

# **Network Analysis related to Cancellation of Airpower**

Lets Go!!!

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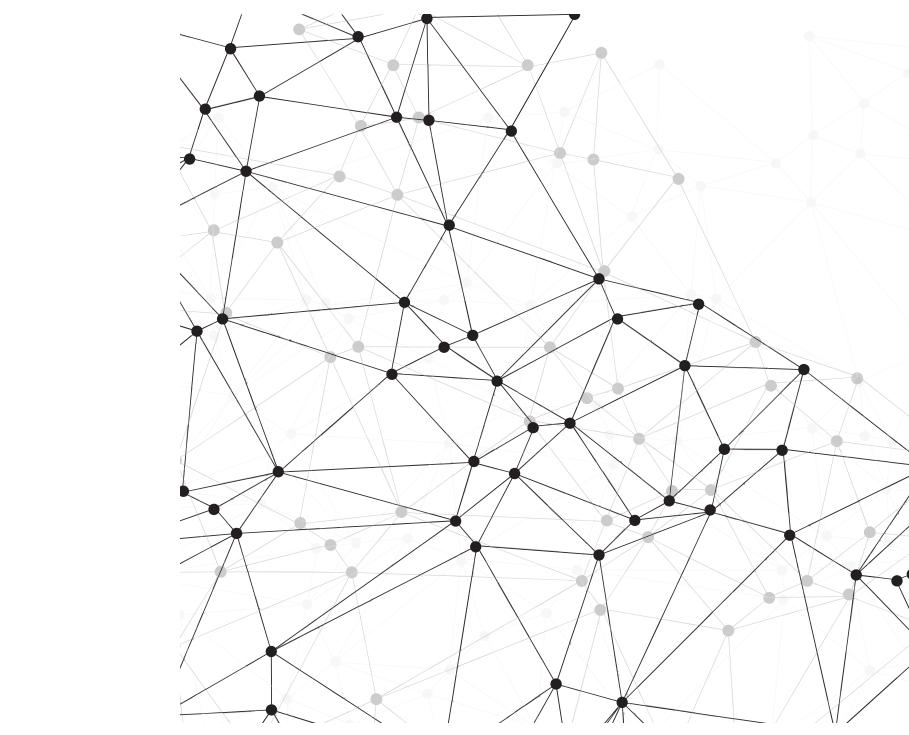
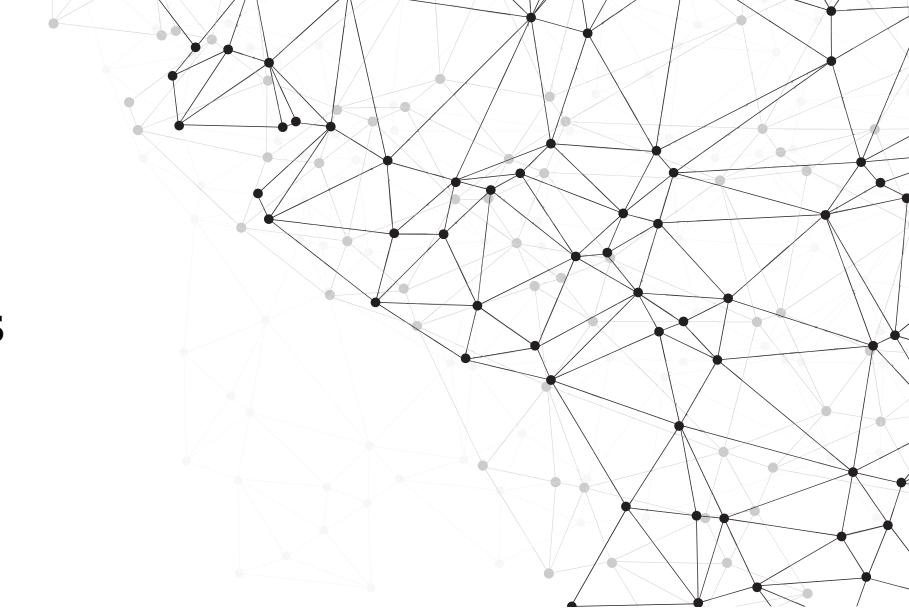
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# 01

## Background

# Background – Timeline



## Product Characteristics

- Charge several Apple products at the same time
- Charge Apple product regardless its position



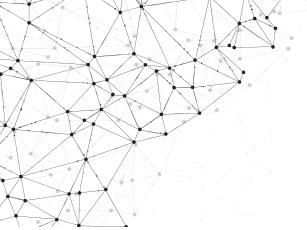
## Technical Difficulties

- Tend to overheat
- Charging speed

## First Cancellation



- First announced hardware product cancellation



# Background – Timeline





# 02

## Problem Statement

Whether Apple handles negative event and crisis  
very well?



