基于政治支持者网络的选举预测模型研究与应用

Election Prediction Model and Application Based on Politician's Supporters Network

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第二届全国社会舆情分析论坛

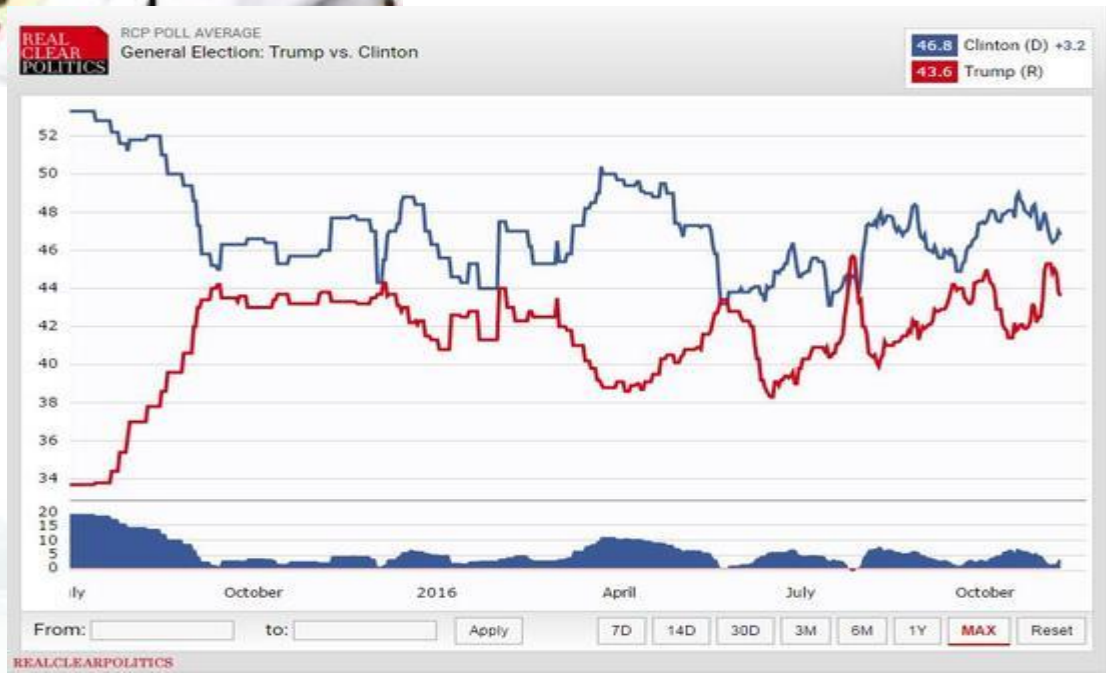
2020.9

北京理工大學 BEIJING INSTITUTE OF TECHNOLOGY

Reference

Asif Khan, Huaping Zhang, Jianyun Shang, Nada Boudjellal, Arshad Ahmad, Asmat Ali, Lin Dai, "Predicting Politician's Supporters' Network on Twitter Using Social Network Analysis and Semantic Analysis", *Scientific Programming*, vol. 2020, Article ID 9353120, 17 pages, 2020. https://doi.org/10.1155/2020/9353120

选举预测：小数据精英 VS 大数据庶民



选举预测：小数据精英 VS 大数据庶民

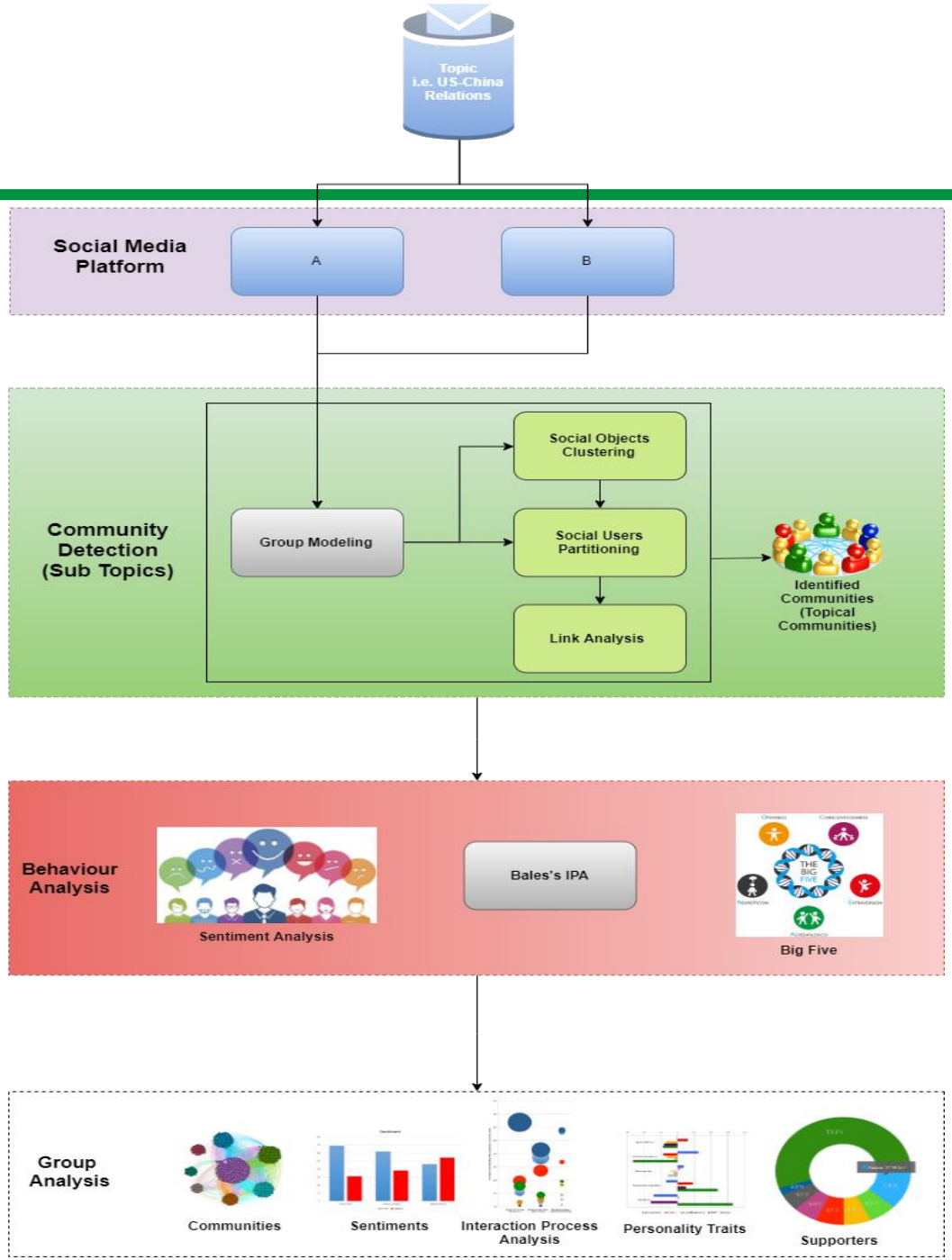
Outline

- Understanding people behavior on a topic
- Difficult Challenge
  - Social Media Manipulation
- Election Prediction

