# INSIGHTS

# WORDCLOUD

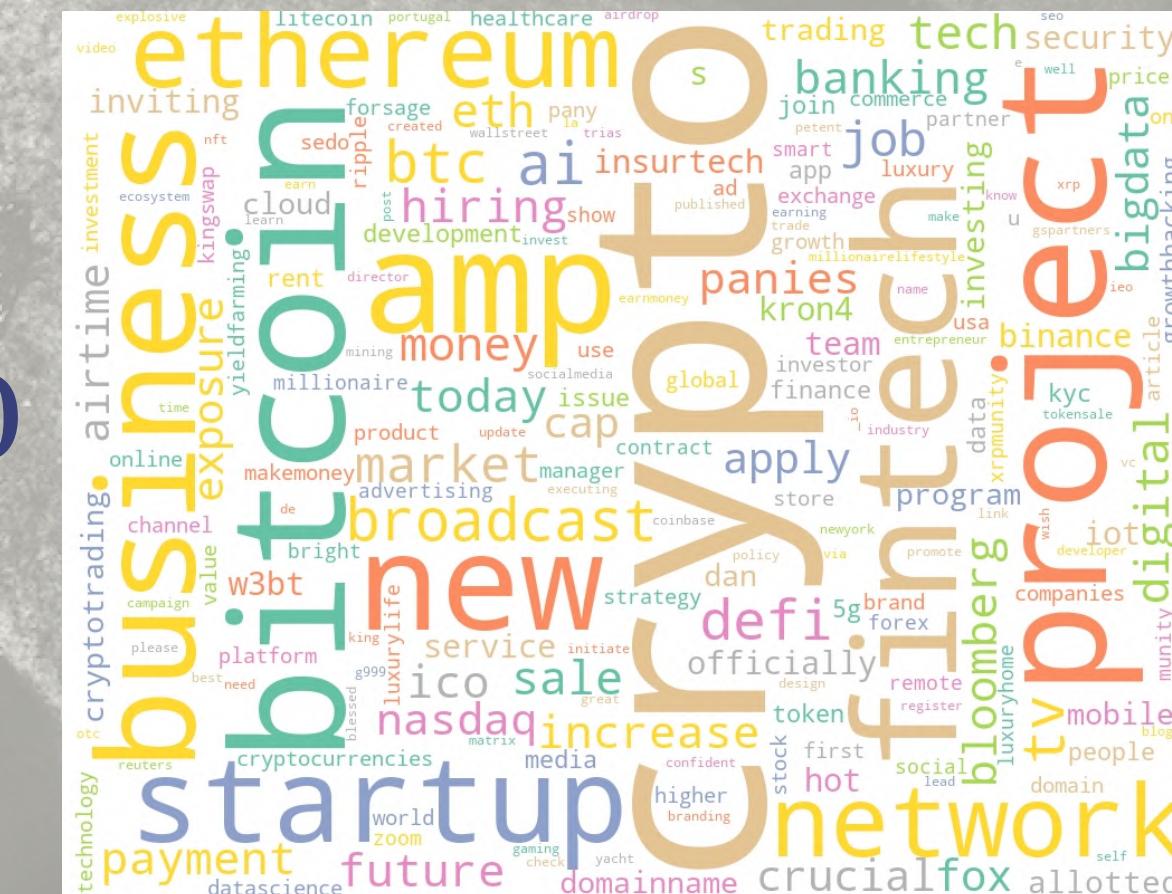
2019



# 2021



2020



2022

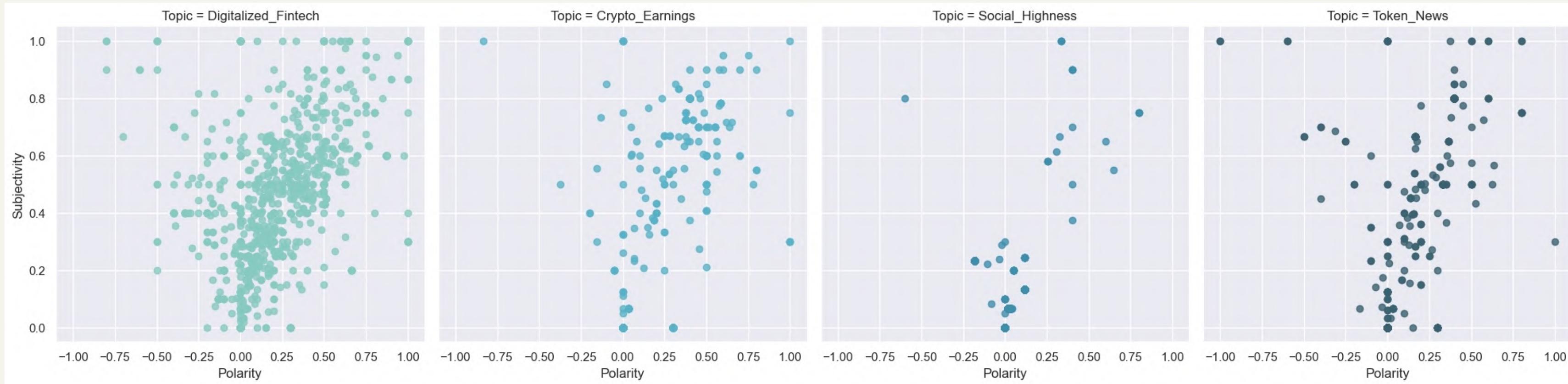


03

INSIGHTS

TOPIC SUBJECTIVITY AND POLARITY TRENDS

2019



2020



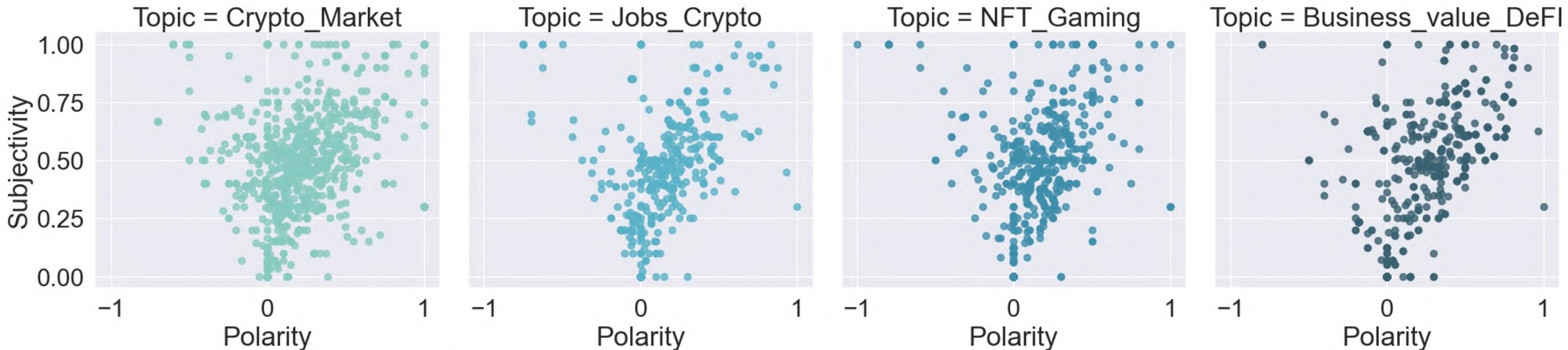
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03

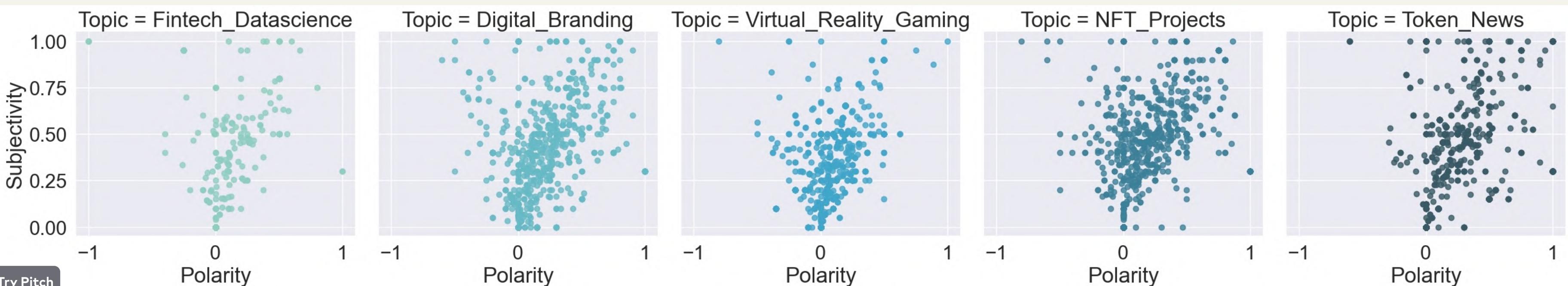
INSIGHTS

TOPIC SUBJECTIVITY AND POLARITY TRENDS

2021



2022

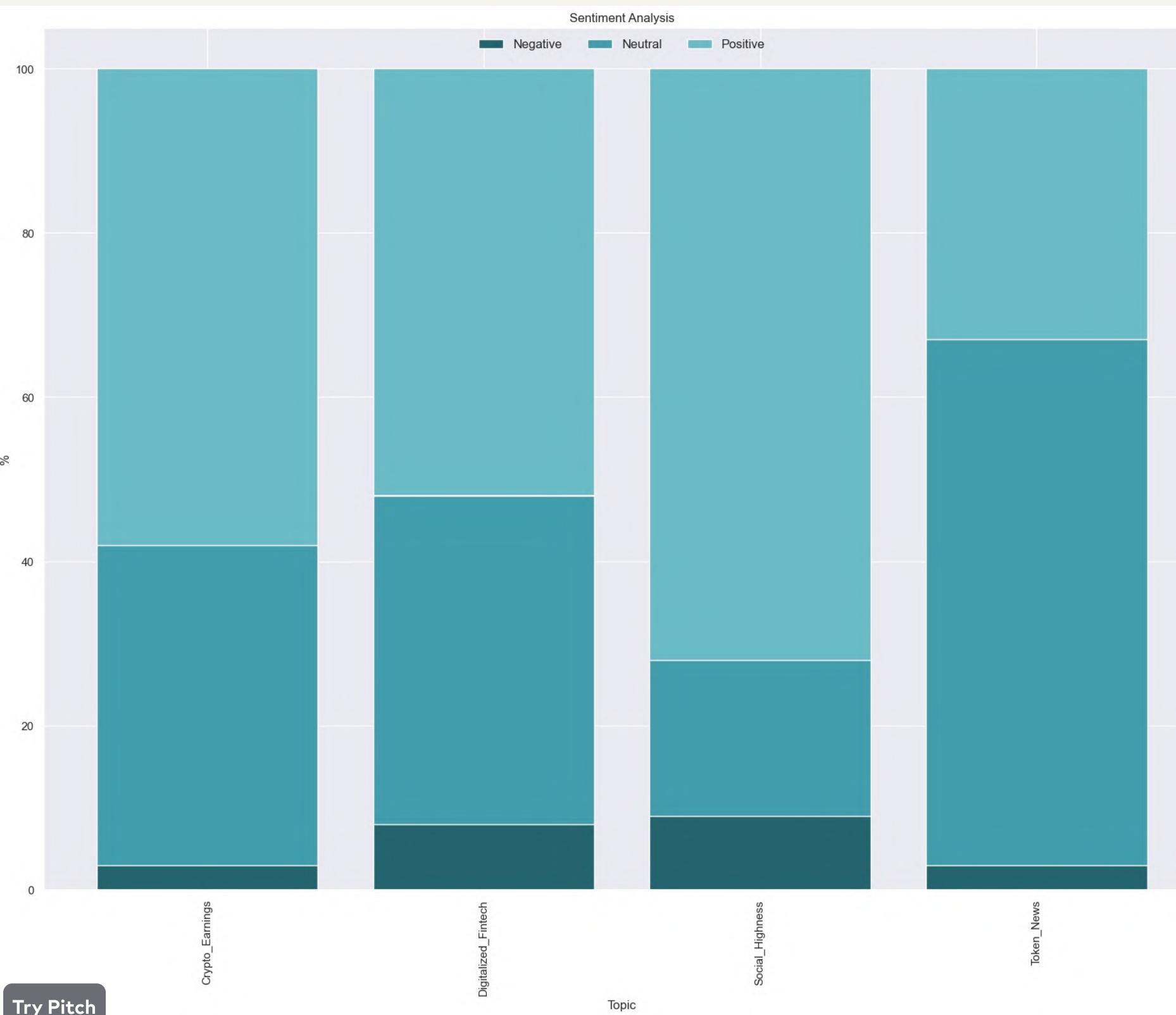


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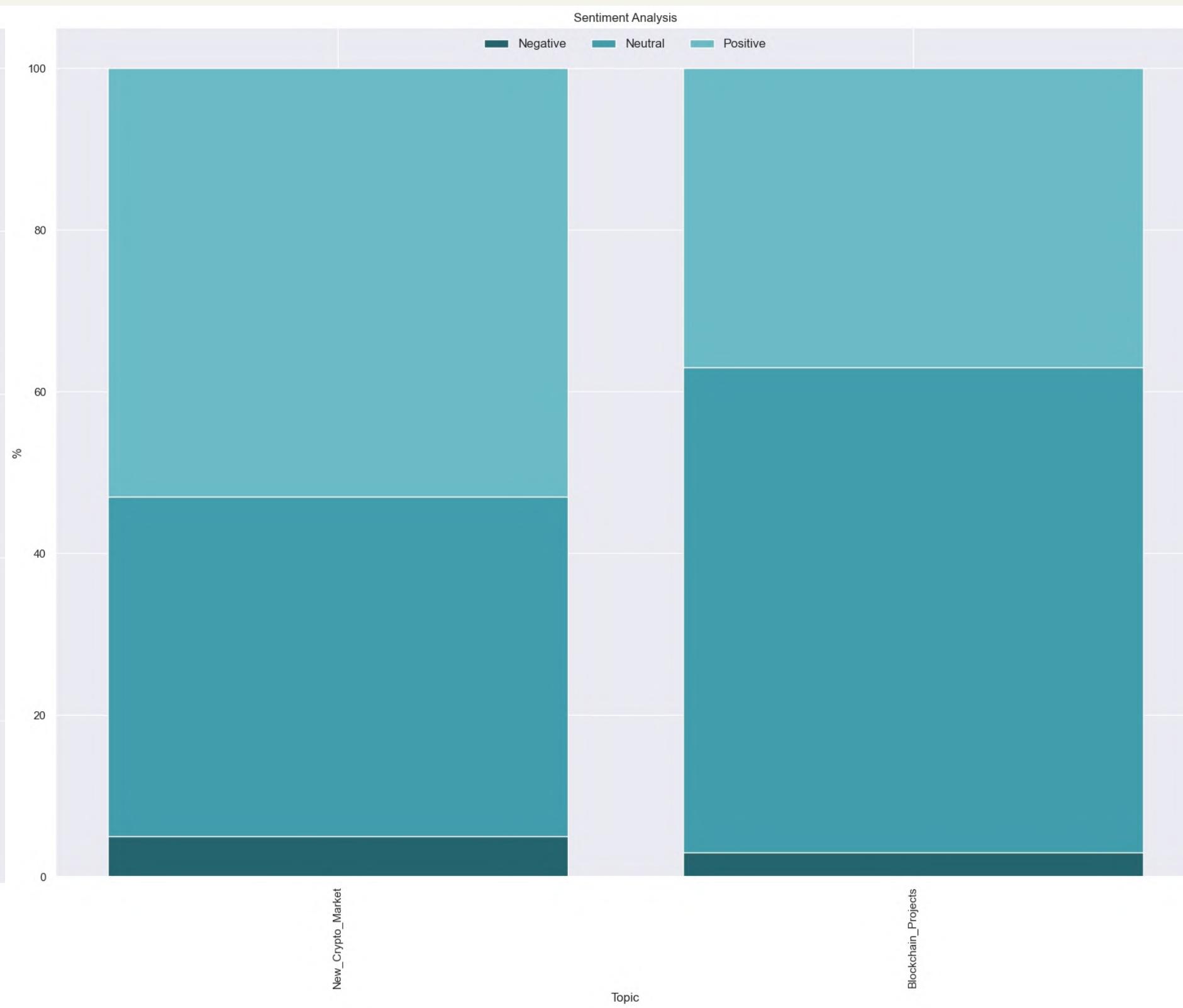
## INSIGHTS