# 03

## Text Analytics

Data Extraction, Data Cleaning, Text  
Analysis

# Data Pre-Processing and Text Analytics

## Data Extraction

- Extraction using twitter API using R (rtweet)
- Keyword extraction
  - Airpower and apple
  - Airpower and Airpods

## Word Cloud of Prominent words

- Before Announcement of Cancellation
- After Announcement of cancellation



## Emoji Analysis

- Before announcement of cancellation
- After announcement of cancellation.

## Sentiment Analysis

- VADER
- Sentient of tweet at USER and LOCATION-level.

# Before Cancellation

2984 tweets

From 25th March-29th March 2019

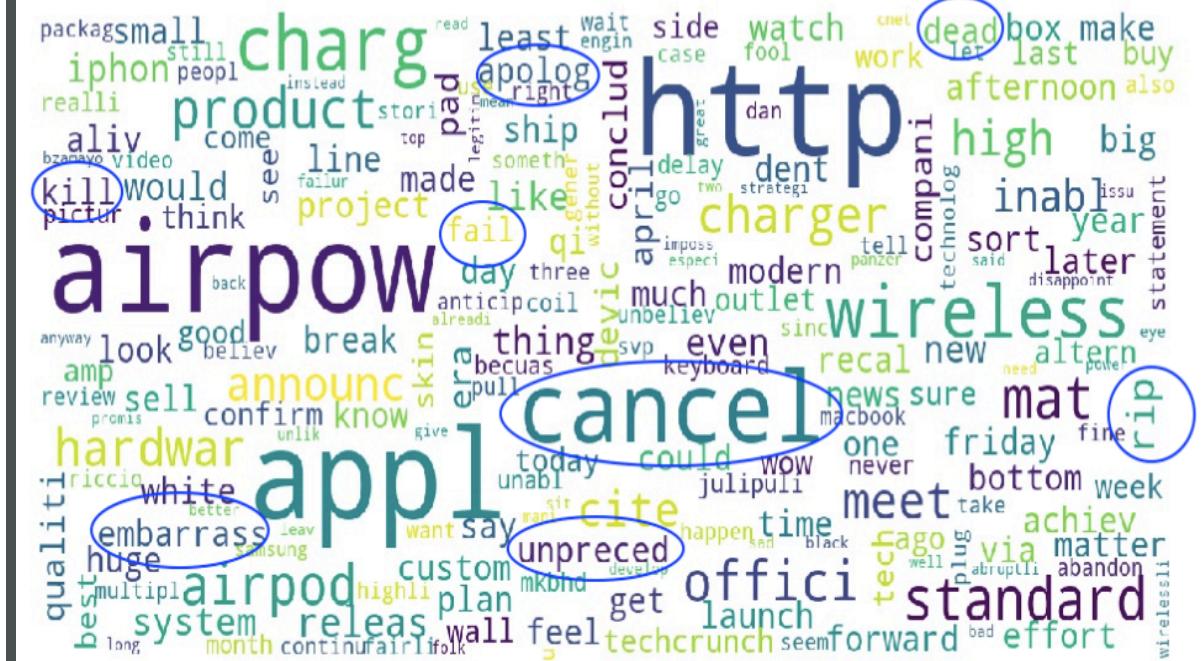


- People talk good things about Airpower
  - Excited to hear about the much-awaited airpower
  - Lot of expectations on when the airpower will get released

# After Cancellation

26513 tweets

**From 29th March- 4th April, 2019**



- Frustration of Cancellation
  - Negative sentiments flowing

## Emoji Analysis indicates the same !!

‘Emoji’ package

Excluding  
common emojis



“Naively, I expect Apple-level engineers to have a pretty good grasp of what is possible and what is not,” said Mr Segall, “and to have that grasp long before Tim Cook goes on stage to announce the product.”