1 Understanding People Behavior on a given Topic

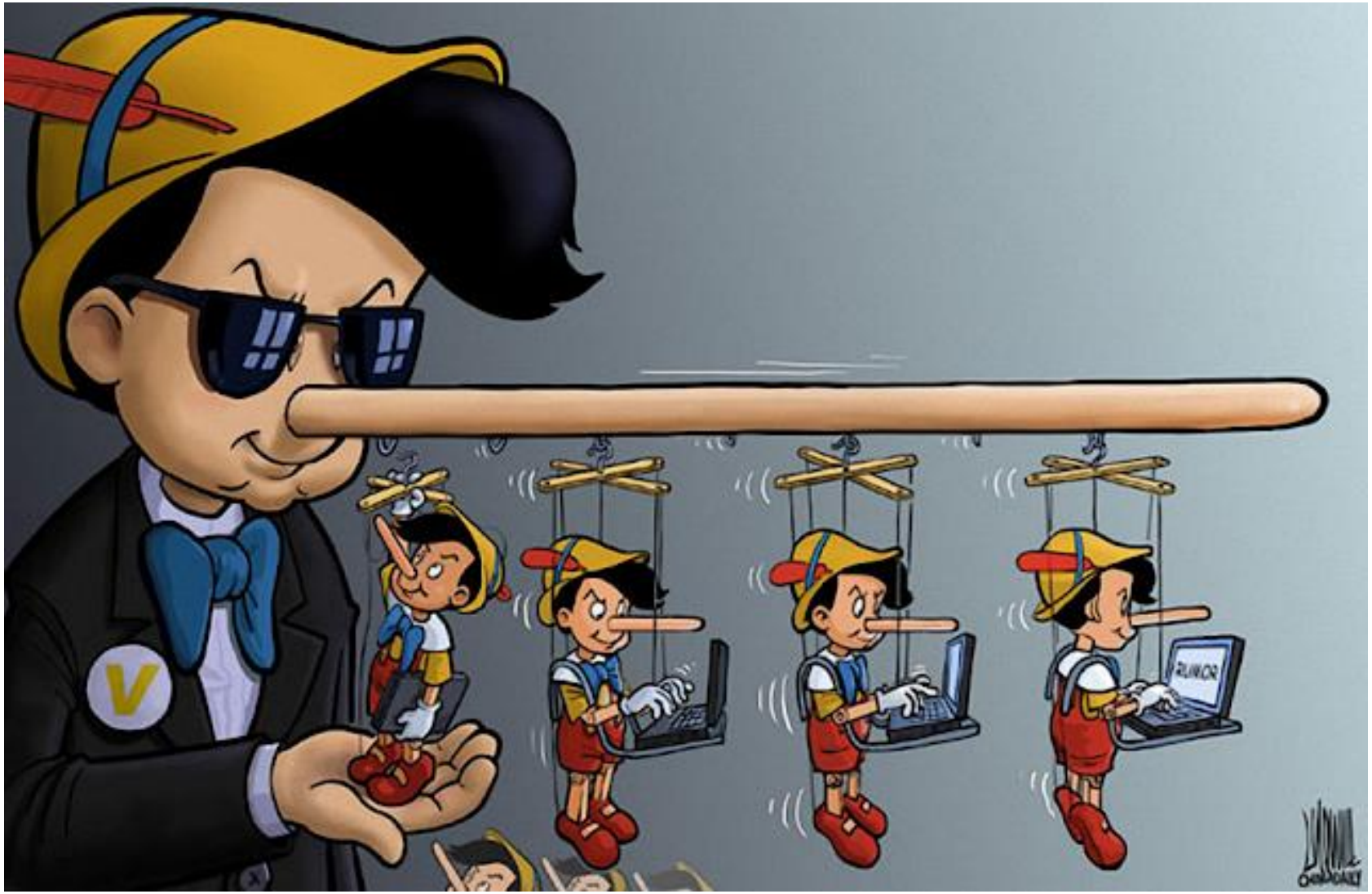
- **Information**
  - Problem of information: subjective(bias), even with news, personalize
- **People**
  - Different nations, different languages, different behaviors, and opinions about a topic on different platforms
  - People connected to specific groups create the shallow world, which can be dangerous (i.e. not flexible, a group hating or supporting a product, person, country, etc.). The same type of information will most of the time recommended to them, which can make their opinions shallower and bias.
  - Hard to know the root causes of different groups react differently to a topic

- **Content**
  - What are the different types of discussions on election (US Election 2020), and the behavior of people on different platforms regarding the topic?
- **Interaction**
  - How different users from different cultures (Spanish, Chinese, Indians) in US interact on different platforms?
  - Do they discuss or just follow and share without giving their own opinion?
  - Is there any difference in the patterns on different platforms?
- **Groups**
  - Categorize users into different groups. Do they tend to be different on a specific topic or they have subgroups?


Topic
i.e. US-China Relations
Social Media Platform
A
B
Community Detection (Sub Topics)
Group Modeling
Social Objects Clustering
Social Users Partitioning
Link Analysis
Identified Communities (Topical Communities)
Behaviour Analysis
Sentiment Analysis
Bales's IPA
THE BIG FIVE
Big Five
Group Analysis
Communities
Sentiments
Interaction Process Analysis
Personality Traits
Supporters

Difficult Challenge

Social Media Manipulation

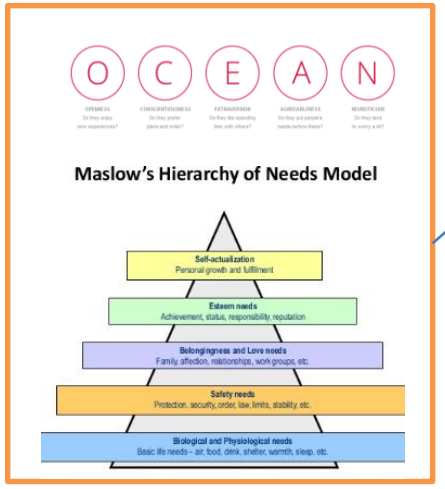


https://www.mybestbuddymedia.com/2019/12/the-dark-psychology-of-social-media.html