## TOPIC SENTIMENT

2019



2020



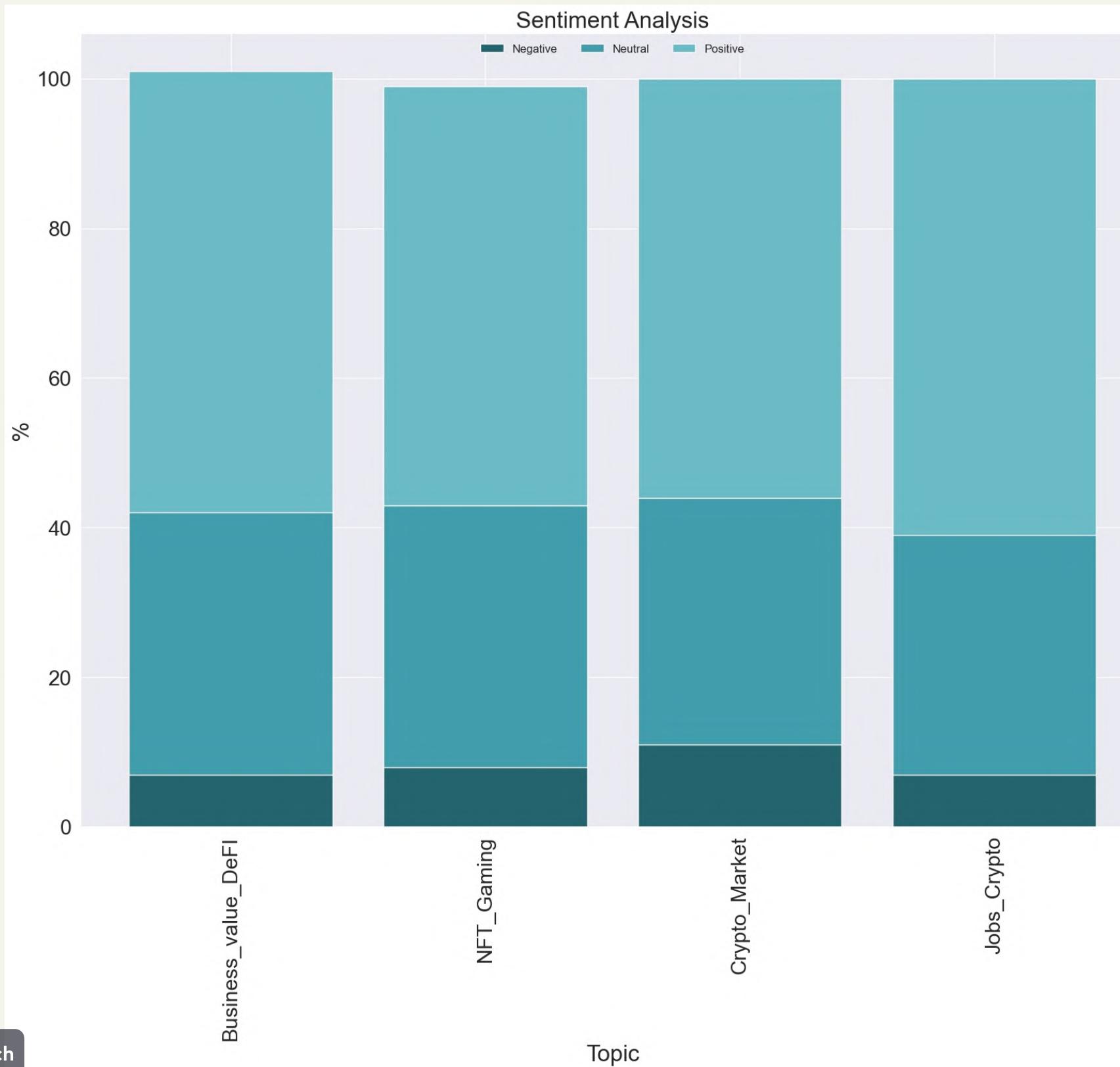
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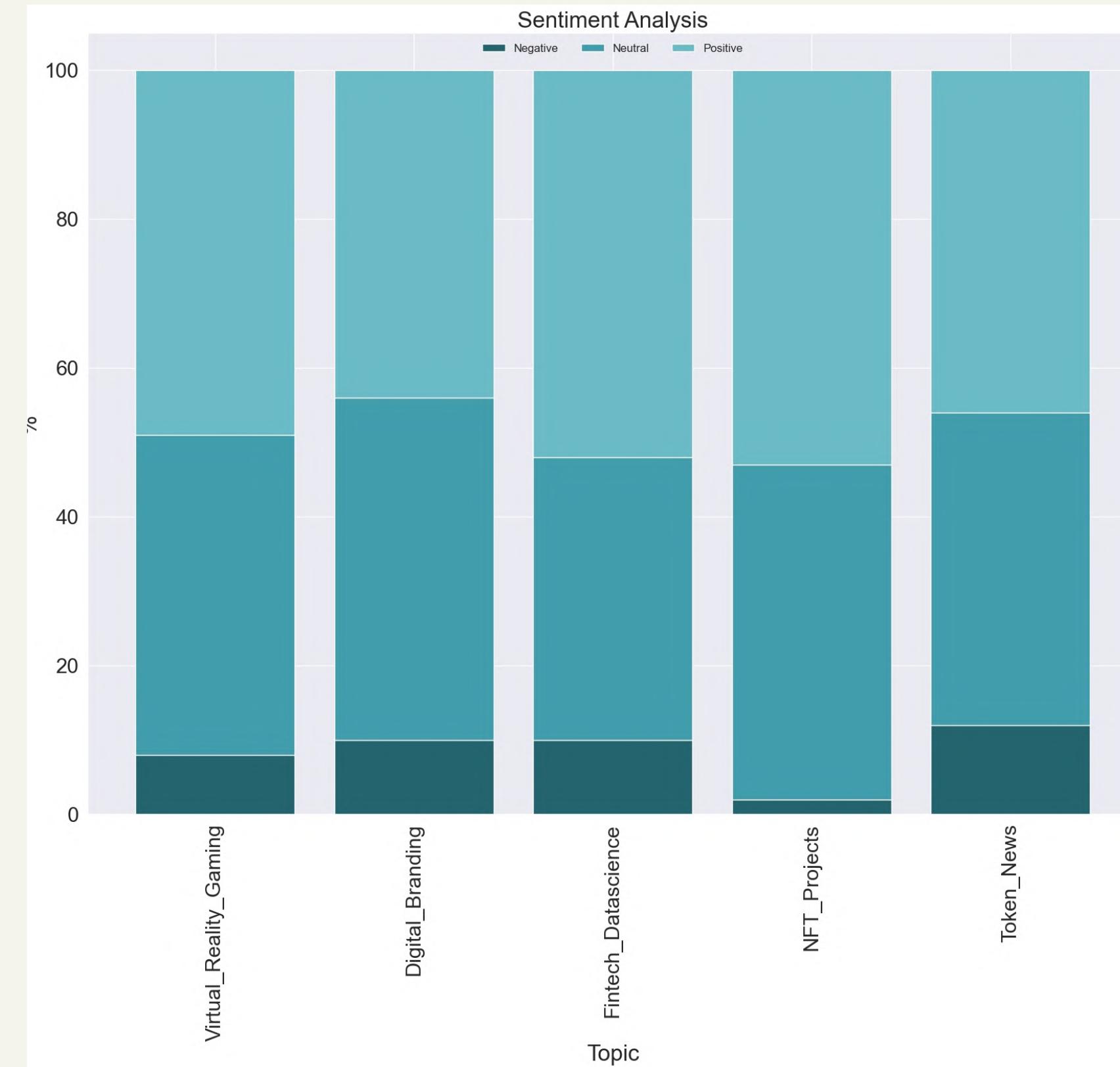
## INSIGHTS

## TOPIC SENTIMENT

2021



2022



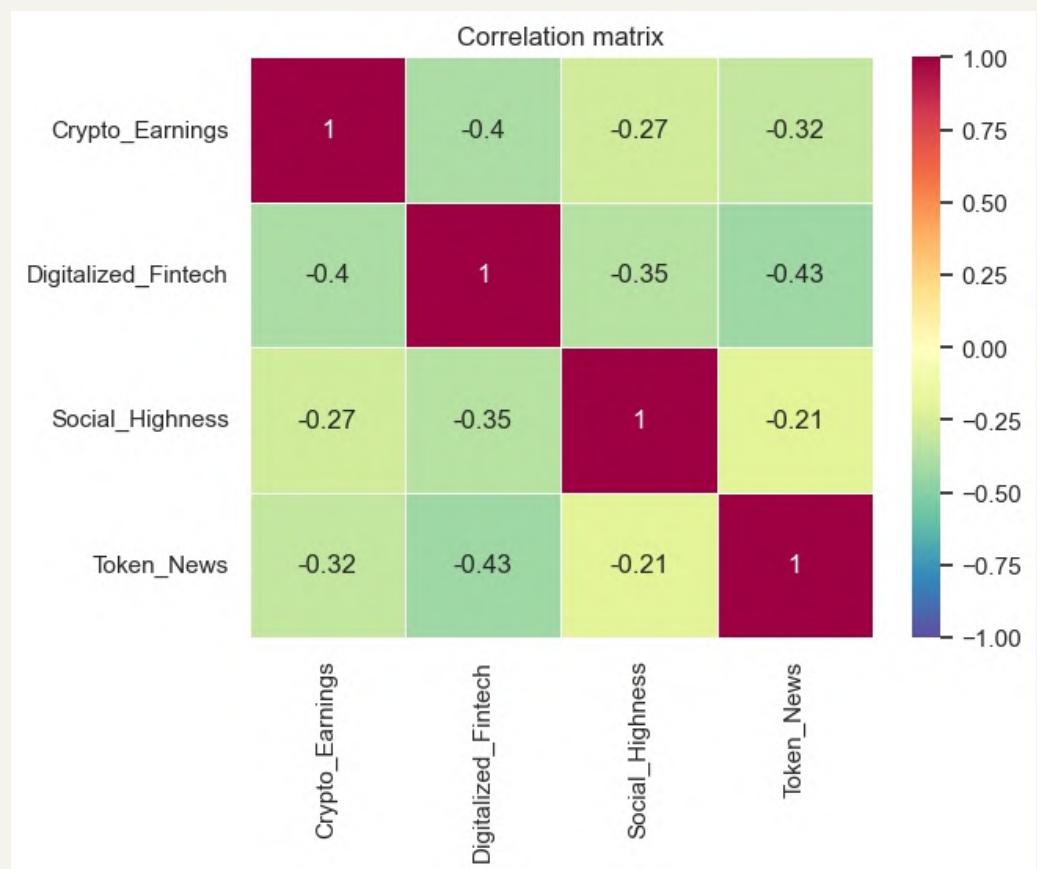
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03