“AirPower is not your stereotypical screwup. It’s something far grander,” he wrote in a [blog post](#). “Never in history has Apple announced a product, gone silent about it for 18 months, and then killed it before it ever shipped.”

<https://www.ft.com/content/7d09a192-579e-11e9-91f9-b6515a54c5b1>

### Before Cancellation

Emoji	Frequency
😊	48
😴	46
💡	44
😘	7
🙏	6
😍	6
😁	5
😢	5
🤣	5
⭐	4
🤔	4
😉	4
👀	4

### After Cancellation

😭	361
🥳	173
✿	146
🥔	146
🔁	131
🤣	90
😱	76
🤷	59
🙄	55
🔥	53
😘	49
👎	44
😭	32

## Network Explosion

### How did the network grow Before and After Cancellation

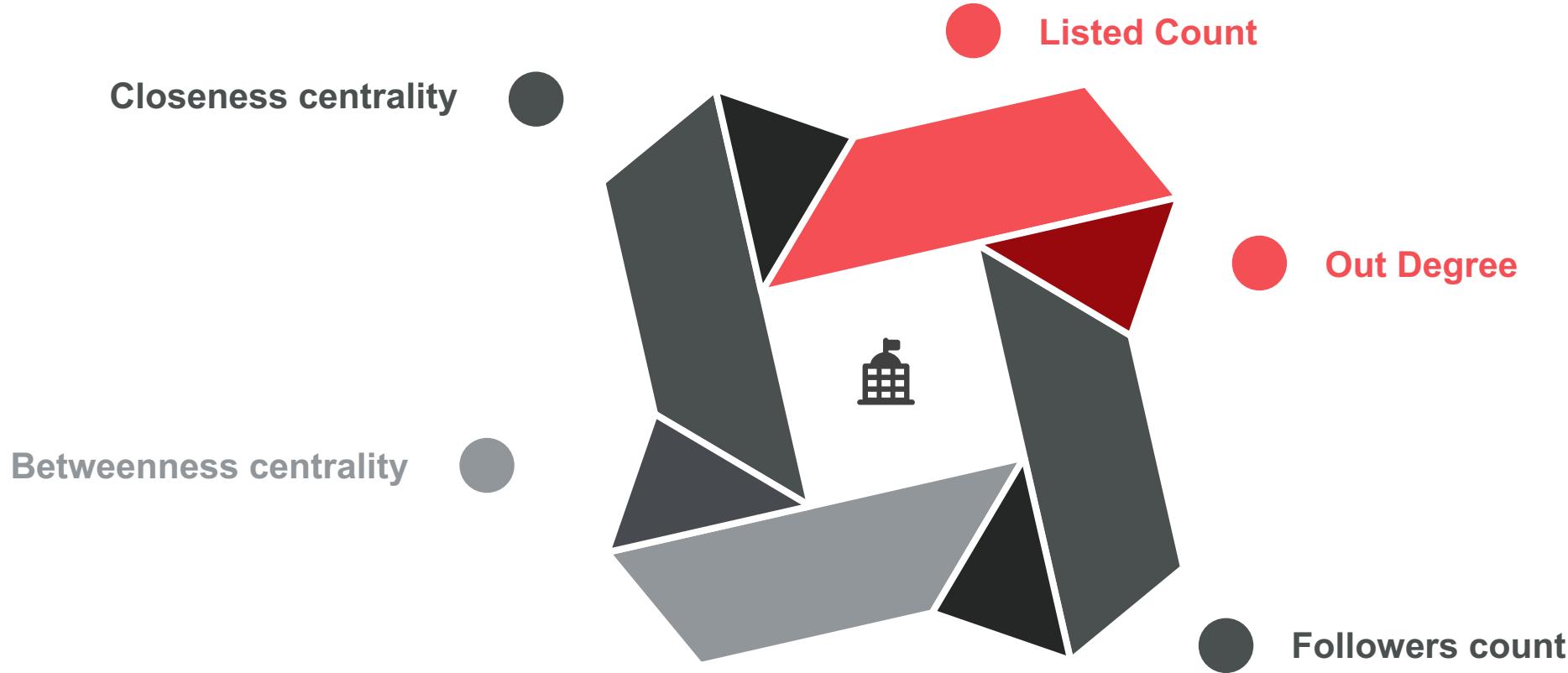