Opinion Manipulators

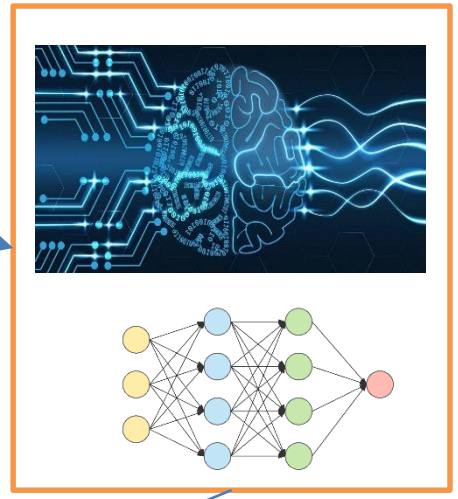
Targeted Community

Psychological Models



Social Media

Computational Models



Public Opinion Manipulated

Election Prediction

Predicting Pakistan's Election

Imran Khan

Maryam Nawaz

Bilawal Bhutto

Campaign on Ground

Motivation

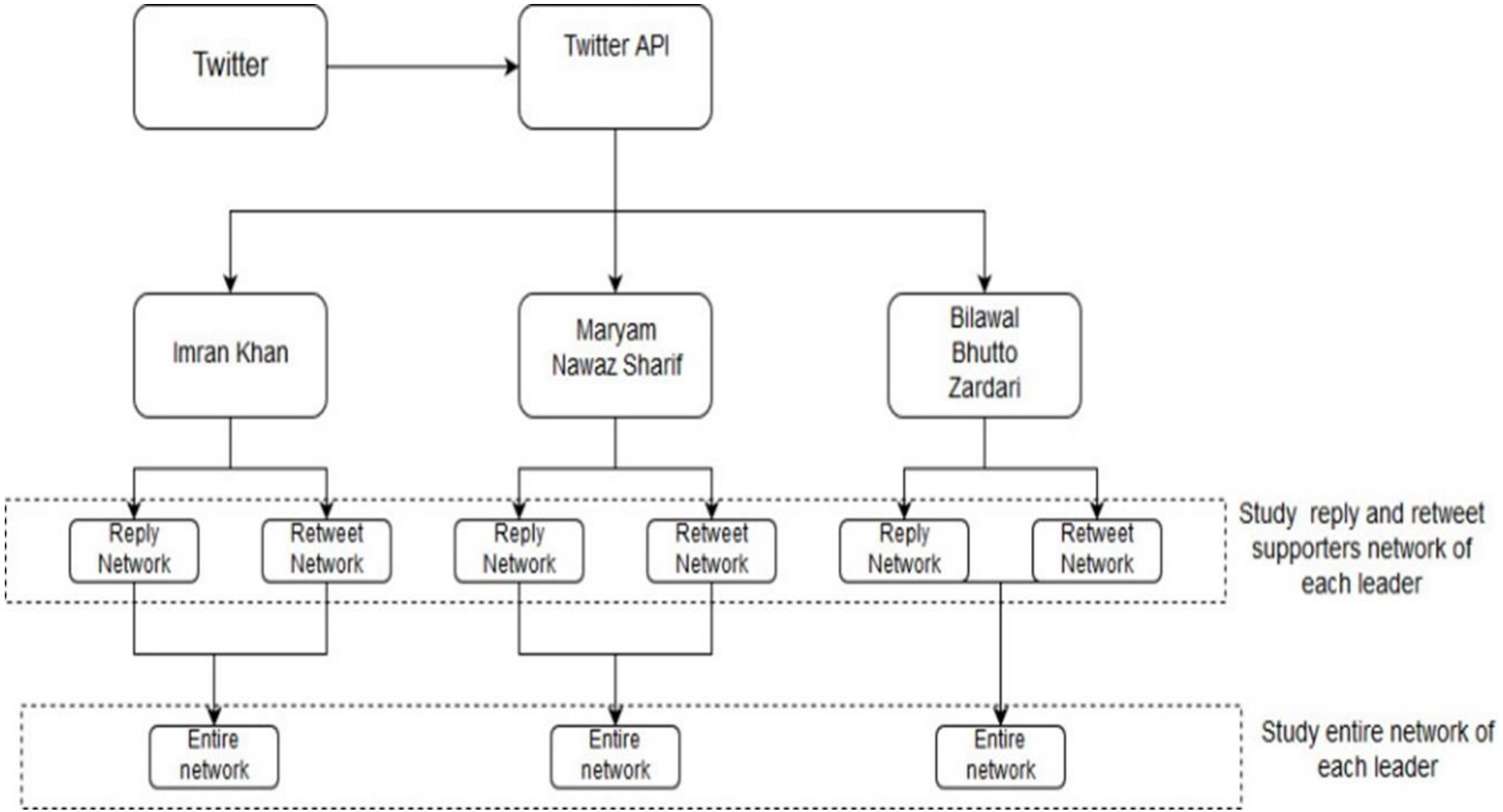
- Election Commission of Pakistan (ECP)
- Analyze next election
- Decision Making
- Electable(s) Flow
- Other Political Parties Decisions (weaknesses, improvement, etc.)
- Supporters Trust (views)
- Other countries' Decisions (Foreign office, business deals, bilateral deals)

To investigate the supporter network of political leader:

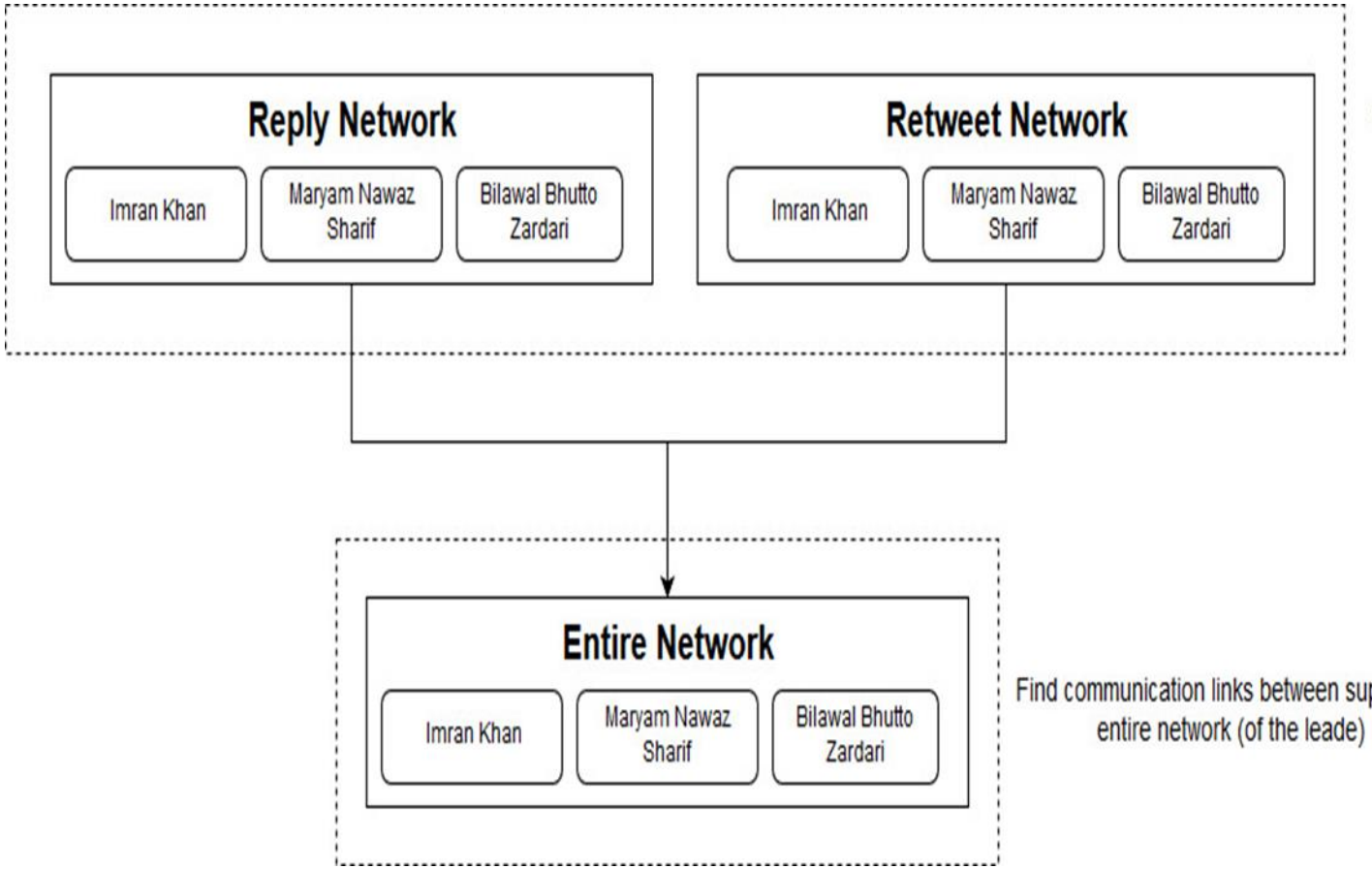
- Detect (and remove) Fake supporter
- Predict Strongest Politician’s Supporter Community
- Predict the existence of communication links between two supporter networks
- Predict Sentiments of supporters about Politicians

- **Strongest Supporter Community**
  - Reply Network
  - Retweet Network
  - Entire (Reply + Retweet) Network
- **Detect Communication Links between two Supporters Networks**
  - Reply Network
  - Retweet Network
  - Entire (Reply + Retweet) Network

Strongest Supporters' Community



Communication Links



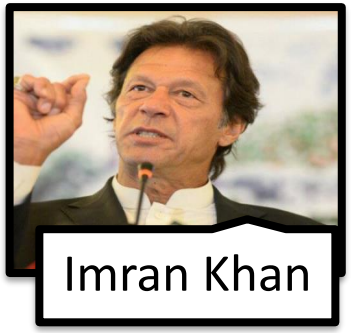
Reply Network

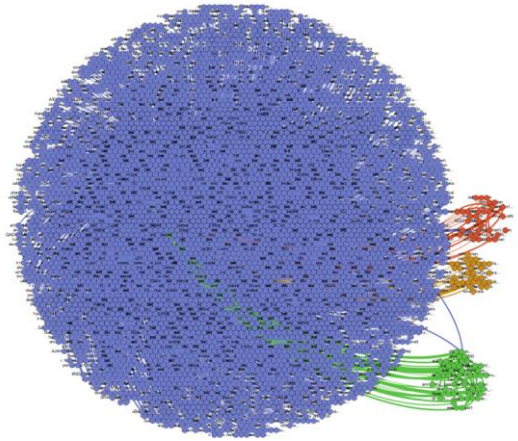
- Extracted communities
- Only Major Communities were considered

1st

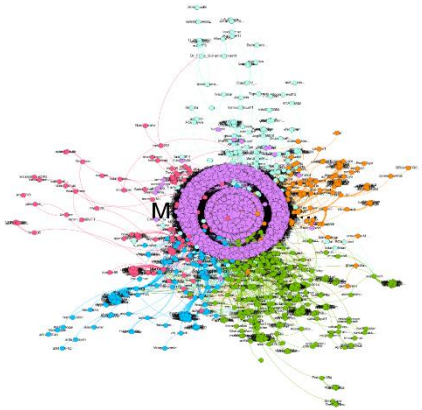
2nd

3rd

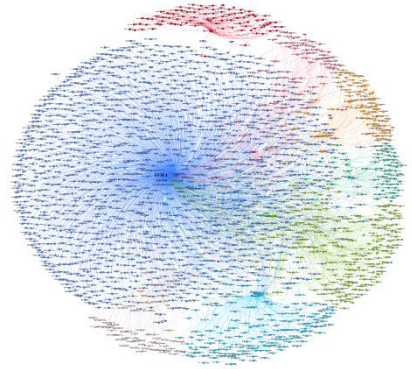




Blue colour community contains supporters of IK, green color PTI's media group, orange color BBZ, and red MNS.



Lilac coloured community contains supporters of MNS, green colour IK, cerulean colour PMLN's leader, arctic colour BBZ, and orange colour PMLN's media cell.



Blue colour community contains supporters of BBZ, green colour PPP media cell, orange colour MNS, pink colour IK, cerulean colour PPP's political leaders.