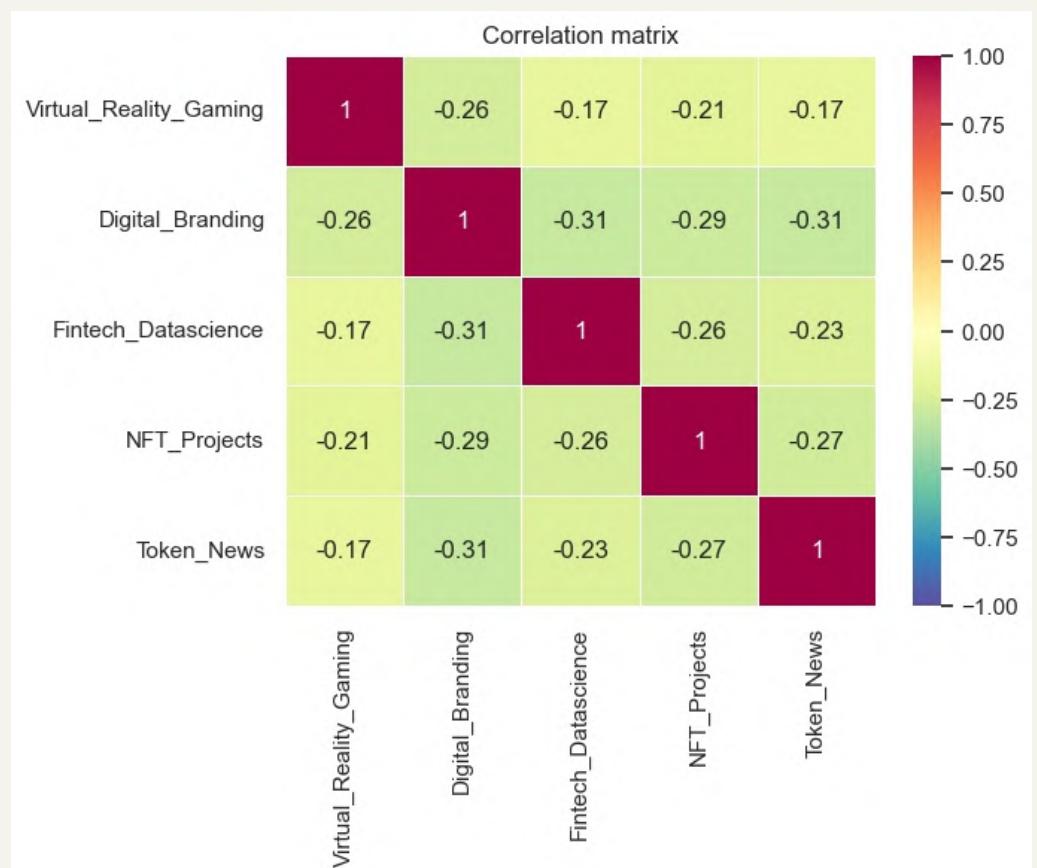
## INSIGHTS

## CORRELATION

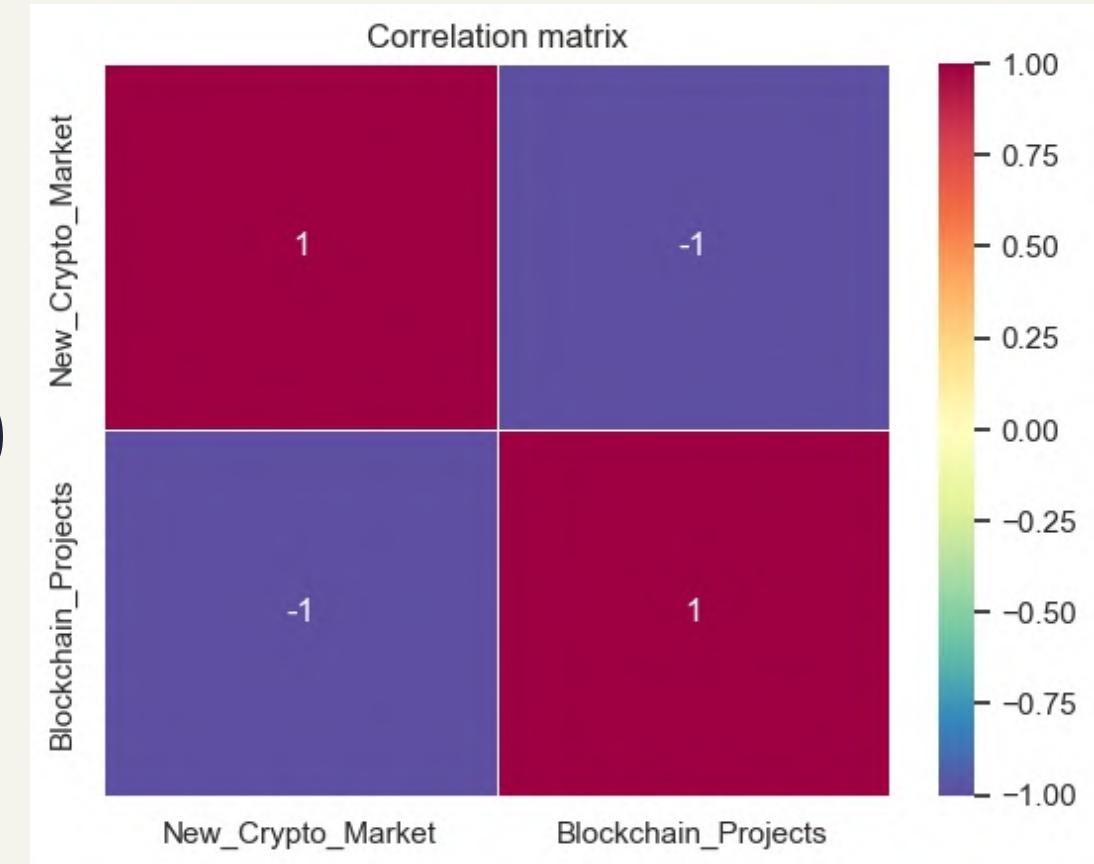
2019



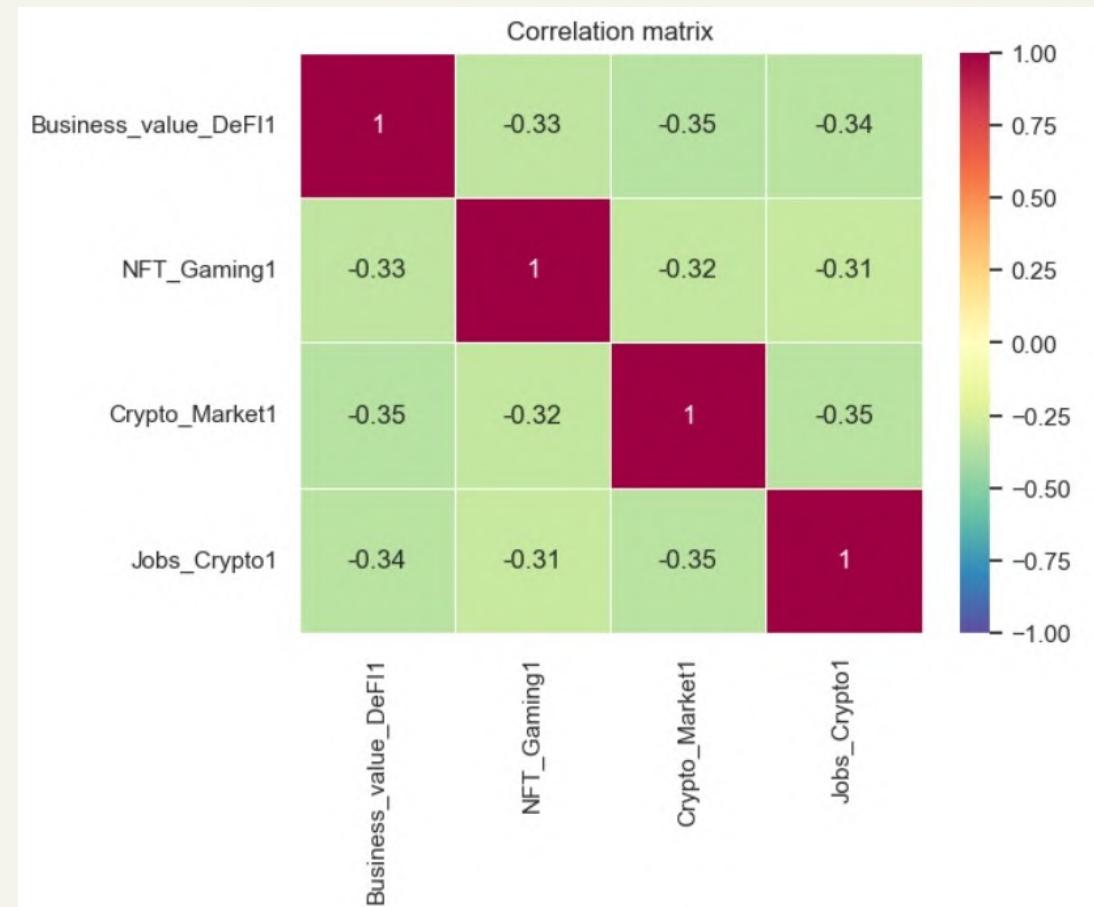
2021



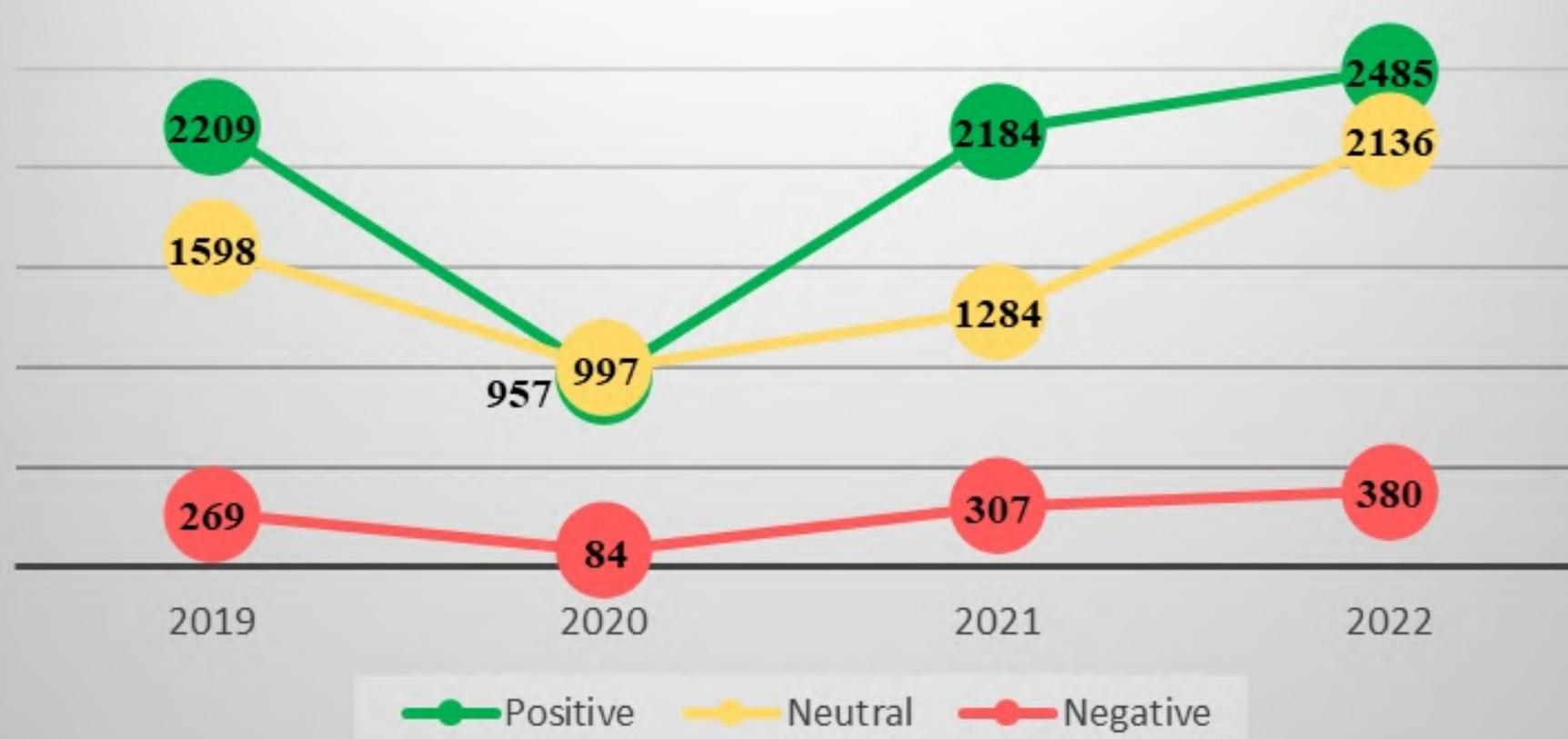
2020



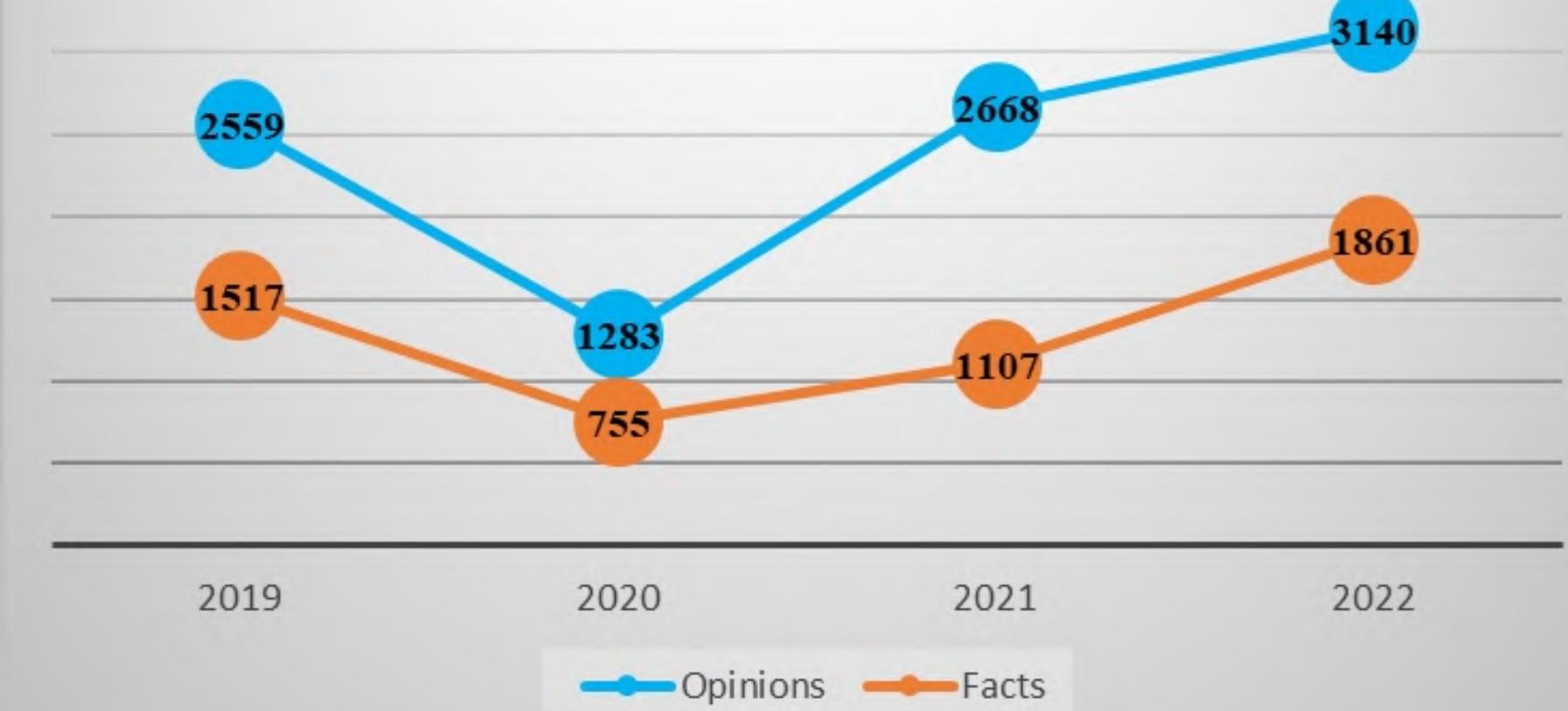
2022



## Polarity by Year



## Subjectivity by Year



Year	Total Tweets
2019	4060
2020	2038
2021	3768
2022	5001

1.