Cancellation →

Date	Nodes	Edges	% Increase Nodes	% Increase Edges
Before 29 <sup>th</sup> March, 2019	1969	2175		
29 <sup>th</sup> March, 2019	9441	12272	379%	464%
30 <sup>th</sup> March, 2019	13519	17838	43%	45%
31 <sup>st</sup> March, 2019	14078	18613	4%	4%
1 <sup>st</sup> April, 2019	15301	20224	9%	9%
2 <sup>nd</sup> April, 2019	15639	20732	2%	3%
3 <sup>rd</sup> April, 2019	15854	21056	1%	2%



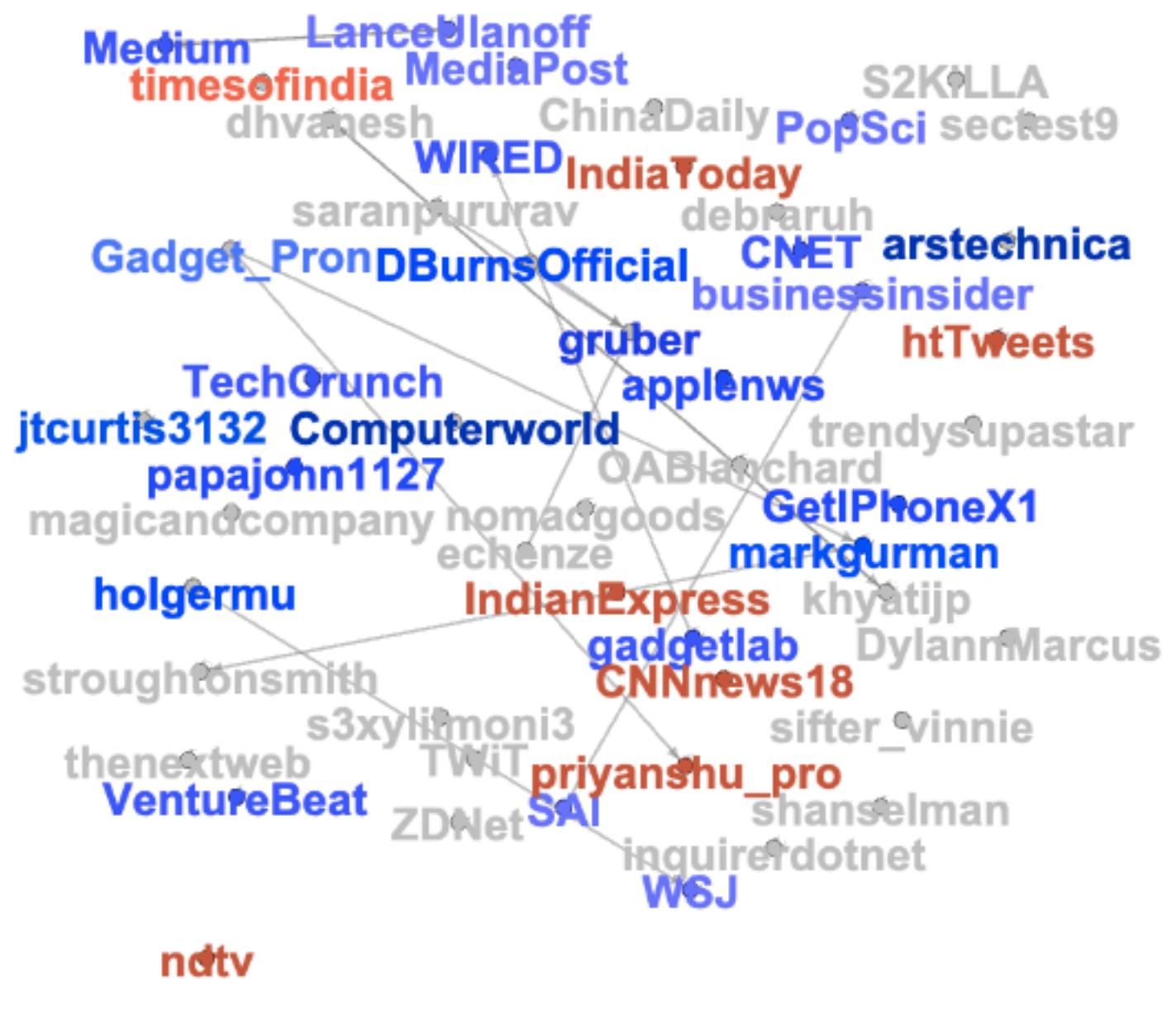
# Finding Top Influencers

Calculation of Top influencers



Equal weights to the 5 predictors after normalizing them between [0,1]