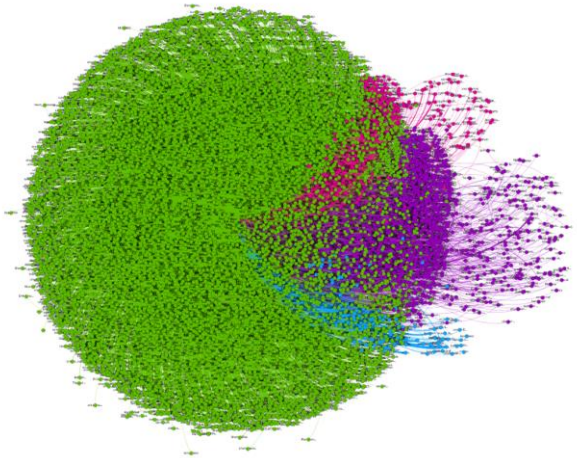
Retweet Network

- Extracted communities
- Only Major Communities were considered

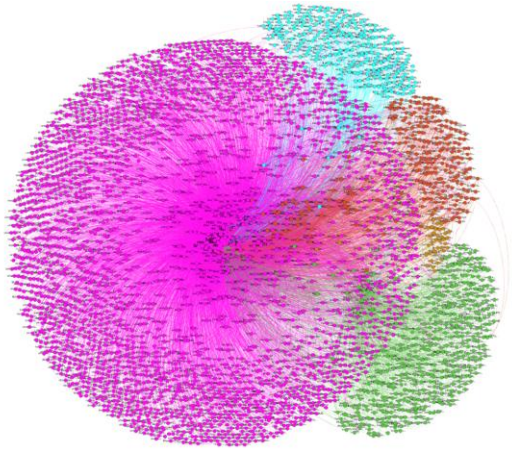
1st

2nd

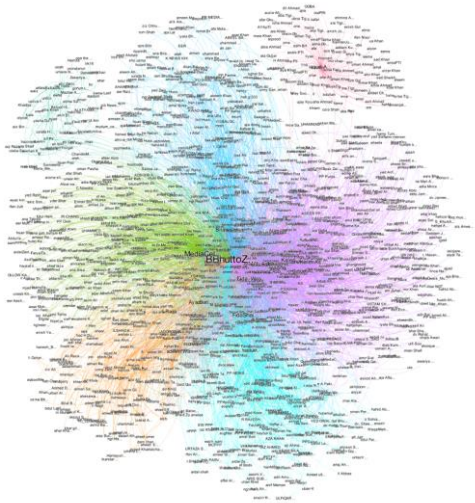
3rd



Green colour contains supporters of IK, voilet colour PTI's account, the rest are related to other leaders from PTI and other political parties

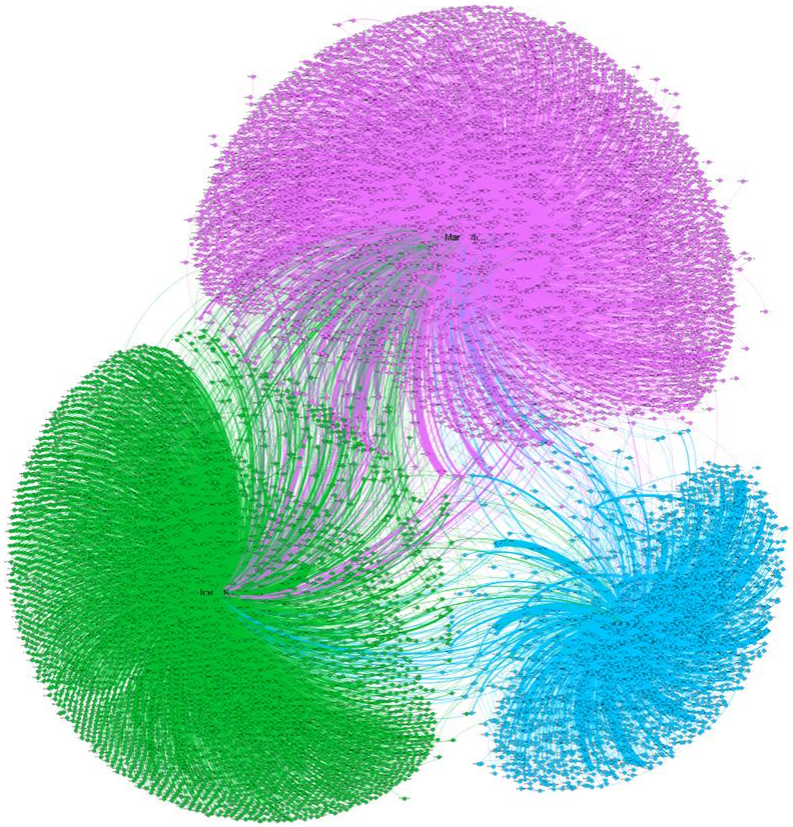


Pink colour consists of MNS' supporters, green colour PMLN media cell, the rest are related to other leaders from PMLN and other parties.

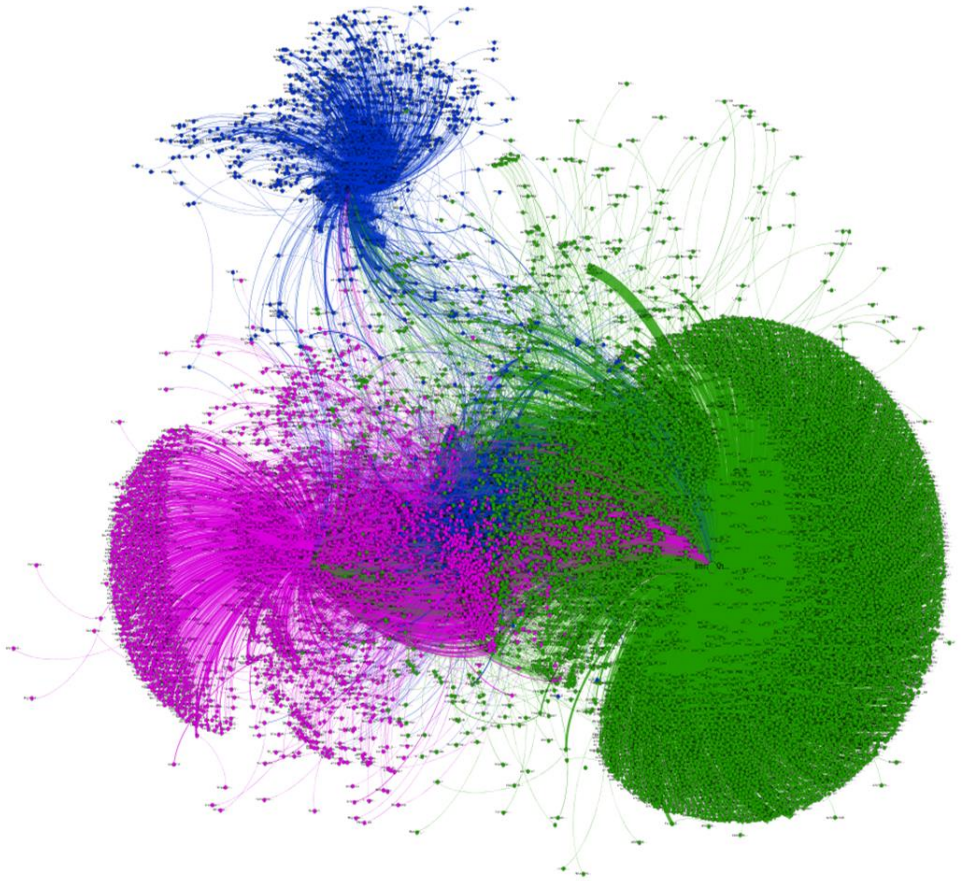


Lilac colour BBZ, green colour PPP media group, other communities belong to other parties and some prominent members of PPP.