04

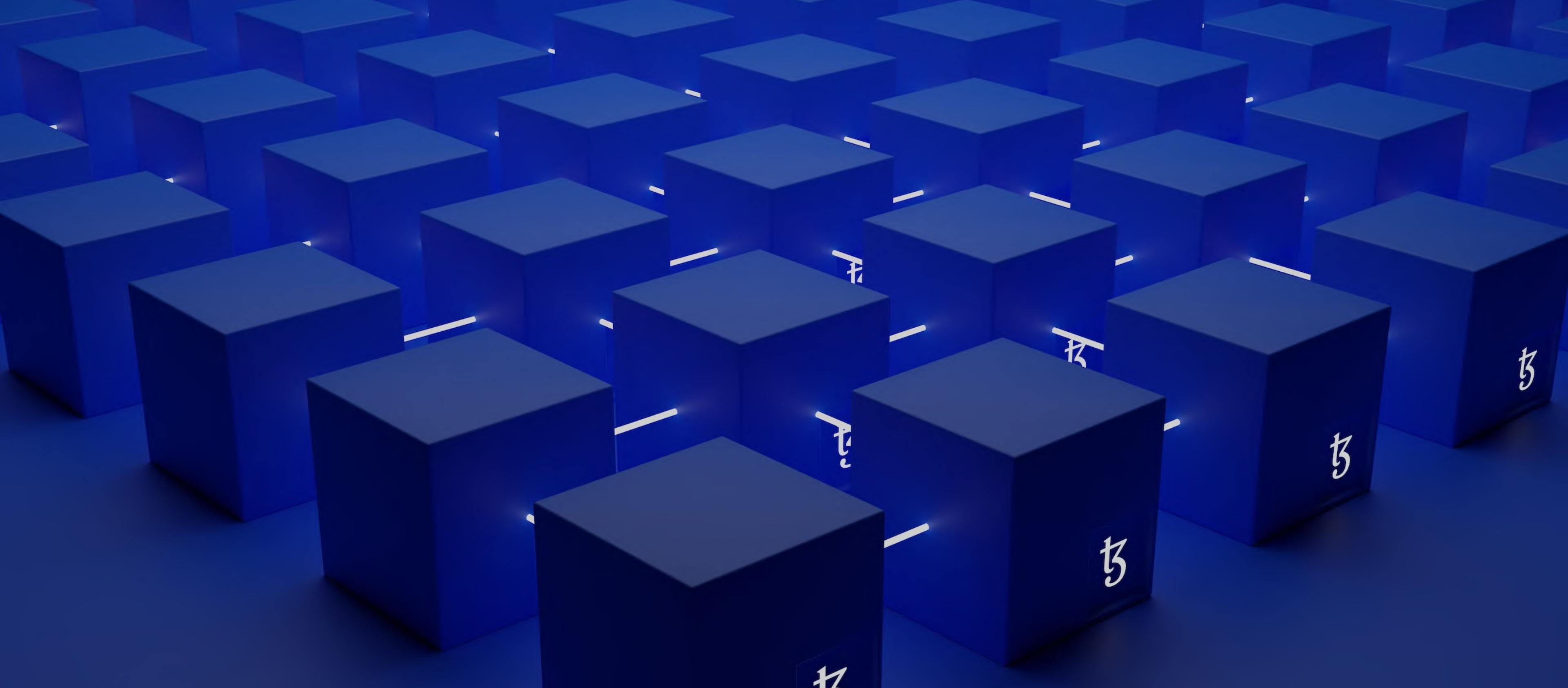
# KEY LEARNINGS

- In 2019, people tweeted about new business opportunities within Crypto domain, about Cannabis industry and luxury lifestyle  
They were following news about Crypto on business platforms such as Reuters and Bloomberg
- In 2020, people tweeted about start-ups and fintech projects including trading, payments, investments and Big data
- In 2021, people tweeted about Decentralized Finance (DeFi), Initial Coin Offerings (ICOs), Non-fungible Token (NFT) Projects, Cryptocurrencies such as BTC, ETH, XRP, BNB etc.
- In 2022, people tweeted about Web 3.0, Virtual Reality, Gaming community, Metaverse and new RBX Samurai token (Digital Marketing Business)



- Throughout the four-year period of the research, the polarity of tweets did not show a significant change (7-10% fluctuation).
- Public sentiment over the years have not changed in general but we do see a trend about different subjects being tweeted.
- Blockchain Technology (BCT) is a very complicated domain and not many people are aware of its mechanism and uses except Cryptocurrencies (BTC, Ether, SHIB)
- There are many applications of BCT in finance & trading domain, VR-gaming domain, social metaverse domain, NFT business domain





05

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## CONCLUSION & NEXT STEPS

We would like to conclude our research by saying that:

- Sentiment analysis might be a good way to analyze the market views and reactions toward any subject or topic
- Blockchain is the base of Web 3.0 revolution which will happen in coming years combining Big-data and Blockchain
- There are upcoming job opportunities in start-ups and businesses within BCT domain
- Public use is limited to trading and making money with Cryptos and NFTs but now it's picking up

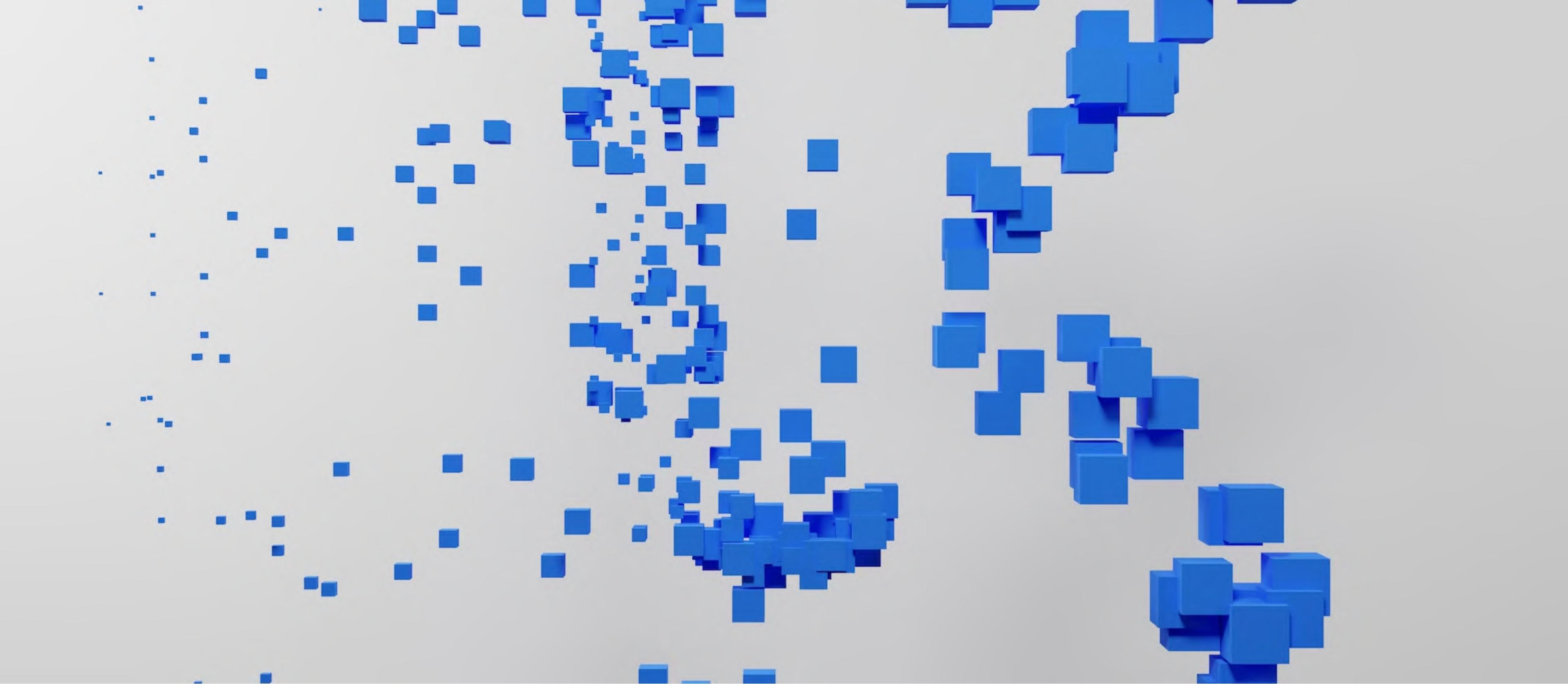
## RECOMMENDATIONS

Our Recommendations based on public's tweets:

- Study about the basic BCT mechanisms and important concepts such as Web 3.0, De-Fi, Virtual Reality, Smart contracts, Metaverse, NFTs, ICOs, Tokens and investing etc. along with the its uses in these domains
- Skill up for the upcoming job opportunities in new businesses like upcoming fintech project start-ups where Big data will be used w.r.t to BCT domain for providing predictive modeling solutions
- 2023 will be a Bull-Market for Cryptos so while investing & trading be really cautious and be prepared for the risks by following news about the industry experts and institutional investors on Reuters and Bloomberg
- World banking system will shift to Decentralized banking system within coming years and knowledge about BCT mechanisms and concepts will become crucial



THANK YOU.