## **Who are the top influencers (Based on influence score)**



New York	(3.58%)
London	(3.46%)
India	(3.32%)
United States	(2.79%)
Los Angeles	(2.11%)
San Francisco	(1.96%)
Toronto	(1.5%)
United Kingdom	(1.5%)
Chicago	(1.44%)
Washington	(1.22%)
Mumbai	(1.16%)
Canada	(1.1%)
Houston	(0.89%)
Texas	(0.89%)
Boston	(0.88%)
New Delhi	(0.86%)
Atlanta	(0.86%)
Singapore	(0.74%)
Florida	(0.74%)
Austin	(0.72%)
Malaysia	(0.7%)
Seattle	(0.7%)
San Diego	(0.66%)
Dallas	(0.65%)
Philadelphia	(0.64%)

Blue · America

Red : India

Grey: Others

## Characteristics of Top 200 influencers

Positive or negative??



<b>is_positive</b>	
<b>Negative</b>	<b>106</b>
<b>Neutral</b>	<b>26</b>
<b>Positive</b>	<b>68</b>

Location??

City_Country	screen_name
Not Mentioned	82
New York	11
India	11
San Francisco	9
Seattle	5
United States	4
Asia	3
San Diego	3
Boston	3
Los Angeles	3
Hyderabad	2
Virginia	2
Singapore	2

Pivotal Tech-locations

Were the top influencers spreading Positive or negative sentiments in each location?