Entire Network

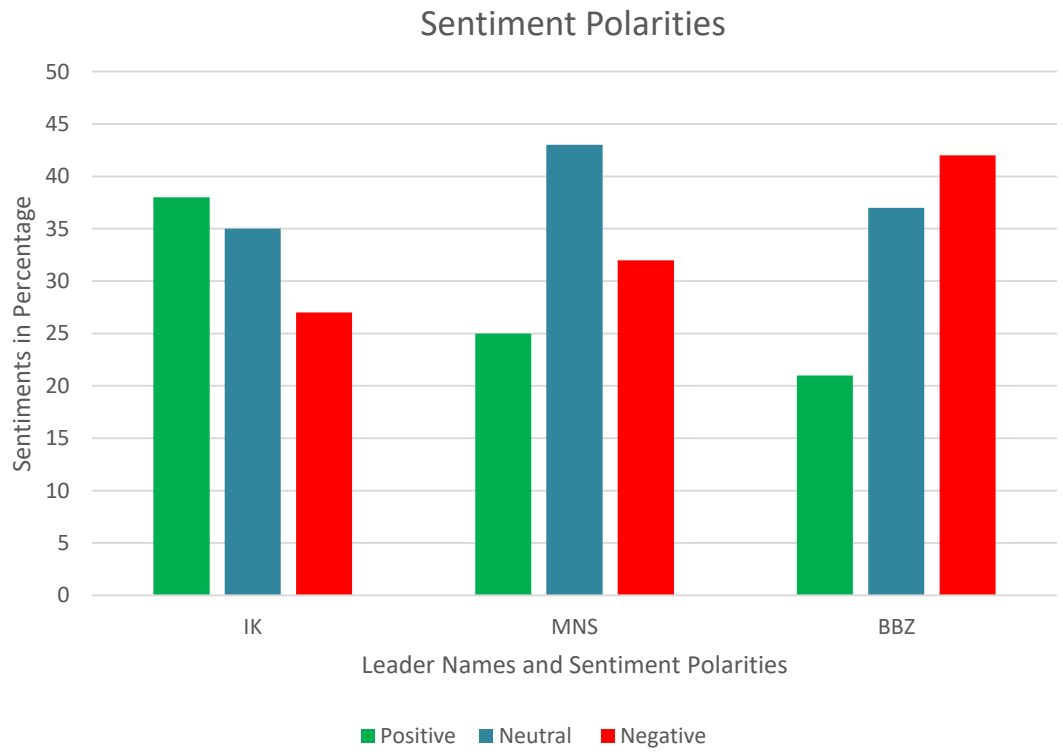


Reply Network:
Green colour community contains supporters of IK, Voilet colour MNS, and Blue colour BBZ.



Retweet Network:
Green colour community contains supporters of IK, Voilet colour MNS, and Blue colour BBZ.

Sentiment Analysis



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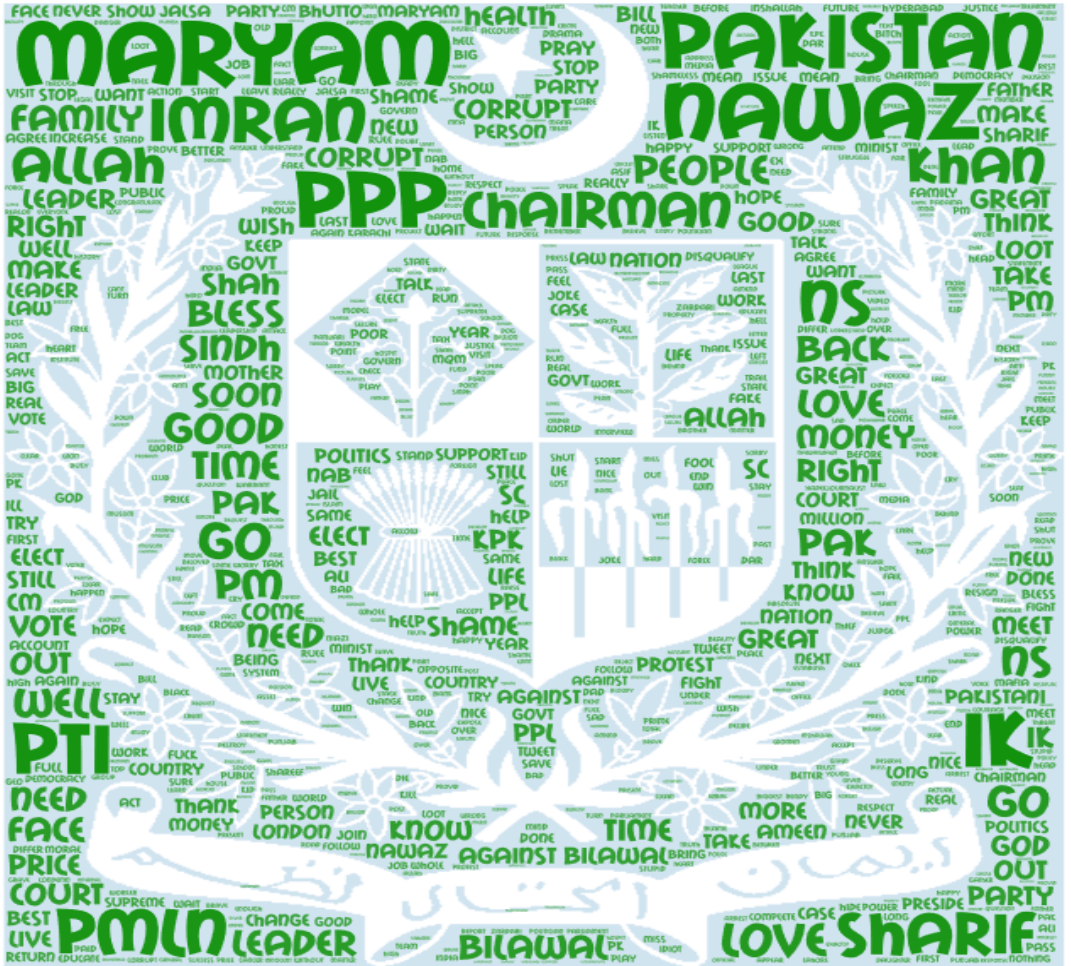
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SHARIF