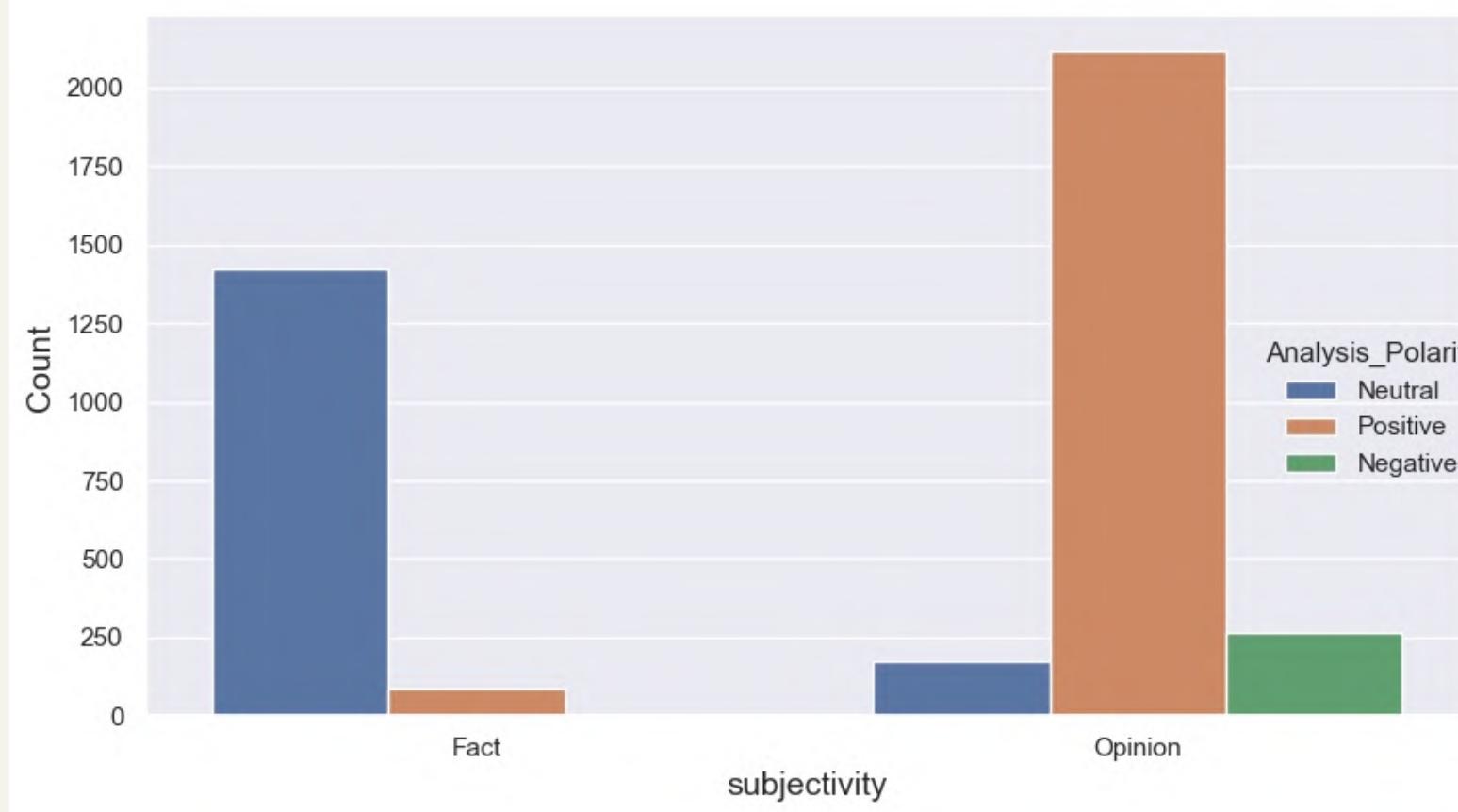
# APPENDIX

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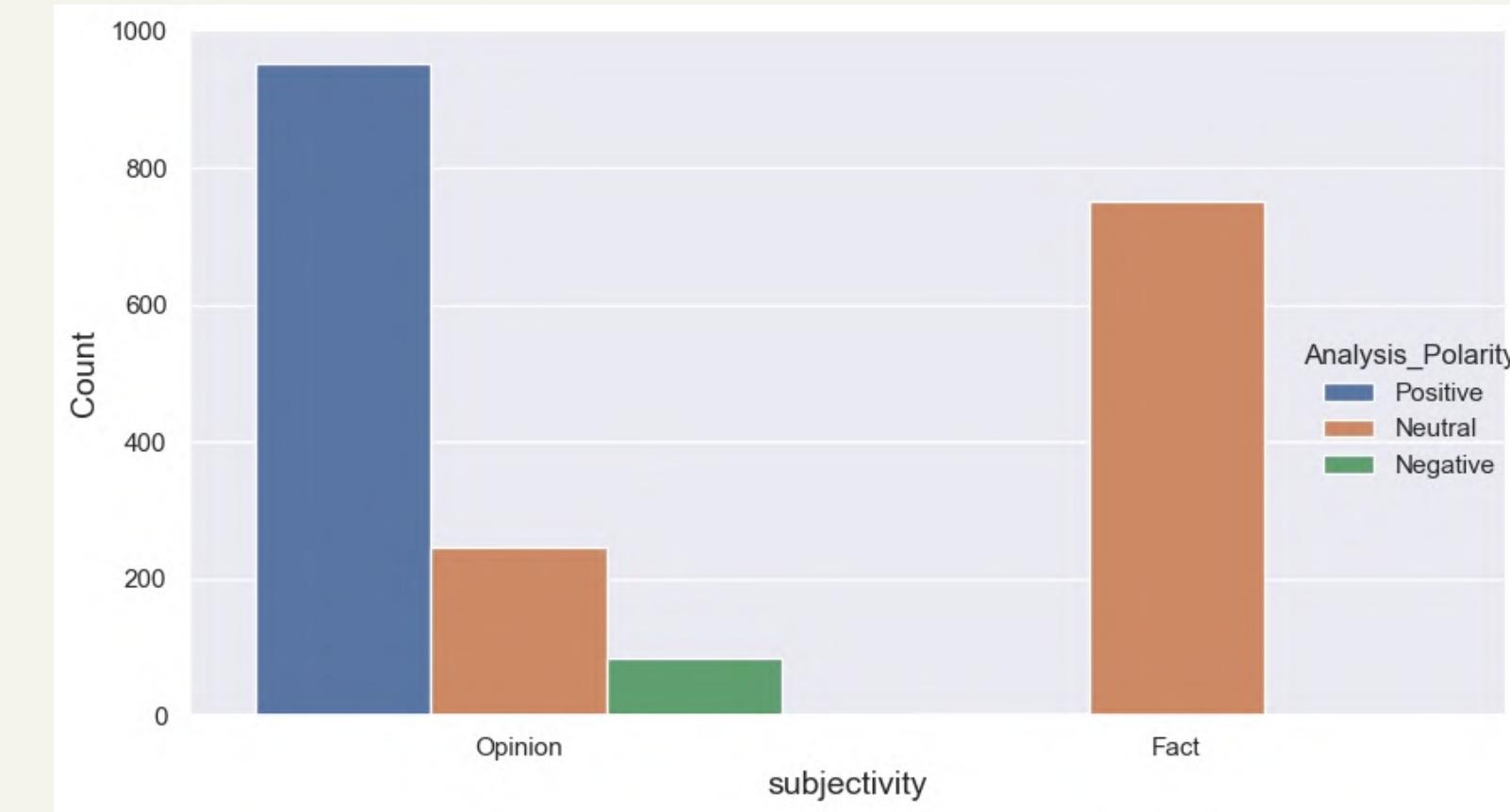
INSIGHTS

# POLARITY ON SUBJECTIVITY

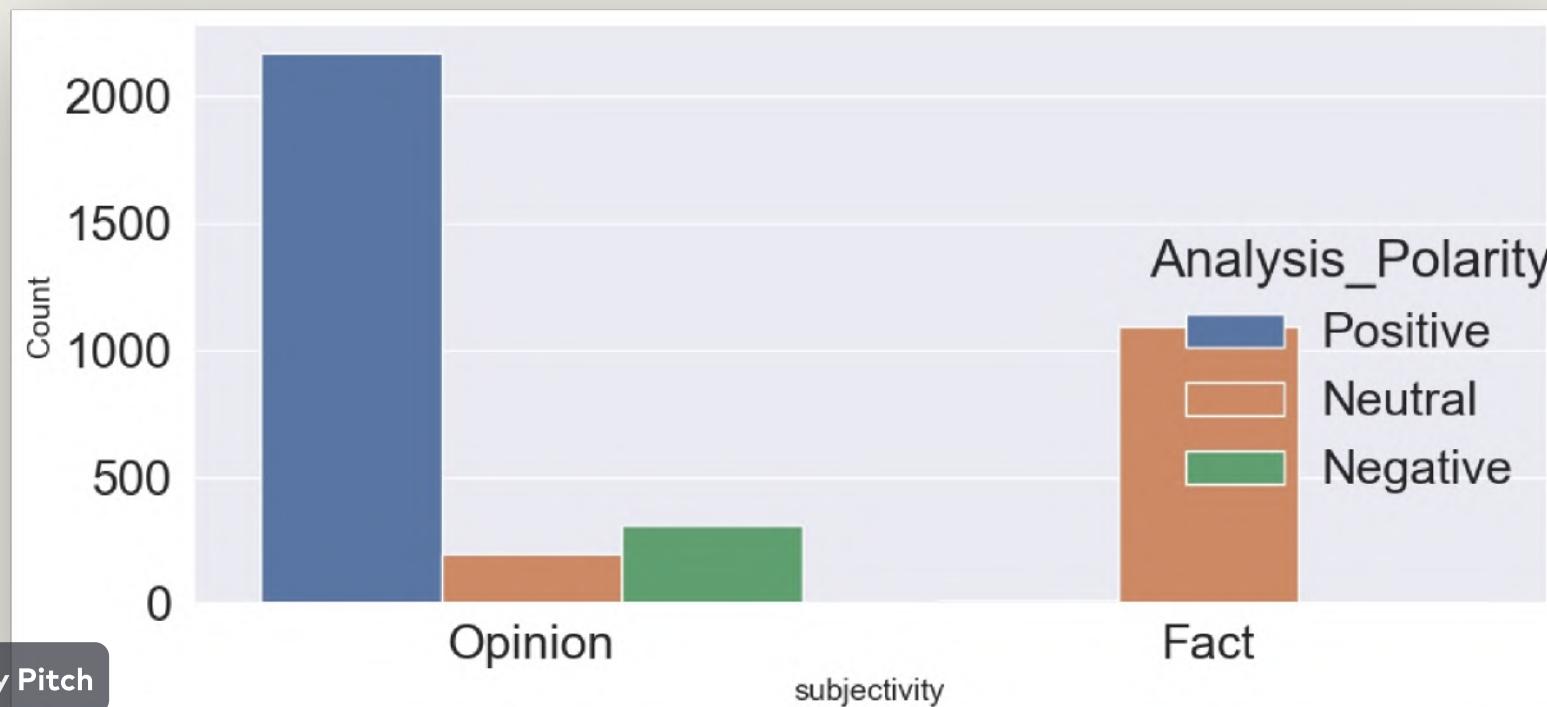
2019



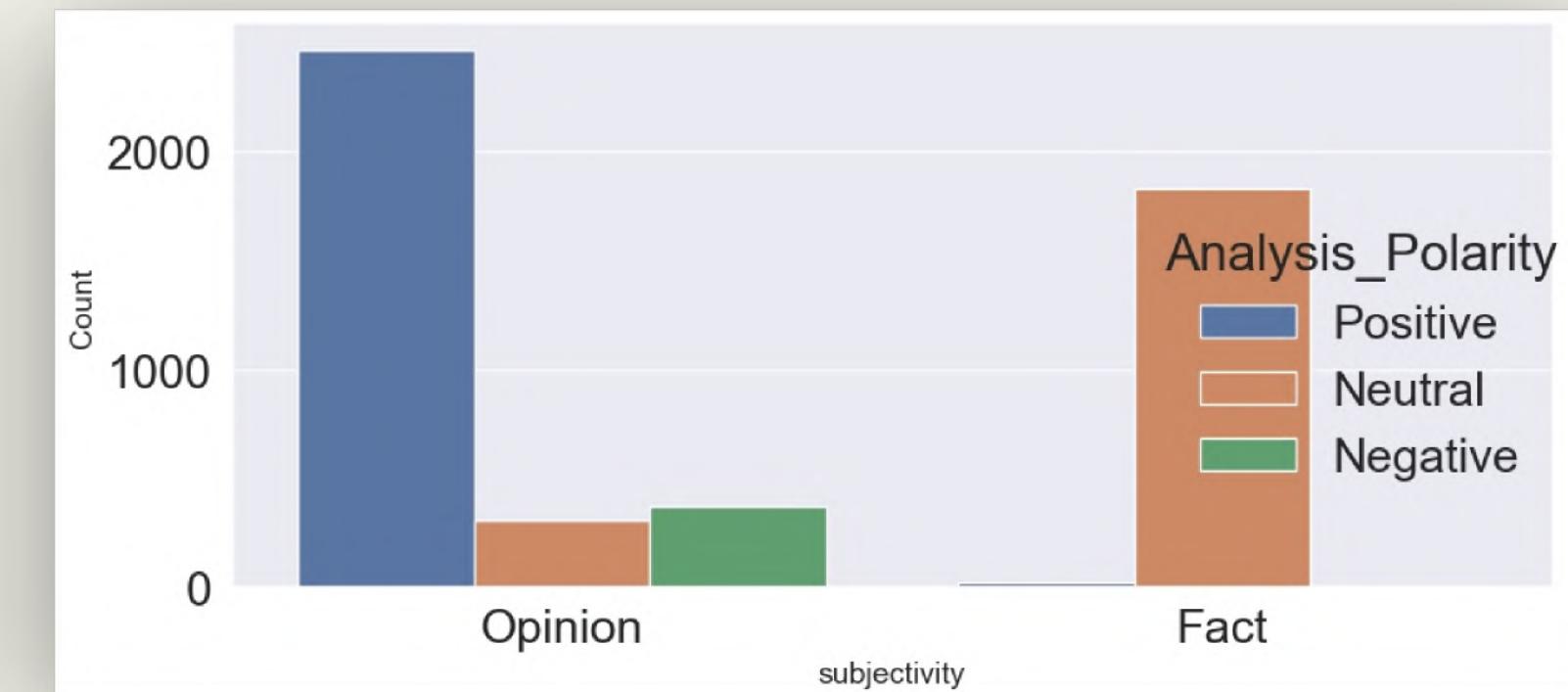
2020



2021



2022

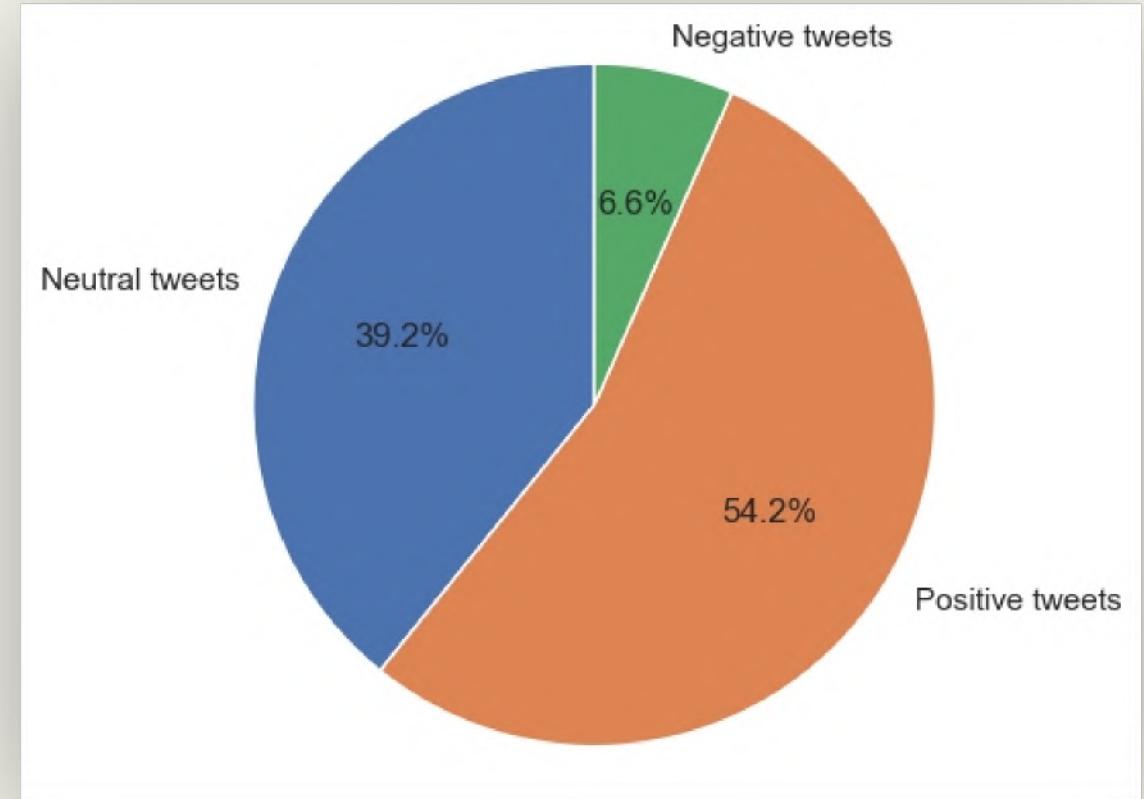


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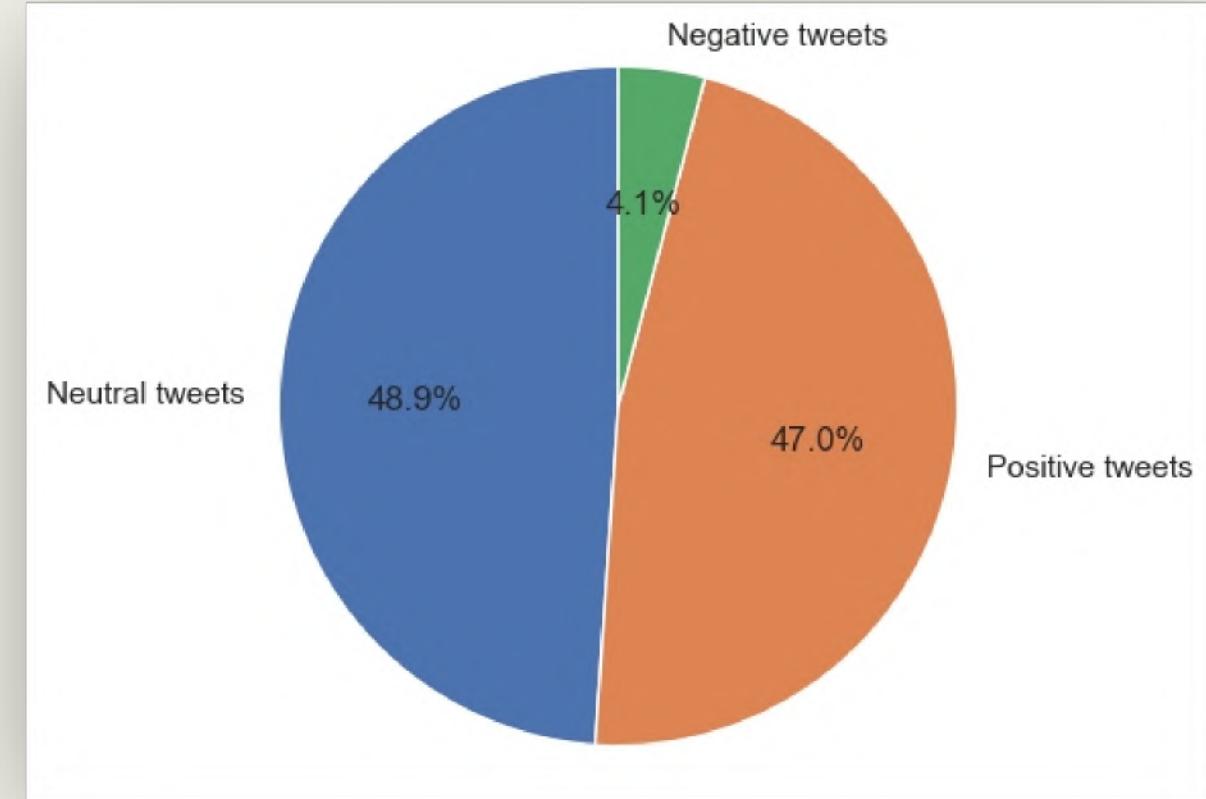
# INSIGHTS