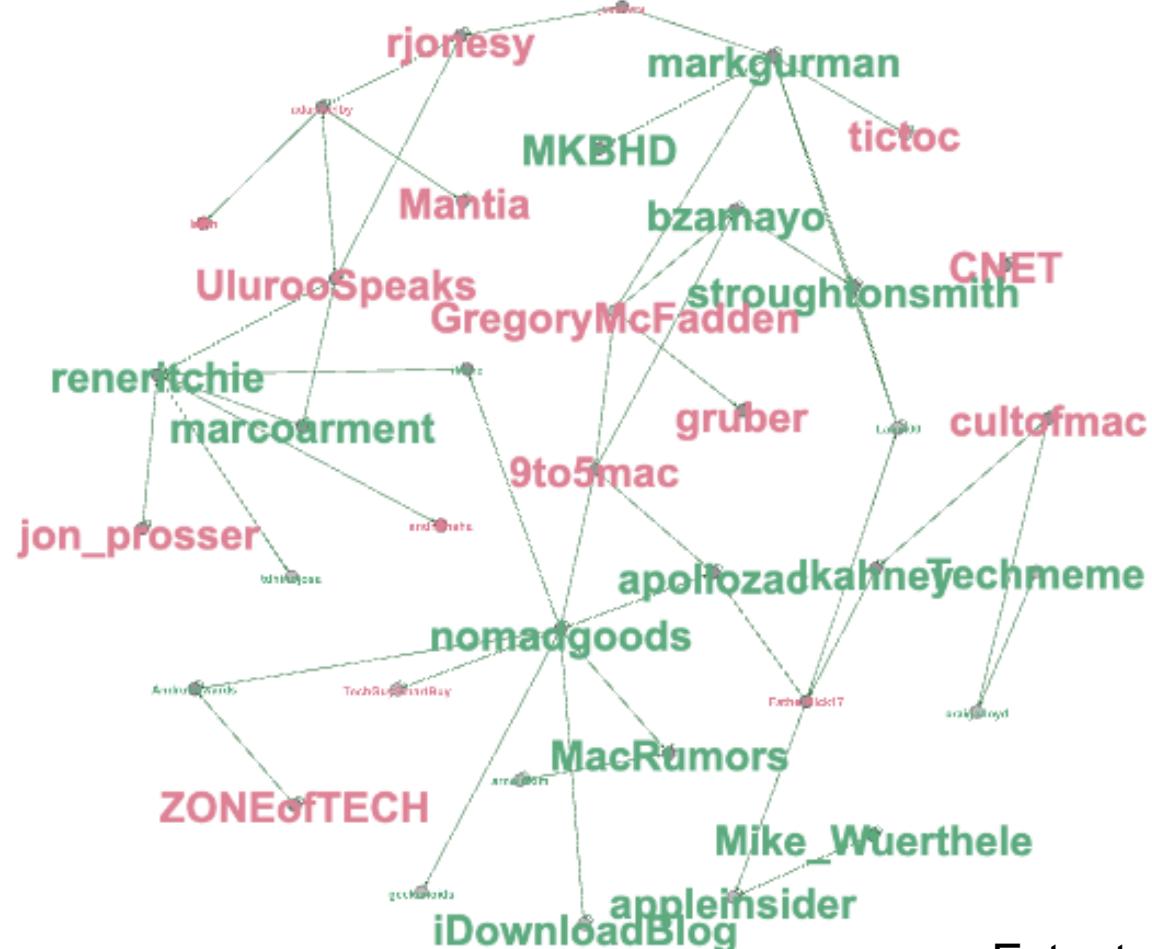
Zoom in

Country	Negative	Neutral	Positive
Not Mentioned	41	11	30
India	6	3	2
New York	5	1	5
San Francisco	5	0	4
Seattle	4	0	1
Ahmedabad	2	0	0
Asia	2	1	0
Atlanta	2	0	0
London	2	0	0
Los Angeles	2	0	1
Philadelphia	2	0	0
United States	2	0	2

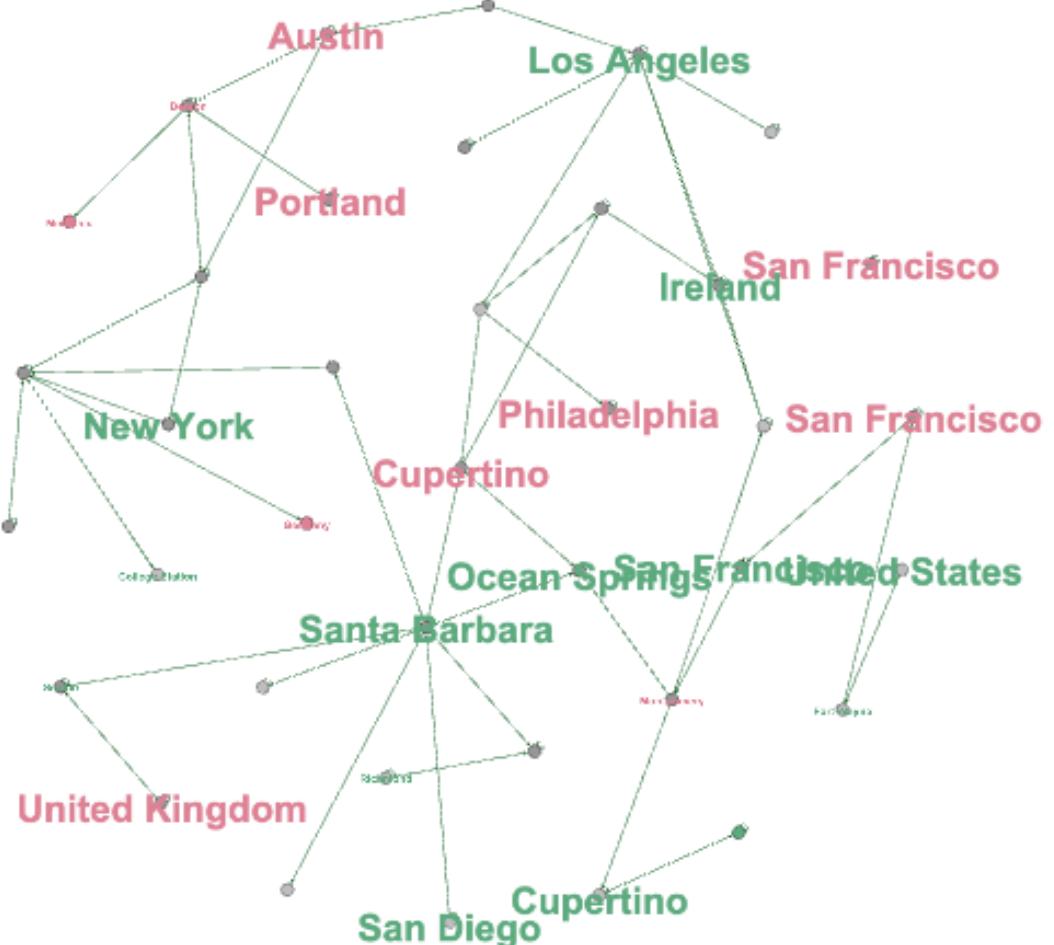
In most of the location, there are more negative influencers than positive influencers.