Predicting IK will win before 6 months

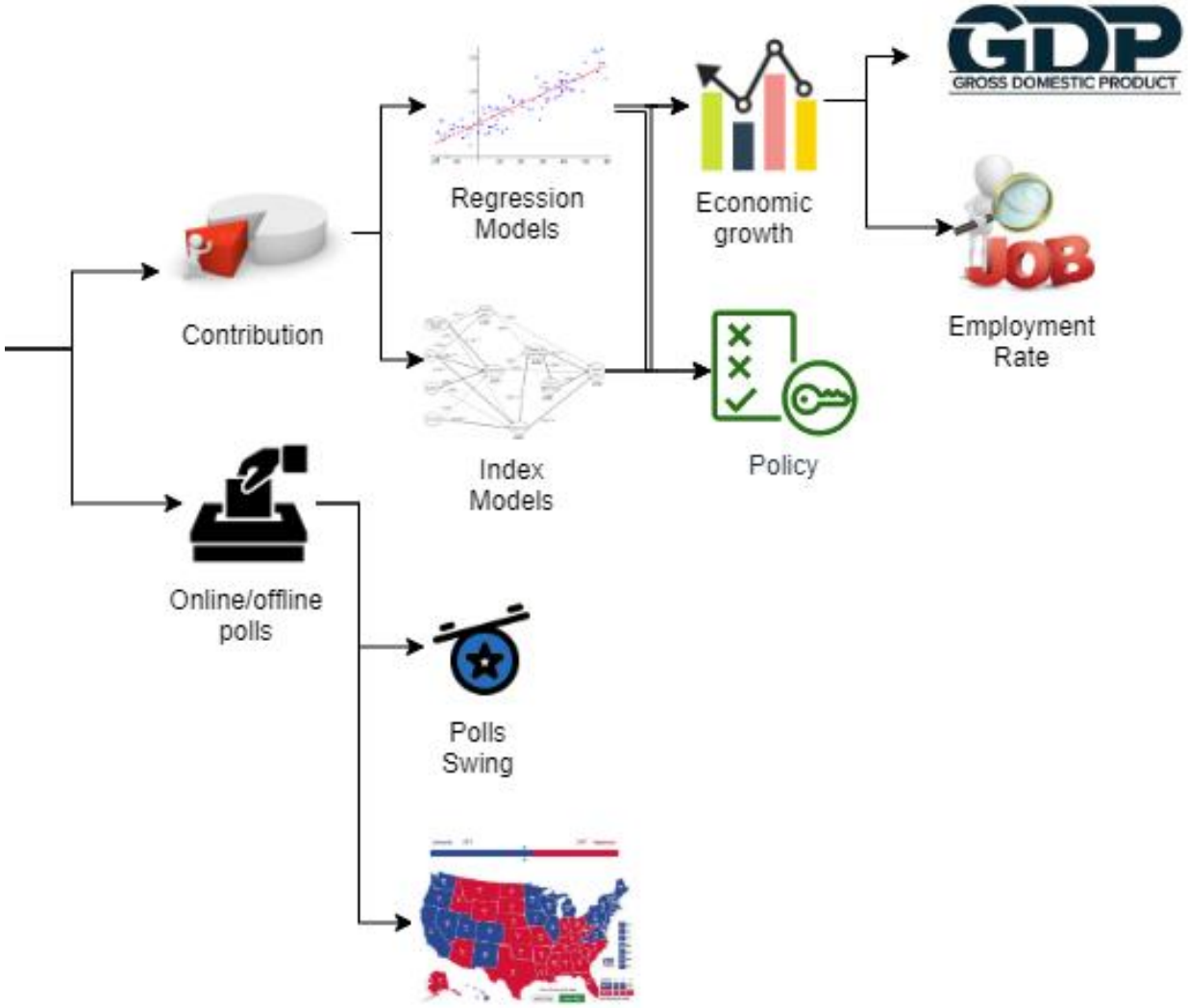
We had some interesting outcomes. We could see.

- Social Media operating/using strategies and behavior of politicians.
  - IK was using social media precisely. Few posts and he follows very few people
  - MN was using social media very openly and had so many posts.
- How their media cells were operating on social media
- Which politician has more support from other politicians (in his/her party).
  - Bilawal Bhutto many other politicians were supporting him
- People tend more towards Imran Khan and has directly connection with him. Mostly youngsters.
- People of Pakistan are flexible on social media in terms of cross communication between different parties