## POLARITY

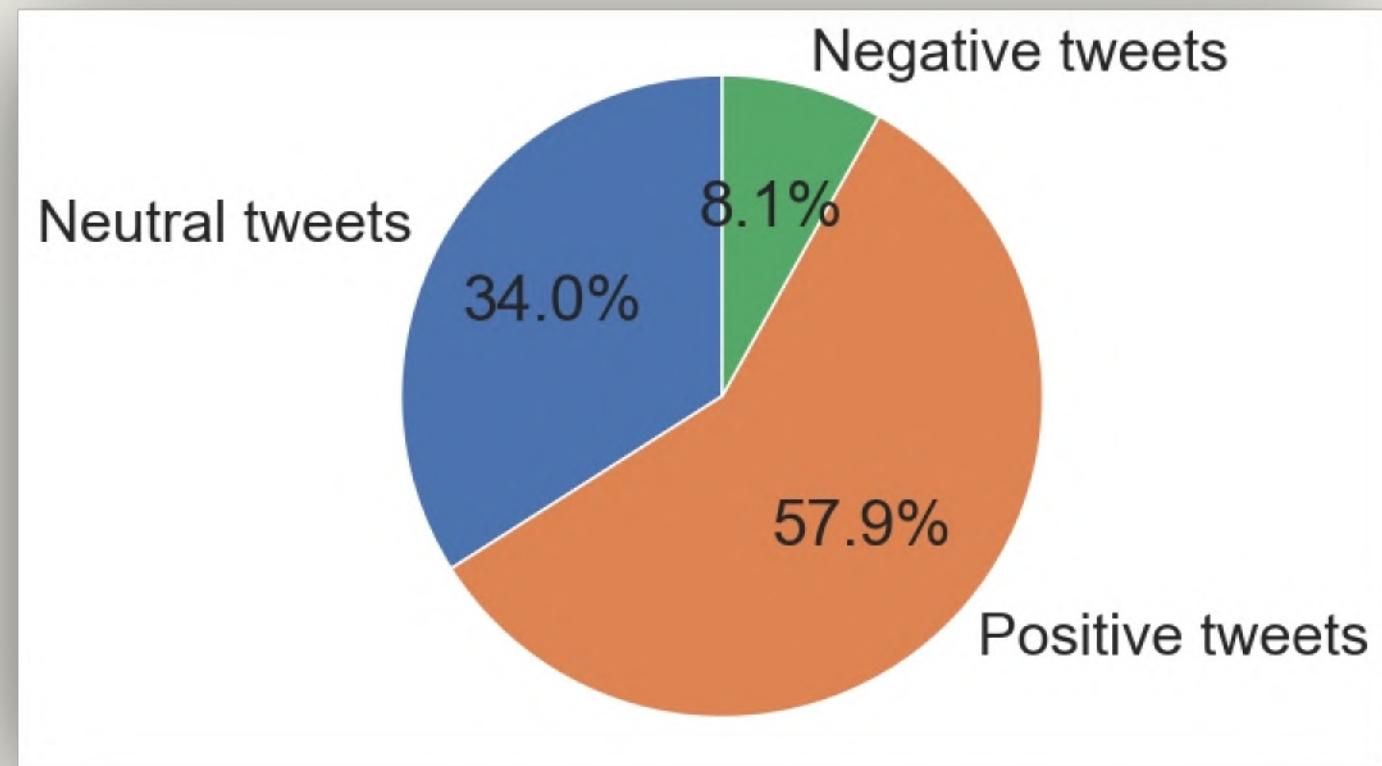
2019



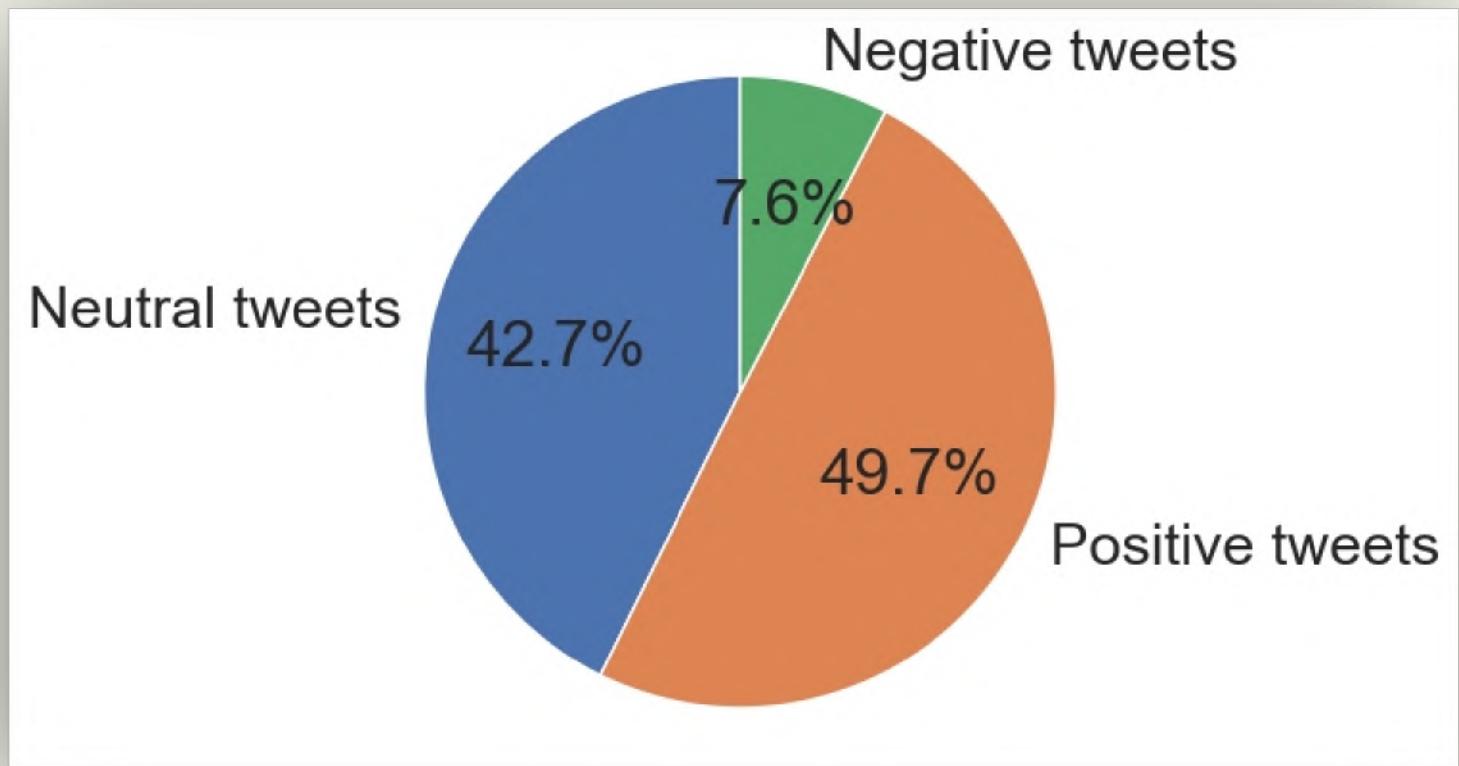
2020



2021



2022



# 2019 Tweet data for selecting Topic Themes

Top 10 words for topic #0:

```
['bigdata', 'follow', 'earn', 'customers', 'cash', 'free', 'brand', 'business', 'rewards', 'crypto']
```

Top 10 words for topic #1:

```
['payments', 'new', 'digital', 'ethereum', 'amp', 'btc', 'business', 'fintech', 'bitcoin', 'crypto']
```

Top 10 words for topic #2:

```
['wsj', 'cannabis', 'cnn', 'cbd', 'bloomberg', 'newyork', 'reuters', 'social', 'bitcoin', 'crypto']
```

Top 10 words for topic #3:

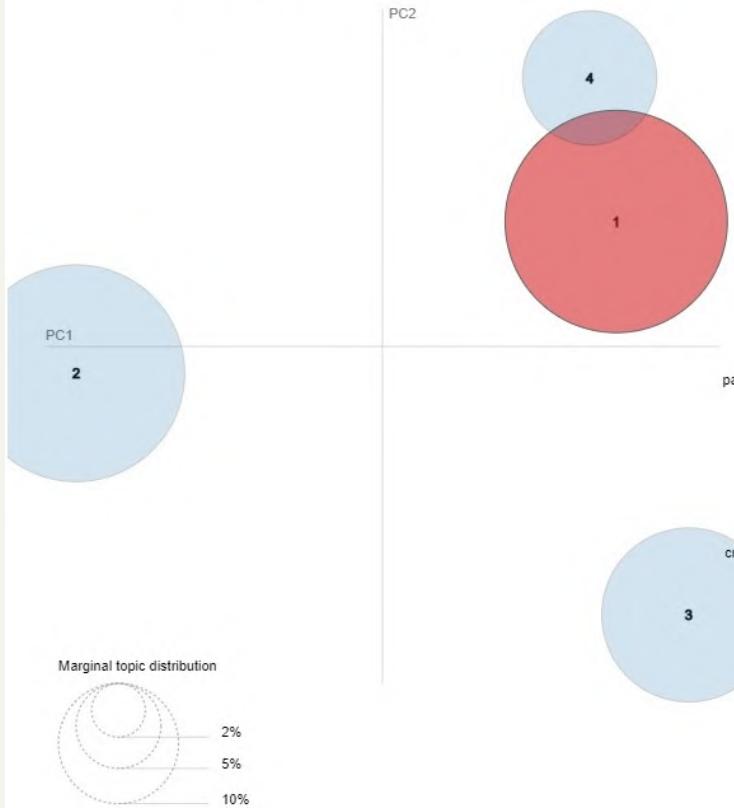
```
['join', 'cryptotrading', 'binance', 'ripple', 'litecoin', 'ethereum', 'bitcoin', 'news', 'money', 'crypto']
```

Digitalized_Fintech	1724
Social_Highness	1035
Token_News	802
Crypto_Earnings	515

# 2019 Tweet data for selecting Topic Themes

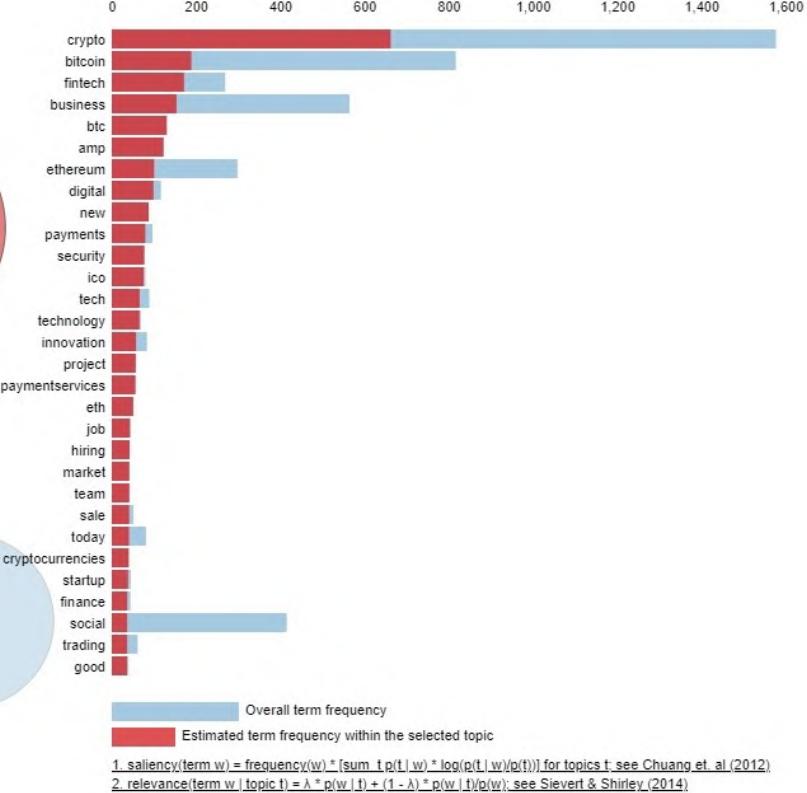
Selected Topic: 1 | Previous Topic | Next Topic | Clear Topic

Intertopic Distance Map (via multidimensional scaling)



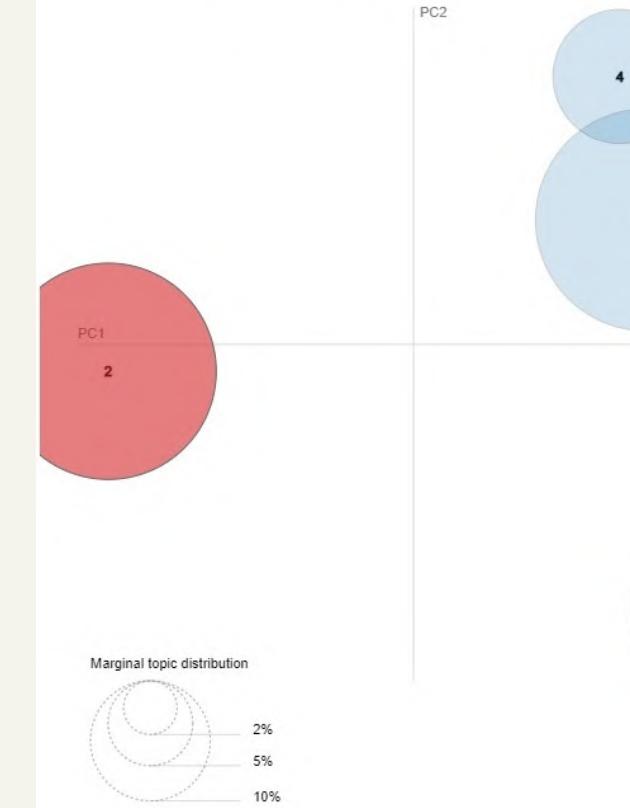
Slide to adjust relevance metric:(2)  
 $\lambda = 1$