Who have the tendency to connect **diverse** people together? Where are they located? (Based on betweenness centrality)

# Who are they??



# Where are they from??

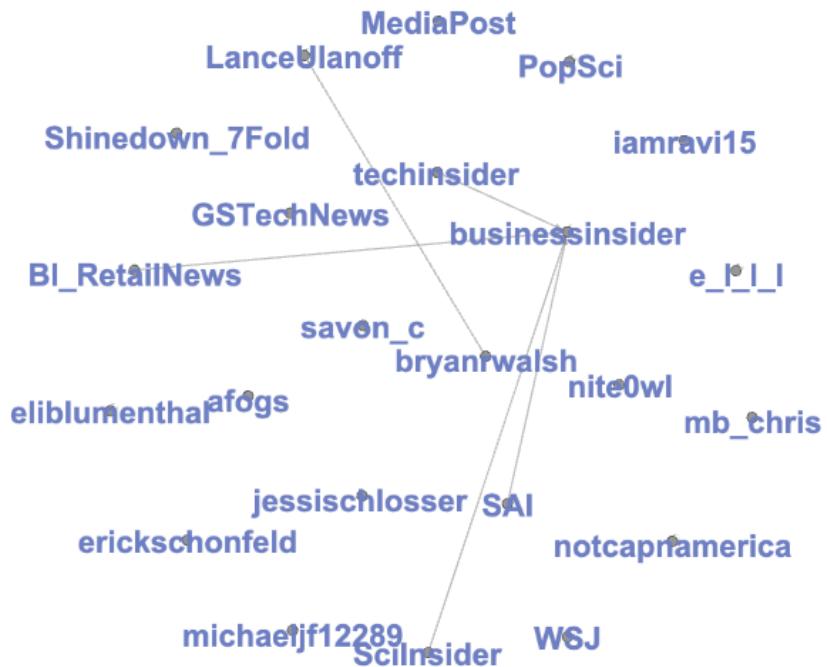


## Extent of Influence

- Influenced almost 1700 locations all across the globe.
  - These are excluding the locations which were incomprehensible from the extracted data.

## Some characteristics of Top influencers in each location

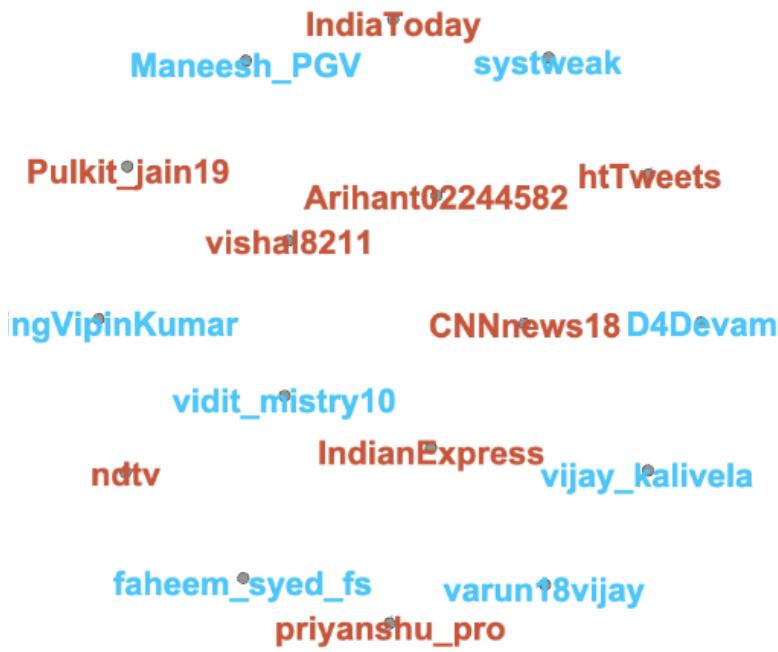
New York



London



India



## New York

**Bryan Walsh**

@bryanwalsh

Writer on science, health and the environment. Working on a book about existential risk for [@hachetteUS](#). Former international editor [@time](#).