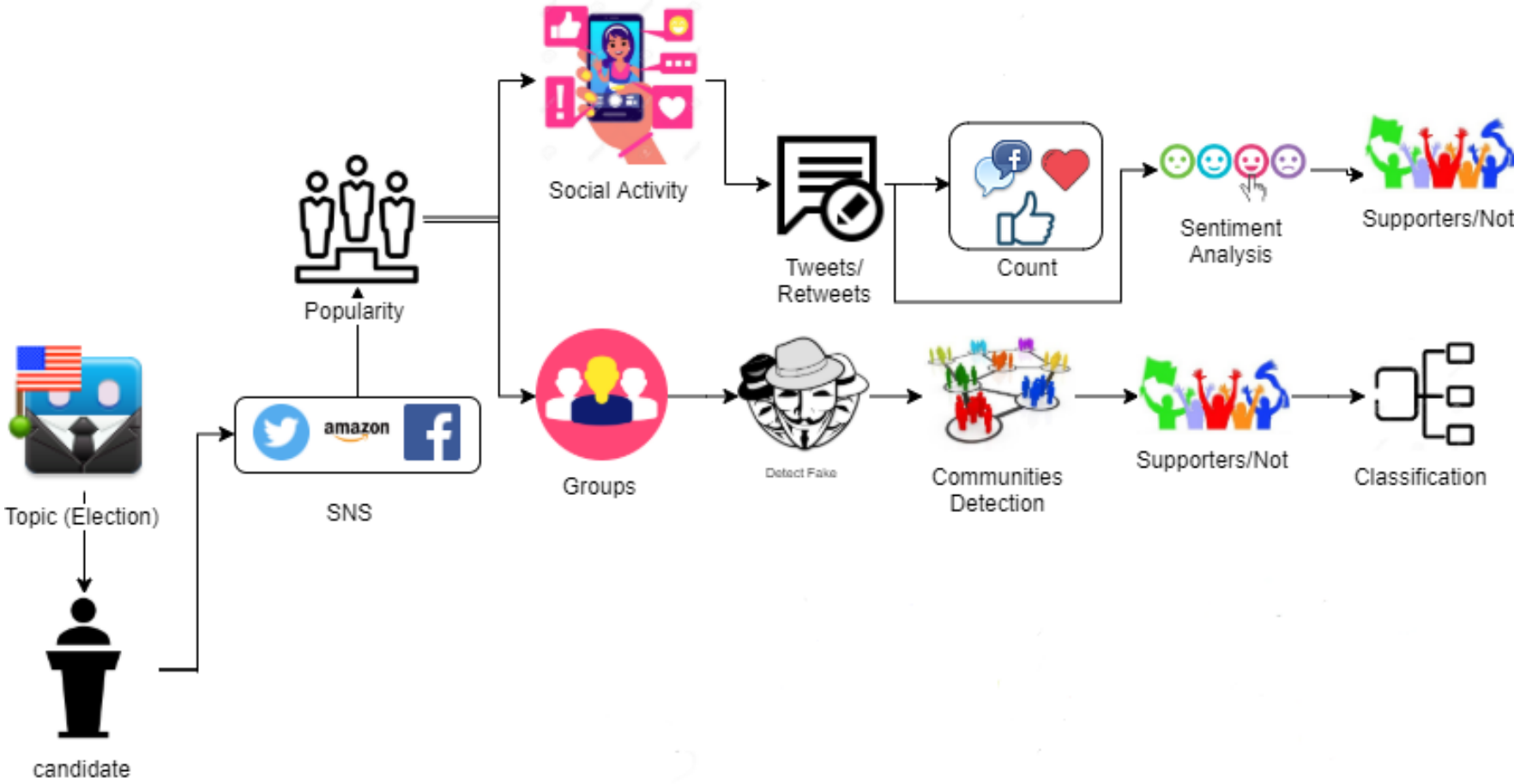
U.S. Election

Social and Economical Indicators

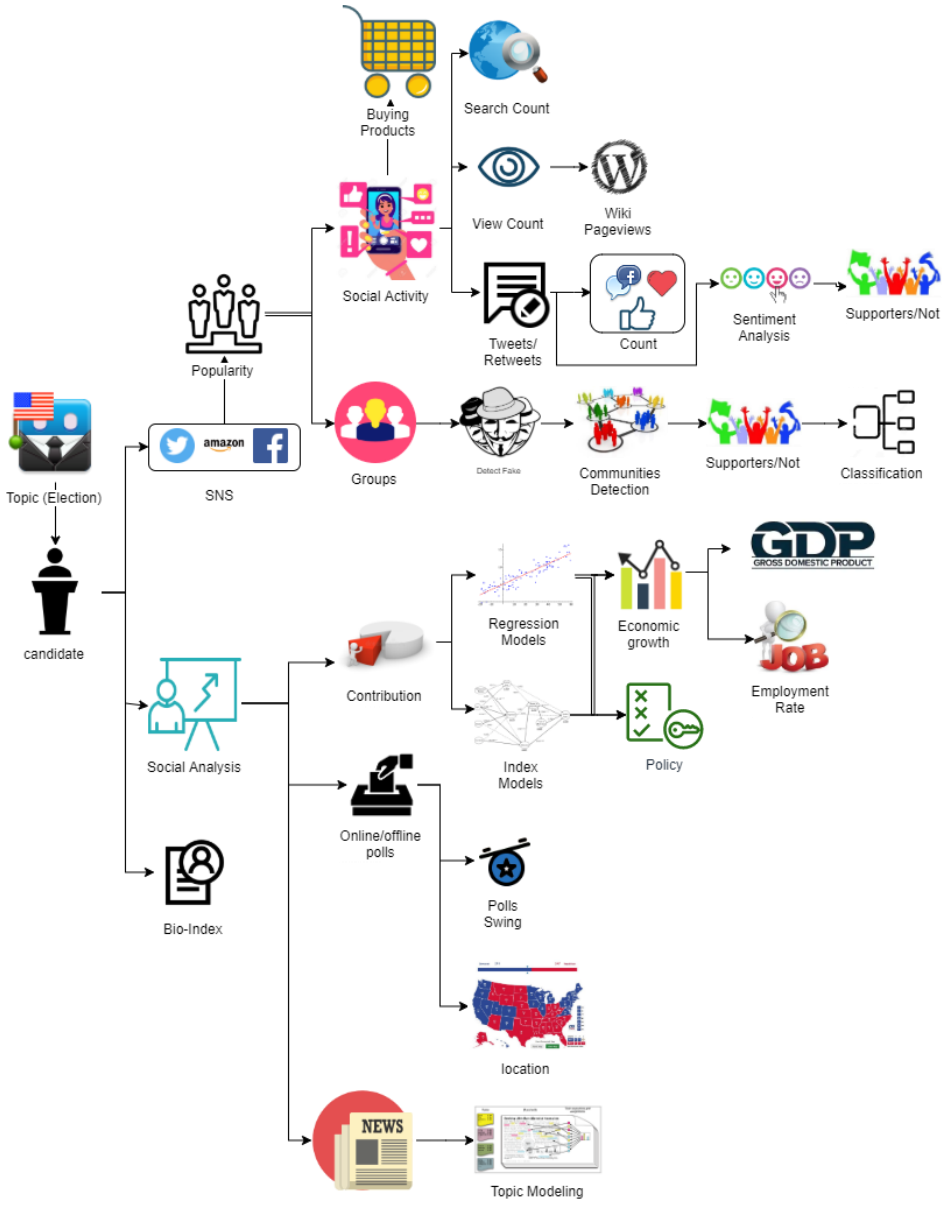
- Taken history of 17 elections
- All states data
- Taken more than 300 indicators
- Selected 45 most relevant indicators
- We are currently in experimental stage
- Most of the polls shows Biden is leading
- But from our initial experiments our results shows Trump will win.



Currently we are working on



Election Prediction Across Different Platforms



US Election 2020 Campaign (prediction:45%:55%)

感谢您的耐心聆听！

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大数据千人会