Top-30 Most Relevant Terms for Topic 1 (34.2% of tokens)



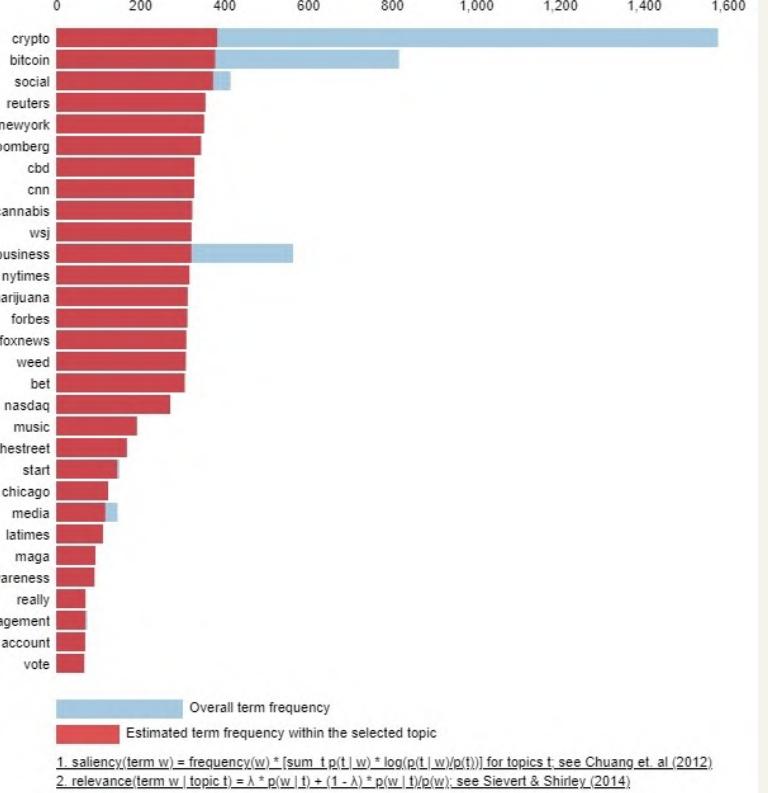
Selected Topic: 2 | Previous Topic | Next Topic | Clear Topic

Intertopic Distance Map (via multidimensional scaling)



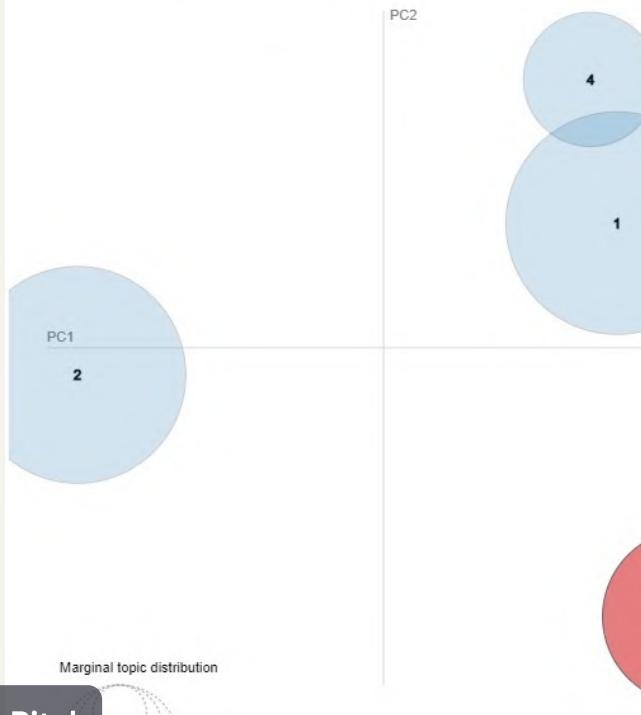
Slide to adjust relevance metric:(2)  
 $\lambda = 1$

Top-30 Most Relevant Terms for Topic 2 (32.5% of tokens)



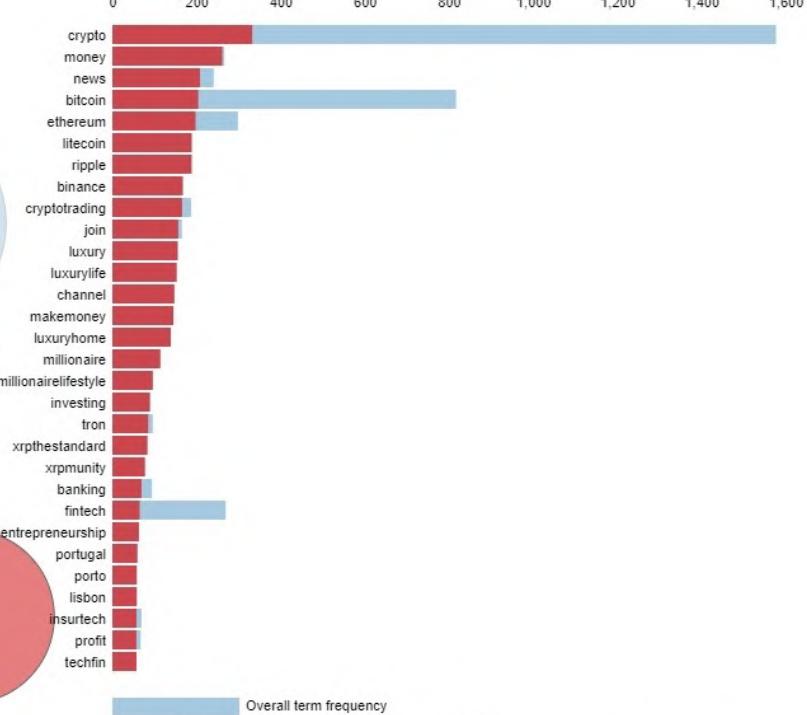
Selected Topic: 3 | Previous Topic | Next Topic | Clear Topic

Intertopic Distance Map (via multidimensional scaling)



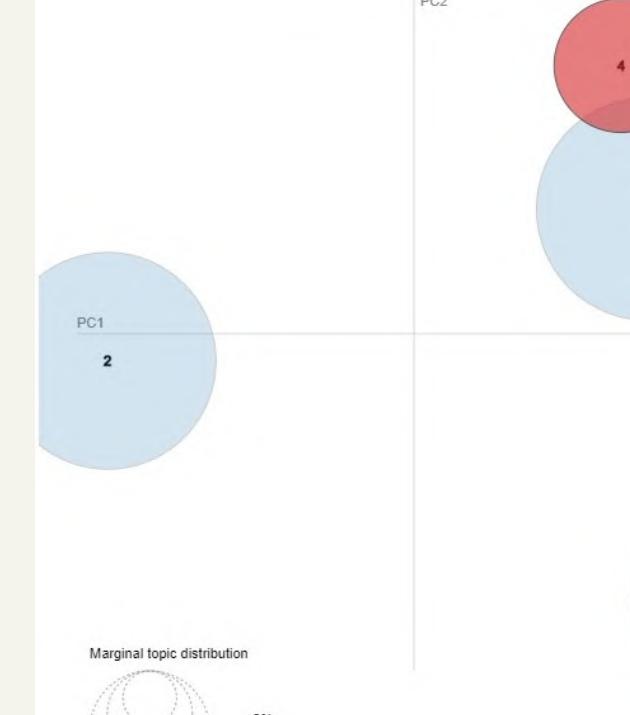
Slide to adjust relevance metric:(2)  
 $\lambda = 1$

Top-30 Most Relevant Terms for Topic 3 (20.9% of tokens)



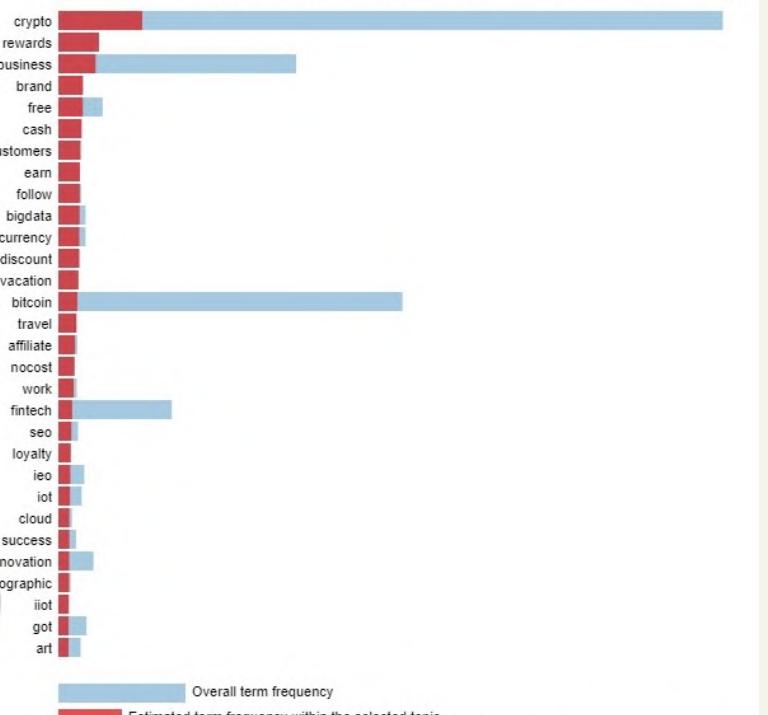
Selected Topic: 4 | Previous Topic | Next Topic | Clear Topic

Intertopic Distance Map (via multidimensional scaling)



Slide to adjust relevance metric:(2)  
 $\lambda = 1$

Top-30 Most Relevant Terms for Topic 4 (12.4% of tokens)



Try Pitch

# 2020 Tweet data for selecting Topic Themes

Top 10 words for topic #0:

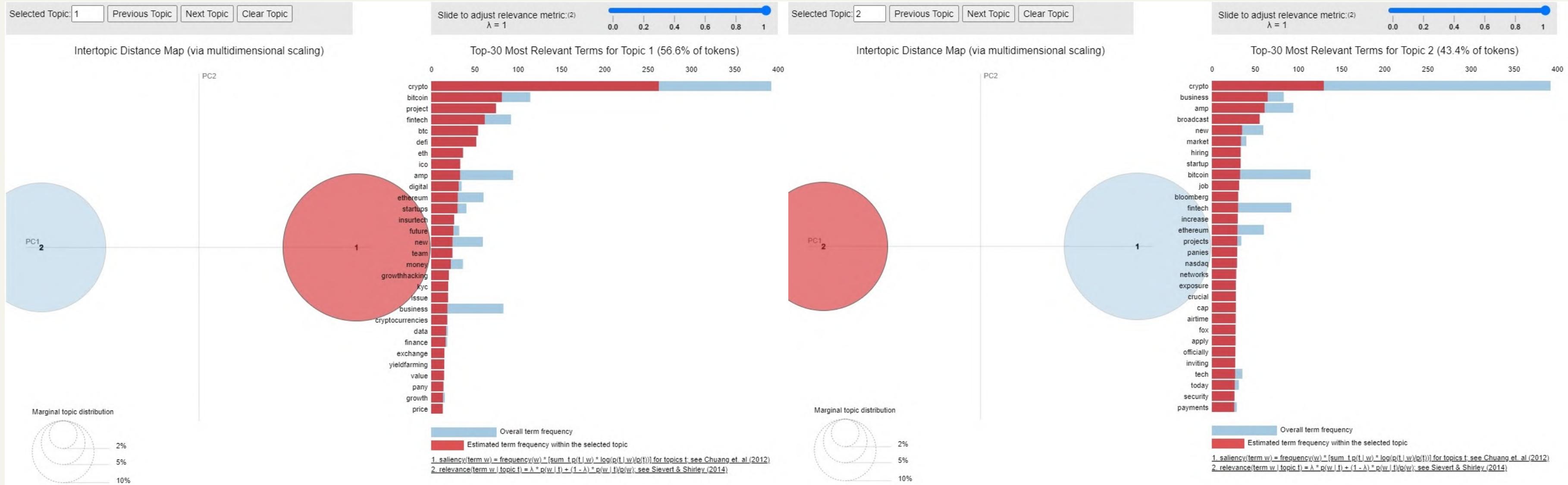
```
['job', 'bitcoin', 'startup', 'hiring', 'market', 'new', 'broadcast', 'amp', 'business', 'crypto']
```

Top 10 words for topic #1:

```
['digital', 'amp', 'ico', 'eth', 'defi', 'btc', 'fintech', 'project', 'bitcoin', 'crypto']
```

Blockchain_Projects	1260
New_Crypto_Market	778

# 2020 Tweet data for selecting Topic Themes



Try Pitch

# 2021 Tweet data for selecting Topic Themes

Top 10 words for topic #0:

```
['business', 'price', 'higher', 'team', 'value', 'defi', 'future', 'bitcoin', 'project', 'crypto']
```

Top 10 words for topic #1:

```
['btc', 'nfts', 'power', 'eth', 'team', 'bnb', 'games', 'ethereum', 'bitcoin', 'crypto']
```

Top 10 words for topic #2:

```
['team', 'business', 'money', 'eth', 'ethereum', 'mxs', 'nft', 'btc', 'bitcoin', 'crypto']
```

Top 10 words for topic #3:

```
['hot', 'manager', 'amp', 'today', 'apply', 'job', 'evol', 'hiring', 'new', 'crypto']
```