**Lance Ulanoff**

@LanceUlanoff

The Upgrade tech columnist for Medium [medium.com/s/the-upgrade](#) Tech + Social Media expert. TV guy. YouTube: [bit.ly/2DIDKfp](#) Ex- [@Mashable](#), [@PCMag](#)

## London



### The Wireless News Solution

@wirelessbtw

We are your go to source for all the news in the world of wireless charging. Join the conversation using the [#wirelesscharging](#) hashtag.

**Faryaab Sheikh**

@Faryaab

I create content — technology x lifestyle // Former Editor-in-Chief @SamMobiles, Smartphone Expert @DotDashCo // hello@faryaab.com

**Alex Smith**

@AlexanderTSmith

UEA Law grad. Trainee Solicitor. Views my own. Bollocks to Brexit. Geeky about Apple, New Balance, and brands generally.

## India

**Varun Vijay**

@varun18vijay

News-Curator Content-Curator Political-Analyst Patriot (Subliminal/Hidden Messages Decoder) Trend-Spotter Retweets, Likes imply [#interesting](#), NOT endorsements



## Is it a Local Impact OR a Global Impact

The Impact is at a Global Scale

Influencers in some locations have a huge impact

01

02

03

Impact almost 1700 locations all over the world

# Recommendations



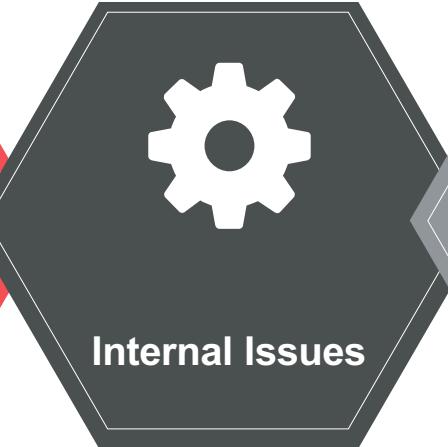
## Revise Online Marketing Strategies

- competition is fierce in tech industry
- Instead of letting rumors spread among individual users, consider use its official twitter account



## Use the power of Influencers

- Influencers have the power to spread negative sentiments, potential fake news
- Monitor, collaborations, sponsor, product testing, etc.



## Internal Issues

- Miscommunication, or even purposely hiding issues between the tech team and managerial teams
- Leading to this first ever outbreak
- More transparency and support



## Risk Forecasting

- Waited for almost 2 years
- Good to build anticipation, but need to be realistic and achievable



# Limitations



Data extraction

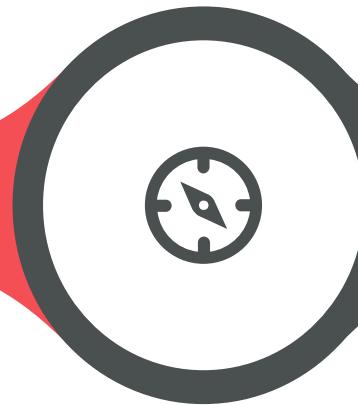
Number of tweets extracted were only from March 25, 2019 to April 4, 2019

Only 10 days..  
30,000 Tweets!!!



Basis on influencers

With more data, we can distinguish influencers who are always negative about Apple product not only because cancellation and assess their influence independently



Attributes of Users

Twitter API doesn't provide attributes of users  
Ex: Age, Gender



Location

Unclean locations: hard to get clean location insights

**location**

Oklahoma, USA

A future no one can predict.

In the Galaxy somewhere... <U+0001F30C>

In the Galaxy somewhere... <U+0001F30C>

The Great Wide Open

The Great Wide Open

The Great Wide Open