Crypto_Market	1300
Business_value_DeFI	956
NFT_Gaming	835
Jobs_Crypto	684

# 2021 Tweet data for selecting Topic Themes

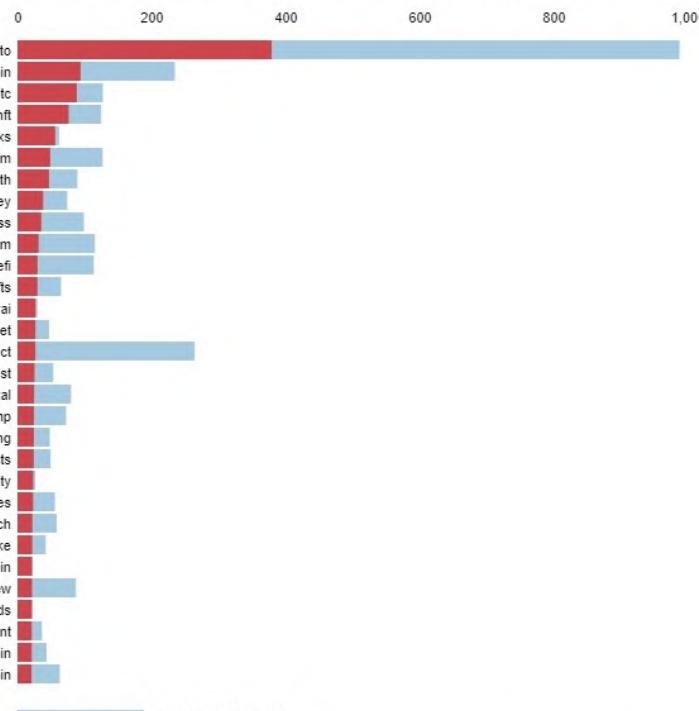
Selected Topic: 1 | Previous Topic | Next Topic | Clear Topic

Slide to adjust relevance metric:(2)  $\lambda = 1$  0.0 0.2 0.4 0.6 0.8 1

Intertopic Distance Map (via multidimensional scaling)



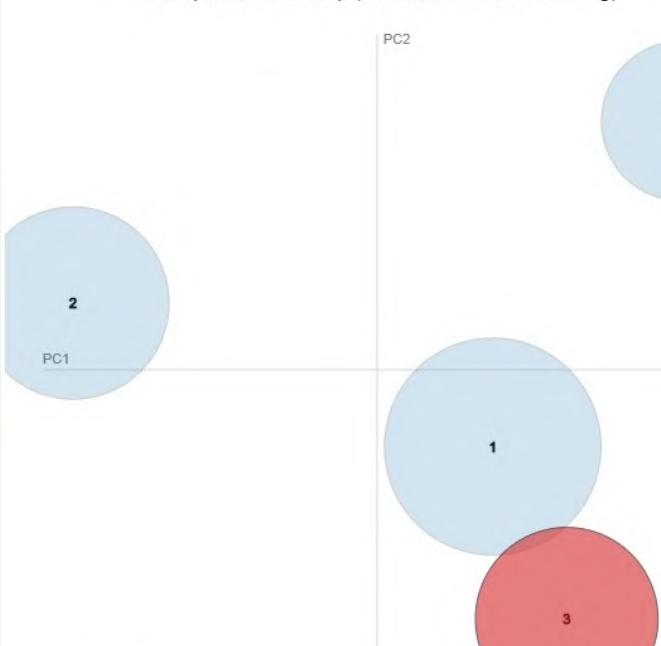
Top-30 Most Relevant Terms for Topic 1 (32.9% of tokens)



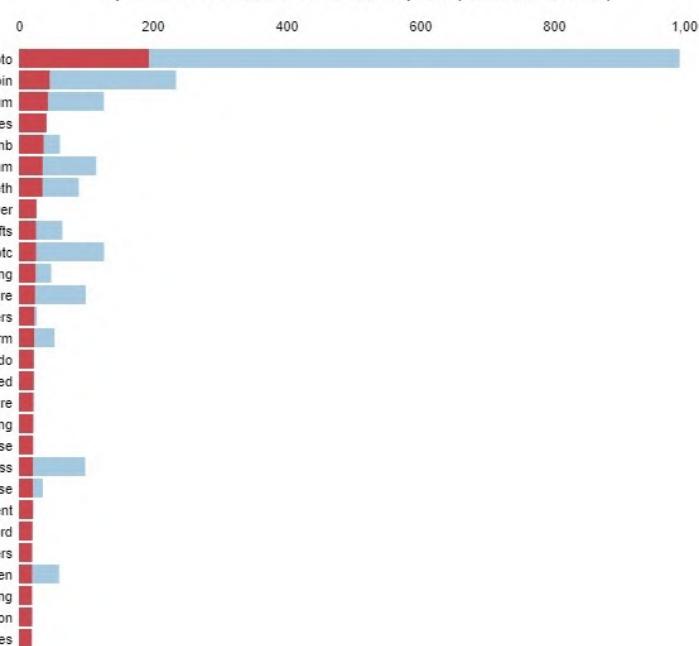
Selected Topic: 2 | Previous Topic | Next Topic | Clear Topic

Slide to adjust relevance metric:(2)  $\lambda = 1$  0.0 0.2 0.4 0.6 0.8 1

Intertopic Distance Map (via multidimensional scaling)



Top-30 Most Relevant Terms for Topic 2 (25.9% of tokens)



Try Pitch

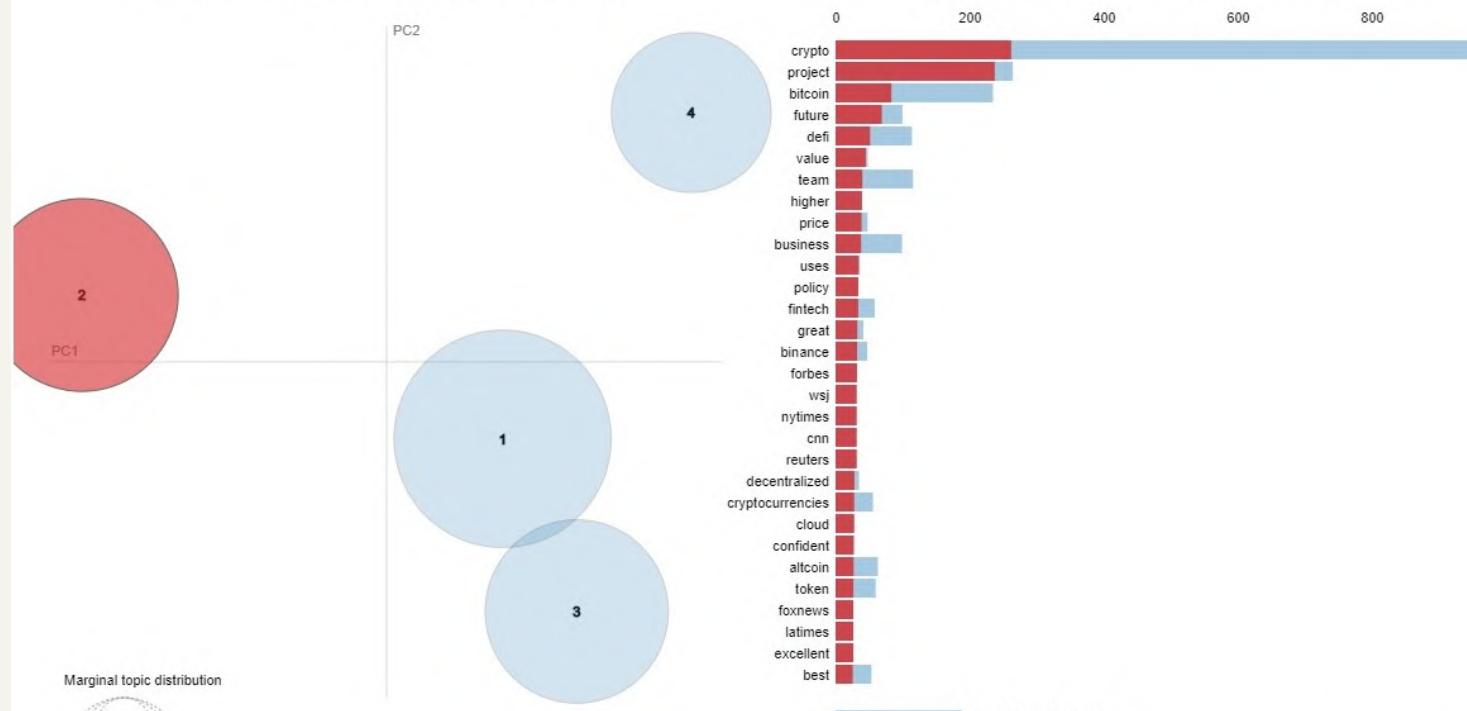
Selected Topic: 3 | Previous Topic | Next Topic | Clear Topic

Slide to adjust relevance metric:(2)  $\lambda = 1$  0.0 0.2 0.4 0.6 0.8 1

Intertopic Distance Map (via multidimensional scaling)



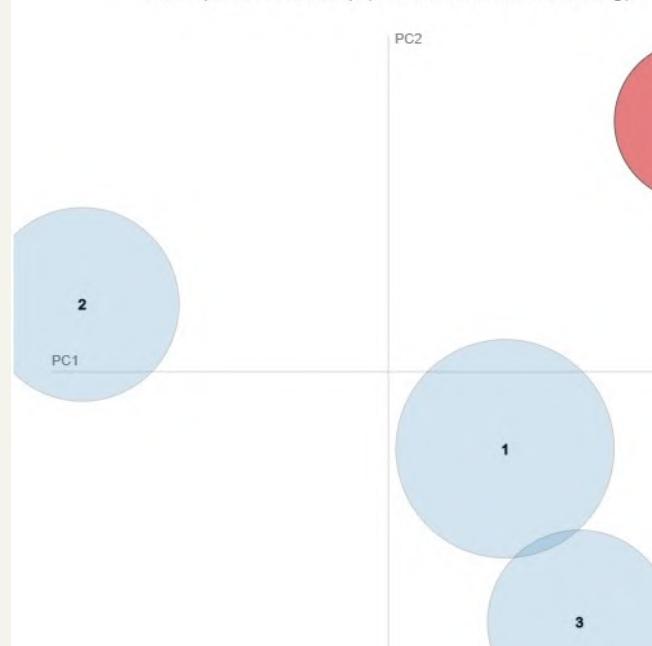
Top-30 Most Relevant Terms for Topic 3 (23.4% of tokens)



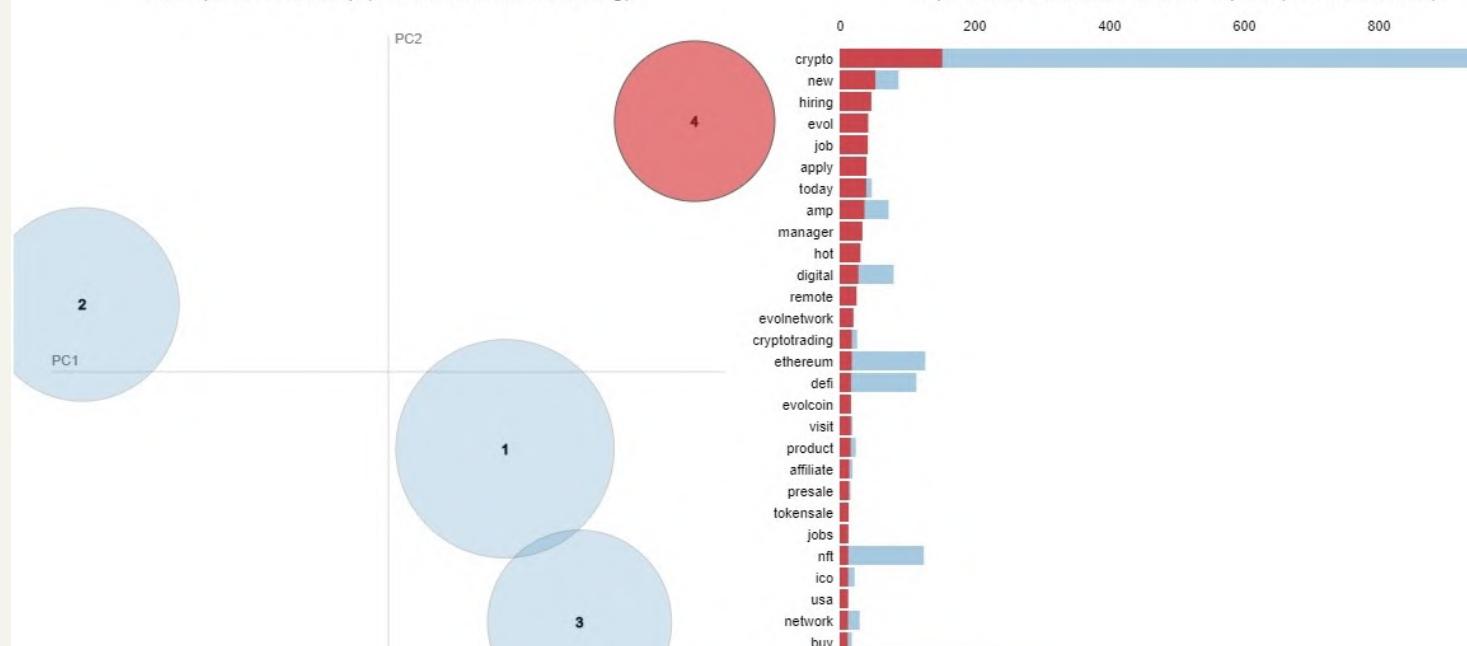
Selected Topic: 4 | Previous Topic | Next Topic | Clear Topic

Slide to adjust relevance metric:(2)  $\lambda = 1$  0.0 0.2 0.4 0.6 0.8 1

Intertopic Distance Map (via multidimensional scaling)



Top-30 Most Relevant Terms for Topic 4 (17.8% of tokens)



# 2022 Tweet data for selecting Topic Themes

Top 10 words for topic #0:

```
['digital', 'gamingcommunity', 'bot', 'virtualreality', 'breaking', 'nfts', 'business', 'news', 'metaverse', 'crypto']
```

Top 10 words for topic #1:

```
['branding', 'digital', 'tech', 'nfts', 'btc', 'defi', 'metaverse', 'bitcoin', 'nft', 'crypto']
```

Top 10 words for topic #2:

```
['robloxdev', 'vroid', 'indiedev', 'gamedev', 'fintech', 'freelance', 'nfts', 'datascience', 'python', 'crypto']
```

Top 10 words for topic #3:

```
['new', 'development', 'ethereum', 'projects', 'bitcoin', 'nfts', 'project', 'amp', 'nft', 'crypto']
```

Top 10 words for topic #4:

```
['rbxstoken', 'shilling', 'cryptonews', 'nft', 'bsc', 'bscgem', 'lunarcrush', 'rbxsamurai', 'crypto', 'rbxs']
```

Token_News	1536
Virtual_Reality_Gaming	1213
Digital_Branding	1009
NFT_Projects	886
Fintech_Datascience	357

# 2022 Tweet data for selecting Topic Themes

